Catalog
2008–2009

Macomb Community College

Education • Enrichment • Economic Development

MACOMB COMMUNITY COLLEGE

2008–2009 *Catalog*

Macomb Community College is Accredited by
The Higher Learning Commission and a member of the North Central Association.
312.263.0456

Center Campus
44575 Garfield Road
Clinton Township, Michigan 48038-1139

South Campus
14500 E. 12 Mile Road
Warren, Michigan 48088-3896

East Campus
21901 Dunham Road
Clinton Township, Michigan 48036-1025

University Center
44575 Garfield Road
Clinton Township, Michigan 48038-1139

Michigan Technical Education Center℠ (M-TEC℠)
7900 Tank Avenue
Warren, Michigan 48092-3936

GENERAL INFORMATION 866.Macomb1 (toll free)
website: www.macomb.edu

While every effort is made to publish accurate information, the catalog cannot reflect changes made after its publication. Subsequent changes to better meet the needs of students and the community may become necessary. For the most current information, refer to the Macomb Community College website.

Macomb Community College

Welcome

Macomb offers more of the kinds of programs that will prepare you for life and work in the 21st century. Whether you're just starting college, retooling your career, or want to learn for the sheer adventure, there's more for you at Macomb.

From the latest in technology to personal attention from first-rate professors, Macomb offers you more of the advantages you need to succeed. Each semester, 30,000 students take classes here. For these reasons and more, over 500,000 students have attended Macomb in its over 50-year history serving Macomb County.

We are a commuter college with a campus life. There are student clubs to join, study trips to take, cultural programs to check out at the Performing Arts and Cultural Centers, and college athletic and other events at the Macomb Sports & Expo Center. Macomb offers quality, convenience, affordability, and more.

You can learn about our courses, programs, financial aid, counseling, tutoring, learning centers, libraries, and the bookstores through this catalog or on our website, but nothing beats one-on-one attention. College representatives are here to serve you so don't hesitate to ask for the help you need.

We are the college around the corner with a view of the world. Diversity in students and staff, courses and curriculums, and instructional delivery are among Macomb's greatest strengths.

We welcome you to Macomb and invite you to discover how Macomb Community College can make a difference in one life at a time: yours.

The Faculty and Staff of Macomb Community College.

Board of Trustees

Macomb Community College Trustees are elected county-wide and serve six-year terms without pay. Their terms of office are alternated in a manner that guarantees continuity of membership of at least four trustees from year to year. Vacancies are filled, as they occur, by Board appointment from volunteers in the community. Board members elect their own officers.

The Board's responsibilities include appointing a president, setting fiscal and operating policies, and making decisions that determine the long- and short-range direction of the College.

Nancy Falcone Sullivan
Chairperson

Roseanne DiMaria
Vice Chairperson

Connie Bolanowski
Secretary

Joseph DeSantis
Treasurer

Christine Bonkowski
Trustee

Frank DeSantis
Trustee

James F. Kelly
Trustee

Macomb Community College

Mission Statement

Vision

Macomb will continue to be a leading edge community college and the community's preferred choice for lifelong learning, cultural enrichment, and community development opportunities.

Mission

As a publicly funded and community-based institution of higher education, Macomb Community College provides a comprehensive program of high-quality educational, enrichment, and economic development experiences designed to promote individual growth and social improvement.

Organizational Goals and Purposes

Macomb Community College endeavors to maintain open, affordable, and lifelong access to an integrated continuum of learner-centered educational opportunities, personal enrichment experiences, and community development programs, including:

- **Transfer Education**, designed to offer courses that parallel university curricula and prepare students successfully to pursue a baccalaureate degree.
- **Career Preparation**, designed to prepare and qualify students for immediate employment and ongoing success in the world of work.
- **Learning Outreach**, designed to provide alternative delivery systems, personalized options, and community-based learning opportunities.
- **Advanced Studies**, designed to enable students to complete baccalaureate degrees, graduate programs, and continuing professional education experiences through affiliations with colleges, universities, and professional associations.
- **Student and Community Enrichment**, designed to provide artistic, athletic, cultural, co-curricular and personal enrichment experiences, and related community development programs.
- **Economic and Workforce Development**, designed to deliver customized learning experiences, specialized business support services, and continuing education offerings that rapidly respond to business and community needs.
- **Student Success Services**, designed to improve academic achievement, persistence, and the attainment of educational goals.

Approved by the Board of Trustees

December 20, 2005

Table of

Contents

Areas of Study 1

Assistance Directory. 2

Degree & Certificate Requirements at Macomb. 3–11

General Information (listed alphabetically) 12–62

Program Descriptions (listed alphabetically) 63–226

Course Descriptions (listed alphabetically) 227–396

Maps. 397-399

General Index 400-401

Macomb Community College

Areas of Study

Macomb offers nearly 200 degree and certificate programs in the areas of study listed below. There are degree, certificate, and transfer programs with associate's degrees of Arts, Science, Applied Science, Baccalaureate Studies, Business Administration, and General Studies.

Accounting
Advanced Processes
Anthropology
Applied Technology & Apprenticeships
Arabic Language & Culture
Architecture
Art
Astronomy
Automotive Technology
Biology
Biotechnology
Building Construction
Business
Business Communications
CAD/Computer Aided Design
Chemistry
Chinese Language & Culture
Civil Technology
Climate Control Technology
Clinical Laboratory Technology
College Survival Skills
Culinary Arts
Early Childhood Studies
Economics
Education
Electricity & Electronics
Emergency Medical Services
Engineering
English
English for Academic Purposes
Entrepreneurship
Environmental Science
Finance
Fire Science
Fluid Power Technology
French Language
Geography
Geology
German Language
Health Information Technology
Health Reciprocal Programs
History
Hospitality Management
Humanities
Hybrid Electric Vehicles
Information Technology–IT
International Studies
IT–Applications Software
IT–Computer Security
IT–Database
IT–Gaming
IT–Networking
IT–Operating Systems
IT–Programming
IT–Web
Italian Language
Journalism
Labor Management Relations
Law Enforcement
Legal Assistant
Life Career Development
Management
Manufacturing
Marketing
Mathematics
Mechatronics
Media & Communication Arts
Medical Assistant
Music
Natural Science
Nuclear Medicine Technology
Nursing
Occupational Therapy Assistant
Paraprofessional Education
Pastry Arts
Philosophy
Physical & Health Education
Physical Science
Physical Therapist Assistant
Physics
Plumbing & Pipefitting
Political Science
Pre-Engineering
Product Development
Psychology
Quality Systems Technology
Reading
Respiratory Therapy
Restaurant Management
Robotics
Sign Language
Social Science
Sociology
Spanish Language
Speech
Stationary Steam
Surgical Technology
Surveying Technology
Theater Arts
Veterinary Technician
Welding

Note: Most Areas of Study listed above have a detailed listing in the Program Descriptions section of this catalog (beginning on page 63).

For more information, visit our website at www.macomb.edu or call 866.Macomb1 (toll free).

Assistance Directory

(all 586 Area Code—a complete department and employee directory is on the website.)

	CENTER CAMPUS BLDG/ROOM	CENTER CAMPUS PHONE	SOUTH CAMPUS BLDG/ROOM	SOUTH CAMPUS PHONE
Admissions	G–120	445.7225	G–301	445.7225
Apprenticeship Programs			R–124	445.7438
Athletics			P–152	445.7512
Bookstore	P–117	286.2093	K–240	445.7385
College Police	I–103	286.2123	C–116	445.7135
Career Services	G–102	445.7321	S–147	445.7321
Cashier	G–122	286.2083	G–302	445.7198
Center for Continuing Education	H–220	226.4800	D–212	498.4000
Conference and Event Services			K–350	498.4198
Counseling & Academic Advising Services	G–132	286.2228	H–316	445.7211
Emergency Phone		Dial 911		Dial 911
Enrollment Office	G–120	445.7255	G–301	445.7225
Financial Aid	G–127	445.7228	H–305	445.7228
Financial Services	S–300	445.7336		
General Information		445.7999	G–301–2	445.7999
International Students	G–120	445.7255	G–301	445.7225
Learning Centers	C–116	286.2203	J–325	445.7400
Learning Outreach	H–114	286.2157		
Library	C–151	286.2104	J–224	445.7401
Macomb Center for the Performing Arts	M–125	286.2222		
Nature Education Areas		286.2147		445.7106
Placement Testing	F–103	286.2027	H–217	445.7423
Public Service Institute	A–126	286.2189		
Registration	G–120	445.7255	G–301	445.7225
Scholarships	G–127	445.7228	H–305	445.7228
Single Parent/Displaced Homemaker Program			H–311	445.7003
Special Services Department	G–131	286.2237	H–320	445.7420
Sports & Expo Center			P–152	445.7346
Student Activities	P–127	286.2242	K–251	445.7446
Student Center, John Dimitry	P–126	286.2086		
Student Center, John Lewis			K–320	445.7531
Tutoring	C–116	286.2203	J–325	445.7400
University Center	U–100	263.6018		
Workforce Development Institute			M–TEC–104	498.4100

Email: ANSWER@MACOMB.EDU

Degrees & Certificates

Common Degree Outcomes

Degrees Offered at Macomb

- Associate of Arts
- Associate of Science
- Associate of Applied Science
- Associate of Baccalaureate Studies
- Associate of Business Administration
- Associate of General Studies

Certificates Offered at Macomb

- Certificates in Career Programs
  - Skill Specific Certificates (see page 46)
- Certificate in General Studies
- Certificates in Applied Technology & Apprenticeship

Common Degree Outcomes

Macomb Community College is committed to the continual improvement of teaching and learning. To reflect this commitment Common Degree Outcomes are provided to help establish a structured environment within which students will realize their educational goals. Therefore, associate's degree recipients are expected to have met the following outcomes as appropriate to the student's program.

The graduate can integrate the knowledge and technological skills necessary to be a successful learner.

- The student will be able to utilize technology to generate work and effectively communicate with others.
- The student can locate, analyze, evaluate, and critique information resources.
- The student will be able to responsibly and ethically use and properly attribute information resources.

The graduate can demonstrate how to think competently.

- The student will be able to identify problems, approach them systematically, and explore viable solutions.
- The student will be able to evaluate the reasoning and arguments and evidence offered by others.

The graduate can demonstrate how to employ mathematical knowledge.

- The student can apply the concepts of math.
- The student can use quantitative data in everyday life.
- The student can evaluate quantitative information.

The graduate can demonstrate how to communicate competently.

- The student's written and oral work is organized, and the development is appropriate to the task and to the arguments presented by the student.
- The student can clearly distinguish between his ideas and those of others in both written and oral communication.
- The student's written work follows the conventions of standard written English in punctuation, grammar, and spelling.

The graduate is sensitive to issues relating to a diverse, global society.

- The student will have an understanding and appreciation of multicultural factors and their personal, professional, and societal significance.
- The student will grasp technological, scientific, and economic advances in the context of their broader societal and international impact.
- The student will have an understanding and appreciation of diverse geographical, historical, sociological, and psychological viewpoints.

Macomb Community College

Board Policies

Awarding of Associate's Degrees and Academic Certificates

ASSOCIATE'S DEGREES

Associate of Arts Degree

The Associate of Arts (AA) degree is intended to provide a basic foundation for a Bachelor of Arts degree program. A minimum of 62 credit hours with at least a 2.0 grade point average is required. A minimum of 15 semester hours of credit must be earned at Macomb. To be eligible for a degree the student must complete the courses required within the specialty as well as the required General Education Core courses.

Associate of Applied Science Degree

The Associate of Applied Science (AAS) degree is intended to provide the preparation necessary for potential employment in an occupational specialty. A minimum of 62 credit hours with at least a 2.0 grade point average is required. A minimum of 15 semester hours of credit must be earned at Macomb. Eighteen credit hours from the Liberal Arts and Sciences group requirements must be met with courses numbered 1000 or above and the student must complete the courses required within the specialty as well as the required General Education Core courses.

Associate of Baccalaureate Studies Degree

The Associate of Baccalaureate Studies (ABS) degree is designed for students whose educational goal is to complete a bachelor's degree at a specific college or university. A minimum of 62 credit hours in a Formalized Transfer Plan and compliance with the requirements of the plan, along with at least a 2.0 grade point average or the GPA specified in the transfer plan, whichever is higher, are all required. Formalized Transfer Plans are written agreements between Macomb Community College and senior (2-year and 4-year) colleges and universities. A current list of eligible transfer plans will be available on the College's website and will be programmed into the student information system degree audit module. Consulting a counselor and/or advisor is strongly recommended when pursuing this degree.

Associate of Business Administration Degree

The Associate of Business Administration (ABA) degree is intended to provide a basic foundation for transfer to a Bachelor of Business Administration program, or entry-level positions in the business field. A minimum of 62 credit hours with at least a 2.0 grade point average is required. A minimum of 15 semester hours of credit must be earned at Macomb. Eighteen credit hours from the Arts & Sciences group requirements must be met with courses numbered 1000 or above and the student must complete the courses required within the Business Program granting the ABA.

Associate of General Studies Degree

The Associate of General Studies (AGS) degree is intended for those who wish to follow an individualized educational plan. A minimum of 62 credit hours with at least a 2.0 grade point average is required. A minimum of 15 semester hours of credit must be earned at Macomb. The 62 credit hours may include courses numbered below 1000.

Associate of Science Degree

The Associate of Science (AS) degree is intended to provide a basic foundation for a Bachelor of Science degree program. A minimum of 62 credit hours with at least a 2.0 grade point average is required. A minimum of 15 semester hours of credit must be earned at Macomb. To be eligible for a degree the student must complete the courses required within the specialty as well as the required General Education Core courses.

Second Associate's Degree

A second associate's degree may be awarded if, in addition to the general requirements for an associate's degree, (1) all group and core requirements for the second degree are met, and (2) the student has earned a minimum of 77 credit hours. A minimum of 15 semester credit hours must be earned at Macomb for each degree awarded.

ACADEMIC CERTIFICATES

Certificate in General Studies

A certificate in General Studies is awarded to those who complete a minimum of 30 semester hours of credit with a minimum cumulative grade point average of 2.0. A minimum of 15 semester credit hours of credit must be earned at Macomb. Courses numbered below 1000 may be included.

Certificates in Career Programs

A certificate is awarded to those who complete the work specified in various career programs. A minimum cumulative grade point average of 2.0 is required.

Certificates in Applied Technology & Apprenticeship

There are a variety of certificates available to be earned in skilled trades & apprenticeship programs. The student is required to complete the work specified in the approved program (20-38 semester hours), with a minimum cumulative grade point average of 2.0. A minimum of 15 semester hours must be earned at Macomb.

Specialty Certificates

There are a variety of specialty training certificates that are offered by Macomb. To be eligible for a certificate a student must complete the courses required within the specialty.

College-Wide Courses and Programs

All curricular offerings by Macomb Community College may be scheduled and made available at any approved location. Certain specialized programs and courses will be offered only at a specific campus. The location of all courses and/or programs will be published in the College catalog, in the schedule of classes and on the College website at www.macomb.edu.

STATEMENT PERTAINING TO DEGREES & CERTIFICATES

Program Completion: Two-Year/Seven-Year Rule

Students at Macomb may obtain a certificate/degree by completing the program as outlined in the catalog requirements under which they entered the institution or by fulfilling the catalog requirements in the year they intend to graduate.

A student who has not been enrolled for 2 consecutive years or longer must follow the catalog that is in effect the semester upon re-enrollment to the College.

Students will have a maximum of 7 years to complete their certificate/degree. Departments may place additional restrictions on the amount of time that individual courses can be used to apply toward the fulfillment of certificate/degree requirements. Departments may grant exceptions to the 7 year limits for students pursuing an applied science or general studies degree who are returning to college after more than a 2-year absence if they can demonstrate continued proficiency in courses previously taken, or if they have earned equivalent certifications elsewhere. Students should consult with their departments before assuming they need to "start over."

Arts and Sciences Group Concentrations Required for Associate of Arts (AA) Degree

Courses are to be selected from each of the Arts and Sciences groups. (Senior colleges usually require 6–8 semester hours in each of Groups I–IV, not counting performance, studio or applied techniques courses.) Courses offered by other divisions of the College shall not be substituted for the Arts and Sciences group requirement courses. It is recommended that the composition/communication course in Group I be started within the first fifteen (15) hours of the degree.

Courses numbered below 1000 will not count toward the Associate of Arts degree.

For information on course placement in chemistry, English, English for Academic Purposes, mathematics, and reading: see academic placement procedures on page 13. **Contact a counselor or academic advisor if you need help choosing the appropriate course**.

Arts and Sciences Group Concentrations for Degree Requirements **Group Area/Courses Include**	**Minimum/Range Degree Requirements 32–39 Semester Hours**
I. ENGL-1210 or ENGL-1180 and ENGL-1220 or ENGL-1190	6–8 Semester Hours
One course from each of two (2) of the following subgroups:* II. A. Astronomy, Chemistry, ENVS-1050, Geology, NATS-1210, NATS-1310, PHSA-1050, or Physics II. B. Biology (except BIOL-2110), ENVS-1050, NATS-1200, or NATS-1310 II. C. Mathematics (1000 or above) * NOTE: ENVS-1050 or NATS-1310 may fulfill either A or B, but not both	7–8 Semester Hours
III. A. One course in Economics, Geography, History, Political Science (except POLS-1000), or SOSC-1010 III. B. One course in Anthropology, Psychology, Sociology, or SOSC-1010 III. C. POLS-1000, or HIST-2100 and HIST-2200 NOTE: Students may fulfill the requirements of both IIIA and C by selecting HIST-2100 and HIST-2200. SOSC-1010 may fulfill either IIIA or B, but not both	9–12 Semester Hours
IV. Art, Creative Writing, Foreign Languages (1260 or above), Humanities, Literature (2000 and above), Music, Philosophy, Theater Arts NOTE: Classes must be taken from at least two of the academic areas listed except when a foreign language is selected	8–9 Semester Hours
V. Any PHED Wellness course—2000 or above	2–3 Semester Hours

Arts and Sciences Group Concentrations Required for Associate of Science (AS) Degree

Courses are to be selected from each of the Arts and Sciences groups. Courses offered by other divisions of the college shall not be substituted for the Arts and Sciences group requirement courses. It is recommended that the composition/communication course in Group I be started within the first fifteen (15) hours of the degree.

Courses numbered below 1000 will not count toward the Associate of Science degree.

For information on course placement in chemistry, English, English for Academic Purposes, mathematics, and reading: see academic placement procedures on page 13. **Contact a counselor or academic advisor if you need help choosing the appropriate course**. It is important to note that the programs in **pre-engineering** and **pre-medical** studies associated with this degree assume a strong preparation in English composition, mathematics, and science.

Arts and Sciences Group Concentrations for Degree Requirements **Group Area/Courses Include**	**Minimum/Range Degree Requirements 23–30 Semester Hours**
I. ENGL-1210 or ENGL-1180 and ENGL-1220 or ENGL-1190	6–8 Semester Hours
II. One course in Biology or Chemistry, Physics or Geology and one course in Mathematics (1450 or above)* *MATH-1420 and MATH-1430 may substitute for MATH-1450	6–8 Semester Hours
III. Two courses from any of the following: Geography, History, Political Science, SOSC-1010, Economics, Anthropology, Psychology, Sociology	6–8 Semester Hours
IV. Art, Creative Writing, Foreign Languages (1260 or above), Humanities, Literature (2000 and above), Music, Philosophy, Theater Arts	3–4 Semester Hours
V. Any PHED Wellness course—2000 or above	2–3 Semester Hours

Arts and Sciences Group Concentrations Required for Associate of Applied Science (AAS) Degree

A minimum of one course from each of the five Arts and Sciences groups must be selected. Courses numbered below 1000 may count as electives toward the Associate of Applied Science degree, however, all Arts and Sciences requirements must be satisfied by courses numbered 1000 or higher. Associate of Applied Science (AAS) degree requirements are met by taking the required core courses and the Arts and Sciences courses.

Arts and Sciences Group Concentration for Degree Requirements **Group Area/Courses Include**	**Minimum Degree Requirements 18 Semester Hours**
I. A. ENGL-1180 or ENGL-1210	1 Course
I. B. Other English Composition, Reading or Speech	*(See Note below)
II. Astronomy, Biology, Chemistry, Environmental Science, Geology, Mathematics, Natural Science, Physical Science, Physics	1 Course
III. Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Social Science	1 Course
IV. Art, Creative Writing, Foreign Language, Humanities, Literature, Music, Philosophy, Theater Arts	1 Course
V. Any PHED Wellness course—2000 or above	1 Course

For further information concerning placement in English, chemistry, mathematics and reading:

	SOUTH CAMPUS	**CENTER CAMPUS**
ENGL & READ	586.445.7138	586.286.2145
CHEM	586.445.7106	586.286.2147
MATH	586.445.7105	586.286.2258

***NOTE:** If students take one course from each of Groups I A, II, III, IV, and V, and still have taken less than the minimum of 18 semester hours of arts and sciences courses required for the AAS degree, they may elect additional hours from Groups I B, II, III, IV, or V, to satisfy minimum degree requirements.

Arts and Sciences Group Concentrations Required for Associate of Baccalaureate Studies (ABS) Degree

The Associate of Baccalaureate Studies (ABS) degree is designed for students whose educational goal is to complete a baccalaureate degree by first earning an associate's degree at Macomb Community College and then transferring to a senior college or university (including colleges and universities housed at Macomb Community College's University Center) to complete their baccalaureate degree.

To be eligible for an ABS degree, students must complete a minimum of 62 semester hours, of which a minimum of 32 semester hours must be earned in Arts and Sciences courses numbered 1000 and above. The minimum semester hours required for groups of Arts and Sciences courses are as follows:

Arts and Sciences Group Concentration for Degree Requirements **Group Area/Courses Include**	**Minimum Degree Requirements 32 Semester Hours**
I. ENGL-1180 or ENGL-1210 and ENGL-1190 or ENGL-1220	6-8 Semester Hours
II. Mathematics or Science	3-4 Semester Hours
III. Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Social Science (SOSC-1010)	3-4 Semester Hours
IV. Art, Creative Writing, Foreign Language (1260 or above), Humanities, Literature (2000 and above), Music, Philosophy, Theater Arts	3-4 Semester Hours
V. Physical and Health Education/Wellness *May be waived if Physical and Health Education is not a general education requirement in the student's transfer plan	2-3 Semester Hours
VI. Completing the additional requirements of an Articulated Transfer Plan for a total of at least 32 semester hours in Arts and Sciences courses.	9-15 Semester Hours

Articulated Transfer Plans are written agreements between Macomb Community College and senior colleges and universities. These plans include courses which satisfy the general education requirements of the senior institution, foundation courses in the student's intended major, and electives which will transfer and be counted toward a student's degree completion at the senior institution. An Articulated Transfer Plan will also indicate dates within which the plan is recognized by the senior institution.

The minimum grade point average needed to earn an Associate of Baccalaureate Studies degree is 2.0. Some colleges and universities require a grade point average higher than 2.0, and may specify a minimum grade which must be earned in each transfer course. These additional requirements will be indicated in the Articulated Transfer Plan and must be met by students following those plans in order to earn an Associate of Baccalaureate Studies degree.

Because there are many Articulated Transfer Plans and optional courses are available within plans, students are strongly urged to work with a College Counselor or Advisor on the selection of Transfer Plans and courses within plans. Students who follow Transfer Plans and/or select courses within Transfer Plans without consulting with a Counselor or Advisor may or may not accurately fulfill the requirements for the Associate of Baccalaureate Studies degree.

Arts and Sciences Group Concentrations Required for Associate of Business Administration (ABA) Degree

The Associate of Business Administration (ABA) degree is designed to provide students with a broad foundation in business principles. Business programs granting the ABA degree include Accounting, Business Management, Finance, General Business, Hospitality Management and Marketing.

To be eligible for an ABA degree, students must complete

- a minimum of 62 semester hours, of which a minimum of 18 semester hours must be earned in Arts and Sciences courses numbered 1000 and above AND
- the Business Administration degree Common Core Requirements AND
- the requirements for the specific business program selected.

Arts and Sciences Group Concentration for Degree Requirements **Group Area/Courses Include**	**Minimum Degree Requirements 18 Semester Hours**
I. A. ENGL-1180 or ENGL-1210	1 Course
I. B. Other English Composition, Reading or Speech	*(See Note Below)
II. Astronomy, Biology, Chemistry, Environmental Science, Geology, Mathematics, Natural Science, Physical Science, Physics	1 Course
III. Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, Social Science	1 Course
IV. Art, Creative Writing, Foreign Language, Humanities, Literature, Music, Philosophy, Theater Arts	1 Course
V. Any PHED Wellness course - 2000 or above	1 Course

*Note: If students take one course from each of Groups IA, II, III, IV, and V, and still have taken less than the minimum 18 semester hours of arts and sciences courses required for the ABA degree, they may elect additional hours from Groups IB, II, III, IV, or V, to satisfy minimum degree requirements.

Associate of Business Administration Degree Common Core Requirements		
ITCS-1010	Computer and Information Processing Principles	4
BUSN-1010	Business Enterprise	3
BUSN-1080	Business Law 1	4
BCOM-2050	Business Communications	4
*ACCT-1050	Financial Record Keeping	4
— OR —		
*ACCT-1060	Fundamental of Accounting for Hospitality	4
— OR —		
*ACCT-1070	Accounting for Entrepreneurs	3
— OR —		
*ACCT-1080	Principles of Accounting 1	4
MGMT-1010	Principles of Management	3
MKTG-1010	Principles of Marketing	3
		24-25

Students selecting an ABA degree in	**must take**
Accounting or Finance	ACCT-1080
Marketing	either ACCT-1070 or ACCT-1080
Business Management or General Business	either ACCT-1050 or ACCT-1070 or ACCT-1080
Hospitality Management	either ACCT-1060 or ACCT-1080

General Information

(listed alphabetically)

Admissions/Registration

Macomb Community College is an equal opportunity, equal access college with an open-door admission policy.*

* On the basis of its institutional philosophy and in compliance with Title IX of the Education Amendments of 1974 (PL 93-380), Macomb Community College does not discriminate in its programs or activities on the basis of sex, race, religion, nationality, age, or physical handicap.

Who May Apply:

Admission is open to any citizen or permanent resident of the United States whose high school class has graduated or is at least 18 years of age. There are no admission requirements for continuing education students.

If you do not have a high school diploma or GED and are interested in obtaining one, please contact the Information Center, 586.445.7999.

How to Get Started:

New Macomb Students

1. **Complete an Online Application for Admission. Applications are also available in the Enrollment Office, or on Macomb's website.**

   Submit the completed application form to either:

   Center Campus
   Enrollment Office G-120
   44575 Garfield Road
   Clinton Township, MI 48038-1139

   South Campus
   Enrollment Office G-301
   14500 E. 12 Mile Road
   Warren, MI 48088-3896

2. **Apply for Financial Aid** (optional) by completing the free Application for Federal Student Aid (FAFSA) and the Macomb Community College financial aid application. See page 33 for additional information.
3. **Complete placement testing** where your mathematics, reading, and English skills are evaluated to ensure proper course selection in these areas. Macomb Community College uses the untimed computer adaptive COMPASS placement test to determine student skills. Sessions are generally available throughout the week on a walk-in basis during posted hours. Students with disabilities need to contact Special Services to arrange for appropriate accommodations. It is important you attend a placement testing session at the earliest opportunity to avoid last minute scheduling problems and registration delays.

Applicants whose first language is not English follow the usual admission procedures but take the COMPASS/ESL placement test for appropriate course placement.

Once placement testing is completed, you will be referred to the Counseling and Advising Office where staff will present you with options for completing New Student Orientation and Course Planning.

Exemption to placement testing is granted for the following reasons:

- Contracted education programs for predetermined populations.
- A one-semester grace period for degree/certificate students entering the College too late to take the placement test and attend a counseling and course planning session. That is, students will be allowed to register for the term but must take the test and attend this session prior to registering again.*
- A 16 credit hour grace period for students who are taking a course(s) for a skill specific certificate or personal reasons.*
- Transfer students who have successfully completed 15 hours or more at another college and who have successfully completed English composition and mathematics courses are exempt from placement testing.
- Guest students are exempt from placement testing. If a guest student wishes to take a mathematics or English course with a prerequisite of "placement", the guest student may receive a waiver of the placement requirement, except for English for Academic Purposes courses.
- Early admit high school students are exempt from placement testing until admitted into the College as a regular student and/or until placement is needed.*
- Students who have completed an associate's, bachelor's or graduate level degree that includes the completion of college level English or mathematics course(s).

* These students may enroll but cannot register in English, mathematics, English for Academic Purposes or reading courses.

■ Academic Placement Procedures for Arts and Sciences Courses Requiring Placement:

Macomb College requires that students participate in Student Success Services. The following guidelines are an integral part of the evaluation process to ensure success for each student in: English, mathematics, reading, and English for Academic Purposes.

Students who want to register for a beginning composition, beginning mathematics, reading, or English for Academic Purposes course must complete placement testing. Placement testing results will determine which courses the students should take in order to be successful.

Placement for English for Academic Purposes is a mandatory two part process. Students whose native language is not English will take the COMPASS/ESL placement test. They will be given an initial placement and register for the indicated course. During the beginning of the course, faculty will determine, based on the writing evaluation, if the student should stay in that course or move to another level.

Placement testing should be completed early so students can schedule orientation, and course planning sessions that are required of new students.

Students should call the placement testing office at Center Campus (586.286.2027) or South Campus (586.445.7423). For information about English for Academic Purposes please call South Campus (586.445.7138) or Center Campus (586.286.2145).

Students who wish to register for the following courses can register only for the specific course for which their COMPASS placement scores qualify them (or a lower level course, but not a higher level one):

- English composition: ENGL-0050, ENGL-1180 or ENGL-1210.
- English for Academic Purposes (formerly English as a Second Language): All EAPP. Note: Students whose native language is not English must begin with the COMPASS/ESL test.
- Mathematics: In order to register for certain mathematics courses, students must either obtain a COMPASS score high enough to qualify them for registration, or meet the prerequisite(s) described for each course in the course catalog. The following mathematics courses fall into this category: MATH-0070, MATH-1000, MATH-1280, MATH-1340, MATH-1360, MATH-1370, MATH-1421, MATH-1430, MATH-1460, MATH-1760, or MATH-2200.

There will be no exceptions to the above practice, and no administrative override of placement scores.

Students who feel they can improve their COMPASS or COMPASS/ESL scores can retake the test once after a 24-hour period. If they retake the test and qualify for a higher level course, they can register for an open section of the higher level course in the next enrollment period.

Additionally, mathematics and English instructors, after reviewing a sample of a student's work, may recommend to the associate dean that a student be permitted to move to another level of class, either higher or lower, if room is available during the prescribed mobility period. Students in mathematics classes can also initiate such movement on their own. Waivers, if necessary, will be granted by the department.

Score guidelines can be viewed on our website at macomb.edu.

Chemistry

- Students intending to register for CHEM-1170 must pass CHEM-1050 with grade C or better and MATH-1000 proficiency (demonstrated by math placement score; completing MATH-1000 with grade C or better; being enrolled in higher level math or having higher level math on transcript) OR a passing score on the American Chemical Society Placement Test.
- The chemistry placement exam can be taken in either Learning Center (Center Campus: 586.286.2203, G-133; South Campus: 586.445.7400, J-305)

4. New Student Orientation/Course Planning Session

- Following placement testing, students are required to complete a New Student Orientation/ Course Planning Session.
- The New Student Orientation /Course Planning Session is designed to familiarize students with the college and our registration process.
- Macomb offers two options for Orientation:
  - On-Campus: A group presentation that is conducted by our professional staff. Following the presentation, students will meet briefly with a member of our professional staff who will provide individual assistance with course recommendations for the first semester.
  - Online: This option consists of two parts. First, the student completes the online portion of the Orientation available through Macomb's website. Second, the student must come on campus for the Course Planning Session. During this session, the student will meet briefly with a member of our professional staff who will provide individual assistance with course recommendations for the first semester.
- A complete schedule of group and individual orientation sessions and orientation sessions for students with special needs can be obtained in the Counseling and Advising Center or by visiting www.macomb.edu.
- A follow-up appointment may be necessary to further investigate career options, programs of study, transfer institutions, etc.

5. There Are Three Ways To Register:

- **Web-Reg**

  Web-Reg is a method for students to register for classes by using our website. You can also determine if a class section is available, add a section, drop a section, obtain account balance, receive payment information, or pay for classes with a credit card. Complete instructions are listed on our website and in the Schedule of Classes which is available before each term.

- **Tel-Reg**

  Tel-Reg is a method for students to register for classes using a touch-tone telephone. A student can also determine if a class section is available, add a section, drop a section, obtain account balance or receive payment information. Complete instructions are listed on our website and in the Schedule of Classes which is available before each term.

- **On-Campus Registration**

  In person at designated times of the registration period.

Former Macomb Students

If you have missed more than two years, you must complete an Update form and provide current proof of residency. The difference in fees, because of a change in residency status (resident, non-resident, non-resident of Michigan/foreign, or affiliate), will not be refunded if proof is submitted after you register.

Contact the Enrollment Office at Center Campus G-120 at 586.445.7225 or South Campus G-301 at 586.445.7225 to update your address and student record.

High School Early Admissions Requests Guidelines

The High School Early Admission process begins with an agreement between the student, his or her parent and the student's authorized high school official. High school students may be considered for college course offerings in which they meet any prerequisite and/or placement testing requirements.

Early admission registration may occur once the following conditions have been met:

1. A new applicant to Macomb Community College has filed an official Application for Admission to the Enrollment Services office.
2. The applicant has completed the new student COMPASS Placement test and the New Student Orientation/Course Planning requirement.
3. The student has filed a completed High School Early Admissions Request form to the Enrollment Services office.

   3.1. Students applying under the Post Secondary Enrollment Options Act (Dual Enrollment) must provide a Dual Enrollment Authorization letter from their school district each semester to Macomb's Financial Services office specifying semester and course approved for payment under Public Act 160.
4. The student has been granted Early Admission status by the College prior to registering for classes.

Please refer to "Secondary Education (High School) Outreach" in the current Macomb Community College Catalog for various High School Early Admission program opportunities *(see p. 46).*

The Macomb Community College Early Admission Request form, as well as the Application for Admission, may be printed from Macomb's website at www.macomb.edu.

Additional questions and inquiries may be directed to the Coordinator of Admissions at 586.445.7255; email earlyadmit@macomb.edu or by writing to:

Macomb Community College Enrollment Services
High School Early Admissions Office
14500 E. 12 Mile Road
Warren, MI 48088-3896

Guest Students

Students who attend another college or who graduated from high school and are awaiting the start of the next term at their 'home' institution may be admitted to Macomb Community College as a guest student.

Macomb's academic course policy requires the successful completion of prerequisite coursework for all students including guest students. Even though a counselor or academic advisor at your 'home' institution may have approved registration in certain courses, the prerequisite requirements for Macomb courses will be enforced. For more information regarding the specific prerequisites for any course, please refer to Macomb's website or catalog.

The following is required:

- Macomb's Application for Admission indicating you will be a guest student under question #17 or Michigan Uniform Guest Application Form. For students using the Michigan Uniform Undergraduate Guest Application form to attend Macomb Community College, certification with college seal by the student's home institution is not required. The Guest Application Status is valid for one term only.
- Proof of Residency - to be eligible for the resident tuition rate (refer to the Schedule of Classes for Residency Policy).
- Mail or submit completed guest application accompanied with proof of residency to Enrollment Services.

1. Guest applications are available at the student's home institution or Macomb's Enrollment Offices: South Campus, G-301 or Center Campus, G-120. A guest application is also available on our website, www.macomb.edu.
2. Macomb reserves the right to cancel classes due to insufficient enrollment. Class cancellations are not determined until the end of on-campus registration. Every attempt will be made to contact students by telephone whose classes have been canceled. The telephone number indicated on the application form is the one used to contact you.
3. Before registering, guest students should check with their advisor/counselor at their home institution to be certain that Macomb Community College course(s) will transfer to their home institution.
4. Guest Students are exempt from placement testing as part of the Guest Admissions process. If attempting a course that requires "placement" as the only prerequisite, this will be waived, but students must present documentation to apply for such a waiver. To satisfy course prerequisites in some instances, completing placement testing may be required. This applies most often to mathematics and English courses. Course prerequisites will apply for Guest Students as follows:
   - If attempting a course that lists another "specific course" as prerequisite, that specific course must be completed with a grade of "C" or better prior to attempting the desired course.
   - If attempting a course that lists either "placement" or a "specific course" as prerequisite, then an option of providing documentation to validate that the specific course has been completed with a grade of "C" or better or attaining the required score on the placement test can be used to satisfy the prerequisite requirement. Acceptable documents include official transcripts issued to the student, unofficial transcripts or grade reports. If appropriate documentation is not available, the student may take the Macomb placement test to determine academic preparedness. Macomb reserves the right to determine if a particular course satisfies the prerequisite requirement.

The College encourages the guest student to work directly with staff in Counseling, Enrollment or the appropriate instructional office prior to registration in sections of course(s) as the College is committed to insuring that the registration process is handled in a timely manner.

Please note: Guest students have the option of mobility in mathematics and English courses.

5. Guest students are not registered in their course(s) until they complete the registration process (see the Schedule of Classes for dates and times).
6. Transcripts are not automatically sent to the guest student's home institution. The guest student must submit a completed Transcript Request Form or written request to the Enrollment Office at the end of the semester if they wish to have their transcript sent.

NOTE: Students classified as "guest" are not eligible to receive financial aid funds to attend Macomb Community College, based on Federal guidelines.

International Students

Applicants who currently reside in their home country and wish to attend Macomb Community College on a foreign student visa (F-1) must complete the following before starting the process to obtain the F-1 visa, which could take a few months to complete:

A. Certification of proficiency in the English Language by taking the TOEFL test in their home country and having test scores sent to Macomb. Go to www.TOEFL or TOEFL@ETS to find a location of testing site or for further information. Scores must exceed 550 on the written test or 72 on the computer test to be considered for admission

B. Official statement of financial solvency for the student and sponsor while in the United States, an Affidavit of Support and official bank statements, translated in US dollars, from the sponsor are required

C. Certified English translation of prior school records for transfer credit from World Education Services, Inc., at www.wes.org

D. Additional legal documents for a spouse and/or dependents that will be traveling with the applicant include a marriage license and birth certificate translated in English.

For additional forms and requirements contact the Enrollment Office at South Campus via email at F1student@macomb.edu

Applicants who hold other types of visas, except B Visitor visas, need only to show that their visa is current and do not need additional paperwork. Applicants who hold other types of visas and wish to change their status to an F-1 student visa must contact the Enrollment office at South Campus via email at F1student@macomb.edu.

(B Visitor visa holders cannot register for credit classes. They may only take Continuing Education classes.)

Military Service-Early Release

Military personnel who are considering an early release from service should complete an application for admission before requesting a Letter of Early Release.

Selective Admission Applicants

To be considered for admission to complete the Associate of Applied Science degree in Clinical Laboratory Technology, Nursing, Nuclear Medicine Technology, Occupational Therapy Assistant, Physical Therapist Assistant, Respiratory Therapy, Surgical Technology and/or Veterinary Technician programs, applicants need to apply and be accepted into the program. Applicants are required to complete all requirements. All appropriate documentation must be on file at the Center Campus Enrollment Office, G-120, by the February 15 application deadline. In some instances, required testing must occur well in advance of the application deadline. The Selective Admission Application form and supporting documentation are accepted up to one year in advance of the application deadline. For a Selective Admission packet, call the Information Center at 586.445.7999. For additional information, contact the Enrollment Office, 586.445.7225.

Equal Opportunity/Affirmative Action

Macomb Community College declares and reaffirms its commitment to the principles of equal employment and educational opportunity, and of non-discrimination in the provision of all services to the public.

Macomb Community College shall deal with all employees and students without reference to race, creed or religion, color, sex, national origin, age, marital status, disability, pregnancy, height, weight or other factors, which cannot be lawfully used as the basis for an employment decision or student status.

Macomb Community College further reaffirms its policy of non-discrimination, on the basis of minority status, sex (including sexual harassment), disability, or other impermissible grounds, in the provision of all services provided to the public by all administrative and academic facilities of the College.

The College commits itself to a continuing program to assure that unlawful discrimination does not occur in the services it renders to the public, and that those sectors of the public most affected by this policy be kept informed of its content.

Macomb Community College shall provide equal educational opportunities to all students for the county, and, so long as availability of facilities, faculty, and services permit, to students from surrounding counties, the State of Michigan, other states, and other countries in accordance with College admission/tuition policies.

There shall be no discriminatory practices based upon race, creed or religion, color, sex (including sexual harassment), national origin, age, marital status, disability, pregnancy, height, weight, or other factors, which cannot be lawfully used as the basis for an employment decision or student status.

Through the programs set forth in its Affirmative Action Plan, together with the resolution adopted by the Board of Trustees of the College on June 9, 1981 directing the Administration to take certain specific affirmative action to effect full equal employment opportunity as outlined in the resolution, the College undertakes to comply fully with all applicable federal, state, and local laws relating to equal employment opportunity, affirmative action, and non-discrimination in public services.

Approved by the Board of Trustees
Macomb Community College
August 18, 1981

Statement of Assurance and Complaint Procedure

It is the policy of Macomb Community College to comply with the provisions of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the American with Disabilities Act of 1990, the Age Discrimination Act of 1975, the Elliot-Larsen Civil Rights Act, and the Persons with Disabilities Civil Rights Act, as well as all requirements imposed pursuant thereto, to the end that no person will be subjected to discrimination in employment or excluded from participation in, or denied the benefits of, any College program or service on the ground of race, color, national origin, sex, disability, or age.

Any person who believes that Macomb Community College or an employee of Macomb Community College has violated the provisions of these acts may submit a written complaint to the appropriate Civil Rights Coordinator at the address indicated:

For student complaints: Dean of Student Success, Macomb Community College, 14500 E. Twelve Mile Road, Warren, Michigan 48088, 586.445.7408.

For employment complaints: Director of Human Resources Management, Macomb Community College, 14500 E. Twelve Mile Road, Warren, Michigan 48088, 586.445.7342.

Upon receipt of the complaint, the appropriate Civil Rights Coordinator will discuss the complaint with the complainant and conduct an investigation that is appropriate under the circumstances.

After conducting an investigation, the Civil Rights Coordinator shall issue a written determination to the complainant.

Nothing in this statement of procedure shall prevent a person who believes a violation has occurred from filing a complaint with Michigan Department of Civil Rights, 110 West Michigan Avenue, Suite 800, Lansing, Michigan 48913, or to the Office for Civil Rights, U.S. Department of Education, Washington, D.C. 20202.

Athletics

The goal of the Macomb Community College Department of Athletics is to instill in all of its student athletes the drive toward commitment, excellence, dedication and perseverance both on and off the field.

Macomb Community College is a member of the National Junior College Athletic Association (Region XII) and the Michigan Community College Athletic Association. Through these organizations Macomb competes in men's baseball, basketball, soccer, cross country, women's basketball, softball, cross country, volleyball, and men's and women's track and field.

In Macomb's 41 years of athletic heritage, the Monarchs have won National Championships, Regional titles, MCCAA titles, and Conference titles in a variety of sports instilling a sense of pride and tradition in each of our 4,600 athletic alumni. For more information on scores, statistics and rosters, please refer to our athletic web page at www.macomb.edu/athletics.

For information on how to become involved in Monarch Athletics, please call the Athletic Department at 586.445.7512.

Bookstore

The College Bookstores are located in the Student Community Centers at both Center and South Campus. The bookstores stock all required textbooks, supplies and College sportswear. Special orders for books are made upon request. You can also refer to our website at www.macomb.edu to order books online.

The Macomb Bookstore at Center Campus services some programs at the University Center. Students should contact their partner institution to verify where textbooks and course materials can be obtained.

Book Buy Back

The Bookstore buys back books every day during regular business hours. During the last week of each the fall and winter terms, the Bookstores are open extended hours for textbook buy back. If books are not going to be used on campus the bookstore will buy them if they have a national market value.

Center Campus Bookstore 586.286.2093	South Campus Bookstore 586.445.7385

Career Services

Macomb Community College Career Services offers current and former students, alumni, and employers valuable resources, all in an accessible and customer friendly environment. The Career Services Mission is to support student learning by providing students and alumni with tools necessary to bridge education and employment.

Office locations:

Center Campus
G-102
Phone: 586.445.7321
Fax: 586.286.2295
Email: careerservices@macomb.edu

South Campus
S-147
Phone: 586.445.7321
Fax: 586.445.7219

Please visit the Career Services section of the College website for information on current services and job listings at www.macomb.edu/careerservices.

Job Search

If you're looking for your first job, a better job, or simply some work experience, we can help. From resumes, to job opportunities, to professional networking, to preparing for an interview, to job fairs, to college work-study placements, Career Services is your one-stop shop.

Occupational Information

If you're seeking information on in-demand occupations, interested in learning more about the job market in Michigan and elsewhere, and want to know more about any career, Career Services is the place to go! We offer a variety of print and web resources and software that will connect you with the information you need!

College Resources

First semester in college? Having trouble navigating WebAdvisor or completing the Online Orientation? Career Services is ready and happy to help you master these college tools.

MacombCareerLink

Whether you're in your first semester, a new grad, or a degreed professional, our job database, MacombCareerLink is sure to have an opportunity for you! Search for part-time, full-time, temporary, entry-level, and experienced employment opportunities everyday in MacombCareerLink.

MacombCareerLink allows you to…

- Create a Free Account, and Upload a Resume for a Complimentary Critique
- Publish your Resume so that Employers can Look for You
- Review and Apply for Jobs Posted by a Wide Variety of Employers
- Learn about Upcoming Job Fairs and Career Events, hosted by Macomb Community College, and other Employers and Colleges

Free Information Sessions

Come learn more about what career services can do for you at one of our free information sessions! Contact Career Services to Register.

Community Services

Community services are College-sponsored programs and activities, distinct from the credit and degree programs, which make the resources of the College available to community agencies, businesses, and special clientele. This includes use of College facilities, such as the Student Community Centers, Sports & Expo Center, the Macomb Cultural Center and the Macomb Center for the Performing Arts.

Although by their very nature community services change according to community needs and College resources, programs are typically arranged through the Department of Conference and Event Services.

Computing Resources for Learning

Over 2,000 computers are available for student use in the various computer labs at Macomb. These computers are used by students in a variety of courses as well as for other student purposes.

Classroom labs are used primarily for classroom instruction and are located in most buildings on all campuses.

Open labs are provided so that students can complete their assignments around their personal and class schedules. **Students must have an access card to use the open labs.** Lab assistants are available in the open labs to assist students with equipment operation.

Open Labs are located at:

South Campus	Center Campus
J-127	E-102

On-Campus Wireless Resources

Free wireless internet service is now available campus-wide.

Learning Center Computer Labs

The Learning Centers provide computer labs for students to use for schoolwork. There are course related software; tutorials in reading, writing, and mathematics; and word processing programs to assist in writing papers.

Learning Center Labs are located at each of the libraries:

South Campus	Center Campus
J-306	C-116

Please check our website for current information on computer lab hours, locations, and procedures.

Conference & Event Services

This department provides assistance to students, College staff, community groups, educational organizations and businesses in organizing and planning meetings and events. From room requests, audiovisual and technical needs, to teleconferencing, the staff of this department handles it all to ensure the success of the event.

- The John Lewis Center – South Campus

  The John Lewis Center on Macomb's beautiful South Campus is the ideal venue for your next meeting. The John Lewis Center offers 12 room options and over 15,000 square feet of space for conferences, meetings, breakout sessions and special events. Equipped with state-of-the-art sound, video systems and high speed Intranet access, our professional staff can customize an event plan designed to meet your individual needs.

- The Sports & Expo Center – South Campus

  The Sports & Expo Center is ideal for trade shows, expositions, conferences or sporting events. Over 61,000 square feet (192' x 320') of unobstructed space is available on one floor. It has seating capacity for 2,800 people and is available for full or partial-space rental.

The College also has a full service catering operation, which can accommodate groups and events of all sizes, from banquets to barbecues. For more information regarding room requests or to discuss planning a meeting or event in any of our facilities, please call the Central Reservations Center at 586.498.4198. This information and more can also be found on our website, www.macomb.edu/eventservices.

Confidentiality of Student Records

I. INTRODUCTION

Macomb Community College recognizes the importance of maintaining records for each individual student, which present authentic evidence of the events and actions, which both contribute to and confirm the student's educational progress; and to facilitate the intelligent and purposeful direction necessary to the achievement of the educational goals of the student in a college setting.

State and federal laws govern the release and disclosure of student records maintained by the College. It is the purpose of these guidelines to provide reasonable interpretations of the laws as presently stated and to protect the student's right of privacy. These guidelines have a two-fold purpose.

A. To protect a student's right to the privacy of information the College has concerning the student, and

B. To provide guidelines for release or disclosure of such information within the meaning of federal and state law and as may be necessary for the effective functioning of the College.

II. NOTIFICATION TO STUDENTS OF RIGHTS UNDER THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

The Family Educational Rights and Privacy Act (FERPA) afford students certain rights related to their educational records. They are:

A. The right to inspect and review the education records within 45 days of the day the College receives a request for access. The student must submit to the Director of Enrollment Services/Registrar a written request that identifies the record(s) to be inspected. The College will make arrangements for access and notify the student of the time and place where the record(s) may be inspected. If the College official to whom the request was submitted does not maintain the record(s), that official shall advise the student of the correct official to whom the request should be addressed.

B. The right to request an amendment to the student's education record(s) the student believes is inaccurate or misleading. The student may ask the College to amend a record believed to be inaccurate or misleading. The student should write the College official responsible for the record, clearly identifying the part of the record to be changed, and specify why it is inaccurate or misleading. If the College decides not to amend the record as requested by the student, the College will notify the student of the decision and advise the student of the right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures are outlined below under Section VII, Requests to Amend an Educational Record - Hearing Procedures, will be provided to the student when notified of the right to a hearing.

C. The right to consent to disclosures of personally identifiable information contained in the student's education record, except to the extent that FERPA authorizes disclosure without consent. One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests. A school official is a person employed by the College in an administrative, supervisory, academic, or support staff position (including law enforcement unit and health staff); a person or company with whom the College has contracted (such as an attorney, auditor, or collection agency); a person serving on the Board of Trustees; or a student serving on an official committee, such as disciplinary or grievance committee, or assisting another school official in performing his/her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill her/his professional responsibility. Upon request, the College discloses education records without consent to officials of another school to facilitate the student's transfer and enrollment.

D. The right to file a complaint with the United States Department of Education concerning alleged failures by Macomb Community College to comply with the requirements of FERPA. The complaint can be sent to the following office that administers FERPA:

Family Policy Compliance Office

U.S. Department of Education

600 Independence Avenue, SW

Washington, DC 20202-4605

III. DIRECTORY INFORMATION AS DEFINED BY MACOMB COMMUNITY COLLEGE

Macomb Community College defines "directory information" as:

A. A student's name,

B. Major field of study,

C. Participation in officially recognized activities and sports,

D. Weight and height of members of athletic teams,

E. Dates of attendance,

F. Degrees and awards received,

G. Most recent education agency or institution attended.

The College may include a student's directory information in college publications or otherwise release such information to the public without a student's consent unless a student has informed the College in writing that his or her directory information is confidential. This notice must be sent or delivered in person to the Office of Enrollment Services/Registrar, Macomb Community College, 14500 E. 12 Mile Road, Warren, MI 48088-3896.

An oral or written request for a student's directory must be directed to the Office of Enrollment Services. Enrollment Services will respond as time permits. Enrollment Services reserves the right to deny any request for directory information or to charge a fee for information provided in response to a request.

IV. SOLOMON AMENDMENT DIRECTORY INFORMATION

Effective March 29, 1997, schools are required to provide the Department of Defense access to directory information upon request. A student may request in writing to withhold the release of any or all of this information to the Department of Defense. Such a request should be sent to the Office of Enrollment Services/Registrar, Macomb Community College, 14500 E. 12 Mile Road, Warren, MI 48088-3896.

V. PRIVACY ACT NOTICE

Pursuant to the Privacy Act of 1974, students are hereby notified that disclosure of their social security numbers is mandatory for registration at Macomb Community College. Social security numbers are used: (1) to verify the identity of students, (2) to keep, maintain and access the records of students, and (3) for purposes of student financial aid and other benefits available under law. The College is required to report the social security numbers of its students to the Internal Revenue Service pursuant to the Taxpayer Relief Act of 1997.

As part of Macomb Community College's instructional program improvement efforts, and to meet the requirements of the Carl D. Perkins Vocational and Technical Education Act, Sect 113 and the Workforce Investment Act of 1998, Section 122, Macomb Community College will use the social security numbers of its students to compile certain data for the purpose of instructional program improvement and reporting requirements for the Carl D. Perkins Vocational and Technical Education Act, Section 113 and the Workforce Investment Act of 1998, Section 122.

VI. FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT REGULATIONS GOVERNING DISCLOSURE OF CONFIDENTIAL RECORDS

A. DISCLOSURE OF CONFIDENTIAL INFORMATION TO THE STUDENT:

A student may inspect, review or obtain a photocopy of his or her educational record by submitting a written request, signed by the student, to the Director of Enrollment Services/Registrar. The Director of Enrollment Services/Registrar will arrange a time and date for the student to view the record, or provide the student with a photocopy of the record requested within 45 days after receiving the request. The College may permit a student to inspect, review, or obtain a photocopy of his or her educational record upon receipt of that student's in-person, oral request. However, a student must, if requested, provide photo identification, which may be photocopied and kept in the student's file, before reviewing or receiving a copy of his or her educational record.

Students may request photocopies of their records at a cost of $3.00 for transcripts and 25 cents a page for other documents.

B. DISCLOSURE OF CONFIDENTIAL INFORMATION TO THIRD PARTIES

Except to the extent FERPA authorizes disclosure without consent, personally identifiable information contained in a student's educational record will be disclosed to third parties only with prior written consent of the student. The consent must (1) identify the individual, agency, or classes of individuals or agencies to whom the information is to be made available; and (2) specify the records to be released.

FERPA authorizes the disclosure of personally identifiable information contained in a student educational record without the consent of the student under various circumstances. The College may disclose such information: (1) to other Macomb Community College officials, including teachers, whom the College has determined to have legitimate educational interests; (2) to officials of another school where a student seeks or intends to enroll; (3) to the Comptroller General of the United States, the Secretary of Education, or state and local educational authorities; (4) in connection with financial aid for which the student has applied or which the student has received; (5) to organizations conducting studies for, or on behalf of, educational agencies or institutions to develop, validate, or administer predictive tests; administer student

aid programs; or improve instruction; (6) to accrediting organizations to carry out their accrediting functions; (7) to parents of a dependent student, as defined in Section 152 of the Internal Revenue Code of 1954; (8) to comply with a judicial order or lawfully issued subpoena; (9) to persons in connection with a health or safety emergency; (10) information designated "directory information;" (11) to an alleged victim of any crime of violence of any disciplinary proceeding conducted by an institution of post secondary education against the alleged perpetrator of that crime.

C. PARENTAL ACCESS TO STUDENT RECORDS

A parent does not automatically have access to their child's student records. The Guidelines for Post Secondary Institutions for Implementation of the Family Education Rights and Privacy Act of 1974 as amended - revised edition 1995, states: "At the post secondary level, parents have no inherent rights to inspect a student's education records." As a general rule a student must consent to the release of his or her education records. In the event that a student is a legal dependent, as defined by the Internal Revenue Code, the parent may assert the right to review the education records, but only upon presentation of a copy of the appropriate IRS form (e.g., most recent tax return), documenting dependent status. The College may keep a photocopy of the IRS form in the student file.

D. RELEASE OF INFORMATION FORM

Any person requesting to review or copy student education records must submit a "Release of Information Form " signed by the student. The form may be obtained from the Office of Enrollment Services/Registrar or may be printed from the Macomb Community College web site www.macomb.edu. As with all requests to review records, any person requesting access to student records must provide photo identification that may be photocopied and kept in the student's file.

E. STATEMENT OF SAFEGUARDING STUDENT RECORDS

All Macomb Community College employees are required to protect the privacy of student records and abide by the following principles:

- College information systems shall contain only that student data necessary to fulfill the College's mission.
- Safeguarding of student data shall be a responsibility of each staff member having knowledge of such data.
- Due care shall be exercised to protect student data from unauthorized use, disclosure, alteration or destruction.
- Applicable federal and state laws and college policies and procedures concerning storage, retention, use, release, transportation, and destruction of student data shall be followed.
- College procedures shall be followed in reporting any breach of security or compromise of safeguards.
- This statement of principles is applicable to all areas of the College and must be followed by all persons dealing with such information.
- Faculty and staff requiring computerized student data for official College business will be provided access. The term "access" means to read or review student data. It does not include the ability to create or modify data.
- Certain areas of the College that store and maintain student data, whether computerized or not, may have individual guidelines which will supplement, but not supplant, this statement of principles.
- Any Macomb Community College employee engaging in unauthorized use, disclosure, alteration or destruction of student data in violation of this statement of principles shall be subject to appropriate disciplinary action, including dismissal.

VII. REQUESTS TO AMEND AN EDUCATIONAL RECORD-HEARING PROCEDURES

If a student is denied access to his/her record and is unable to obtain correction, or if he/she contests the factual accuracy of his/her record, he/she may request a hearing. If, as a result of the hearing, it is determined that the record is factually inaccurate, it shall be amended and the inaccurate material either destroyed (if this does not violate audit responsibilities for record keeping) or so annotated as to indicate nature and source of error and date of correction.

A. If a student challenges the content of the record, Macomb Community College will attempt to settle such a dispute through an informal meeting with the Director of Enrollment Services/Registrar, the Dean of Student Success, and the eligible student within 10 days.

B. If the dispute is not resolved by the Dean of Student Success, a second hearing may be held with the Vice President of Student and Community Relations. The eligible student shall be afforded a full and fair opportunity to present evidence relevant to the issues raised and the decision shall be rendered in writing within 45 days after the conclusion of the hearing with the Vice President of Student and Community Relations.

   A student who desires a procedural hearing to challenge the content of the education record shall address the request in writing to the Director of Enrollment Services/Registrar. The written request must identify in specific terms the information the student believes to be inaccurate, misleading or otherwise violates the privacy of the student; state the reason or reasons for challenging the portion of the record identified; and state the remedy sought, which may be either the correction or deletion of the information challenged. The substantive judgment of a faculty member about a student's work, expressed in grades assigned in a course and other evaluation of a student's work, is not within the scope of such hearings. Hearings shall be limited to the factual accuracy of the record.

VIII. INFORMATION MAINTAINED BY MACOMB COMMUNITY COLLEGE

OFFICE & INFORMATION	RESPONSIBLE OFFICIAL
ADMISSIONS & TRANSFER CREDIT OFFICE Early Admission Applications Early Admission Approvals High School Scholars Nominations Transfer In Credit Equivalencies	**R. HUGHES** Director, Enrollment Services/Registrar
ARTICULATION AND TRANSFER Transfer Out Credit Equivalencies Official College to College Articulation Agreements	**W. HEADLEY** Director, Articulation and Transfer Services
CAREER SERVICES Application for Employment Assistance Employer Information Employment Resource Materials Job Referral Information Macomb Job Referral Service	**K. GRENDA** Dean of Student Success
CASHIER'S OFFICE Billing and Fee Payment Records	**R. REMIAS** Director, Financial Services

CENTER FOR CONTINUING EDUCATION	**F. STURTZ**
Certified Fitness Trainer Results Court Reporting Results Development Center Grant (SMTDC) Health Program Externship Records Michigan Works Records – Health Records Motorcycle Safety Results Small Business & Technology State Board CEUs for Teachers Student Attendance Sheets Student Emergency Card/C4K	Director, Center for Continuing Education
COLLEGE POLICE	**E. MAXINOSKI**
Citations or Violation Notices Incident Reports	Captain, College Police
COMMUNITY ENRICHMENT	**G. MAIURI**
Student Information Cards (Name, Address, Telephone, ID Number & Classes Taken)	Dean, Community and Student Enrichment
COUNSELING & ACADEMIC ADVISING OFFICE	**K. GRENDA**
Achievement Records Career Test Scores Career Preparation and Transfer Plans Career Testing Referral Form Counseling Data Sheet Course Planning Summary Department Referral Form Plan of Action Program Plans Student Information Sheet Student Program Plans	Dean of Student Success
ENROLLMENT	**R. HUGHES**
Certification Data High School Transcript Holds on Student's Record International Student Records Other (College Transcripts) Permanent Record Registrations Forms Social Security Certification Data Tel-Reg/Web-Reg Veterans Administration Waivers for Graduation Requirements	Director, Enrollment Services/Registrar

FINANCIAL AID	**J. FLORIAN**
Financial Aid Overpayments Student Financial Aid Files Student Loan Information Student Default Status	Director, Financial Aid
FINANCIAL SERVICES	**R. REMIAS**
Payment Records Student Account Information 1098-T Tax Forms Student Refund Information Student Payroll Records	Director, Financial Services
LIBRARY & INFORMATION RESOURCES	**J. Mills**
Records of Overdue, Fines, Lost or Damaged Materials	Director, Libraries and Information Resources
PLACEMENT TESTING	**K. GRENDA**
CLEP Participants COMPASS Student Advising Report Program Credit-By-Exam Test Records	Dean of Student Success
PUBLIC SAFETY INSTITUTE	**M. METZ**
Billing Information Class Rosters Registrations	Director, Public Safety Institute
SPECIAL SERVICES ASSESSMENT	**K. GRENDA**
Counselor/Staff Summaries Handicapped Certification Referral Forms for Assistance Services Documentation Student Information Forms Student Plan of Work Tutoring Usage Record	Dean of Student Success
WORKFORCE DEVELOPMENT INSTITUTE	**V. CORRIVEAU**
Billing Requests and Fee Payment Records Client Contract & Grant Education/ Training Records Student Certification and Test Results Student Course Assessment Records	Director, Workforce Development Institute

Center for Continuing Education

Job Skills

Macomb Community College offers many opportunities for lifelong learners to explore career changes, upgrade employability skills, and acquire professional or industry driven certifications and Continuing Education Units through its Center for Continuing Education. The Center is dedicated to providing professional and certification classes for community college graduates and others in pursuit of lifelong learning related to allied health and medicine, business and corporate leadership, computer technologies, court reporting and other professions in collaboration with exemplary providers of traditional and online learning opportunities.

- Business and Corporate Leadership
- Career and Professional Certifications
- Computer Certifications and Technologies
- Court Reporting
- Entry-Level Job Skills Training
- Health Careers
- K-12 State Board CEUs
- Online Learning Courses

Entrepreneurial Training

The Small Business Assistance Center network, part of the Macomb Community Growth Alliance, is designed to aid those persons already in business for themselves as well as the new entrepreneur. The Center provides training for small business owners as well as potential entrepreneurs who require practical, up-to-date information about small business operations, as well as agencies and individuals involved in economic development and job growth in the community.

The College's role in this network includes the planning and development of short courses, seminars, and workshops that focus on practical up-to-date information about small business operations. They contain the information and skill development critical to the success of any business, large or small.

Personal Growth & Enrichment Programs

The Macomb Community College tradition of education and service excellence is extended through the Center for Continuing Education by providing lifelong learning opportunities for adults and children. The Center offers a wide assortment of courses, workshops and seminars that appeal to persons of all ages pursuing personal growth and development.

Hundreds of courses and programs offered through the Center for Continuing Education aim to fulfill the needs of:

- Persons seeking opportunities to enhance their special interests in such topics as computers, consumer affairs, health and wellness, physical fitness, civic matters, creative and performing arts, languages and history, exercise and fitness, landscaping and floral design as well as other topics of general community interest.
- Persons who might benefit from continuing education through such programs as College Prep and Basic Skills before entering certificate and degree programs of the College.
- Adults involved in transitional periods including those who may be re-entering the academic or work environment or who may be experiencing the need for personal development and support.

Continuing Education Units (CEUs)

Continuing Education Units (CEUs) are awarded for enrollment in Continuing Education courses. The CEU is a nationally recognized standard unit of measurement for substantive, non-degree learning experiences. One CEU is equal to ten (10) hours of instruction and field work.

For a Center for Continuing Education Schedule of Classes, call 586.498.4000.

Counseling & Academic Advising Services

Counseling and Academic Advising Services provides a variety of services that will help you make informed choices about the college. Counseling and Academic Advising Services locations:

Center Campus
G-132
Phone: 586.286.2228
Fax: 586.286.2295
Email: answer@macomb.edu

South Campus
H-316
Phone: 586.445.7211
Fax: 586.498.4033

Please visit the Counseling and Academic Advising Services section of the College website for information on current services, office hours, resources and general information about:

- Getting Started at Macomb
- New Student Orientation
- Course Planning Sessions
- Choosing or changing a major, certificate, degree, or transfer institution
- Selective Admissions requirements
- Workshops

Counseling

A counselor is a licensed faculty member who is uniquely trained to work with you individually or in groups. Counselors can assist you with decisions that facilitate academic, career and personal growth. They can also help you establish priorities, adjust to college life, and learn skills that will optimize your academic and personal effectiveness. Most counseling services are provided on an appointment basis, with some walk-in assistance available. Assistance provided by counselors includes:

- Making decisions about educational and career goals
- Planning realistic steps to achieve stated goals
- Assisting with priorities to help balance the roles of student, parent, spouse, and/or employee
- Interpreting inventories and interest tests results
- Managing stress and anxiety
- Developing strategies for solving problems interfering with academic success and/or college persistence
- Coping with, and adjustment to, college life
- Learning skills that optimize academic success
- Course selection for the first semester of all students new to Macomb
- Course selection for students who have not yet made an educational decision
- Course selection for students intending to transfer but who have yet made a university choice

Academic Advising

Academic advising faculty provide you with information needed to proceed effectively through your academic program once you have made solid choice of program, major, and transfer institution. Advisors are available on a walk-in basis. Assistance provided by academic advisors includes:

- General information about admission, placement testing, courses of study available at Macomb, and registration procedures
- Information on Macomb's graduation requirements
- Interpretation of placement testing scores
- Transfer information for those students decided upon their major and transfer institution
- Explaining and interpreting Macomb's catalog and schedule of classes
- Macomb's Program information for those students decided on their certificate or associate's degree program
- Interpreting college policies, procedures, and student rights and responsibilities
- Referrals to appropriate college resources (Learning Center, Financial Aid, Library, etc.) for assistance

Special Services Program

The Special Services Office works with students who need special assistance to succeed in college due to a physical disability, learning disability, insufficient academic skills or language barrier.

This unit works with each person as an individual, to provide resources, services and accommodations that can assist that individual in achieving success at the post-secondary level. Special Services also works with students to make them aware of career options and to develop a personalized education plan. In compliance with Section 504 of the Rehabilitation Act of 1973 and the American Disability Act of 1991 academic accommodations will be provided to students who have a documented disability.

Special Services Program office locations:

Center Campus	South Campus
G-131	H-316
Phone: 586.286.2237	Phone: 586.445.7420
TDD: 586.286.2238	TDD: 586.445.7498
Fax: 586.286.2295	Fax: 586.498.4033
Email: answer@macomb.edu	

Please visit the Special Services section of the College website for information on current services, workshops, office hours and resources.

Special Services Offered

- Specialized counseling
- Evaluation of student interest and abilities
- Career awareness and exploration
- New Student Orientation/Course Planning Sessions
- Networking within college and agencies
- Group and individualized tutoring
- Coordinating services such as note takers and interpreters to eligible students
- Supporting students whose first language is not English.
- Alternative testing arrangements
- Registration assistance

How This Program Helps You

- Provides an opportunity to meet frequently with a counselor
- Assists you with understanding yourself and clarifying your goals
- Provides support in classes through tutoring
- Promotes student-teacher communication
- Intervenes in times of crisis
- Accommodates the disabled student

Student Eligibility

If any of the following apply, you may be eligible for the Special Services program:

- Need help in your classes
- Are referred by faculty or outside agencies
- Have a physical or learning disability that may present obstacles to success in the college classroom
- Have a below-average grade point average

Special Populations Program

If you are a single parent, a displaced homemaker, or enrolled in a program that has been determined nontraditional for your gender, you may be eligible for assistance with:

- Navigating transitions (Choices, Focus, Direction)
- Improving self-confidence
- Exploring personal interests, abilities, and college readiness
- Building employment competencies
- Individual and group counseling
- Planning your career
- Advocacy to college offices and community support agencies
- Financial assistance with college expenses

You may initiate your own use of these services or you may be referred by college staff, faculty, area high school counselors, social agency personnel or other professionals.

Special Populations Office location:

South Campus
H-311-6
Phone: 586.445.7003
Fax: 586.498.4033
Email: answer@macomb.edu

Please visit the Special Populations section of the College website for information on current services, workshops, office hours and resources.

Disabled Student Services

The college buildings are equipped with special runways, elevators, handrails, and specially constructed facilities to make student movement and use easier. For access to special parking, please contact your local Secretary of State for a special parking sticker.

Lorenzo Cultural Center

The Lorenzo Cultural Center provides a new dimension to our enrichment offerings. The Lorenzo Cultural Center builds on the highly regarded Macomb Center for the Performing Arts' offerings and quality theater space by pairing it with complementary programming and facilities. This creates a unique local opportunity to offer truly multidimensional cultural experiences, designed to appeal to broad segments of our community. Events will bring history, literature, science, and the visual arts to our community in a setting unparalleled in the region.

English for Speakers of Other Languages

Macomb offers a variety of English classes designed to improve the skills of non-native speakers in listening, reading, speaking, and writing. All students whose first language is not English must take the COMPASS/ESL placement test.

Students can take advantage of both credit and continuing education courses.

Credit courses are offered through the English for Academic Purposes area in the Division of Arts and Sciences. Their purpose is to prepare non-native speakers for the rigors of college-level English composition courses and other subjects that require competence in academic English skills.

Continuing Education courses are offered through Macomb's Center for Continuing Education and are designed for new Americans with minimal language skills. They include (a) English as a Second Language courses that teach practical skills, such as completing a job application, and (b) basic language courses that prepare beginning language learners for the credit EAPP courses.

Faculty & Staff Credentials

Credential information for all staff and faculty may be viewed at www.macomb.edu under About Macomb.

Financial Aid & Scholarships

Macomb Community College participates in a variety of financial aid programs. These programs are available to students pursuing a degree, certificate or transfer program. Funds are available from Federal, State, institutional and private sources.

Types of Financial Aid

There are three major types of financial aid. They include the following:

1. **Grants/Scholarships:** These are forms of "gift aid" that do not require repayment. Grants are typically based on financial need; scholarships are both need and non-need based.
2. **Loans:** Loans are forms of aid that require repayment after the student completes his/her educational program or drops below half-time (less than 6 credit hours). The loans offer reasonable interest rates and repayment may be deferred until after graduation or withdrawal from classes.
3. **Work:** Part-time work opportunities are available to students who demonstrate financial need. Students are placed either on-campus or off-campus (in community service-related employment). Students are expected to use their earnings from work programs to assist with their educational expenses.

Factors considered in the types of aid awarded to the student are the financial need of the student, enrollment status and amount of available funds.

Students must complete the following eligibility requirements for financial aid consideration:

- Be admitted to Macomb Community College. Submit the Application for Admission as soon as possible. A student cannot be reviewed for financial aid eligibility until the admission requirements are completed.
- Have a high school diploma, a GED certificate or pass the assessment test with Federally-mandated minimum scores to be eligible for financial aid. Contact the Financial Aid Office for more information.
- File the Free Application for Federal Student Aid (FAFSA). This is the core application document to apply for aid from all sources, including student loans. Filing this form on the web at www.fafsa.ed.gov is highly recommended.

Students must be sure to release the data on their FAFSA to Macomb Community College, Federal Code #008906. This is used for all campuses.

- Enroll in a degree, certificate or transfer program to receive financial aid. Students should confirm with the Enrollment Office that College records reflect enrollment in a degree, certificate or transfer program.
- Maintain satisfactory academic progress toward a degree or certificate. There are three criteria in the Macomb Community College satisfactory progress policy:
  1. The maximum length of time for which the student may receive financial aid
  2. The number of credit hours the student must complete each semester
  3. The minimum grade point average (GPA) the student must maintain

Deadline for Filing

Students are encouraged to file the Free Application for Federal Student Aid (FAFSA) by April 15 preceding the fall semester and October 1 preceding the winter semester of each academic year. Students must complete their financial aid file by June 27, 2008 to know their financial aid eligibility for the Fall, 2008 semester before the College's tuition payment deadline. For the Winter, 2009 semester, the deadline for students to submit documents to complete their financial aid file is November 24, 2008.

Further information about deadlines can be directed to the Macomb Community College Financial Aid Office at 586.445.7228.

Private Scholarships

Macomb offers many privately funded scholarships to eligible students. To apply for a private scholarship, students need to submit a Private Scholarship Application form, file the Free Application for Federal Student Aid (FAFSA) for need-based scholarships, submit two letters of recommendation, and submit all previous academic transcripts. Deadlines vary each year. More information is available on Macomb's website at www.macomb.edu/financialaid.

Transfer Scholarships for Macomb Community College Graduates

Many Michigan four-year colleges and universities provide outstanding community college transfer students with scholarships to continue their education. A complete list is available on Macomb's website at www.macomb.edu/financialaid.

Financial Services

The Financial Services office is available to assist students with the following:

- Tuition
- Payment
- Sponsored Billing
- Student refund issues

All students are billed for their classes upon registration and receive notification of the amount due and the payment due date on the Registration Statement. Tuition and fees are due by the published payment due date for that term or within four days of registration thereafter. Failure to pay by the established dates may result in cancellation from all classes.

Macomb accepts cash, checks, money orders, Master Card, Visa, Discover and Sponsorship paperwork in person at the cashier offices. Payments can be made online using WebAdvisor with MasterCard, Visa and Discover or E-check. Cashier's offices are located in G-Building at both South and Center Campus. Drop boxes for checks are located at the Cashier's offices during regular business hours. In addition, there are external drop boxes for checks located outside G-Building at Center Campus and outside C-Building at South Campus for regular or after business hours.

Food Service & Catering

Food service is available in both Student Centers–MVPs at K-Building, South Campus and Skylight Café at P-Building, Center Campus. Choices include grilled panini sandwiches, burgers, hot dogs, soups, deli sandwiches, salads, snacks and much more. Coffee, tea, juices, soft drinks and bottled beverages are served as well. Students, staff and faculty can also take advantage of daily specials, all under $5. Even if you aren't hungry, the Student Centers are a great place to surf the web, hand out with friends, or try your hand at pool, ping pong and other games. The Java Coast fine coffee stations located in the libraries on both campuses offer a wide assortment of flavored coffee, including espressos, mochas and lattes; pitas, pastries, muffins and bagels are for sale, too. For current hours of operation, please check campus bulletin boards, or the Dining Services web page.

For your convenience, vending machines are available at many of the College's locations. A list of locations are on campus bulletin boards and at macomb.edu.

Catering for special events and meetings can be arranged by calling the Central Reservations Center at 586.498.4198. A complete catering and dining services menu can be found at www.macomb.edu/eventservices.

Grading System

	Grade Interpretation	Honor Point Value
A	4.0	Excellent
A- B+ B	3.7 3.3 3.0	Good
B- C+ C	2.7 2.3 2.0	Fair
C- D+ D D-	1.7 1.3 1.0 0.7	Passing
E	0.0	Fail-No Credit
P/F		Pass/Fail

A Pass/Fail grade may be given for a specific course based on the recommendation of the faculty in the discipline, a supporting rationale, and with the approval of the Provost. Students may not elect pass/fail as an option.

Final Grade Reports listing courses taken, grades earned, cumulative and semester credit hours, and grade-point totals are not mailed to students after the end of each term. You may access your term grades on WebAdvisor or Tel-Reg. An unofficial transcript is available on WebAdvisor.

Grading Symbols

In addition to the grading system, the following symbols may appear on a student Grade Report.

- AD • Audit - No Credit
- CR • Credit Only
- GD • Grade Delayed
- I • Incomplete
- IP • In Progress
- N • No Credit
- R • Repeat
- W • Withdrawal-No Credit

Failure to Attend Class

Students who never attend class shall receive an 'N' symbol for that class/term.

Grade Point Average

The 'AD', 'CR', 'GD', 'I', 'IP', 'N', 'P/F', 'R', and 'W' are not counted in determining a student's grade point average (GPA).

When a course is repeated the Course Repetition procedure shall apply.

Auditing a Class

A student wishing to audit a class will be permitted to change to or from an "audit" status through the 100% refund period for that particular course section. An auditing student will register and pay tuition and fees in the same manner as a credit student. Further, a student who elects to audit a class will be required to adhere to the same assessment processes, will not earn any college credit and will not receive a grade.

Incomplete Grade Policy

An "I" (incomplete) grade is reserved for situations when a student needs to complete, at most, one-fourth of the work for the term.

If the student is unable to complete the term, an "I" (incomplete) grade may be recorded. The student and instructor will complete a faculty/student contract form outlining the necessary requirements needed to complete the class. Once the student completes the necessary requirements for the class, a Change of Grade form and a copy of the faculty/student contract must be submitted for the student to receive a grade greater than an "E." For those "I" (incomplete) grades that are not changed by the end of the following term, the "I" (incomplete) grade will default to an "E."

Class Withdrawal

- Students who withdraw from classes while on campus must complete a Class Withdrawal Form or submit a written request by mail or fax. Students can also withdraw on the Tel-Reg or Web-Reg systems.
- Students who never attend classes shall receive an **N** symbol for that term.
- Students who officially withdraw during the first three-quarters (3/4) of a term shall receive a **W** symbol for that semester/trimester.
- Students may not officially withdraw during the last quarter (1/4) of the term, but shall only be given an **A, A-, B+, B, B-, C+, C, C-, D+, D, D-, E, I** or **P/F**.

Special Withdrawal

Exception to the withdrawal policy may be made by the College under special circumstances, but only after documentation by the student and verification by the College. All petitions must be filed before the end of the term, and petitions for exception to the withdrawal policy must be directed to the Director of Enrollment Services/Registrar who will consult with the appropriate institutional administrator before making a final decision.

Grade Appeal Guidelines

If a student believes a faculty member has issued a final grade in violation of the faculty member's published grading standards or practices, the student must do the following:

1. Student meets with the faculty member.
2. Student meets with the appropriate associate dean or dean of the teacher's department if problem is not resolved in step one.
3. If the student has not been able to resolve the issue in one of the above steps, the student may appeal the grade by submitting the Academic Standards Committee Student Petitions form to the associate dean or dean.

The form must specify how the published grading standards or practices have been violated and be signed and dated. The Academic Standards Committee must receive the form no later than six months following the end of the course. Again, the appeal form can only be sent to the College Standards Committee after completing steps one and two. Questions regarding the appeal process may be directed to the associate dean or director of the teacher's department.

Time Limit on All Grade Changes

All grade change requests must be initiated within six months following the end of that course for which the grade was recorded. No grade change requests will be accepted after that period of time.

Credit by Examination/Credit for Prior Learning

Credit may be granted to a student who demonstrates by examination and/or prior learning that they are proficient in a subject. The examinations used shall be appropriate standardized commercial examinations or standardized college-prepared examinations. Refer to page 51 for additional information.

Dean's List Procedure

Students who achieve a minimum grade point average (GPA) of 3.25 with a minimum of 12 credit hours earned in that semester appear on the Dean's List under the designation full-time student (12 plus credit hours).

Part-time students, those who earn fewer than 12 credit hours in a semester, would become eligible to be included on the Dean's List once they accumulate a minimum of 12 credit hours. Once eligible, part-time students who achieve a minimum semester GPA of 3.25 with a minimum of 6 credit hours earned that semester would be placed on the Dean's List.

Options for Academic Renewal

Academic problems can be course or program related, jeopardizing the attainment of an associate's degree.

The following options are available to students who find themselves in various degrees of academic difficulty.

- Course Repeat Policy
- General Academic Renewal Policy
- Major Program Transfer Policy

General Academic Renewal*

In cases where other options are not appropriate, a student who wishes to qualify for a certificate or associate's degree and whose grade point average (GPA) is below 2.0 may request that up to 30 credits of course work taken at Macomb Community College be disregarded in computing the minimum 2.0 cumulative grade point average for purposes of earning a certificate or degree. In addition, the grades to be disregarded must be "Ds" or "Es" and have been recorded at least one year prior to graduation. Credit hours not counted in determining the grade point average will not be counted toward the minimum hours required for graduation. This renewal request may be granted only **once**.

Course Repeat Policy

A student who elects the same course more than once will have the **better** grade counted in determining the grade point average (GPA). However, both courses remain on the record. The computer will assign an R to the course with the lowest grade. Effective Summer 2003 the original grade will reflect the grade plus an "R" next to it. Repeats prior to Summer 2003 will show only the "R". To repeat a course that is no longer offered by the College, consult the appropriate department to see if a similar course may be substituted.

Effective the Fall of 1994 a student may not repeat a course for credit or audit more than three times unless the Catalog or Schedule of Classes designates that this course may be repeated or with the approval of the appropriate associate dean.

Normally, credit for a class may not be counted more than once unless specifically stated in the course description (Music, for example).

Major Program Transfer Policy*

A student who has transferred from one major program to another, (e.g., a technology program to a business program), may petition to have graduation grade point average based only on the program in which the student is currently enrolled. A student must fulfill all core requirements in the new program. Any credit hours not counted in determining the grade point average will not be counted toward degree or certificate requirements. This request may be granted only **once**.

* IN NONE OF THESE CIRCUMSTANCES ARE ANY GRADES REMOVED FROM THE STUDENT'S ACADEMIC TRANSCRIPT.

For Additional Information About Academic Renewal/Program Transfer:

Please call or see a counselor:

Center Campus	**South Campus**
G-132	H-316
586.286.2228	586.445.7211

Academic Intervention

In the interest of promoting student success, Macomb College has developed new Academic Intervention Guidelines. Effective Fall, 2007, students who have a cumulative grade point average (GPA) below 2.0 will be asked to take specific steps to learn how to become successful students. Please see our website for a description of Academic Notice and Academic Probation as well as interventions that can be planned for improvement.

Graduation/Commencement

Degree/Certificate Application for Graduation

Before a degree is conferred, students completing their academic requirements must also complete a formal application for degree. The applications are available from the Enrollment Offices, G-301, South Campus, G-120, Center Campus or directly on WebAdvisor via the College's website. Students completing their degree requirements must submit a degree application by March 15 for the May ceremony and by November 1 for the December ceremony for inclusion in the commencement program. However, applications for graduation are accepted through the last day of the term.

Degrees and Certificates will be officially awarded and sent to the student approximately eight weeks after the end of the term in which the student has completed the requirements and filed for the award.

If you have not applied for graduation, and would like to verify your degree status, please contact the Counseling & Academic Advising Office: South Campus, H-316, 586.445.7211 or Center Campus, G-132, 586.286.2228 to confirm availability of an Academic Advisor to conduct a preliminary degree audit. This service is provided during open advising hours at either campus. An audit will determine if you have fulfilled the minimum credit hours required for a degree. The Enrollment Services Office upon completion of the degree application will do a final degree audit. Degree requirements are listed in this College Catalog.

Commencement Ceremony

Recognizing how important it is for graduates, family, friends and faculty to reflect upon the significance of earning a college degree, Macomb Community College hosts two commencement ceremonies each year.

The commencement ceremony in May honors all graduates who have completed their degree requirements at the close of the Winter semester. The commencement ceremony in December honors all graduates who have completed their degree requirements at the close of the Spring/Summer or Fall semesters. The graduates from both campuses participate together in the commencement ceremony, which takes place on the last Friday of Winter and Fall semesters, alternating between South and Center campuses. The commencement ceremony is for those students receiving an associate's degree only. Certificates or other credentials are not awarded at the ceremony.

To find out more, please check out the "Commencement" page on our website under "Current Students," "Your Next Steps."

Housing

The College maintains no approved housing list, nor does it maintain dormitories for on-campus residency. The College is within easy commuting distance for most students, making it possible for them to live at home while attending classes.

Learning Outreach

Learning Outreach collaboratively serves to provide alternative and distance education learning opportunities, create options for community-based lifelong learning, and cultivate strategic partnerships to enable emerging program service deliveries. Learning Outreach functions to build, support and strengthen capacity for non-traditional learning modalities to benefit learners in the credit and continuing education continuum of learning, credit for life experiences, high school articulated credit, and community-based programs for target audiences.

The collaborative functions of Learning Outreach are clustered and broadly defined to provide off-campus outreach, emerging programs and strategic partnerships, secondary education outreach, and lastly, distance learning and emerging technologies. Off-campus learning opportunities for local community groups, high school dual enrollment students, career changing adults, senior citizens, etc., are provided.

Emerging programs and strategic partnerships provide for a wide range of potential options such as partnering with secondary school districts for college readiness, embedding college curricula in secondary curricula, and other programs. Mutually beneficial partnerships with organizations as the American Association of Retired Persons (AARP), American Red Cross, Michigan Department of Corrections and U.S. Army Automotive Tank Command (TACOM) are embraced to provide educational opportunities for non-traditional students.

e-Learning

Macomb College is committed to supporting students with a variety of e-Learning (online, hybrid, web-enhanced) opportunities to successfully earn certificates and degrees as they prepare for the workforce. Over 200 online and hybrid course sections are conveniently available 24/7 each semester in online classrooms supported by ANGEL Learning software. A growing number of accredited Associate of Business Administration, Associate of Applied Science, Associate of General Studies degree programs and certificates can be successfully completed 100% online. Browse www.macomb.edu and search “e-Learning” for many opportunities.

ANGEL Support

For assistance with ANGEL Learning software, technical, or connectivity questions; please contact ANGEL Support by telephoning 1.877.eMacomb (1.877.362.2662), 586.226.4749 or email angelsupport@macomb.edu. Please provide your full name and seven digit Macomb ID when contacting ANGEL Support after you are officially enrolled in a course section. Failure to resolve technical concerns, prior to the start of class or later, may adversely impact your successful participation and course completion.

Online Sections

Online sections allow students to take courses from anywhere in the world without the need to be on campus. For purposes of student authentication and program accreditation, however, students may be required to be on campus to take a proctored examination(s) or to do so at an authorized testing center.

Hybrid Sections

Hybrid sections, also known as “blended” at some colleges and universities, are a combination of traditional on-ground and online classroom instruction or facilitation. For example, a science course may be offered in an online classroom for lecture and on campus for laboratory. Other hybrid sections may require students to meet for the first time on campus or periodically throughout the semester in order to make presentations, participate in field trips, and/or take examinations.

Web-enhanced Sections

Web-enhanced classes meet in on-ground classrooms on scheduled days and times with teaching augmented through use of a virtual learning environment supported by ANGEL Learning software.

Michigan Community College Virtual Learning Collaborative (MCCVLC)

The MCCVLC is a pilot project of the Michigan Community College Association that distributes online class offerings from member colleges to students in a virtual learning environment with support services provided by the host college. Any student currently enrolled in a Michigan community college may register for one or more of the courses. For more information, students can log onto the MCCVLC website at www.mccvlc.org

Center for Continuing Education Non-Academic Credit

The Center for Continuing Education at Macomb offers over 150 online classes for non-credit continuing education. For a current list of available classes, visit www.macomb.edu or phone 586.498.4000.

Libraries

Macomb Community College libraries support the educational, enrichment and economic development experiences provided by the College. Macomb library services are offered to students, faculty, staff and community patrons.

The Libraries are located at South and Center Campuses. Each location has over 47 patron computers offering access to the Internet, as well as to print and electronic, book, periodical and audiovisual collections. Microsoft Office programs are available on library patron computers as a convenience to students preparing class assignments.

Resources

The Libraries contain approximately 190,000 books, 260 print periodical titles, 25,000 electronic periodical titles and 10,000 audiovisual titles.

Internet research resources available to users include the full-text of the Detroit News and the New York Times. Full-text magazine and journal articles are also available from the InfoTrac, FirstSearch, and JSTOR databases.

Online language and literature, full-text information is available in the Literature Resource Center. The Allied Health curriculum is supported by the InfoTrac Health and Wellness Resource Center, ProQuest Nursing Journals, and PsycArticles databases. The Business curriculum is supported by Hoover's Business and the Morningstar databases. The Automotive Tech curriculum is supported by ALLDATA, an automotive repair database. Education related materials are available via the Professional Collection and online access to full-text ERIC documents.

Resources are evaluated and changed periodically. Please check with a reference librarian in order to determine the availability of a particular database or a periodical title.

DALNET

Macomb Libraries are members of DALNET, the Detroit Area Library Network, a regional group of academic, special and research libraries. Membership in DALNET opens technical and human resources beyond those available at any single institution. Through DALNET, Macomb libraries provide access to inter-library loans, an integrated, online library system that offers a web-based catalog.

Should patrons wish to borrow materials from other libraries, Macomb Libraries have reciprocal borrowing agreements with a variety of academic libraries. Macomb students and staff may borrow directly from Oakland University, the University of Detroit Mercy, Wayne County Community College, Oakland Community College, and Eastern Michigan University. Users may borrow items at these libraries with their Macomb library card. Please check with a reference librarian to determine the availability of a specific item.

Access to Electronic Resources from Home

Students with Internet access at home have the ability to access Macomb Library resources, including the online catalog and the full-text Internet periodical databases, via their computer. Remote access is available to any student who uses his/her Macomb ID for authentication purposes.

The libraries are located at:

Center Campus Library
44575 Garfield Road
Clinton Township
C-Building
Library telephone: 586.286.2104
Reference Service: 586.286.2056

South Campus Library
14500 E. Twelve Mile Road
Warren
J-Building
Library telephone: 586.445.7401
Reference Service: 586.445.7779

Macomb Center for the Performing Arts

Macomb Center for the Performing Arts, an auxiliary enterprise of Macomb Community College, is the cultural hub of Macomb County. Its mission is to enhance and enrich the cultural development and awareness of the community by offering a diversified selection of quality cultural experiences, and to inspire and encourage artistic expression through education, performance and volunteer opportunities. For tickets, brochures and general information please call 586.286.2222.

The Macombers

Macomb's award-winning cultural ambassadors, The Macombers, are Michigan's oldest college show choir ensemble. This group of 16-20 students are chosen by a competitive audition process and all receive scholarships and intensive training in voice and dance. The Macombers perform throughout the state and compete nationally. The group is available to perform for audiences of all ages. For information call 586.286.2044.

Nature Education Areas

Macomb Community College maintains two Nature Education Areas for use by the community and students. The Center Campus nature area consists of a 26-acre unfenced wooded area and surrounding meadowland providing easy access for nature study and enjoyment in a changing landscape. The woods contain a climax beech-maple forest with 200-year-old trees and a shagbark hickory/oak forest as well as a wide variety of wildflowers. The South Campus Nature Area is a fenced and locked 13-acre area, which contains a variety of habitats and features a beech-sugar maple climax forest and a pond. Access for the South Campus Nature Area is through the science department at 586.445.7106. For more information or to arrange guided tours for both areas, call 586.286.2147. You can also check out the web page at www.macomb.edu.

Police Training

See Public Service Institute

College Police

Feeling safe on campus is a high priority for all students, staff and visitors of Macomb. Ensuring that safety is maintained is the job of the campus police officers who are duly sworn and have full police powers and provide police, fire, and security services.

The College Police offices are open 24 hours a day, seven days a week, year-round and are located at:

Center Campus & University Center	**South Campus**
I-Bldg	C-116
586.286.2123	586.445.7135

In order to ensure a safe environment within the College, all police incidents and security or safety problems including vehicle accidents, injuries, criminal offenses, and suspicious activity should be reported to the college police.

Chemical spills and injuries that involve blood or body fluid spills require cleanup following bloodborne pathogen policy. Call the college police so that cleanup can be done by the environmental technician from plant operations.

Material safety data sheets are available in the college police office at South and Center campuses.

Other college police services include information for disabled students assistance, lost and found, severe weather information, basic first aid and emergency procedures, and "Student Right to Know" compliance, including crime statistics. Crime prevention services include pamphlets, presentation, video viewing and displays.

Information on drug and alcohol abuse prevention, the College's Sexual Assault Policy and information on the "Stalking Law" are also available.

Blue light emergency telephones are located near building entrances and parking lots.

Procurement Technical Assistance Center (PTAC)

The PTAC Program works nationwide to provide businesses with marketing know-how and technical tools they need to obtain and perform successfully under federal, state and local government contracts—with the mission of creating and retaining jobs, fostering competition and lower costs for government, and helping to sustain our armed forces' readiness. For more information visit the Michigan Technical Assistance Centers website at www.michigantac.org or call 586.498.4122.

Program Selection

If your choice of program has changed, you may update your program in the Enrollment office. If you would like to discuss the program you have chosen, it is recommended that you discuss this with an Academic Advisor. If you are unsure of which program to follow, an appointment with a Counselor is strongly recommended to discuss your options.

Counseling & Advising Locations:

Center Campus	**South Campus**
G-132	H-316
586.286.2228	586.445.7211

Public Service Institute

Police, Fire, and EMS services are demanding occupations that require thorough training and education. Macomb's Public Service Institute educates students and working professionals for positions of responsibility and leadership in public service that includes police, fire, paramedic, and health & safety training. We link students with peers, instructors, and community partners that help students obtain a meaningful education and occupational experience to be prepared for careers in these areas.

Macomb's Public Service Institute also provides training for individuals within businesses and industry who are responsible for emergency services and industrial safety functions. Our comprehensive training enhances safety, protection, and emergency response services within a business.

Additionally, our programs provide in-depth knowledge and technical skills pertaining to Homeland Security Emergency Preparedness and Response. Our training enhances the tactical and operational preparedness of America's first responders, emergency providers, and disaster-response personnel with timely and professional education to safely and effectively manage emergencies.

For more information call us at 586.286.2189.

Criminal Justice Training Center/Police Training

- **Basic Police Academy:** A 16-week, 640-hour training program that exceeds the State of Michigan mandated training curriculum required to enforce the general criminal laws of the State of Michigan.

  Admissions Criteria: Employment by a law enforcement agency able to meet the standards established by state statutes or a minimum of an associate's degree, successful completion of the Michigan Commission on Law Enforcement Standards (M.C.O.L.E.S.) pre-employment test, approval by an academy coordinator following an interview, and payment of the prevailing academy fee. Call 586.498.4060.

- **Advanced Police Training:** In-service seminars designed to increase proficiency and professionalism in law enforcement. A wide variety of specialized, supervisory- and management-level seminars prepare officers for career advancement or new assignments. Seminars include updates on new laws, legal decisions and emerging technology, as well as changing enforcement practices, techniques and equipment.

  Admissions Criteria: Law enforcement officers and other personnel with a need to know the seminar topic. Call 586.498.4050.

- **The Center for Police Management and Leadership Studies:** A 16-week program that meets once a week. Designed to develop leadership skills in supervisory and management personnel in a law enforcement agency. Budgeting, Contract Administration, Human Resources, Media Relations, Organizational Behavior, and Personnel Law are among the topics covered. This program is located at the University Center.

  Admissions Criteria: Law enforcement supervisory personnel and other public safety personnel with a need to develop executive management skills. Call 586.286.2189.

Fire Academy

Basic Fire Training Academy: A ten-week day or 32-week night, 400-hour program providing basic training that exceeds the State of Michigan mandated requirements for a fire fighter. Live fire, vehicle extrication, HAZMAT awareness and operations and confined space training, emergency egress, and water rescue are part of the academy program. Graduates, upon successful completion of the written and practical tests, will be certified by the state as fire fighters. Located on Dunham Road, Clinton Township.

Admissions Criteria: Firefighters from organized fire departments or approval by an academy coordinator following an interview, successful completion of the physical agility test, and payment of the prevailing academy fee. Call 586.498.4020.

Health & Safety Training

Business/Industry and Municipal Health and Safety Training: Our staff can make an on-site assessment of your organization's adherence to federal and state regulations and suggest methods to make it safer. After the evaluation, a training program can be developed to meet the specific needs of your organization. Call 586.498.4055.

Courses, offered both on- and off-site, can be customized to meet the site-specific needs of industry and municipal organizations. Compliance/Workplace Health and Safety Training that can help you avoid both fines and employee injuries include:

- Confined Space
- Fire Brigade
- Hazardous Materials
- Forklift Traffic Safety
- HAZWOPER
- Industrial First Aid, CPR, MFR
- Lock-out Tag-out
- Live-Fire Tower, Extinguishers
- Industrial Fall Protection
- Customized Training

Business/Industry Fire Brigade Training: Includes all levels of incipient and structural fire brigade with live-fire, HAZWOPER, confined space, CPR and emergency medical response. Annual refreshers and customized training for specific needs at your site or ours. Call 586.498.4055.

Advanced Fire Training: Courses from the National Fire Academy are offered on a continuing basis to upgrade fire fighter professional skills, including Fire Officer I, II and III. Other specialized and advanced seminars on management- and supervisory-level skills are regularly scheduled. Live fire technical rescue, hazardous materials, continuing education/refresher and customized programs are offered to all emergency response personnel. Call 586.498.4055.

Fire and Building Code Officials Programs: Various seminars are conducted on a host of subjects required by various inspection agencies. All of the seminars are registered with the appropriate state agencies, and the students receive credit toward their continuing education requirements.

The Center for Fire and Emergency Services Management and Leadership Studies: A 16-week program that meets once a week. Designed to develop leadership skills in supervisory and management personnel in a fire and emergency services agency. Budgeting, Contract Administration, Human Resources, Media Relations, Organizational Behavior, and Personnel Law are among the topics covered. This program is located at the University Center.

Admissions Criteria: Fire and emergency services supervisory personnel and other public safety personnel with a need to develop executive management skills. Call 586.286.2189.

Records & Transcripts

The College maintains a permanent record for each student who has taken classes. Transcripts will be mailed upon written request, or by applying for a transcript via WebAdvisor. Request for Transcript forms are available at and should be returned to the Enrollment Office at Center Campus, G-120 or South Campus, G-301. Allow 48–72 hours for processing and there is no charge for these transcript requests. For students who come to the College and request a transcript "on-demand", a $5.00 fee is applicable (during on-campus registration or term-end posting of grades, "on-demand" transcripts may not be available.)

An unofficial transcript may be obtained on Macomb Community College's website via WebAdvisor. Students who desire to change their name, address, or program on their official college records should contact the Enrollment Office, G-120, Center Campus; or G-301, South Campus.

Student grade reports are available on WebAdvisor and Tel-Reg. Grade reports are not mailed to the student.

Secondary Education (High School) Outreach

Macomb Community College is committed to Learning Outreach, which includes Secondary School Outreach. The role of this department is to coordinate educational and career focused programs that expand the college's position as an educational resource, provider, and partner to the secondary school educational institutions within our service area.

The goals of the Secondary School Outreach department include:

- Working in formal partnership with the Macomb Intermediate School District to implement programming county-wide.
- Developing various college readiness opportunities for the majority of high school students in Macomb County.
- Conducting career awareness programs in a variety of areas.
- Providing learning opportunities for at-risk students.
- Enhancing fund development to increase participation in these programs.
- Providing "early start" opportunities for earning college credits. These include dual enrollment, articulation, and advanced placement opportunities.
- Providing a variety of online learning opportunities for high school students to be concurrently enrolled in high school and college.

We invite you to learn more about Secondary School Outreach activities by exploring our website at macomb.edu.

Senior Citizens' Programs, Services

Macomb offers senior citizens (Michigan residents aged 60 years or older) a 10% discount on all College services including tuition and fees. In addition, seniors can benefit from the 10% discount on many other College programs and services.

Skill Specific Certificates

Macomb's Skill Specific Certificates can be a permanent solution, or a first step in developing, changing, or upgrading your career.

The Skill Specific Certificates are a series of courses in an area of study that will provide you with employable skills in as little as 16 weeks. These employer-endorsed certificates reverse the traditional order of obtaining your education in a career or technical field. Instead of scheduling all the Arts & Sciences courses (English, mathematics, etc.) your first semester and then taking the elective courses that apply to your field of work, the order is reversed. In some cases, after just one semester, you will have the skills you need to seek employment or upgrade in your current job. Most credit hours earned via a Skill Specific Certificate can be applied to program certificates and associate's degrees. The student is required to complete the work specified in the Skill Specific Certificate program and:

- A minimum of 5 credit hours and a maximum of 20 credit hours with at least a 2.0 grade point average in each course.
- Students may apply approved industry standard certifications, or equivalent courses taken at an accredited college or university, toward this certificate. Students are required to take at Macomb a minimum of 25 percent of the total credit hours required for the certificate. For example, if a certificate requires 13 credit hours students would be required to take a minimum of 3 credit hours at Macomb. (13 credit hours x 25%=3.25)

Skill Specific Certificates are offered in the following areas:

- Accounting
- Automotive Technology
- Business Management
- Culinary Arts
- Electronic Technology
- Entrepreneurship and Small Business
- Hospitality Management
- Information Technology
- Manufacturing Engineering
- Marketing
- Medical Assistant
- Pastry Arts
- Product Development
- Quality Systems Technology
- Surgical Technology

Speakers' Bureau

The Macomb Community College's Speakers' Bureau represents one facet of the college's outreach activities and ongoing commitment to serve the community with educational, enrichment and economic development opportunities. Through a network of college faculty, staff and professionals from the community, the Speakers' Bureau can connect your group with a speaker to enhance their understanding about an important topic, to stimulate thinking, to pique curiosity or to simply be entertained.

The Speakers' Bureau offers presentations on more than a 100 topics, including business, career planning, communications, economic issues, environment, health and wellness, and a wide range of other special interests. Speakers can also address the wide array of programs that Macomb offers, as well as explain processes such as financial aid, admissions and career choices.

Speakers' Bureau presenters are volunteers and have prepared programs suitable for events such as luncheon meetings, civic groups, discussion groups and after-dinner meetings. The college's Speaker Bureau service is complimentary to Macomb County organizations.

Sports & Expo Center

The Macomb Sports & Expo Center, located at the South Campus, is the only facility of its kind on Metropolitan Detroit's east side. With a maximum seating capacity of 2,880, this 61,000 square foot space hosts shows and exhibitions covering a wide range of interests, such as home builders, camper and RV, gem and mineral show and Special Olympics. For a complete listing of upcoming events taking place in the Sports & Expo Center, click on the Sports & Expo Center link at the top of macomb.edu.

Student Activities

The Student Activities office provides an important complement to the student's academic endeavors, giving a more well-rounded campus life experience. Students can participate in activities that focus on diversity, education, leadership, volunteerism and, of course, just having fun. Examples of past activities are the annual Welcome Week, Mardi Gras Celebration, Black History Month, Toys for Tots, Habitat for Humanity, AIDS Awareness Week and Speed Dating.

Another great way for students to get involved is through our numerous student clubs and organizations such as Phi Theta Kappa, Organization of Women Leaders, Nurses Club and Anime Kaisho, just to name a few. Being involved in a student organization is not only a great way to meet people, but it can also be a great way to develop skills for any career.

Just looking to relax and have fun? Each of our student centers features a recreational game room area. This is a place where students can play pool, cards, chess, video games, ping-pong or just relax. There is no better place on campus to unwind between classes!

Want to know more? Check out our Student Activities web page at www.macomb.edu/student activities for a complete listing of student organizations, activities and many other ways to enjoy life on campus! Or simply stop by one of our Student Activities Offices located in the student center on each campus. We are located on South Campus in K-Building (Room 251, 586.445.7446) and on Center Campus in P-Building (Room 127, 586.286.2242). Email us at sasouth@macomb.edu or sacenter@macomb.edu.

Student Community Centers

The John Lewis Student Center, located on South Campus, and the John Dimitry Student Center, located on Center Campus, are great places to spend your free time and meet other students while on campus. Both Centers are the focal point of student and community life for the College. Housed in both Student Centers is the Bookstore, Dining Services for breakfast, lunch and snack food items, lounge areas and an ATM machine. Additionally, game room recreation areas provide a whole host of activities, such as ping pong, Playstation 2, chess/checkers, pool and more. At South Campus you will also find the offices of Conference & Event Services for room rentals and catering, as well as Student Activities and the ecumenical Campus Ministry. More comprehensive information on the Student Community Centers can be found on our website.

Student Hold Policy

A HOLD will be placed on a student's academic record if outstanding monetary or material obligations have not been satisfied or in the event of an unresolved disciplinary matter. The HOLD will be released when the monetary or material obligation has been fully satisfied or the disciplinary matter satisfactorily concluded. Any person who has a HOLD placed on their record will not be allowed to register, request or receive transcripts, or receive any other services from the College until the HOLD is released.

Students' Rights & Responsibilities

At Macomb Community College, we are committed to providing you with a quality education and to supporting your success. This catalog as well as our website, our schedule of classes, and dedicated employees throughout the institution can provide you with information about services that are available to support you in identifying and achieving your educational goals.

As the College has the responsibility to support your educational achievement, you as a student have certain responsibilities for managing and directing your own educational plan. Following are strategies that can help you:

- Take an active role in clearly stating your goals and engaging yourself in your own success
- Seek the advice of a counselor or academic advisor on a regular basis
- Become familiar with college policies, procedures and deadlines
- Be proactive in communicating with your instructors
- Seek assistance and support services as necessary, such as the Learning Center, Library, Counseling, Advising, etc.
- Ensure, by communicating with your chosen senior institution, that courses are appropriate for transfer and that you clearly understand transfer requirements
- Enroll in courses as suggested by your counselor or advisor

In addition to your responsibility to manage and direct your own educational plan, you are also responsible for knowing and following the policies, rules, and regulations that contribute to the learning process on our campuses. Go to the College website at www.macomb.edu to review your obligations as a student. Most of the rules and regulations outlined are self-explanatory. These regulations as well as applicable Township, City, County, State and Federal laws, statutes and regulations apply on all College property and at all College-sponsored events.

Our website also provides extensive information about your rights as a student. We urge you to review all of College policies regarding such important topics as Equal Opportunity and Affirmative Action, unlawful harassment, discipline, use of computer software, and confidentiality of your student records. Questions regarding College rules and regulations should be addressed to the Dean of Student Success at 586.445.7407.

We also ask you to join us in maintaining a safe environment on all of our campuses and sites. Promptly report all crimes, accidents, and civil infractions occurring on College property to the College Police Department. At Center Campus, they are located in room I-107 and can be reached at 586.286.2123. At South Campus, you will find them in C-116, or you may dial 586.445.7135.

Academic Dishonesty

Plagiarism and academic dishonesty are being addressed in a serious manner at Macomb Community College. As a student, the following statement may be included in the first day handout for the traditional classroom and posted to a discussion board in the online classroom:

"As a student, I understand that academic dishonesty will not be tolerated at Macomb Community College. I am here to learn. Through learning, I will strive to become a better person and a more valuable contributor to society. I understand that dishonesty in the classroom, through cheating, plagiarism or other dishonest acts defeats the purpose and disgraces the mission and quality of Macomb Community College. Therefore, I will not engage in dishonesty in any of my academic activities, and I will not tolerate such dishonesty by other students."

Student Concern and Complaint Procedure

We strive to provide all students with positive experiences at Macomb Community College. However, the College has developed procedures to ensure that students' concerns or complaints are addressed.

If students have concerns which merit discussion with a teacher or another college staff member, students are encouraged to express their concern with the appropriate person whether it be a

teacher or staff member if this can be comfortably done. If not, the student should contact the supervisor of that individual to discuss the concern and seek appropriate resolution.

A student may initiate a complaint against a teacher if a student believes that the teacher has engaged in misconduct while performing duties or has failed to perform duties. The complaint process involves the following steps:

- The student may direct the complaint to the associate dean or director in the appropriate academic area for informal resolution. Alternatively, the student may submit the complaint to the Provost in writing. This notification must specify the reasons for the complaint and be signed and dated.
- The Provost or a designee, an Associate Dean or the Dean of Student Success, will investigate the complaint.
- As part of the investigation, the student may be called upon to personally discuss the complaint in the presence of the Provost or a designee and/or the teacher against whom the complaint is lodged.
- The Provost or a designee will decide whether action should be taken based upon the facts determined in the investigation.

Questions regarding the complaint procedure may be directed to the associate dean or director of the teacher's department.

Student Success Services

Student Success Services' mission is to assist students who wish to have assistance developing their academic skills. Many programs are offered using traditional methods as well as computer-based instruction. Tutoring, seminars and workshops are offered free of charge for Macomb College students. Let us know how to assist you so that we can develop programs to fit your changing needs. Visit our website at macomb.edu/Learning Center or contact the Learning Centers for information.

The Learning Centers

Most programs that support students' academic work takes place at the Learning Centers. There is one located at each campus. You can contact them at the following numbers, or visit the Learning Center web pages on Macomb's website.

Center Campus	South Campus
C-116	J-325
586.286.2203	586.445.7400

Tutoring and Group Study

The Learning Centers provide an area for you to study individually or in small groups. Tutor-led study sessions are available for many subjects such as mathematics, biology and history. If you need help in an area not currently offering tutoring, complete a request for tutoring at the Learning Center. We'll do our best to find a qualified tutor to help you.

The times when tutors are available for various subjects are posted in the Learning Centers as well as on the Learning Center web pages. Scheduled tutoring sessions may change depending upon demand for this service and availability of tutors. Contact the Learning Centers for the most current tutoring schedule.

Tutoring for writing is available by appointment. Writing tutors can help you with papers for any subject area. You may stop in or call for an appointment. If you cannot get to campus, you might like to work with an on-line writing tutor. Go to the Learning Center pages on our website for directions on how to work with an online Writing Tutor.

Resources

The Learning Centers support classroom instruction with a wide range of video, audio, computer software, books, and laboratory materials. Staff is available to help students determine which resources might be best for their particular need.

PLATO is a computer software program that can help students develop skills in science, mathematics, English, reading and social studies. If you would like to work on one or more of those areas, come to the Learning Center and fill out an intake form. You will be notified when you have been enrolled in the system. PLATO is self-paced so you can progress at your own rate.

There are many more resources in the Learning Center. Please ask questions about what is available, and feel free to come and discover what may be of help to you.

Student Success Seminars

These seminars are offered throughout the fall and winter semesters to assist students in developing academic skills that will support their success in their classes. Proven techniques are presented about a variety of topics such as time management, test anxiety, and how to take notes during a lecture. The underlying theme of the seminars is to learn to "study smarter, not harder." The seminars are free and are offered midday and in the evening. Schedules are on the Learning Center web page, in the Learning Centers and in the current Schedule of Classes.

Academic & Career Testing

Student Success Services facilitates academic testing for students and the public. This includes placement testing, career assessments, make-up tests for classes, and other academic tests such as CLEP, LSAT, HESI, and ACT. Everyone taking a test must present a picture ID and follow staff directions for appropriate testing. You can obtain more testing information by visiting the Learning Centers or going to the Macomb Web page and then going to Learning Center.

CLEP

The South Campus Learning Center is a national CLEP (College Level Examination Program) testing site. Students may be able to obtain course credit via this program. CLEP information can be found at: http://www.collegeboard.com . Macomb Community College's course equivalencies are available at the Learning Center or on the college web site.

Credit by Examination

Students may receive credit for specific Macomb Community College courses or elective credit in general subject areas by passing examinations designed to measure knowledge in a specific area. Visit the Learning Center web page or call either Learning Center to obtain a list of exams that are available from the various departments.

Credit for Prior Learning

Contact the Learning Centers to discover how your life and/or work experiences may be eligible for college credit through the Credit for Prior Learning program. Portfolios must be turned in at the South Campus Learning Center. More information is available on the Learning Center web page.

Transfer Information

Transferring to Macomb

Macomb Community College will accept course work satisfactorily completed (with a grade of A, A-, B+, B, B-, C+, or C) or an equivalent of 2.0 or higher based on a 4.0 scale from other colleges and universities which are approved by the American Council on Education and/or accredited by the Higher Learning Commission or its regional equivalent.

Credits for courses taken elsewhere will be evaluated by the Enrollment Office.*

Students who are seeking transfer credit should request the college(s) previously attended to mail an official transcript to the Enrollment Office, G-120, Center Campus or G-301, South Campus.

Selective admission applicants who are interested in earning the **Associate of Applied Science degree in Nursing (NURS), Occupational Therapy Assistant (OTAS), Physical Therapist Assistant (PTAS), Respiratory Therapy (RSPT), Surgical Technology (SURG) and/or Veterinary Technician (VETT)** programs should request the college(s) previously attended to mail an official transcript to the Center Campus Enrollment Office, G-120. For a selective admission packet, call the Information Center at 586.445.7999 or download from Macomb's website. For additional information, contact the Enrollment Office, 586.445.7225.

* Grades earned at another college will not replace grades earned at Macomb Community College.

Transferring to Other Colleges/Universities

A student who intends to earn a bachelor's degree at a senior college or university may complete their freshman and sophomore years at Macomb. Options for students include selecting courses leading to the Associate of Arts, Associate of Baccalaureate Studies, Associate of Business Administration, Associate of Science, or Associate of General Studies degrees. Students also have the option to follow a prescribed plan of study specific to an intended major and a transfer college or university. The Associate of Applied Science degree, while narrow in focus, may also transfer to a variety of colleges for either a technical, business, or general studies baccalaureate degree.

While many students choose to complete an associate's degree prior to transfer to a senior college, and certainly there are advantages of obtaining the two-year degree credential, students should visit with a counselor or advisor to weigh their options and discuss the most advantageous time line to make this transition.

For these reasons it is emphasized that each student planning to transfer credits to senior colleges or universities should make an individual appointment with a counselor or visit an advisor early in their college career. For further information, contact the Counseling & Advising Office at 586.286.2228, G-132, Center Campus or 586.445.7211, H-316, South Campus.

College Transfer Agreement

Macomb Community College is signatory to the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Transfer Agreement. The agreement provides assurances to transfer students regarding satisfaction of basic requirements at most of Michigan's senior colleges and universities. At the student's request, the records area will review the student's academic record. If the necessary basic Arts and Sciences requirements are met, the student's transcript will be stamped "MACRAO agreement satisfied." Additional information is available through the Counseling and Advising Office at: 586.286.2228, G-132 Center Campus; or 586.445.7211, H-316, South Campus.

Office of Articulation and Transfer Services

Center Campus
L-106
586.286.2216
transfer@macomb.edu

Approximately one half of the student population at Macomb Community College declares an intention to transfer for the purpose of completing a baccalaureate degree. The Office of Articulation and Transfer Services at Macomb College supports the aspirations of these students and the transfer mission of the College. The Articulation Office collaborates with the State's senior colleges and universities to identify the equivalency of Macomb courses to courses offered at these partner institutions. Based on this course equivalency information, transfer plans of study are prepared which enable Macomb students to follow an appropriate path of study for their chosen college major and transfer destination. Additionally, we work with these same senior institutions to establish formal agreements linking completion of community college associate's degrees with related baccalaureate degrees. Visit www.macomb.edu for additional information.

In an effort to facilitate seamless transfer for Macomb students, the College has established the Associate of Baccalaureate Studies (ABS) degree which guarantees 100% transfer of courses taken for this degree. The transfer plans related to this associate's degree allow students to tailor their coursework to the specific general education and foundation courses required by their targeted senior college. Students are not required to take courses at Macomb for the ABS degree which are not required by their intended 4-year college. Students completing the associate's degree are assured that, upon satisfactory completion of their Macomb studies, they will be treated for admission to their programs on the same basis as "native" students (those who attended the senior institution for their freshman and sophomore years). Some joint program agreements have also been arranged with Macomb's neighboring community colleges. A description of these can be found on the Macomb website. For more information, contact the Office of Articulation & Transfer Services.

Senior College Recruitment Activities

The Articulation Office facilitates visits to Macomb's Center and South campuses by senior college representatives each Fall and Winter Semester. This provides students with an opportunity to discuss their transfer plans with staff from their chosen senior college or to explore transfer opportunities at several possible transfer destinations. A College/University Transfer Fair is held once a year during the Fall Semester. Transfer seminars covering Macomb's University Center programs and other transfer related issues are held during both major semesters. For more information, contact the Office of Articulation & Transfer Services.

High School Articulation Agreements

See Secondary Outreach

Tuition & Fees

Because Macomb County taxpayers support Macomb Community College through a voter approved millage, students who live or own property within Macomb County are charged less per credit hour than those who live outside the community college district.

Tuition rates are based on whether the student is a:

- Macomb County resident or if student owns property within Macomb County
- Nonresident of Macomb County
- Out-of-state/International student
- Affiliate tuition rate

(See the Schedule of Classes for current tuition rates.) **Tuition and fees are subject to change by the Board of Trustees.**

How To Determine Tuition

To determine your tuition, multiply the applicable tuition rate by the number of credit hours taken. In figuring your tuition, include all the following fees:

- Registration fee
- Course fees: see specific course sections

Tuition Assessment

1. Citizens, permanent residents of the U.S. and international refugees who reside in Macomb County or own property within Macomb County at the time of registration shall be assessed the resident tuition rate.
2. Citizens, permanent residents of the U.S. and international refugees who are not residents of Macomb County, but are employed full-time in Macomb County and whose tuition is reimbursed or paid directly by the employer, shall be assessed the resident tuition rate. To qualify for this rate, however, a letter signed by an appropriate officer of the firm or agency describing the reimbursement and/or payment/billing plan must be filed each semester with the Financial Services Office, Center Campus S-Buildiing, prior to registering for classes.
3. Citizens, permanent residents of the U.S. and international refugees who reside in the state of Michigan, but not in Macomb County, shall be assessed the nonresident tuition rate except in the case of '2' above.
4. Citizens, permanent residents of the U.S. and international refugees who reside outside the state of Michigan shall be assessed the out-of-state tuition rate except in the case of '2' above.
5. Persons admitted to the United States under a student or other type of visa shall be assessed the out-of-state/foreign tuition rate.
6. With the approval of the Director of Enrollment Services/Registrar, students participating in an official and recognized foreign student exchange program (e.g. AFS) shall be assessed resident tuition rates if they reside in Macomb County at the time of registration. Otherwise they shall be assessed nonresident or out-of-state tuition rates depending on where they are residing at the time of registration.
7. Affiliate students are defined as "non-county" residents living in communities not served by a community college, or who are attending the College under the terms of a formal agreement with another educational provider. Affiliate student status is defined as (1) the portions of four Macomb County School Districts (Anchor Bay, Richmond, Armada, and Romeo) that fall outside an established community college district, and (2) the southern Lapeer County School Districts of Almont, Dryden, and Imlay City. This affiliate rate generally falls between the resident and nonresident rate.

The student will have to present documentation to receive affiliate rates. A copy of the property tax bill or a copy of the Michigan Income Tax Form for the last fiscal year that reflects the school district in which the student resides, or the student's parent/guardian (if a dependent) resides. Submit appropriate documentation (by fax, mail or in person) to the Office of Enrollment Services at either Center or South campuses. If these items are not available, the student must provide a statement from the school district certifying the student resides within the school district covered in this agreement. Eligible recipients must submit appropriate documentation each year.

Proof of Residency

For the purpose of tuition assessment, proof of residency may be required. Proof of residency documentation must include the student's name and current address. **Current Macomb students** must provide proof of residency when they change their address.

To verify residency, submit a photocopy of one of the following:

1. Valid Michigan driver's license in student's name (both sides must be submitted if license has been renewed or address has changed).
2. Valid motor vehicle registration in student's name (car insurance and car title not acceptable).
3. Utility bill in student's name (dated no earlier than 60 days prior to registering for classes).
4. Valid Michigan identification card in student's name.
5. Payroll stub with student's name and address (dated no earlier than 60 days prior to registering for classes).
6. Charge statement in student's name and address (dated no earlier than 60 days prior to registering for classes).
7. Closing statement in student's name (closing on residence must occur within 30 days after first day of semester).
8. New rental or lease agreement in student's name (dated no earlier than 60 days prior to registering for classes).
9. Current property tax receipt in student's name (must be place of residency or property).
10. Military identification card (only for those assigned to Selfridge Air National Guard Base).
11. Statement verifying residency signed by parent(s) if student is still in high school, and parent's proof of residency OR statement verifying residency signed by parent(s) and current high school record.

If you live outside of Macomb County, but own property in Macomb County, a current property tax receipt must be submitted each semester in order to receive resident rates.

Deliberate misrepresentation of residency to obtain lower tuition rates is subject to disciplinary and/or legal action by the College.

Decisions regarding residency status may be appealed to the Director of Enrollment Services. The difference in fees, because of a change in residency status will not be refunded if proof is submitted after the student registers for classes.

Tuition Refunds

Tuition refunds are available for a limited time after registration is completed. Students who decide to drop their classes during the refund period may drop by phone or web (see Tel-Reg•Web-Reg schedule) or on-campus in the Enrollment Office, Center Campus, G-120 or South Campus, G-301. Processing for current semester refunds begins four weeks after the start of the semester and is done on a weekly basis thereafter.

Any balance due as a result of Financial Aid, Sponsorship or tuition refund will be refunded based on the original method of payment. Account payments made through cash or check will be refunded in the form of a check. In order to be compliant with our credit card providers, account payments made by bank card will be refunded directly to the bank card and a letter indicating the amount and date of the refund will be mailed to the student. All balances due that exceed the account payment for the past 120 days will be issued in the form of a check.

It shall be the College policy to refund tuition and course fees according to the schedule in the Schedule of Classes, except where superseded by law, to a student who properly withdraws from a class. For details see our website.

Refunds Under Special Circumstances

Students who must withdraw from a class after the official refund period as a result of military deployment shall receive a 100 percent refund of tuition, course fees and registration fee or equivalent credit voucher upon presentation of documentation satisfactory to the college.

Students who must withdraw from a class after the end of the official refund period but before the end of the official withdrawal date within that term due to hospitalization; accidental injury; prolonged illness; mandatory shift change at student's place of full-time employment (does not include mandatory overtime); and mandatory move of employment which necessitates a change of residency (does not include new employer), may receive a 100% refund of tuition, course fees and registration fee in the form of a credit voucher upon presentation of documentation satisfactory to the college. However, if the student is receiving financial aid, a refund may not be issued due to Federal regulatory requirements.

Requests for special consideration must be made in writing to the Director of Enrollment Services/ Registrar.

The University Center at Macomb

The Macomb University Center (UC), located on the Center Campus, is a unique entity developed by Macomb Community College to meet the educational needs of the community by providing upper level baccalaureate and master's degree programs as well as selected postgraduate certificate programs in Macomb County. These degree programs are offered as part of a partnership that combines the facilities of Macomb Community College with curricula and expertise of the various "partner" colleges and universities.

Admission to a University Center Program

Admission may be gained in one of two ways:

1. Enroll at Macomb Community College and apply to transfer to the partner institution of your choice once you complete a minimum of 62 transferable credit hours.
2. Apply directly to a partner institution to complete a bachelor's degree if you have attained junior or senior status at another college or university, or to pursue a graduate program if you have earned a bachelor's degree.

Your best source of information for transferring to a University Center partner institution is your counselor at Macomb Community College or the University Center partner you wish to attend. By working closely with a counselor when you first enroll at Macomb Community College, you are assured of taking and being able to transfer all necessary courses. It is suggested that you attend a University Center Open House (held each fall and spring) to meet with representatives of the partner colleges and universities.

Since each of the partner institutions offer different degree programs and have different admission requirements, it is important to contact the college or university of your choice for admission information. A viewbook of programs and partners at the University Center is available from the Macomb Information Center (586.445.7999). Most of the partner schools have an office at the University Center where you can obtain information and meet with a representative.

Transfer Scholarships

Many of the University Center partners offer scholarships to Macomb transfer students. For information on scholarships available, see the Macomb Transfer Scholarship Guide available from the Office of Financial Aid at Macomb, or talk with UC representatives of the partner institutions.

Tuition and Registration

At the University Center, tuition is assessed and paid to the partner institution in which the student enrolls. A Schedule of Classes is published before each semester listing the classes available at the UC. Once you are accepted by a UC partner institution, you will become part of that college or university student body and will receive relevant information including how to register for classes.

Library Services

Students enrolled at the University Center are free to use Macomb Community College's Center Campus Library for studying and doing research. Off-campus access to databases and e-resources, however, is not available to University Center students. Partner institutions work in collaboration with the Macomb Community College Library to assure that students have access to needed materials.

Bookstore

Students should contact their partner institution to determine the availability of textbooks and course materials for classes taught at the University Center.

Graduation

Students who earn a degree from an institution at the University Center receive that degree from the college or university in which they are enrolled. For example, if you begin your education at Macomb Community College and then transfer to Walsh College at the University Center, you will earn your bachelor's degree from Walsh College and participate in its graduation ceremony.

Facilities

The University Center complex houses 35 classrooms and labs, a 276-seat lecture hall, computer classrooms and 6 technologically advanced interactive classrooms. To meet the needs of the fast-growing population of Macomb County, the University Center is constantly upgrading and expanding its facilities and resources. A new 40,000 square foot general classroom building opened in Fall, 2007.

Center for Executive & Professional Development

With new and emerging technologies changing the way business is conducted today, a second focus of the University Center is on professional development. Expanded facilities with the latest electronic delivery technologies have been added to the University Center to create a distinctive place where people can update their skills, particularly those that need to maintain licensure and certification in their field. The Center for Executive & Professional Development is one of the most advanced professional development facilities in Southeast Michigan. Free high-speed wireless internet access is available.

Science & Technology

A second major instructional facility opened in the Fall 2000 at the University Center complex expanding the educational offerings in the fields of science and technology. This state-of-the-art building expands the current degree programs by offering science, engineering and technology-based education. It contains additional computer labs and interactive classrooms as well as appropriate engineering and technology laboratories and classrooms.

Partners & Programs

Macomb Community College has carefully selected partners and programs designed not to compete with Macomb's own two-year programs. Cooperative academic arrangements such as these allow students to achieve maximum access to their selected degree programs for minimum costs. The most current list of partners and programs can be found at www.macomb.edu. For further information about the University Center, contact the partner schools listed below or contact the office of the vice president of the University Center at 586.263.6033.

Central Michigan University – 586.228.3160

- Bachelor of Applied Arts in Administration with a concentration in Organizational, Industrial or Service Sector Administration
- Bachelor of Science in Administration with a concentration in Organizational, Industrial or Service Sector Administration
- Bachelor of Science in Community Development with a concentration in Public Administration, Health Sciences or Community Services
- Master of Arts in Educational Technology
- Master of Science in Administration with a concentration in Acquisitions Administration, General Administration, Health Services, Human Resources, Information Resource Management, Public Administration, International Administration or Leadership

Ferris State University – 866.387.9430

- Bachelor of Science in Automotive Management

Lawrence Technological University – 586.263.6695

- Bachelor of Science in Business Management with a concentration in Leadership, Entrepreneurship or Communication
- Bachelor of Science in Information Technology
- Master of Business Administration

Oakland University – 586.263.6242

- Bachelor of Arts in Communication
- Bachelor of Arts in Journalism
- Bachelor of Science in Computer, Electrical or Mechanical Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Elementary Education
- Bachelor of Science in Human Resource Development
- Bachelor of Science in Nursing (accelerated second degree program)
- Bachelor of Science in Occupational Health and Safety
- Master of Arts in Teaching, Reading & Language Arts
- Master of Arts in Counseling
- Master of Business Administration (Weekend Courses)
- Master of Education in Educational Studies

Rochester College – 586.263.6288

- Bachelor of Business Administration in Management
- Bachelor of Science in Counseling Psychology
- Bachelor of Science in Early Childhood Studies
- Bachelor of Science in Organizational Leadership and Communication

University of Detroit Mercy – 586.263.6308

- Bachelor of Arts in Financial Economics
- Bachelor of Science in Health Services Administration
- Bachelor of Science in Nursing
- Master of Arts in Economics
- Master of Arts in Financial Economics
- Master of Science in Health Services Administration
- Master of Science in Nursing in Health Systems Management

Walsh College – 586.723.1500

- Bachelor of Accountancy
- Bachelor of Business Administration with majors in Accounting Processes, Finance, General Business, Management or Marketing
- Master of Business Administration with specializations

Wayne State University – 586.263.6700

- Bachelor of Arts in English
- Bachelor of Arts in Public Relations
- Bachelor of Arts/Science in Elementary Education
- Bachelor of Science in Engineering Technology
- Bachelor of Social Work
- Bachelor of Arts/Science in Secondary Education
- Post Baccalaureate Coursework for Secondary Education Certification
- Master of Business Administration with concentrations
- Master of Education in Educational Leadership
- Master of Education in Special Education/Learning Disabilities
- Master of Library and Information Science
- Master of Science in Nursing
- Master of Social Work
- Post Graduate Education Specialist Certificate in Educational Leadership

Veterans Affairs Educational Benefits

Macomb Community College provides a Veterans Service Center at South Campus where veterans and other eligible students are given information about benefits available to them. Students are encouraged to apply for Veteran's Affairs (VA) educational benefits at the earliest possible date.

STANDARDS OF PROGRESS

In compliance with current federal regulations, the standards of progress for recipients of VA educational benefits enrolled at Macomb Community College are as follows:

1. You must maintain a 2.0 cumulative grade point average. If a student's grade point average falls below 2.0, he or she will be placed on probation and will have two consecutive semesters to raise it. Failure to do so will result in termination of educational benefits by the Department of Veterans Affairs. Approval for reinstatement of benefits must be approved by the VA regional office.

To request VA approval for reinstatement of VA educational benefits:

   a. Make a counseling appointment. Obtain a statement from a Macomb Community College counselor declaring that your program meets your interests, aptitudes, abilities, and you can successfully complete your associate's degree requirements.

   b. Submit a written statement explaining why your GPA fell below 2.0 and what you have done or plan to do to correct this situation.

   c. Complete VA form 1995 or 5495 (available at the Veterans Service Center, G-301, South Campus).

   d. Submit all the above to the Veterans Service Center, G-301, South Campus.

2. When a VA recipient receives grades of **N, W,** or **I,** the VA will adjust the educational benefits back to the first date of the semester unless mitigating circumstances can be shown. For example, a student who registers for 12 credit hours (full-time) and has a four credit hour **N** grade has only earned eight credit hours.
3. VA regulations prohibit payment for repeated classes (**A** through **D-** grades), unless otherwise specified in the Macomb Community College catalog, or for classes that are not required for your associate's degree program.

You **must** report any reduction in training time or changes in your schedule to the Veterans Service Center as soon as the changes occur to prevent overpayments. Failure to report withdrawals could result in the loss of benefits dating back to the first day of the semester and subsequent liability for any resulting overpayment. You **must** report any changes in your enrollment **as they occur.**

For further information contact the Veterans Service Center at South Campus, G-301, 586.445.7255.

WebAdvisor

WebAdvisor enables you to securely access student information including, search and register for classes, add or drop a section, obtain account and payment information in "real-time," and pay for classes using a credit card.

WebAdvisor is **Your One-Stop-Shop** for accessing student information online at www.macomb.edu.

Website www.macomb.edu

Finding the latest news and information about Macomb Community College is just a click away on our website.

Macomb's website is grouped into different categories that help quickly guide visitors to the information they desire. These categories include options for current and future students, options for local businesses and the community, and options for those interested in learning more about the educational offerings available through Macomb College. General information including our history, mission and board of trustees can be found under the About Macomb link. A quick way to find what you're looking for is to use the "Search" box located in the upper right corner of the homepage.

The college homepage also contains several quick links which help guide visitors directly to areas of the website that are accessed most often, including WebAdvisor, registration information, and Macomb's online classes. For those wishing to attend one of the many on-campus events taking place throughout the year, you will find our Calendar link handy as you make your plans. If you need to contact someone at Macomb but you're not sure where to start, our Contact Us link will point you in the right direction.

No matter what information you need, you are sure to find it on macomb.edu!

Workforce Development Institute

Macomb Community College's Workforce Development Institute (WDI), located at our Michigan Technical Education Center (M-TEC^{SM}), offers employers affordable, focused and timely, training and education programs providing employee participants with new skills, knowledge and abilities.

Michigan Technical Education Center (M-TEC^{SM})

Home to the Workforce Development Institute, Macomb's M-TEC^{SM} located on Van Dyke in Warren is part of a statewide network of training centers geared to needs of the local business community. The state-of-the-art facility is designed for training and updating skills essential to high-demand and/or high-skilled occupations.

Customized Training and Education Programs

The Workforce Development Institute is a leader in designing, developing and delivering affordable, leading-edge, custom-designed education and training programs to local, national and global employers. The WDI helps businesses become more productive, more innovative, and thus more profitable through the investment in education, training, and employee development.

Upon identifying needs and available resources, our team of experienced consultants develops a customized solution to provide employees with the professional skills needed in today's diverse, fast-paced, global business environment.

The WDI brings the resources of Macomb Community College to businesses offering:

- Industry experience and credibility
- Flexible schedules and locations
- Cost effective and affordable solutions
- Credit, non-credit and continuing education units
- Industry Certifications

Open Enrollment Courses

To serve business and industry, numerous pre-scheduled courses are available. Whether "as is" or blend topics to create a class to meet an employers exact specifications, we help strengthen workforce skills. For course descriptions, please visit www.macomb.trainingmatrix.com.

The MIOSHA Training Institute

Employers, workers, union members, safety and health personnel, emergency responders, and college students can benefit from the MIOSHA Training Institute at Macomb Community College. The MTI reaches out, educates, and leads the state's employers and employees in improving and advancing workplace safety and health.

ACT Center

The ACT Center℠, located within Macomb's M-TEC℠ provides a flexible, high-quality, low-cost solution for training needs. We provide training and testing services to individuals, employers, and professional organizations using computer-based technologies, the Internet, and other cutting-edge processes. It is a comprehensive and dynamic resource for developing the community's workforce and economy.

Certification and Licensure Testing

Computer-based testing is offered for a variety of licensures and certifications required in many professions. Automotive Service Excellence (ASE), American Social Work Board (ASWB), and American Dietetic Association (ADA) are among the tests delivered. To see a complete list of organizations for which ACT Centers delivers tests, please visit ACT www.act.org/actcenters and click on "Computer Based Testing at ACT Centers." You can also call to register for any one of their exams at 1.800.205.6366.

ACT Center Web-Based Courses

There are currently over 3,000 courses available from leading publishers with training available at our ACT Center, your business location, or at your home. A complete tutorial to www.actcenterlearning.com/macomb on how to search for specific courses is available.

For further information, please email: act@macomb.edu or call 586.498.4130.

WorkKeys®

WorkKeys® is a workforce development resource designed to help businesses and industry increase the skill levels of their employees. Designed to function in three stages, WorkKeys® ensures that you have the right people staffed in key positions through job profiling, administration of WorkKeys® assessments, and specific training to close identified skill gaps.

Career Readiness Certificates through ACT WorkKeys are portable credentials that verify to employers nationwide that an individual has essential workplace skills in reading and comprehension, applied mathematics and locating information.

For further information on employee education and training programs, contact the Workforce Development Institute at 586.498.4100 or wdi@macomb.edu, or visit www.macomb.edu/wdi.

Program Descriptions

(listed alphabetically)

Macomb Community College's programs specify the courses required to earn an associate's degree or certificate (see page 4).

Terms used in this section and their definitions are:

CERTIFICATE OPTION—Available to students who want to earn a Certificate or Skill Specific Certificate in a program by successfully completing only the specified courses.

ELECTIVE COURSES—Courses applicable toward a degree or certificate which may be chosen by the student to meet individual interest and needs.

PROGRAM ADVISOR—Full-time faculty member in a particular program who advises students of appropriate courses to be taken to complete educational objectives.

SEMESTER HOURS (SEM HRS)—Official number of hours of credit given for the course. The terms Semester Hours and Credit Hours are used interchangeably.

SUGGESTED SEQUENCE—Indicated by blank and black boxes in the program description. It represents the semester or semesters individual courses may be taken to be of most benefit to the student. The sequential arrangement is not mandatory. If it does not fit your needs, see your program advisor, an academic advisor or a counselor.

Macomb Programs

Macomb Community College's Arts and Sciences and Career programs specify the courses required to earn an associate's degree or certificate. If you are interested in a program that you do not see listed, please call 586.445.7999 for information. (If no page number is listed, that award is not available in that area.)

Macomb Programs	Associate's Degree	Certificate	Skill Specific Certificate
Accounting	Pg 68	Pg 69	Pg 69
Applied Technology & Apprenticeship	Pg 70	Pg 71	
Architectural Technology–Architectural Commercial Design	Pg 72	Pg 73	–
Architectural Technology–Civil Construction	Pg 73	Pg 73	–
Architectural Residential Drafting & Design	–	Pg 73	–
Automated Systems Technology–Mechatronics	Pg 74	Pg 76	–
Automotive Technology	Pg 78	Pg 79	–
Automotive Technology–Brakes & Suspension	–	Pg 79	Pg 79
Automotive Technology–Comprehensive Automotive Training (CAT)	Pg 80	Pg 81	–
Automotive Technology–Driveline	–	Pg 78	Pg 79
Automotive Technology–Driveability & Diagnosis	–	Pg 79	Pg 79
Automotive Technology–Electrical & Air Conditioning	–	Pg 79	Pg 79
Automotive Technology–Engines	–	Pg 79	Pg 79
Behavioral Sciences	–	Pg 82	–
Biological Sciences	Pg 83	–	–
Business Management	Pg 84	Pg 85	–
Business Management–New Supervisor	–	–	Pg 85
Chemistry	Pg 86	–	–
Civil Technology	Pg 87	Pg 87	–
Climate Control Technology	Pg 88	–	–
Climate Control Technology–Air Conditioning, Heating, & Refrigeration	–	Pg 88	–
Climate Control–Air Conditioning	–	Pg 89	–
Climate Control–Heating	–	Pg 89	–
Climate Control–HVAC Installation & Service Technician	–	Pg 89	–
Climate Control–Refrigeration	–	Pg 89	–
Clinical Laboratory Technology	Pg 90	–	–
Computer Service Technology	Pg 92	Pg 93	–
Computer Service Technology–A+ Certification Preparation	–	–	Pg 93
Construction Technology	Pg 94	Pg 95	–
Culinary Arts	Pg 96	–	–
Culinary Arts–Culinary Management	–	Pg 97	–
Culinary Arts–Prep Cook	–	–	Pg 97

Macomb Programs	Associate's Degree	Certificate	Skill Specific Certificate
Customer Energy Specialist	Pg 98	–	
Customer Energy Specialist–Design	–	Pg 98	–
Diagnostic Medical Sonography (reciprocal program with Oakland Community College)	Pg 207	–	–
Early Childhood Studies	Pg 100	–	–
Electronic Engineering Technology	Pg 102	Pg 103	
Electronic Engineering Technology–Basic Electronics	_	Pg 103	–
Pre–Elementary Education	Pg 104	–	–
Emergency Medical Services–Basic	–	Pg 108	–
Emergency Medical Services–EMT/Paramedic	Pg 107	–	–
Emergency Medical Services–Paramedic/Firefighter	Pg 109	–	–
Pre–Engineering	Pg 112	Pg 113	–
Entrepreneurship and Small Business	Pg 114	Pg 115	Pg 115
Finance	Pg 114	Pg 117	–
Fire Science	Pg 118	Pg 119	–
Fire Science with Fire Academy	Pg 120	Pg 120	–
General Business	Pg 121	Pg 122	–
General Business–Entrepreneurship	–	–	Pg 122
General Business–International Business	–	–	Pg 122
Health Information Technology	Pg 123	–	–
Hospital Pharmacy Technician (reciprocal program with Oakland Community College)	Pg 206	–	–
Hospitality Management	Pg 125	Pg 126	–
Information Technology–Applications Professional	Pg 127	Pg 128	–
Information Technology–IT Professional	Pg 129	Pg 130	–
Information Technology–Networking Specialist–Cisco Network Professional	Pg 132	Pg 132	–
Information Technology–Networking Specialist–Cisco CCNA Networking	–	–	Pg 134
Information Technology–Networking Specialist–Information Assurance	–	–	Pg 134
Information Technology–Networking Specialist–Microsoft MCSA	–	–	Pg 134
Information Technology–Networking Specialist–Network Administration Professional	Pg 131	Pg 132	–
Information Technology–Networking Specialist–Network Security Professional	Pg 133	Pg 133	–
Information Technology–Programming	Pg 135	Pg 136	
Information Technology–Programming–C++ Programming	–	–	Pg 136
Information Technology–Programming–C# Programming	–	–	Pg 137

Macomb Programs	Associate's Degree	Certificate	Skill Specific Certificate
Information Technology–Programming–Database Programming	–	–	Pg 137
Information Technology–Programming–JAVA Programming	–	–	Pg 137
Information Technology–Programming–VB Programming	–	–	Pg 137
Information Technology–Web Site Programming	Pg 138	Pg 139	–
Information Technology–Web Site Programming–UNIX	–	–	Pg 140
Information Technology–Web Site Programming Web Programming–Web Master–Level 1	–	–	Pg 140
Information Technology– Web Site Programming Web Programming–Web Master–Level 2	–	–	Pg 140
International Studies	–	Pg 141	–
Land Surveying	–	Pg 145	–
Land Surveying Technology–Field Technician	Pg 143	Pg 145	–
Land Surveying Technology–Office Technician	Pg 144	Pg 145	–
Law Enforcement	Pg 146	Pg 147	–
Law Enforcement with Police Academy	Pg 148	Pg 149	–
Legal Assistant	Pg 150	–	–
Manufacturing Engineering	Pg 152	–	–
Manufacturing Engineering–Basic Workcell Simulation Design	–	–	Pg 153
Manufacturing Engineering Technology	Pg 154	–	–
Marketing	Pg 156	Pg 157	–
Marketing–Strategic Database Marketing	–	–	Pg 157
Mathematics–Associate of Arts	Pg 158	–	–
Mathematics–Associate of Science	Pg 159	–	–
Media & Communication Arts–Art for Advertising	Pg 161	Pg 161	–
Media & Communication Arts–Digital Art & Animation	Pg 166	Pg 166	–
Media & Communication Arts–Digital Design & Layout	Pg 163	Pg 163	–
Media & Communication Arts–Digital Video Production	Pg 165	Pg 165	–
Media & Communication Arts–Photographic Technologies	Pg 162	Pg 162	–
Media & Communication Arts– Web Page Design	Pg 164	Pg 164	–
Medical Assistant	Pg 167	Pg 169	–
Medical Assistant–Medical Front Office Administration	–	_	Pg 170
Medical Assistant–Phlebotomy	–	_	Pg 171
Pre–Medical Studies	Pg 172	Pg 173	–
Molecular Biotechnology	Pg 174	–	–
Music Performance	–	Pg 175	–
Nuclear Medicine Technology	Pg 176	–	–
Nursing	Pg 178	–	–
Occupational Therapy Assistant	Pg 180	–	–

Macomb Programs	Associate's Degree	Certificate	Skill Specific Certificate
Paraprofessional Education	Pg 183	–	–
Pastry Arts	Pg 185	Pg 186	–
Pastry Arts–Assistant Baker	–	–	Pg 186
Physical Therapist Assistant	Pg 187	–	–
Plant Maintenance	–	Pg 189	–
Product Development–Basic AutoCAD	–	–	Pg 199
Product Development–Basic Solidworks	–	–	Pg 199
Product Development–CATIA V5	–	–	Pg 199
Product Development–Die Design	Pg 190	Pg 196	–
Product Development–Tool, Fixture Design	Pg 192	Pg 197	–
Product Development–Unigraphics	–	–	Pg 199
Product Development–Vehicle Design	Pg 194	Pg 198	–
Quality Systems Technology	Pg 200	Pg 201	–
Quality Systems Technology–Calibration	–	–	Pg 202
Quality Systems Technology–Coordinate Measuring Machines (CMM)	–	–	Pg 202
Quality Systems Technology–Fundamentals	–	–	Pg 202
Quality Systems Technology–International Quality Manager	–	–	Pg 202
Quality Systems Technology–Lean Six Sigma	–	–	Pg 203
Quality Systems Technology–Quality Management Systems (QMS)	–	–	Pg 203
Radiological Technology (reciprocal program with Oakland Community College)	Pg 206	–	–
Respiratory Therapy	Pg 207	–	–
Restaurant Management	Pg 209	–	–
Speech Communication Arts–Intercultural/Interpersonal Communication	Pg 210	Pg 211	–
Speech Communication Arts–Mass Media	Pg 212	Pg 213	–
Speech Communication Arts–Presentation	Pg 214	Pg 215	–
Speech Communication Arts–Public Relations	Pg 216	Pg 217	–
Surgical Technology	Pg 218	–	–
Surgical Technology–Central Processing Distribution Technician	–	–	Pg 221
Surgical Technology–Surgical First Assistant	–	Pg 221	–
Surgical Technology–Surgical Technologist	–	Pg 220	–
Veterinary Technician	Pg 222	–	–
Web Specialist	Pg 224	Pg 225	–

Accounting

Center and South Campuses

The program prepares students for entry level positions in the accounting field as well as enhancing the skills of individuals currently employed in accounting and who desire advancement. The program provides specialized knowledge in accounting theory and practice as well as an understanding of business operations in the American economy.

Program advisors are Professors Shirley Glass, William Callaghan, Fred Jex and Robert Stark.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
ACCT-1080	Principles of Accounting 1	■ □ □ □	4
BUSN-1010	Business Enterprise	■ □ □ □	3
MGMT-1010	Principles of Management	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
BUSN-1080	Business Law 1	■ ■ ■ □	4
BCOM-2050	Business Communications	□ ■ ■ ■	4
			25

Required Program Core Courses for Accounting[1]

		SUGGESTED SEQUENCE	SEM HRS
ACCT-1090	Principles of Accounting 2	□ ■ □ □	4
ACCT-1150	Microcomputer Applications in Accounting	□ □ ■ ■	3
ACCT-2180	Intermediate Accounting 1	□ □ ■ ■	4
ACCT-2270	Managerial Accounting	□ □ ■ ■	4
ACCT-2300	Federal Income Tax–Individual	□ □ ■ ■	4
			19

[1] In addition to the above required program core courses, ACCT-2190, Intermediate Accounting 2, is strongly recommended for students who plan to continue in Accounting at a 4-year college that accepts ACCT-2190.

Required Arts and Sciences Course for Accounting

		SEM HRS
ECON-1160	Principles of Economics 1	3

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing ECON-1160.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Business/Accounting** will be awarded to students successfully completing those courses in Section A made up of the Associate of Business Administration degree Common Core and Required Program Core Courses for Accounting (44 Sem Hrs).

E. Skill Specific Certificate

Accounting

Accounting is the language of business. This **Skill Specific Certificate in Accounting** will help you learn the language to succeed in business. The Skill Specific Certificate in Accounting can be completed on-ground or online. If the courses are taken online, they can be completed in one (1) year.

		SEM HRS
ACCT-1080	Principles of Accounting 1	4
ACCT-1090	Principles of Accounting 2	4
ACCT-1150	Microcomputer Applications in Accounting	3
ACCT-2270	Managerial Accounting	4
ACCT-2300	Federal Income Tax–Individual	4
		19

Applied Technology & Apprenticeship

South Campus

The Applied Technology Department offers programs and courses that provide education and training for apprentices, craftsmen, technicians, and others. Specializations are available in numerous industrial and construction trades and skilled professions. Applied Technology students might be currently employed or seeking means to career entry or upgrade. Cooperation with industry keeps programs relevant to job skills required in a competitive market. Students as well as employers are served through the many Applied Technology courses that can lead to certificates and associate degrees. Applied Technology courses begin with an AT designation and are offered in three consecutive fifteen-week sessions.

APPRENTICESHIP PROGRAMS

Apprenticeship combines on-the-job training with theoretical and practical classroom and lab instruction to prepare highly skilled workers for industry. Individual employers as well as joint apprenticeship committees set employment standards and employ apprentices in their respective trades. Upon completion of a program, the apprentice is awarded a Department of Labor certificate and a Macomb Community College Certificate of Completion of Apprenticeship, signifying that he/she is a skilled craftsman or tradesman. Please note that Macomb Community College does not select candidates for apprenticeship or offer placement service to apprentices. Employee-in-training (EIT) programs (non-apprentice) are also available.

The Apprenticeship Coordinators advise and approve the related training courses that apprentices must take during their training programs to ensure compliance with apprenticeship standards for the individual trade and company. For further information, call the Apprenticeship Coordinators at 586.445.7438.

CERTIFICATE REQUIREMENTS

Three classifications of certificates are available in the Applied Technology programs: apprenticeship, EIT, and a general certificate. All the programs are built on requirements of business and industry and designed to prepare for, remain in, or advance in a skilled career position. Credit, contact hour, and work requirements vary by program. Contact the Applied Technology and Apprenticeship office for specific details. Programs currently available include those in the list below.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

(Minimum 62 Semester Hrs)

An Associate of Applied Science degree is offered for those completing an apprenticeship, EIT, or certificate program and the Macomb Community College Arts and Sciences requirements, which include a minimum of 62 credit hours.

Students choosing an Associate of Applied Science degree must take:

Apprenticeship, EIT, or certificate program . . . . . Semester hrs vary by program
Degree concentration in Manufacturing Technology
Maintenance Technology, or Building Construction
Technology is determined by program specialty

Arts and Sciences Component . . . . . Minimum semester hrs 18
See Degree and Certificates section of catalog for Group requirements

Elective Courses . . . . . Semester hrs vary by program

Total . . . . . Minimum semester hrs 62

APPRENTICESHIP PROGRAMS

Building Construction Apprenticeships

Bricklayer - Mason
Carpenter
Electrical Construction and Maintenance

Manufacturing Apprenticeships

Die Design
Die Maker
Die Sinker
Draftsman-Design
Machine Builderm - Tool Maker
Machinist
Metal Model Maker
Metal Pattern Maker
Mold Designer
Mold Maker - Plastic and Diecast
Sheet Metal - Fabricating
Sheet Metal - Structural Fabricating
Tool Maker
Tool & Die Maker
Tool Maker - Jig and Fixture
Wood Model - Patternmaker

Maintenance Apprenticeships

Electrical - Construction Maintenance
Electrical - Industrial Maintenance
Electrical - Machine Tool
Electrical - Mechanical Repair
Garage Mechanic - Automotive
HVAC
Industrial Electrician
Industrial Hydraulics
Industrial Lift Truck Mechanic
Machine Repair
Maintenance Mechanic - Building
Maintenance Mechanic - Industrial
Maintenance - Refrigeration & Air Conditioning
Maintenance - Welding
Millwright
Plastic Process Technician
Plumber/Pipefitter
Plumber
Water Plant Operator
Welder - Industrial Maintenance
Welder

SPECIAL PROGRAMS

Employee in Training - EIT (non-apprentice)

CERTIFICATE PROGRAMS (NON-APPRENTICE)

Automotive Mechanic - Diesel
Building Construction
CAM Technologist
CNC Machinist
Drafting and Mechanical Design
Electrical Construction Maintenance
Electrical Industrial Maintenance
Hydraulics - Industrial
Machine Repair
Maintenance Mechanic - Building
Maintenance Welding - ARC
Millwright
Model/Pattern Making
Mold Maker - Plastic
Plant Maintenance
Plumbing
Refrigeration Operator
Sheet Metal Fabricating
Stationary Steam Engineer
Tool and Die Making

Architectural Technology

South Campus

The Architectural Technology program provides an opportunity for the student to develop a background in drafting skills and computer design applications, and to attain knowledge required for the architectural building and construction industry. The curriculum is designed to provide preparation for entry-level jobs in a variety of occupations. An Associate of Applied Science degree in Architectural Technology could be the foundation for eventual registration as an architect or other bachelor's degree programs.

Program advisor Professor Gary Azbell can be reached by calling 586.445.7480 or 586.445.7435.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

An Associate of Applied Science degree in Architectural Technology–Architectural Commercial Design and an Associate of Applied Science degree in Architectural Technology–Civil Construction are offered upon successful completion of:

- all six (6) Career Preparation and Related Courses (19 semester hrs.)
- a minimum of 18 semester hours in the Arts and Sciences Components
- all courses listed in ONE of the two Specialities
- and Elective Courses necessary to make up 62 credit hours

Note: This Associate's of Applied Science degree program may transfer to a variety of colleges for a technical, business or general studies baccalaureate degree. Please check with a counselor or academic advisor.

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
CIVL-1000	Materials	■ □ □ □	3
DRCG-1140	Interactive Computer Graphics–Introduction to 2D & 3D AutoCAD	■ □ □ □	4
DRAD-1120	Architectural Illustration 1	□ ■ □ □	3
DRAD-1140	Residential Drafting & Design	□ ■ □ □	3
DRAD-2110	Applied Building Construction	□ ■ □ □	3
			19

In addition, choose all the courses listed in one of the two specialty options:

SPECIALTY I – ARCHITECTURAL COMMERCIAL DESIGN

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1200	History of Architecture	■ □ □ □	3
DRAD-2200	Mechanical & Electrical Systems for Buildings	□ ■ □ □	3
DRAD-2230	Construction Specifications	□ ■ □ □	3
DRAD-2090	Architectural Commercial Drafting & Design	□ □ ■ □	3
DRAD-2220	Architectural Design Procedures	□ □ ■ □	3
DRAD-2120	Structural Detailing & Design	□ □ ■ □	3
DRAD-2140	Architectural Illustration 2	□ □ □ ■	3
DRAD-2280	Architectural Drafting & Design Studio	□ □ □ ■	4
			25

SPECIALTY II – CIVIL CONSTRUCTION

		SUGGESTED SEQUENCE	SEM HRS
CIVL-1010	Civil Technology Seminar	☐☐■☐	1
SURV-1100	Elementary Surveying	☐☐■☐	3
SURV-2220	Civil & Survey Drafting	☐☐■☐	3
CIVL-2200	Soils & Foundations	☐☐☐■	3
CIVL-1050	Construction Safety Policy & Procedures	☐☐☐■	3
			13

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses for Specialty II . . . . . 12 sem hrs

Suggested Elective Areas:

Surveying	Media & Communication Arts
Climate Control	Business Law
Civil Technology	Computer Graphics
Construction Technology	

D. Certificate Options

A **Certificate in Architectural Technology – Architectural Residential Drafting and Design** will be awarded to students successfully completing the six courses listed in the Career Preparation section (19 Sem Hrs).

A **Certificate in Architectural Technology – Architectural Commercial Design** or a **Certificate in Architectural Technology – Civil Construction** will be awarded to students successfully completing the six courses listed in the Career Preparation section (19 Sem Hrs) PLUS the courses listed for the specialty (25 or 13 Sem Hrs).

Automated Systems Technology – Mechatronics

South Campus

This program is a field of study that focuses on the integration of mechanical, electrical (electronics), fluid power (hydraulics or pneumatics), and computer technologies to control machine movements. The new term for this is "Mechatronics." The students' studies begin with courses in mechanics, sensors, basic electronics, pneumatics, control logic and robot programming and control. The student goes on to learn how to program a specific Programmable Logic Controller (PLC), and then writes and troubleshoots programs to control seven machines. The seven tasks – Pick and Place Feeding, Gauging, Indexing, Sorting and Queuing, Servo Robot Assembly, Torquing, and Parts Storage – are integrated into an assembly line that produces a real product.

The courses in this program make extensive use of computers for class learning, PLC programming, machine control, troubleshooting and machine simulation.

The program provides the knowledge and skills for entry-level positions in automation-related jobs. Examples would be robot installation and maintenance, automation equipment installation, troubleshooting and maintenance, and PLC programming. Examples of industries using these skills are pharmaceuticals, food processing, beverage bottling, automated warehousing, oil production, packaging, electronics assembly, medical equipment production, and the military.

If you have questions about the program, contact the program advisors or call the Engineering Technology Office at 586.445.7435.

Program advisors from Electronic Technology and Automated Systems Technology – Mechatronics are:

Professor Arthur Knapp	586.445.7209	office T-126-4	knappa@macomb.edu
Professor Anthony Ventura	586.445.7326	office T-126-4	venturat@macomb.edu

Program advisors from Applied Technology for AT courses are:

Professor Alan Manore	586.445.7544	office T-126-1	manore@macomb.edu
Professor John Wieczerza	586.445.7248	office T-126-3	wieczerzaj@macomb.edu

Articulation agreements (available for viewing on the college website at www.macomb.edu) allow students to get Macomb credit for related high school courses. Contact your high school teacher or counselor for details or call the Engineering Technology Office at 586.445.7435.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Applied Science degree in Automated Systems Technology Program Core

		SUGGESTED SEQUENCE	SEM HRS
	All six of the following MECT-1### courses should be taken together in the same semester. Some Applied Technology (AT) courses are acceptable substitutions for MECT classes – see note below and contact program advisor for details.		
MECT-1211	Mechatronics AC/DC (see notes 1, 2)	■ □ □ □	1
MECT-1212	Mechatronics Controls (see notes 1, 2)	■ □ □ □	1
MECT-1213	Mechatronics Sensors (see notes 1, 2)	■ □ □ □	1
MECT-1214	Mechatronics Pneumatics (see notes 1, 2)	■ □ □ □	1
MECT-1215	Mechatronics Robots (see notes 1, 2)	■ □ □ □	1
MECT-1216	Mechatronics Mechanics (see notes 1, 2)	■ □ □ □	1
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
MECT-2210	Mechatronics System Operations 1 – Siemens PLC	□ ■ □ □	3
MECT-2212	Mechatronics System Operations 2 – Siemens PLC	□ ■ □ □	3
CORE-1000	Industrial Technology Fundamentals	□ ■ □ □	2
ELEC-1161	Electronic Technology 1 (see notes 1, 3)	□ ■ □ □	3
ELEC-1171	Electronic Technology 2 (see notes 1, 3)	□ ■ □ □	3
MECT-2110	Mechatronics Programming 1 – Siemens PLC	□ □ ■ □	3
MECT-2112	Mechatronics Programming 2 – Siemens PLC	□ □ ■ □	3
ELEC-1211	Digital Electronics Basics	□ □ ■ □	3
ELEC-1181	Semiconductor Theory & Devices	□ □ □ ■	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ □ □ ■	3
ELEC-1221	Microcontrollers With Robotic Application	□ □ □ ■	3
			46

Required Arts and Sciences course for Automated Systems Technology

		SEM HRS
PHYS-1180	College Physics 1	4

NOTES

1. High school students articulating into the Automated Systems Technology program may substitute equivalent courses taken at the high school level. Contact your high school teacher or counselor or the MCC Engineering Technology Office at 586.445.7435 for details.
2. Students who took any of the following AT courses should check with the program advisor prior to selecting any MECT courses because these courses may substitute for the indicated MECT courses.

Course	Course Title	For
ATEE-1350	Electrical Direct Current Fundamentals	MECT-1211
ATEE-1300	Electric Theory – Electrical Equipment & Introduction to Machine Circuits	MECT-1212
ATEE-2670	Electrical – Industrial Controls	MECT-1212
ATFP-1210	Fluid Power – Pneumatic Controls & Circuits	MECT-1214
ATMT-1660	Millwright Theory – Millwright Theory 2	MECT-1216

3. Students entering the Automated Systems Technology program without any previous electronics knowledge should contact MCC faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing PHYS-1180.

Some universities in the area (Wayne State University among them) offer a degree in Bachelor of Science Engineering Technology (BSET). The Electronic Engineering Technology program from Macomb is transferable in total to most of these universities. However, students pursuing the BSET should elect MATH-1000 and MATH-1460. These students should also see the program advisor at their selected university as soon as possible.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate in Automated Systems Technology – Mechatronics

All six of the following MECT-1### courses should be taken together in the same semester. Some Applied Technology (AT) courses are acceptable substitutions for MECT classes – see note below and contact program advisor for details.

		SUGGESTED SEQUENCE	SEM HRS
MECT-1211	Mechatronics AC/DC (see notes 1, 2)	■ □ □ □	1
MECT-1212	Mechatronics Controls (see notes 1, 2)	■ □ □ □	1
MECT-1213	Mechatronics Sensors (see notes 1, 2)	■ □ □ □	1
MECT-1214	Mechatronics Pneumatics (see notes 1, 2)	■ □ □ □	1
MECT-1215	Mechatronics Robots (see notes 1, 2)	■ □ □ □	1
MECT-1216	Mechatronics Mechanics (see notes 1, 2)	■ □ □ □	1
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
MECT-2210	Mechatronics System Operations 1 – Siemens PLC	□ ■ □ □	3
MECT-2212	Mechatronics System Operations 2 – Siemens PLC	□ ■ □ □	3
CORE-1000	Industrial Technology Fundamentals	□ ■ □ □	2
ELEC-1161	Electronic Technology 1 (see notes 1, 3)	□ ■ □ □	3
ELEC-1171	Electronic Technology 2 (see notes 1, 3)	□ ■ □ □	3
MECT-2110	Mechatronics Programming 1 – Siemens PLC	□ □ ■ □	3
MECT-2112	Mechatronics Programming 2 – Siemens PLC	□ □ ■ □	3
ELEC-1211	Digital Electronics Basics	□ □ ■ □	3
ELEC-1181	Semiconductor Theory & Devices	□ □ □ ■	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ □ □ ■	3
ELEC-1221	Microcontrollers With Robotic Application	□ □ □ ■	3
			46

NOTES

1. High school students articulating into the Automated Systems Technology program may substitute equivalent courses taken at the high school level. Contact your high school teacher or counselor or the Macomb Engineering Technology Office at 586.445.7435 for details.
2. Students who took any of the following AT courses should check with the program advisor prior to selecting any MECT courses because these courses may substitute for the indicated MECT courses.

Course	Course Title	For
ATEE-1350	Electrical Direct Current Fundamentals	MECT-1211
ATEE-1300	Electric Theory – Electrical Equipment & Introduction to Machine Circuits	MECT-1212
ATEE-2670	Electrical – Industrial Controls	MECT-1212
ATFP-1210	Fluid Power – Pneumatic Controls & Circuits	MECT-1214
ATMT-1660	Millwright Theory – Millwright Theory 2	MECT-1216

3. Students entering the Automated Systems Technology program without any previous electronics knowledge should contact Macomb faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

Automotive Technology

South Campus

The Automotive Technology program is designed to provide students with the opportunity to develop the skills, knowledge, and abilities required for entry-level positions in the automotive industry. Students successfully completing this program will have the technical skills required to properly diagnose, repair, and maintain the parts and systems comprising the modern automobile.

The program also offers a solid preparation for passing the certification testing by government and private organizations.

Please check with a counselor. This associate's degree program may transfer to a variety of colleges for either a technical, business, or general studies baccalaureate degree.

The program advisors are Professors Grant Baxter, Daniel Claus, Kurtis LaHaie, Lyle Lippard, Dan Prater, and Stan Urban 586.445.7012.

The Associate of Applied Science degree in Automotive Technology program and the certificate and skill certificate programs are ASE (National Institute for Automotive Service Excellence) certified through NATEF (National Automotive Technicians Education Foundation), 101 Blue Seal Drive, Suite 101, Leesburg, Virginia 20175, 703.669.6650.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

(Minimum 68 Sem Hrs)

Students choosing an Associate of Applied Science degree in Automotive Technology must take:

- The two Career Preparation Courses listed below
- All the courses listed in any four of the five specialty areas shown below
- Three of the five labs shown below (minimum 9 credits)
- Students seeking this degree program must also successfully complete a minimum of 18 Semester Hours in the Arts and Sciences Component.

		SEM HRS
A. Career Preparation and Related Courses		
AUTO-1000	Automotive Systems	3
AUTO-1010	Automotive Electrical Systems	3
		6
SPECIALTY AREAS		
I. Drive Line		
AUTO-1320	Automotive – Automatic Transmission Theory & Diagnosis	2
AUTO-1330	Automotive – Manual Transmission & Powertrain Systems	3
AUTO-2300	Rear Wheel Drive Automatic Transmission Service	2
AUTO-2310	Front Wheel Drive Automatic Transmission Service	2
		9
II. Engines		
AUTO-1200	Automotive Engines	3
AUTO-2200	Automotive Upper Engine Service	3
AUTO-2210	Automotive Lower Engine Service	3
		9

III. Brakes & Suspension

AUTO-1100	Automotive Brake Systems	3
AUTO-1110	Automotive Suspension Component Service	2
AUTO-1120	Automotive Suspension Alignment Procedures	2
		7

IV. Electrical & Air Conditioning

AUTO-1030	Automotive Electronics	3
AUTO-1400	Automotive Starting & Charging Systems	2
AUTO-1420	Automotive Air Conditioning Theory & Service	3
AUTO-2410	Advanced Automotive Electronics	2
		10

V. Driveability & Diagnosis

AUTO-1500	Automotive Ignition Systems	3
AUTO-1510	Automotive Emissions	2
AUTO-1520	Automotive Fuel Systems	3
AUTO-2500	Automotive Driveability & Diagnosis	3
		11

LABORATORY COURSES

9 hours from among the following courses:

AUTO-2190	Automotive Brakes & Suspension Laboratory	3
AUTO-2290	Automotive Engine Laboratory	3
AUTO-2390	Automotive DriveLine Laboratory	3
AUTO-2490	Automotive Electrical & Air Conditioning Laboratory	3
AUTO-2590	Automotive Driveability Laboratory	3
		9

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

A **Certificate in Automotive Technology** will be awarded to students successfully completing:

- The two core courses.
- All courses listed in any three of the five specialty areas.

A **Certificate in Automotive Technology – (Specialty)** will be awarded to students successfully completing:

- The two core courses.
- All courses listed in any one specialty area.

E. Skill Specific Certificate

Automotive Technology

A **Skill Specific Certificate in Automotive Technology – (Specialty)** will be awarded to students successfully completing any one of Specialty Areas I-V.

Automotive Technology – Comprehensive Automotive Training (CAT)

South Campus

The Automotive Technology–Comprehensive Automotive Training (CAT) program is a one-year concentrated program providing related and expanded performance based training. Students successfully completing CAT will have the technical skills and expanded lab experience to accurately diagnose, repair, and maintain modern automotive systems and their components.

Program advisors, Professors Kurtis LaHaie and Stan Urban can be reached at 586.445.7012.

The Associate of Applied Science degree in Automotive Technology–Comprehensive Automotive Training (CAT) program and the Certificate in Automotive Technology–Comprehensive Automotive Training (CAT) program are ASE (National Institute for Automotive Service Excellence) certified through NATEF (National Automotive Technicians Education Foundation), 101 Blue Seal Drive, Suite 101, Leesburg, Virginia 20175, 703.669.6650.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 75 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
AUTO-1000	Automotive Systems	■ □ □ □	3
AUTO-1010	Automotive Electrical Systems	■ □ □ □	3
AUTO-1100	Automotive Brake Systems	■ □ □ □	3
AUTO-1110	Automotive Suspension Component Service	■ □ □ □	2
AUTO-1120	Automotive Suspension Alignment Procedures	■ □ □ □	2
AUTO-1200	Automotive Engines	■ □ □ □	3
AUTO-2191	Automotive Brakes & Suspension Laboratory–CAT	■ □ □ □	5
AUTO-1400	Automotive Starting & Charging Systems	□ ■ □ □	2
AUTO-1030	Automotive Electronics	□ ■ □ □	3
AUTO-1420	Automotive Air Conditioning Theory & Service	□ ■ □ □	3
AUTO-1500	Automotive Ignition Systems	□ ■ □ □	3
AUTO-1510	Automotive Emissions	□ ■ □ □	2
AUTO-1520	Automotive Fuel Systems	□ ■ □ □	3
AUTO-2491	Automotive Electrical & Air Conditioning Laboratory–CAT	□ ■ □ □	5
AUTO-2410	Advanced Automotive Electronics	□ □ ■ □	2
AUTO-1330	Automotive Manual Transmission & Power Train Systems	□ □ ■ □	3
AUTO-1320	Automotive Automatic Transmission Theory & Diagnosis	□ □ ■ □	2
AUTO-2500	Automotive Driveability & Diagnosis	□ □ ■ □	3
AUTO-2591	Automotive Driveability Laboratory–CAT	□ □ ■ □	5
			57

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate In Automotive Technology – Comprehensive Automotive Training

		SUGGESTED SEQUENCE	SEM HRS
AUTO-1000	Automotive Systems	■ □ □ □	3
AUTO-1010	Automotive Electrical Systems	■ □ □ □	3
AUTO-1100	Automotive Brake Systems	■ □ □ □	3
AUTO-1110	Automotive Suspension Component Service	■ □ □ □	2
AUTO-1120	Automotive Suspension Alignment Procedures	■ □ □ □	2
AUTO-1200	Automotive Engines	■ □ □ □	3
AUTO-2191	Automotive Brakes & Suspension Laboratory – CAT	■ □ □ □	5
AUTO-1400	Automotive Starting & Charging Systems	□ ■ □ □	2
AUTO-1030	Automotive Electronics	□ ■ □ □	3
AUTO-1420	Automotive Air Conditioning Theory & Service	□ ■ □ □	3
AUTO-1500	Automotive Ignition Systems	□ ■ □ □	3
AUTO-1510	Automotive Emissions	□ ■ □ □	2
AUTO-1520	Automotive Fuel Systems	□ ■ □ □	3
AUTO-2491	Automotive Electrical & Air Conditioning Laboratory – CAT	□ ■ □ □	5
AUTO-2410	Advanced Automotive Electronics	□ □ ■ □	2
AUTO-1330	Automotive Manual Transmission & Power Train Systems	□ □ ■ □	3
AUTO-1320	Automotive Automatic Transmission Theory & Diagnosis	□ □ ■ □	2
AUTO-2500	Automotive Driveability & Diagnosis	□ □ ■ □	3
AUTO-2591	Automotive Driveability Laboratory – CAT	□ □ ■ □	5
			57

Behavioral Sciences – Certificate

Center and South Campuses

- Minimum of 30 semester hours of credit.
- Minimum grade point average of 2.0.
- Minimum of 15 semester hours of credit earned at Macomb.
- Attendance at Macomb during semester in which requirements for the certificate are completed.

Required Courses:

These specific courses:

		SEM HRS
PSYC-1010	Introductory Psychology	4
ANTH-1000	Introduction to Anthropology	4
SOCY-1010	Principles of Sociology	4
		12

AND

18-21 additional hours chosen from among the following courses:

		SEM HRS
PSYC-2160	Psychological Statistics	3
PSYC-2210	Child Growth & Development	3
PSYC-2220	Psychology of Adolescence	3
PSYC-2300	Psychology of Adjustment	3
PSYC-2400	Industrial-Organizational Psychology	3
PSYC-2500	Human Sexuality	3
PSYC-2600	Social Psychology	3
SOCY-1100	Modern Social Problems	3
SOCY-2000	Sociology of Health & Human Behavior	4
SOCY-2450	Marriage & the Family	3
		18-19

Students electing a **Certificate in Behavioral Sciences** should maintain close contact with an academic advisor or counselor to assure construction of a plan of studies harmonious with individual interests and needs.

Students are advised that completion of a Certificate in Behavioral Sciences may not necessarily satisfy another college's requirements toward a bachelor's degree in Behavioral Sciences.

Biological Sciences

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills essential for transfer to a baccalaureate degree program in Biological Sciences. Students are encouraged to work closely with a counselor or academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) for assistance in choosing Arts and Sciences courses appropriate to their transfer objective.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Core and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-1000	General Biology 1	■ □ □ □	4
CHEM-1170	General Chemistry 1	■ □ □ □	4
MATH-1760	Analytic Geometry & Calculus 1	■ □ □ □	4
BIOL-1010	General Biology 2	□ ■ □ □	4
CHEM-1180	General Chemistry 2	□ ■ □ □	4
AND			
*BIOL-2310	Human Anatomy & Physiology	□ □ ■ □	6
OR			
BIOL-2710	Human Physiological Anatomy	□ □ ■ □	6
OR			
**BIOL-2400	General Microbiology	□ □ ■ □	4
AND			
PHYS-1180	College Physics 1	□ □ ■ □	4
CHEM-2260	Organic Chemistry 1	□ □ ■ □	4
CHEM-2270	Organic Chemistry Laboratory	□ □ ■ □	2
CHEM-2280	Organic Chemistry 2	□ □ □ ■	4
PHYS-1190	College Physics 2	□ □ □ ■	4
			42-44

* For Oakland University

** For Wayne State University

NOTE: For other transfer institutions, consult with an advisor.

B. Arts and Sciences Component . . . . . minimum sem hrs 23-30

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286-2228 Center Campus or 586.445.7211 South Campus).

Group II requirements are met by successfully completing courses taken under Part A.

Business Management

Center and South Campuses

Designed to provide both a practical and theoretical management background for today's business world. Enables students to enter the field of management and/or further their careers as supervisors and managers. Important management applications and techniques, history, relevant laws, entrepreneurship, and human and organizational relationships are emphasized. This program transfers to senior colleges and universities; see an academic advisor, counselor, or program advisor for full details.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010	Business Enterprise	■ □ □ □	3
MGMT-1010	Principles of Management	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
AND			
ACCT-1050	Financial Record Keeping	□ ■ □ □	4
OR			
ACCT-1070	Accounting for Entrepreneurs	□ ■ □ □	3
OR			
ACCT-1080	Principles of Accounting 1	□ ■ □ □	4
AND			
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ ■ ■ ■	4
			24-25

Required Program Core Courses for Management

		SUGGESTED SEQUENCE	SEM HRS
MGMT-1150	Personnel & Human Resource Management	□ ■ □ □	3
MGMT-1180	Human Relations	□ ■ ■ ■	3
MGMT-1210	Entrepreneurship & Small Business Management	□ ■ ■ ■	3
MGMT-2000	Business Management Software Applications	□ □ ■ ■	3
MGMT-2100	Effective Organizational Behavior & Team Development	□ □ ■ ■	3
MGMT-2110	Management Decision Making & Critical Analysis	□ □ ■ ■	3
			18

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing ECON-1160 or PSYC-1010.

C. Elective Courses. . . . . .1-2 sem hrs.

D. Certificate Option

A **Certificate in Business Management** will be awarded to students successfully completing those courses in Section A made up of the Associate of Business Administration degree Common Core Requirements and the Required Program Core Courses for Business Management. (42-43 Sem Hrs).

E. Skill Specific Certificate

New Supervisor

The **Skill Specific Certificate in Business Management – New Supervisor** is designed to offer the student the opportunity to complete a series of courses within 16 weeks and to develop the skills necessary to seek employment or to upgrade their current job.

		SEM HRS
MGMT-1010	Principles of Management	3
MGMT-1150	Personnel & Human Resources Management	3
MGMT-2110	Management Decision Making & Critical Analysis	3
		9

Chemistry

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills essential to transfer to a baccalaureate degree program in chemistry. Students are encouraged to work closely with a counselor or academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) for assistance in choosing Arts and Sciences courses appropriate to their transfer objective.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Core and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CHEM-1170	General Chemistry 1	■ □ □ □	4
MATH-1760	Analytic Geometry & Calculus 1	■ □ □ □	4
PHYS-1180	College Physics 1	□ ■ □ □	4
MATH-1770	Analytic Geometry & Calculus 2	□ ■ □ □	4
CHEM-1180	General Chemistry 2	□ ■ □ □	4
MATH-2000	Introduction to Linear Algebra	□ ■ ■ □	3
CHEM-2260	Organic Chemistry 1	□ □ ■ □	4
PHYS-2220	Analytical Physics 1	□ □ ■ □	5
CHEM-2270	Organic Chemistry Laboratory	□ □ □ ■	2
CHEM-2280	Organic Chemistry 2	□ □ □ ■	4
MATH-2760	Analytic Geometry & Calculus 3	□ □ □ ■	4
PHYS-2230	Analytical Physics 2	□ □ □ ■	5
			47

B. Arts and Sciences Component . . . . . minimum sem hrs 23-30

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus or 586.445.7211 South Campus).

Group II requirements are met by successfully completing courses taken under Part A.

C. Elective Courses . . . . . none required

Civil Technology

South Campus

The Civil Technology program is geared to train civil engineering technicians for the construction industry. Civil Engineering technicians work in support of civil engineers and architects who supervise the hard hats engaged in this area of employment.

Civil technicians are employed in engineering and construction of highways, railroads, airports, bridges, harbors, irrigation works, manufacturing plants, high-rise residence and office buildings, and also work in the industrial and community water and waste water treatment plants.

This Associate of Applied Science degree program may transfer to a variety of colleges. Please check with a counselor.

Program advisor Professor Gary Azbell can be reached at 586.445.7480 or 586.445.7435.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*CIVL-1000	Materials	■ □ □ □	3
*CIVL-1010	Civil Technology Seminar	■ □ □ □	1
*SURV-1100	Elementary Surveying	■ □ □ □	3
MATH-1430	College Trigonometry	■ □ □ □	3
*DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
POLS-1200	Local & State Government	□ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	□ ■ □ □	4
*SURV-1200	Route Surveying	□ ■ □ □	3
*DRCG-1140	Interactive Computer Graphics–Introduction to 2D & 3D AutoCAD	□ ■ □ □	4
*CIVL-1050	Construction Safety Policy & Procedures	□ □ ■ □	3
*CIVL-2200	Soils & Foundations	□ □ ■ □	3
*DRAD-2230	Construction Specifications	□ □ ■ □	3
*ATTR-1150	Technical Report Writing	□ □ ■ □	2
*CIVL-2220	Materials Testing	□ □ □ ■	3
*CIVL-2210	Drainage & Geology	□ □ □ ■	3
*SURV-2220	Civil & Survey Drafting	□ □ □ ■	3
			47

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with an academic advisor, counselor or program advisor.

Group II requirement is met by successfully completing MATH-1430.
Group III requirement is met by successfully completing POLS-1200.
It is also suggested that students take ENVS-1050, Environmental Science, and/or GEOL-1080, Geology of Michigan, as part of their 18 hours of Arts and Sciences.

C. Elective Courses. . . . . 3 sem hrs

The student may take elective courses from other programs if they fit into this area of study. QUAL-2400 Project Management and ENGR-1000 Introduction to Engineering are two such recommended elective courses.

D. Certificate Option

A **Certificate in Civil Technology** will be awarded to students successfully completing those courses preceded by an asterisk (37 Sem Hrs).

Climate Control Technology

South Campus

The Climate Control Technology program is designed to prepare students for a career in the fields of air conditioning, heating, and refrigeration.

Program advisor Professor Tom Schafer may be contacted at 586.445.7452.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CLCT-1200	Fundamentals of Air Conditioning & Refrigeration	■ □ □ □	3
CLCT-1600	Duct Layout & Fabrication	■ □ □ □	3
CLCT-1650	Systems Design of Heating & Air Conditioning	■ □ □ □	3
CLCT-1700	Fundamentals of Controls	■ □ □ □	3
CLCT-1300	Refrigeration 1	□ ■ □ □	3
CLCT-1400	Air Conditioning 1	□ ■ □ □	3
CLCT-1500	Heating 1	□ ■ □ □	3
CLCT-1750	Intermediate Controls	□ ■ □ □	3
CLCT-2300	Refrigeration 2	□ □ ■ □	3
CLCT-2400	Air Conditioning 2	□ □ ■ □	3
CLCT-2550	Steam & Hot Water Heating Systems	□ □ ■ □	3
CLCT-2350	Mechanical Codes	□ □ □ ■	3
CLCT-2500	Heating 2	□ □ □ ■	3
CLCT-2700	Advanced Controls	□ □ □ ■	3
			42

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . 2 sem hrs

D. Certificate Options

A **Certificate in Climate Control Technology – Air Conditioning, Heating & Refrigeration** will be awarded to students successfully completing the 14 courses listed in Section A (42 Sem Hrs).

A **Certificate in Climate Control Technology – Air Conditioning, Heating or Refrigeration** will be awarded to students successfully completing all courses listed in any one of the specialty areas listed below.

Certificate in Climate Control – Air Conditioning

		SUGGESTED SEQUENCE	SEM HRS
CLCT-1200	Fundamentals of Air Conditioning & Refrigeration	■ □ □ □	3
CLCT-1650	Systems Design of Heating & Air Conditioning	■ □ □ □	3
CLCT-1700	Fundamentals of Controls	■ □ □ □	3
CLCT-1400	Air Conditioning 1	□ ■ □ □	3
CLCT-1600	Duct Layout & Fabrication	□ ■ □ □	3
CLCT-1750	Intermediate Controls	□ ■ □ □	3
CLCT-2350	Mechanical Codes	□ □ ■ □	3
CLCT-2400	Air Conditioning 2	□ □ ■ □	3
			24

Certificate in Climate Control – Heating

		SUGGESTED SEQUENCE	SEM HRS
CLCT-1200	Fundamentals of Air Conditioning & Refrigeration	■ □ □ □	3
CLCT-1650	Systems Design of Heating & Air Conditioning	■ □ □ □	3
CLCT-1700	Fundamentals of Controls	■ □ □ □	3
CLCT-1500	Heating 1	□ ■ □ □	3
CLCT-1600	Duct Layout & Fabrication	□ ■ □ □	3
CLCT-1750	Intermediate Controls	□ ■ □ □	3
CLCT-2500	Heating 2	□ □ ■ □	3
CLCT-2350	Mechanical Codes	□ □ ■ □	3
CLCT-2550	Steam & Hot Water Heating Systems	□ □ ■ □	3
			27

Certificate in Climate Control – HVAC Installation & Service Technician

		SUGGESTED SEQUENCE	SEM HRS
CLCT-1200	Fundamentals of Air Conditioning & Refrigeration	■ □ □ □ □	3
ATBC-1100	Blueprint & Math-Residential	■ □ □ □ □	2
ATTR-1600	Industrial Safety-Skilled Trades	■ □ □ □ □	2
CLCT-1600	Duct Layout & Fabrication	□ ■ □ □ □	3
CLCT-1650	Systems Design of Heating & Air Conditioning	□ ■ □ □ □	3
CLCT-1700	Fundamentals of Controls	□ □ ■ □ □	3
CLCT-1300	Refrigeration 1	□ □ ■ □ □	3
CLCT-1400	Air Conditioning 1	□ □ □ ■ □	3
CLCT-1500	Heating 1	□ □ □ ■ □	3
CLCT-1750	Intermediate Controls	□ □ □ □ ■	3
CLCT-2550	Steam & Hot Water Heating Systems	□ □ □ □ ■	3
			31

Certificate in Climate Control – Refrigeration

		SUGGESTED SEQUENCE	SEM HRS
CLCT-1200	Fundamentals of Air Conditioning & Refrigeration	■ □ □ □	3
CLCT-1650	Systems Design of Heating & Air Conditioning	■ □ □ □	3
CLCT-1700	Fundamentals of Controls	■ □ □ □	3
CLCT-1300	Refrigeration 1	□ ■ □ □	3
CLCT-1600	Duct Layout & Fabrication	□ ■ □ □	3
CLCT-1750	Intermediate Controls	□ ■ □ □	3
CLCT-2300	Refrigeration 2	□ □ ■ □	3
CLCT-2350	Mechanical Codes	□ □ ■ □	3
			24

Clinical Laboratory Technology

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College General Information section for detailed information on selective admissions procedures.

The clinical laboratory technology curriculum is designed to prepare students to become Clinical Laboratory Technicians (CLT) or Medical Laboratory Technicians (MLT). They aid in the detection, diagnosis and treatment of disease and accomplish this through specific tasks, including inoculating culture media, performing microscopic evaluations of cells, and operating high-tech equipment. CLTs perform routine tests in the areas of blood banking, chemistry, hematology, immunology, microbiology and urinalysis – an experienced CLT will be familiar with and may work in any one or all of these areas.

Additional expenses to be met by the student are (1) a health history and physical examination including testing for tuberculosis and other communicable diseases, (2) uniforms, (3) lab and general supplies and (4) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses. Additionally students must have a criminal background check performed before they are admitted to the program.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Clinical Laboratory Technology program is seeking accreditation by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 W. Bryn Mawr Ave, Suite 670, Chicago, IL 60631. The phone number for NAACLS is 773.714.8880.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 78 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR ENGL-1210	Communications 1 (see note 1) OR Composition 1 (see note 1)	□□□□□	4 OR 3
AND			
BIOL-1000	General Biology (see note 1)	□□□□□	4
PSYC-1010	Introductory Psychology (see note 1)	□□□□□	4
PHIL-2100	Introduction to Ethics (see note 2)	■□□□□	3
BIOL-2710	Human Physiological Anatomy (see note 2)	■□□□□	6
CHEM-1050	Introduction to General Chemistry (see note 2)	■□□□□	4
CLTA-1000	Fundamentals of Clinical Laboratory Technology	■□□□□	3
BIOL-2730	Pathogenic Microbiology (see note 2)	□■□□□	4
CHEM-1060	Introduction to Organic Chemistry & Biochemistry (see note 2)	□■□□□	4
CLTA-1100	Clinical Hematology	□■□□□	5
CLTA-1200	Clinical Immunology	□■□□□	3
CLTA-1300	Urinalysis & Body Fluids	□□■□□	2
CLTA-1400	Clinical Hemostasis	□□■□□	2
CLTA-1500	Immunohematology	□□■□□	3

BTEC-2540	Biotechnology (see note 2)	☐☐☐■☐	4
CLTA-2200	Clinical Chemistry	☐☐☐■☐	5
CLTA-2300	Clinical Microbiology	☐☐☐■☐	4
CLTA-2400	Clinical Seminar	☐☐☐☐■	1
CLTA-2501	Clinical Practicum – Hematology	☐☐☐☐■	3
CLTA-2502	Clinical Practicum – Chemistry	☐☐☐☐■	3
CLTA-2503	Clinical Practicum – Immunohematology	☐☐☐☐■	3
CLTA-2504	Clinical Practicum – Microbiology	☐☐☐☐■	3
			76-77

NOTES:

1. ENGL-1180 or ENGL-1210, BIOL-1000, and PSYC-1010 must be taken prior to starting the first clinical laboratory technology course. In addition, students must score 27 or higher in algebra on the COMPASS placement test OR take MATH-0070 prior to starting the first clinical laboratory technology course.
2. Clinical Laboratory Technology courses must be taken in this sequence. Any course without the CLTA prefix may be taken prior to its marked sequence but not after.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

- **Group I requirement** is met by successfully completing ENGL-1180 or ENGL-1210.
- **Group II requirement** is met by successfully completing BIOL-2710, CHEM-1050, CHEM-1060, and BIOL-2730.
- **Group III requirement** is met by successfully completing PSYC-1010.
- **Group IV requirement** is met by successfully completing PHIL-2100.
- **Group V requirement** is the same as that for any AAS degree. PHED-2070 (3 cr hrs) is suggested for students who need CPR certification.

Students in the Associate of Applied Science degree in Clinical Laboratory Technology program must achieve grade C or better in each course listed below for retention in the program.

BIOL-1000	CHEM-1060	CLTA-1400	ENGL-1180 OR ENGL-1210
BIOL-2710	CLTA-1000	CLTA-1500	MATH-0070
BIOL-2730	CLTA-1100	CLTA-2200	PHIL-2100
BTEC-2540	CLTA-1200	CLTA-2300	PSYC-1010
CHEM-1050	CLTA-1300	CLTA-2400	

Students in the Associate of Applied Science degree in Clinical Laboratory Technology program must achieve grade Pass in each course listed below for retention in the program.

CLTA-2501	CLTA-2502	CLTA-2503	CLTA-2504

Computer Service Technology

South Campus

This program focuses on the diagnosis and repair of problems with computers and computerized equipment. The student studies basic electronics both because computers are electronic and because they are attached to all kinds of external electronic and mechanical equipment. Techniques for testing circuits and diagnosing malfunctions are studied as well as repair methods for different types of electronic circuits. The student learns current operating systems and builds a computer from the ground up. A small roaming computerized robot is built and programmed.

The program provides the knowledge and skills for entry-level positions in computer hardware support and industries where software needs to be installed and maintained. Examples would be retail outlet customer support desks and companies having internal support personnel. The electronic knowledge and skills taught apply also to all kinds of electronic devices and applications.

If you have questions about the program, contact the program advisors or call the Engineering Technology Office at 586.445.7435.

Arthur Knapp	586.445.7209	ST-126-4	knappa@macomb.edu
Anthony Ventura	586.445.7326	ST-126-4	venturat@macomb.edu

Articulation agreements (available for viewing on the college website at www.macomb.edu) allow students to get Macomb credit for related high school courses. Contact your high school teacher or counselor for details or call the Engineering Technology Office at 586.445.7435.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ELEC-1161	Electronic Technology 1*	■ □ □ □	3
ELEC-1171	Electronic Technology 2*	■ □ □ □	3
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
ELEC-1181	Semiconductor Theory & Devices	□ ■ □ □	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ ■ □ □	3
CORE-1000	Industrial Technology Fundamentals	□ ■ □ □	2
ELEC-1211	Digital Electronics Basics	□ ■ □ □	3
ELEC-1221	Microcontrollers with Robotic Applications	□ □ ■ □	3
ELEC-1230	Troubleshooting 1	□ □ ■ □	3
ELEC-1240	Troubleshooting 2	□ □ ■ □	3
ELEC-1250	Introduction to Audio and Video Technology	□ □ ■ □	2
ELEC-2650	Computer Servicing 1	□ □ □ ■	4
ELEC-2660	Computer Servicing 2	□ □ □ ■	4
			44

Required Arts and Sciences course for Computer Service Technology:

		SEM HRS
PHYS-1180	College Physics 1	4

* Students entering the Computer Service Technology program without any previous electronics knowledge should contact the Macomb faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement must be met by successfully completing PHYS-1180.

Some universities in the area (Wayne State University among them) offer a degree in Bachelor of Science Engineering Technology (BSET). The Computer Service Technology program from Macomb is transferable in total to most of these universities. However, students pursuing the BSET should elect MATH-1000 and MATH-1460. These students should also see the program advisor at their selected university as soon as possible.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate in Computer Service Technology

		SUGGESTED SEQUENCE	SEM HRS
ELEC-1161	Electronic Technology 1*	■ □ □ □	3
ELEC-1171	Electronic Technology 2*	■ □ □ □	3
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
ELEC-1181	Semiconductor Theory & Devices	□ ■ □ □	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ ■ □ □	3
CORE-1000	Industrial Technology Fundamentals	□ ■ □ □	2
ELEC-1211	Digital Electronics Basics	□ ■ □ □	3
ELEC-1221	Microcontrollers with Robotic Applications	□ □ ■ □	3
ELEC-1230	Troubleshooting 1	□ □ ■ □	3
ELEC-1240	Troubleshooting 2	□ □ ■ □	3
ELEC-1250	Introduction to Audio and Video Technology	□ □ ■ □	2
ELEC-2650	Computer Servicing 1	□ □ □ ■	4
ELEC-2660	Computer Servicing 2	□ □ □ ■	4
			44

* Students entering the Computer Service Technology program without any previous electronics knowledge should contact the Macomb faculty about taking EETE-1100 before ELEC–1161 and ELEC-1171.

See also the Basic Electronics Certificate under Electronic Engineering Technology.

E. Skill Specific Certificate

Skill Specific Certificate in Computer Service Technology – A+ Certification Preparation

This certificate program is designed to prepare the student to take the CompTIA (Computer Technology Industry Association) A+ certification exam. A+ certification is becoming recognized as the entry-level credential to enter the popular and rewarding field of Information Technology as a Computer Service Technician.

ELEC-2650	Computer Servicing 1	4
ELEC-2660	Computer Servicing 2	4
		8

Construction Technology

South Campus

Provides the student with a sound background for careers in Construction Supervision, Estimating, Building Inspection, Architect's Field Representation, Construction Management, or as a Residential or Commercial Builder. Personnel from ancillary industries, such as construction material suppliers, will also find that Construction Technology courses provide a sound background for their careers.

The primary direction of this program is to provide education and training necessary for individuals to perform at mid-management levels. The people who will benefit from this program will include supervisors, estimators, construction inspectors, architect's representatives, construction managers, and residential builders. While students without skill levels or established experience in the construction trade will be admitted to the program, it is primarily designed to upgrade the tradespeople or individuals currently employed in some aspect of the construction industry.

Program advisor Professor Martin Sirowatka can be reached at 586.445.7226.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 63 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*ATBC-1100	Blueprint & Math-Residential	■ □ □ □	2
*CIVL-2200	Soils & Foundations	■ □ □ □	3
*DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
*DRCG-1140	Interactive Computer Graphics–Introduction to 2D & 3D AutoCAD	■ □ □ □	4
*ATBC-1150	Blueprint & Math–Commercial	□ ■ □ □	2
*ATTR-1150	Technical Report Writing	□ ■ □ □	2
*DRAD-2110	Applied Building Construction	□ ■ □ □	3
*CIVL-1050	Construction Safety Policy & Procedures	□ ■ □ □	3
*CIVL-1010	Civil Technology Seminar	□ □ ■ □	1
*ATBC-1160	Construction–Cost Estimating	□ □ ■ □	2
*DRAD-2200	Mechanical & Electrical Systems for Buildings	□ □ ■ □	3
AND			
ENVS-1050	Environmental Science	□ □ ■ □	4
OR			
NATS-1310	Environmental Science	□ □ ■ □	4
AND			
PSYC-1010	Introductory Psychology	□ □ ■ □	4
*SURV-1100	Elementary Surveying	□ □ □ ■	3
*ATBC-2600	Construction Law & Contract Administration	□ □ □ ■	2
*CLCT-1650	Systems Design of Heating & Air Conditioning	□ □ □ ■	3
*DRAD-2230	Construction Specifications	□ □ □ ■	3
PSYC-2400	Industrial–Organizational Psychology	□ □ □ ■	3
*QUAL-2400	Project Management	□ □ □ ■	3
			53

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing ENVS-1050 or NATS-1310.

Group III requirement is met by successfully completing PSYC-1010 and/or PSYC-2400.

Please check with a counselor. This associate's degree program may transfer to a variety of colleges for a technical, business, or general studies baccalaureate degree.

C. Certificate Option

A **Certificate in Construction Technology** will be awarded to students successfully completing those courses preceded by an asterisk (42 Sem Hrs).

Culinary Arts

Center Campus

Prepares students for technical and managerial careers in restaurant, catered, and institutional food service. Students learn quantity cooking in well-equipped commercial kitchens with related work in nutrition, food selection, storage, and merchandising.

Graduates have employment opportunities in cafeterias, restaurants, catering, hotels, hospitals, nursing homes, schools, and vending companies.

INDUSTRY AND ASSOCIATION CERTIFICATION:

A. National Restaurant Association: The National Restaurant Association Educational Foundation has developed a series of in-service training courses. Those courses have been incorporated in Macomb's academic courses within the Culinary Arts program. This includes CULH-1150, CULH-1320, CULH-1400, CULH-1420, and CULH-1430.

B. ACF Certified Culinarian: The Associate of Applied Science degree in Culinary Arts, the Certificate in Culinary Arts – Culinary Management, and the Certificate in Culinary Arts – Pastry Arts programs are accredited by the American Culinary Federation Foundation Accrediting Commission (ACFFAC), 180 Center Place Way, St. Augustine, FL 32095, 800.624.9458. Upon graduation, you will receive ACF Certified Culinarian status. What this means is national recognition of your accomplishments here at Macomb.

C. ACF Apprenticeship Program: Completion of 6,000 hours supervised training in an approved house and enrollment in the Apprenticeship Program at Macomb (37 credit hours total).

The program advisors are Professors David Schneider, Jeffrey Wolf, Francois Faloppa, and Scott O'Farrell.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CULH-1050	Culinary Techniques	■ □ □ □	4
CULH-1150	Sanitation	■ □ □ □	1
CULH-1200	Cost Control	■ □ □ □	3
CULH-1340	Production Baking	■ □ □ □	4
CULH-1250	Table Service	□ ■ □ □	2
CULH-1310	Culinary Skills Development	□ ■ □ □	4
CULH-1400	Supervision	□ ■ □ □	3
CULH-1420	Purchasing	□ ■ □ □	3
CULH-1320	International Kitchen	□ □ ■ □	5
CULH-1430	Menu Planning	□ □ ■ □	3
CULH-2050	Catering	□ □ ■ □	3
CULH-2010	A la Carte Dining	□ □ □ ■	5
CULH-2040	Garde Manger	□ □ □ ■	3
CULH-2180	Pastry Arts	□ □ □ ■	4
BIOL-1400	Fundamentals of Nutrition[1]	□ □ □ ■	3
			50

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

[1] **Group II requirement** is met by successfully completing BIOL-1400.

C. Elective Courses . . . . . none required

D. Certificate Options

Certificate in Culinary Arts – Culinary Management

These courses will prepare students for entry-level supervisory and management careers in corporate and franchised food service operations.

		SUGGESTED SEQUENCE	SEM HRS
CULH-1050	Culinary Techniques	■ □ □ □	4
CULH-1150	Sanitation	■ □ □ □	1
CULH-1200	Cost Control	■ □ □ □	3
CULH-1250	Table Service	□ ■ □ □	2
CULH-1310	Culinary Skills Development	□ ■ □ □	4
CULH-1400	Supervision	□ ■ □ □	3
CULH-1420	Purchasing	□ ■ □ □	3
CULH-1430	Menu Planning	□ □ ■ □	3
MGMT-1210	Entrepreneurship & Small Business Management	□ □ ■ □	3
CULH-2010	A la Carte Dining	□ □ □ ■	5
CULH-2030	Mechanical Equipment & Restaurant Design	□ □ □ ■	3
			34

E. Skill Specific Certificate

The **Skill Specific Certificate – Culinary Arts Prep Cook** will provide the student with employable skills in just 16 weeks. After just one semester, the student will have the skills needed to seek employment or to upgrade a current job.

Culinary Arts – Prep Cook

		SEM HRS
CULH-1050	Culinary Techniques	4
CULH-1150	Sanitation	1
CULH-1310	Culinary Skills Development	4
		9

NOTE: Please see related programs in Hospitality Management, Pastry Arts, and Restaurant Management.

Customer Energy Specialist

Center and South Campuses

This program is designed to provide students with the competencies, knowledge, skills and attitudes to function as a beginning "Customer Energy Specialist" for Consumers Energy Company. The program will operate as an in-house training program with the formal course work taken concurrently at Macomb Community College. When all course requirements have been met, a Certificate in Customer Energy Specialist–Design may be given upon request. Courses may also be applied toward an Associate of Applied Science degree in Customer Energy Specialist–Design with satisfactory completion of appropriate additional course work.

Program advisors are Professors Art Knapp at 586.445.7209, and Tony Ventura at 586.445.7326.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ACCT-1070	Accounting for Entrepreneurs	■ ■ □ □	3
BUSN-1010	Business Enterprise	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
AND			
ENGL-1210	Composition 1	■ ■ □ □	3
OR			
ENGL-1180	Communications 1	■ ■ □ □	4
AND			
ENGL-1220	Composition 2	□ ■ ■ □	3
OR			
ENGL-1190	Communications 2	□ ■ ■ □	4
AND			
BUSN-1080	Business Law 1	□ ■ ■ □	4
ITCS-1010	Computer & Information Processing Principles	□ ■ ■ □	4
SPCH-1060	Speech Communication	□ □ ■ ■	3
			26-28

DESIGN

		SUGGESTED SEQUENCE	SEM HRS
ELEC-1161	Electronic Technology 1	■ ■ ■ □	3
ELEC-1171	Electronic Technology 2	□ ■ ■ ■	3
PRDE-1000	Fundamentals of Design	□ ■ ■ □	4
AND			
ATEE-2410	Electrical-National Electrical Code	□ ■ ■ □	2
OR			
CLCT-2350	Mechanical Codes	□ ■ ■ □	3
AND			
DRCG-1140	Interactive Computer Graphics–Introduction to 2D & 3D AutoCAD	□ ■ ■ ■	4
PRDE-1450	AutoCAD: Detailing & Assemblies	□ ■ ■ ■	3
TMTH-1150	RCL Analysis	□ ■ ■ ■	4
ATMT-1950	Science-Physics 1: Mechanics	□ ■ ■ ■	2
			25-26

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

Suggested elective course:

ATEE-1410 Electrical Line Design. 2

D. Certificate Option

A **Certificate in Customer Energy Specialist – Design** will be awarded to students successfully completing the Design Specialty and Career Preparation courses (51-54 Sem Hrs).

Early Childhood Studies

Center Campus

This program prepares the student to work in a variety of early childhood settings. Students learn the theoretical base in growth and development and early childhood curriculum. There are field and practicum experiences to facilitate development of skills to implement a curriculum that fosters the physical, cognitive, social/emotional and language growth of young children.

Upon completion of the program the student may be employed in early childhood education centers, school-age care programs, and home or group care programs.

The student who has plans for advanced study in early childhood when completing this program should plan coursework with an academic advisor or counselor to maximize the transferability of the program.

To meet State of Michigan licensing standards, the student should plan to have a criminal background test, a physical examination and a test for tuberculosis before beginning a field observation or practicum.

Student health care is not provided by the college or practicum site.

The program advisor is Professor Kate Cole 586.286.2190.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ECHS-1100	Early Childhood Development	■ □ □ □	4
ECHS-1200	Early Childhood Curriculums	■ □ □ □	4
PSYC-1010	Introductory Psychology	■ □ □ □	4
AND			
ENGL-1180	Communications 1	■ □ □ □	4
OR			
ENGL-1210	Composition 1	■ □ □ □	3
AND			
ECHS-1300	Art & Representing Skills for Children	□ ■ □ □	3
ECHS-1400	Music & Movement for Children	□ ■ □ □	3
ECHS-1600	Parents As Partners	□ ■ □ □	3
AND			
ENGL-1190	Communications 2	□ ■ □ □	4
OR			
ENGL-1220	Composition 2	□ ■ □ □	3
AND			
ECHS-1540	Curriculum Skills; Birth to 3 years	□ □ ■ □	3
ECHS-2100	Implementing the Curriculum	□ □ ■ □	2
ECHS-2110	Curriculum Skills	□ □ ■ □	2
ECHS-1710	Child Care Management	□ □ ■ □	3
BIOL-1400	Fundamentals of Nutrition	□ □ ■ □	3
ECHS-2300	Early Childhood Practicum	□ □ □ ■	4
ECHS-2310	Professional Issues in Early Childhood	□ □ □ ■	1
ECHS-1520	The Exceptional Child	□ □ □ ■	3
			48-50

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by completing ENGL-1180 or ENGL-1210.
Group II requirement is met by completing BIOL-1400.
Group III requirement is met by completing PSYC-1010.
Group IV–one (1) course required.
Group V–one (1) course required.

C. Elective Courses . . . . . 8-10 sem hrs

Suggested elective courses:

ECHS-1110	ECHS-1560	ECHS-1580	ENGL-2640
ITML-1000	MGMT-1210	MUSC-1260	NATS-1310
SOCY-1100	SPCH-1060		

In programs where the combination of required Career Preparation and Related Courses and Arts and Sciences courses do not equal a minimum of 62 semester hours, an advisor, counselor, or program advisor will aid in the selection of appropriate electives.

Additional Information for Students

CDA (Child Development Associate) Preparation

A CDA is a credential from the Council for Professional Recognition. To take these classes and apply for this credential student must be currently working in an early childhood setting.

Students may prepare for this by completing:

ECHS-1800	Child Development Associate Credential Preparation, Part 1	3 Sem Hrs
ECHS-1810	Child Development Associate Credential Preparation, Part 2	3 Sem Hrs
ECHS-1800	Child Development Associate Credential Preparation, Part 3	2 Sem Hrs

Students may also achieve the content for CDA preparation by taking:

ECHS-1100	Early Childhood Development	4 Sem Hrs
ECHS-1200	Early Childhood Curriculums	4 Sem Hrs
ECHS-1600	Parents as Partners	3 Sem Hrs
ECHS-1710	Child Care Management	3 Sem Hrs
ECHS-1820	Child Development Associate Credential Preparation, Part 3	2 Sem Hrs

The Council for Professional Recognition grants the CDA credential. Students must apply and pay all fees related to taking the oral and written exam required to achieve the CDA credential. For further information, go to www.cdacouncil.org.

Electronic Engineering Technology

South Campus

The Electronic Engineering Technology program provides a strong background in electrical and electronic theory. The theory is further reinforced through practical laboratory work and experimentation. Emphasis throughout the program is on understanding principles that are basic to the broad utilization of electronics across a wide spectrum of industrial, commercial, and consumer applications. The program is designed to provide preparation for entry-level jobs in a variety of occupations. Employment opportunities for those completing the program exist in the development, production, maintenance, sales, service, design, and manufacture of electronic circuitry and equipment as they relate to computers, industrial control, fiber optics, machine vision, robotics, automation, lasers, digital communication, system interfacing, programmable logic controllers, instrumentation and dynamometer labs, research and development, biomedical equipment and others.

If you have questions about the program, contact the program advisors or call the Engineering Technology Office at 586.445.7435.

Professor Arthur Knapp	586.445.7209	ST-126-4	knappa@macomb.edu
Professor Anthony Ventura	586.445.7326	ST-126-4	venturat@macomb.edu

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Applied Science degree in Electronic Technology Program Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
ELEC-1161	Electronic Technology 1*	■ □ □ □	3
ELEC-1171	Electronic Technology 2*	■ □ □ □	3
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
ELEC-1181	Semiconductor Theory & Devices	□ ■ □ □	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ ■ □ □	3
ELEC-1211	Digital Electronics Basics	□ ■ □ □	3
ELEC-1221	Microcontrollers with Robotic Applications.	□ □ ■ □	3
EETE-2010	Analog Instrumentation & Transducer Fundamentals	□ □ ■ □	3
EETE-2270	Microcontroller Programming	□ □ ■ □	3
EETE-2280	Automated Control Devices & Systems 1	□ □ ■ □	3
EETE-2290	Automated Control Devices & Systems 2	□ □ ■ □	3
EETE-2400	Microprocessor Interfacing	□ □ □ ■	3
EETE-2490	Instrumentation 2	□ □ ■ ■	3
			44

Required Arts and Sciences course for Computer Service Technology:

		SEM HRS
PHYS-1180	College Physics 1	4

* Students entering the Electronic Engineering Technology program without any previous electronics knowledge should contact the Macomb faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement must be met by successfully completing PHYS-1180.

Some universities in the area (Wayne State University among them) offer a degree in Bachelor of Science Engineering Technology (BSET). The Electronic Engineering Technology program from Macomb is transferable in total to most of these universities. However, students pursuing the BSET should elect MATH-1000 and MATH-1460. These students should also see the program advisor at their selected university as soon as possible.

C. Elective Courses. . . . . none required

D. Certificate Options

Certificate in Electronic Engineering Technology

		SUGGESTED SEQUENCE	SEM HRS
ELEC-1161	Electronic Technology 1*	■ □ □ □	3
ELEC-1171	Electronic Technology 2*	■ □ □ □	3
TMTH-1150	RCL Analysis	■ □ □ □	4
CORE-1060	Industrial Computer Technology	■ □ □ □	4
ELEC-1181	Semiconductor Theory & Devices	□ ■ □ □	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	□ ■ □ □	3
ELEC-1211	Digital Electronics Basics	□ ■ □ □	3
ELEC-1221	Microcontrollers with Robotic Applications.	□ □ ■ □	3
EETE-2010	Analog Instrumentation & Transducer Fundamentals	□ □ ■ □	3
EETE-2270	Microcontroller Programming	□ □ ■ □	3
EETE-2280	Automated Control Devices & Systems 1	□ □ ■ □	3
EETE-2290	Automated Control Devices & Systems 2	□ □ ■ □	3
EETE-2400	Microprocessor Interfacing	□ □ □ ■	3
EETE-2490	Instrumentation 2	□ □ ■ ■	3
			44

* Students entering the Electronic Engineering Technology program without any previous electronics knowledge should contact the Macomb faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

Certificate in Electronic Engineering Technology – Basic Electronics

		SEM HRS
ELEC-1161	Electronic Technology 1*	3
ELEC-1171	Electronic Technology 2*	3
TMTH-1150	RCL Analysis	4
ELEC-1181	Semiconductor Theory & Devices	3
ELEC-1191	Introduction to Op-Amps & Linear Integrated Circuits	3
ELEC-1211	Digital Electronics Basics	3
ELEC-1221	Microcontrollers with Robotic Applications.	3
		22

* Students entering the Electronic Engineering Technology program without any previous electronics knowledge should contact the Macomb faculty about taking EETE-1100 before ELEC-1161 and ELEC-1171.

Pre-Elementary Education

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills requisite to seek transfer admission to a baccalaureate degree program in Elementary Education. Because programs in Elementary Education vary from institution to institution and requirements will also differ based on teaching majors and minors selected, students are advised to consult with a counselor or academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) when choosing options and elective course work. Since changes to this program may occur from time to time, students are advised to use Macomb's online catalog for the most up-to-date information about this program and its requirements. It is important to note that teacher education programs are highly selective. Academic performance at Macomb (GPA) will be a significant factor in admission to a university program. For example Oakland University requires a 2.7 GPA for transfer and Wayne State University requires a 2.5 for transfer.

ASSOCIATE OF ARTS DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Pre-Professional and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MATH-1260	Mathematics for Education 1 **[C]	■ □ □ □	3
POLS-1000	Introduction to American Politics ***[C]	■ □ □ □	4
*HIST-####	History ***[A]	□ ■ □ □	3
*ENGL-####	Literature (200 or above) ****	□ □ □ ■	3
BIOL-1000	General Biology 1 **[B]	□ □ □ ■	4
			17

* Select courses based on your transfer college

After completion of the pre-professional sequence in A above, students should choose an appropriate concentration based upon their intended transfer college. Transfer institutions not covered by a concentration may be covered by an individual plan of study. Contact a counselor or academic advisor for assistance. All courses listed in the Concentrations which follow, except for Speech, will satisfy Arts and Sciences group requirements.

CONCENTRATION I: Central Michigan University

Choose 11 credits from:

		SUGGESTED SEQUENCE	SEM HRS
ANTH-1000	Introduction to Anthropology ***[B]	□ ■ □ □	4
OR			
PSYC-1010	Introductory Psychology ***[B]	□ ■ □ □	4
OR			
SOCY-1010	Principles of Sociology ***[B]	□ ■ □ □	4
AND			
PHIL-2100	Introduction to Ethics ****	□ □ ■ □	3
AND			
GEOL-1140	Introduction to Physical Geology **[A]	□ □ ■ □	4
OR			
ASTR-1030	General Astronomy 1 **[A]	□ □ ■ □	2
AND			
ASTR-1040	General Astronomy 2 **[A]	□ □ ■ □	2
			11

CONCENTRATION II: Eastern Michigan University

Choose 10 credits from:

		SUGGESTED SEQUENCE	SEM HRS
MATH-1270	Mathematics for Education 2 **[C]	☐ ■ ☐ ☐	3
PSYC-1010	Introductory Psychology ***[B]	☐ ■ ☐ ☐	4
AND			
PHIL-2010	Introduction to Philosophy ****	☐ ☐ ■ ☐	3
OR			
PHIL-2100	Introduction to Ethics ****	☐ ☐ ■ ☐	3
OR			
PHIL-2200	Introduction to Logic ****	☐ ☐ ■ ☐	3
OR			
HUMN-1700	Comparative Religions ****	☐ ☐ ■ ☐	3
			10

CONCENTRATION III: Oakland University

Choose 11 credits from:

		SUGGESTED SEQUENCE	SEM HRS
MATH-1340	Statistics **[C]	☐ ■ ☐ ☐	4
THEA-1100	Introduction to the Theater ****	☐ ☐ ■ ☐	3
AND			
ANTH-1000	Introduction to Anthropology ***[B]	☐ ☐ ■ ☐	4
OR			
PSYC-1010	Introductory Psychology ***[B]	☐ ☐ ■ ☐	4
OR			
SOCY-1010	Principles of Sociology ***[B]	☐ ☐ ■ ☐	4
			11

CONCENTRATION IV: Saginaw Valley State University

Choose 10 credits from:

		SUGGESTED SEQUENCE	SEM HRS
PSYC-1010	Introductory Psychology ***[B]	☐ ■ ☐ ☐	4
AND			
SPCH-1060	Speech Communication	☐ ☐ ■ ☐	3
OR			
SPCH-1100	Interpersonal Communication	☐ ☐ ■ ☐	3
AND			
ENGL-2410	Creative Writing ***	☐ ☐ ☐ ■	3
			10

CONCENTRATION V: Wayne State University

Choose 10 credits from:

		SUGGESTED SEQUENCE	SEM HRS
MATH-1270	Mathematics for Education 2 **[C]	☐ ■ ☐ ☐	3
PSYC-1010	Introductory Psychology ***[B]	☐ ☐ ■ ☐	4
ENGL-2640	Children's Literature ****	☐ ☐ ■ ☐	3
			10

CONCENTRATION VI: Western Michigan University

Choose 7 credits from:

		SUGGESTED SEQUENCE	SEM HRS
PSYC-1010	Introductory Psychology ***B	☐ ■ ☐ ☐	4
PSYC-2210	Child Growth & Development ***B	☐ ☐ ■ ☐	3
			7

** Fulfills Arts and Sciences Group II Requirements (A or B or C)

*** Fulfills Arts and Sciences Group III Requirements (A or B or C)

**** Fulfills Arts and Sciences Group IV Requirements

B. Arts and Sciences Component . . . . . .sem hrs 32-39

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus or 586.445.7211 South Campus).

Note: By completing the pre-professional requirements and a transfer college Concentration, students will have completely met Group II and Group III Requirements. All transfer college Concentrations will require one additional course from Group IV. All students must complete Groups I and V which are not covered in the Pre-Professional component or the College Concentrations.

C. Elective Courses. . . . . sem hrs 21-27

Elective courses should be selected with the assistance of a counselor or academic advisor and tailored to the student's transfer destination and teaching major or minor requirements.

Concentration Electives:

		UNIVERSITY HOURS
Concentration I	Central Michigan University	21-23
Concentration II	Eastern Michigan University	22-24
Concentration III	Oakland University	21-23
Concentration IV	Saginaw Valley State University	22-24
Concentration V	Wayne State University	22-24
Concentration VI	Western Michigan University	25-27

Emergency Medical Services–
Emergency Medical Technician–Paramedic

Center Campus

This program has been designed to produce a graduate that has the knowledge and skills to enter into the workplace as an entry level Paramedic or Paramedic/Firefighter.

Additional expenses to be met by the student are (1) a health history and physical examination including testing for tuberculosis and immunizations for Hepatitis B, Rubella and Rubeola; (2) uniforms; (3) hospitalization insurance as neither the clinical facilities nor the college insures the student against accidents or illness; (4) clinical packs; and (5) academy costs.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Emergency Medical Services–EMT/Paramedic and the Associate of Applied Science degree in Emergency Medical Services–Paramedic/Firefighter programs are accredited by the Michigan Department of Community Health, EMS and Trauma Systems Section, 201 Townsend Street, Lansing, Michigan 48913, 517.241.3026.

Program advisor Professor David Armstrong can be reached at 586.286.2188.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 70 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2310 OR	Human Anatomy & Physiology	■ ■ ■ ■	6
BIOL-2710 AND	Human Physiological Anatomy	■ ■ ■ ■	6
PSYC-1010 AND	Introductory Psychology	■ ■ ■ ■	4
HUMN-1700 OR	Comparative Religions	■ ■ ■ ■	3
PHIL-2100 AND	Introduction to Ethics	■ ■ ■ ■	3
ENGL-1180 OR	Communications 1	■ ■ ■ ■	4
ENGL-1210 AND	Composition 1	■ ■ ■ ■	3
PHED-2###	Any PHED Wellness course 2000 or above.	■ ■ ■ ■	2-3
BCOM-2080	Business Communications for Public Service	■ ■ ■ ■	2
EMSA-1211	Basic EMT Lecture 1	■ ■ □ □	3.5
EMSA-1220	Basic EMT Lab	■ ■ □ □	4
EMSA-1241	Basic EMT Lecture 2	■ ■ □ □	3.5
EMSA-1250	Clinical Rotation for the Basic EMT.	■ ■ □ □	1
EMSA-2510	Introduction to Paramedic Procedures	□ □ ■ □	4
EMSA-2520	Pharmacology for the Paramedic 1.	□ □ ■ □	3
EMSA-2530	Paramedic Lab 1	□ □ ■ □	3
EMSA-2550	Paramedic Lecture 2	□ □ ■ □	4
EMSA-2560	Paramedic Lecture 3	□ □ □ ■	3

EMSA-2570	Pharmacology for the Paramedic 2	☐☐☐■	3
EMSA-2580	Paramedic Lab 2	☐☐☐■	3
EMSA-2600	Advanced Life Support Internship	☐☐☐■	6
EMSA-2611	Hospital Clinical Rotation for the Paramedic	☐☐■☐	2
EMSA-2612	Hospital Clinical Rotation for the Paramedic 2	☐☐☐■	4
EMSA-2620	Paramedic Lecture 4	☐☐☐■	3
			70-72

B. Arts and Sciences Component . . . . . minimum 18

Students should plan Arts and Sciences courses with an academic advisor, counselor or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2310 or BIOL-2710.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing HUMN-1700 or PHIL-2100.

Group V requirement is met by successfully completing any Wellness course, PHED-2000 or above.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Emergency Medical Services–Emergency Medical Technician–Basic

EMSA-1211	Basic EMT Lecture 1	■■☐☐	3.5
EMSA-1220	Basic EMT Lab	■■☐☐	4
EMSA-1241	Basic EMT Lecture 2	■■☐☐	3.5
EMSA-1250	Clinical Rotation for the Basic EMT	■■☐☐	1
			12

Students in the Emergency Medical Services–Emergency Medical Technician–Paramedic program must achieve grade C or better in each course listed below to be certified by the Michigan Department of Consumer & Industry Services, Division of Emergency Medical Services, as having completed the approved plan of instruction.

BIOL-2310 or BIOL-2710	EMSA-1211	EMSA-2520	EMSA-2570
ENGL-1180 or ENGL-1210	EMSA-1220	EMSA-2530	EMSA-2580
HUMN-1700 or PHIL-2100	EMSA-1241	EMSA-2550	EMSA-2620
PSYC-1010	EMSA-2510	EMSA-2560	

Students in the Emergency Medical Services–Emergency Medical Technician–Paramedic program must achieve grade Pass in each course listed below to be certified by the Michigan Department of Consumer & Industry Services, Division of Emergency Medical Services, as having completed the approved plan of instruction.

EMSA-1250 EMSA-2600 EMSA-2611 EMSA-2612

Emergency Medical Services–Emergency Medical Technician–Paramedic/Firefighter

Center Campus

This program has been designed to produce a graduate that has the knowledge and skills to enter into the workplace as an entry level Paramedic. The EMT student will learn the role of the Emergency Medical Technician that administers Basic Life Support and takes over care from the Medical First Responders. After completing these courses the student will be able to take the Michigan Department of Consumer and Industry EMT state licensing exam. The student will also obtain the knowledge and skills to staff the sophisticated Advanced Life Support Units and assume care for the patient using appropriate medications and therapy to stabilize the victim of accidents or sudden illness prior to arrival at the hospital.

Along with the skills and training in the EMT/Paramedic specialty, the Fire Academy enables students to learn at our state-of-the-art Burn Tower the skills that they need to fight fires.

Additional expenses to be met by the student are (1) a health history and physical examination including testing for tuberculosis and immunizations for Hepatitis B, Rubella and Rubeola; (2) uniforms; (3) hospitalizations insurance as neither the clinical facilities nor the college insures the student against accidents or illness; (4) clinical packs; and (5) academy costs.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Emergency Medical Services–Emergency Medical Technician–Paramedic/Firefighter programs are accredited by the Michigan Department of Community Health, EMS and Trauma Systems Section, 201 Townsend Street, Lansing, Michigan 48913, 517.241.3026.

Program advisor Professor David Armstrong can be reached at 586.286.2188.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 82 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2310 OR BIOL-2710	Human Anatomy & Physiology OR Human Physiological Anatomy	■ ■ ■ ■	6
AND			
PSYC-1010	Introductory Psychology	■ ■ ■ ■	4
AND			
HUMN-1700 OR PHIL-2100	Comparative Religions OR Introduction to Ethics	■ ■ ■ ■	3
AND			
ENGL-1180 OR ENGL-1210	Communications 1 OR Composition 1	■ ■ ■ ■	4
AND			
PHED-2###	Any PHED Wellness course 2000 or above	■ ■ ■ ■	2-3
BCOM-2080	Business Communications for Public Service	■ ■ ■ ■	2
EMSA-1211	Basic EMT Lecture 1	■ ■ □ □	3.5
EMSA-1220	Basic EMT Lab	■ ■ □ □	4
EMSA-1241	Basic EMT Lecture 2	■ ■ □ □	3.5
EMSA-1250	Clinical Rotation for the Basic EMT	■ ■ □ □	1
EMSA-2510	Introduction to Paramedic Procedures	□ □ ■ □	4
EMSA-2520	Pharmacology for the Paramedic 1	□ □ ■ □	3
EMSA-2530	Paramedic Lab 1	□ □ ■ □	3
EMSA-2550	Paramedic Lecture 2	□ □ ■ □	4
EMSA-2560	Paramedic Lecture 3	□ □ □ ■	3
EMSA-2570	Pharmacology for the Paramedic 2	□ □ □ ■	3
EMSA-2580	Paramedic Lab 2	□ □ □ ■	3
EMSA-2600	Advanced Life Support Internship	□ □ □ ■	6
EMSA-2611	Hospital Clinical Rotation for the Paramedic	□ □ ■ □	2
EMSA-2612	Hospital Clinical Rotation for the Paramedic 2	□ □ □ ■	4
EMSA-2620	Paramedic Lecture 4	□ □ □ ■	3
FIRE-2000	Basic Fire Academy–Firefighter 1	■ ■ ■ ■	6
FIRE-2010	Basic Fire Academy–Firefighter 2	■ ■ ■ ■	6
			82-85

B. Arts and Sciences Component . . . . . minimum 18

Students should plan Arts and Sciences courses with an academic advisor, counselor or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2310 or BIOL-2710.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing HUMN-1700 or PHIL-2100.

Group V requirement is met by successfully completing any Wellness course, PHED-2000 or above.

C. Elective Courses . . . . . none required

Students in the Emergency Medical Services–Emergency Medical Technician–Paramedic/Firefighter program must achieve grade C or better in each course listed below to be certified by the Michigan Department of Consumer & Industry Services, Division of Emergency Medical Services, as having completed the approved plan of instruction.

BIOL-2310 or BIOL-2710	EMSA-1211	EMSA-2520	EMSA-2570
ENGL-1180 or ENGL-1210	EMSA-1220	EMSA-2530	EMSA-2580
HUMN-1700 or PHIL-2100	EMSA-1241	EMSA-2550	EMSA-2620
PSYC-1010	EMSA-2510	EMSA-2560	

Students in the Emergency Medical Services–Emergency Medical Technician–Paramedic/Firefighter program must achieve grade Pass in each course listed below to be certified by the Michigan Department of Consumer & Industry Services, Division of Emergency Medical Services, as having completed the approved plan of instruction.

EMSA-1250 EMSA-2600 EMSA-2611 EMSA-2612

Pre-Engineering

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills requisite to transfer to a baccalaureate degree program in Engineering. Because Bachelor of Science degree programs in Engineering vary somewhat from institution to institution and requirements will also differ depending upon the engineering discipline chosen as a specialization, students are advised to consult with an academic advisor or counselor (586.286.2228 Center Campus or 586.445.7211 South Campus) when selecting options and elective course work in order to tailor their program for the appropriate transfer destination.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 66 Sem Hrs)

A. Pre-Professional and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CHEM-1170	General Chemistry 1 ↗	■ □ □ □	4
*MATH-1760	Analytic Geometry & Calculus 1	■ □ □ □	4
*ENGR-1000	Introduction to Engineering	■ ■ □ □	3
*PHYS-1190	College Physics 2 ⌘	■ ■ □ □	4
*MATH-1770	Analytic Geometry & Calculus 2	□ ■ □ □	4
*PHYS-2220	Analytical Physics 1 ⌘	□ ■ ■ ■	5
Engineering Computer Elective ≈ or Additional Science Elective		□ ■ ■ ■	3-4
MATH-2000	Introduction to Linear Algebra	□ □ ■ □	3
MATH-2760	Analytic Geometry & Calculus 3	□ □ ■ □	4
*ECON-1160	Principles of Economics 1	□ □ ■ □	3
PHYS-2230	Analytical Physics 2 ⌘	□ □ ■ ■	5
MATH-2770	Differential Equations	□ □ □ ■	4
			46-47

≈ See transfer guide for individual four-year institution requirements.

⌘ This sequence usually counts as 8 to 10 transfer credits. The actual credit hours applied to engineering baccalaureate degree requirements is dependent upon the transfer destination.

↗ Placement test required, or CHEM-1050 and MATH-1000 as a prerequisite.

NOTE: The following courses are frequently available in the Spring/Summer semester. CHEM-1170, ECON-1160, MATH-1760, MATH-1770, MATH-2760, PHYS-1190.

B. Arts and Sciences Component . . . . . minimum sem hrs 23

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirements met by successfully completing ENGL-1180 or ENGL-1210 and ENGL-1220 or ENGL-1190.

Group II requirements met by successfully completing one course in Biology, Chemistry, Physics or Geology and one course in Mathematics (1450 or above). MATH-1420 and MATH-1430 may substitute for MATH-1450.

Group III requirements partially met by successfully completing ECON-1160. An additional course from Group III is to be taken appropriate to the student's transfer destination.

Group IV requirements–one (1) course required.

Group V requirements–one (1) course required.

C. Elective Courses . . . . . 0-6 sem hrs

Elective courses should be selected with the assistance of a counselor, academic advisor, or program advisor and tailored to the student's transfer destination.

D. Certificate Option

A **Certificate in Pre-Engineering** will be awarded to students successfully completing Group I and those courses preceded by an asterisk (29-31 semester hours).

Entrepreneurship and Small Business

Center and South Campuses

This degree is designed for students who desire to develop their own business or pursue career in a corporation that requires continuous innovation. It provides a comprehensive knowledge of accounting, management, globalization, marketing, and computer information systems as these areas relate to entrepreneurial business. This includes an understanding of how to develop a new business plan, conduct marketing research to determine the feasibility of a new business, obtain capital resources for a new business enterprise, pursue global opportunities, manage the cash flow of a new business, and understand the legal issues related to entrepreneurial endeavors.

Program advisor Professor Patrick Greek can be reached at 286.2253.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010	Business Enterprise	■ □ □ □	3
AND			
ACCT-1070 OR	Accounting for Entrepreneurs	■ ■ □ □	3
ACCT-1080	Principles of Accounting 1	■ ■ □ □	4
AND			
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MGMT-1010	Principles of Management	□ ■ ■ □	3
MKTG-1010	Principles of Marketing	□ ■ ■ □	3
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ □ ■ ■	4
			24-25

AND

Required Program Core Courses for Entrepreneurship ans Small Business

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1210	Entrepreneurship Fundamentals	□ □ ■ ■	3
MGMT-1210	Entrepreneurship & Small Business Management	□ □ ■ ■	3
MKTG-1210	Small Business Marketing	□ □ ■ ■	3
ITBS-1240	Creating a Web Page for Business	□ □ ■ ■	2
ITBS-2150	E-Commerce	□ □ ■ ■	3
BUSN-2030	Global Purchasing & Supply Chain Management	□ □ ■ ■	3
BUSN-2000	Global Entrepreneurship	□ □ ■ ■	3
			20

AND

Required Arts and Sciences Courses for Entrepreneurship and Small Business

		SEM HRS
ECON-1160 OR	Principles of Economics 1	3
PSYC-1010	Introductory Psychology	4

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration Degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing ECON-1160 or PSYC-1010.

C. Elective Courses . . . . . none required

D. Certificate Option

A **Certificate in Entrepreneurship and Small Business** will be awarded to students successfully completing those courses in Section A (Associate of Business Administration degree Common Core and Requires Program Core Courses for Entrepreneurship and Small Business) (44-45 Sem Hrs).

E. Skill Specific Certificate

Entrepreneurship and Small Business

The following courses required for the **Skill Specific Certificate in Entrepreneurship and Small Business** are offered either online or on-ground and can be completed in one year.

		SEM HRS
ACCT-1070	Accounting for Entrepreneurs	3
BUSN-1210	Entrepreneurship Fundamentals	3
MGMT-1210	Entrepreneurship & Small Business Management	3
MKTG-1210	Small Business Marketing	3
		12

Finance

Center and South Campuses

The program prepares students for entry-level positions in the field of corporate money management as well as enhancing the skills of individuals currently employed in corporate finance, banking, lending, and investment. The program provides specialized knowledge in the various financial markets, financial decision making, and financial operations as they are practiced in American business.

Program advisors are Professors Shirley Glass and Fred Jex.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 63 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
ACCT-1080	Principles of Accounting 1	■ □ □ □	4
BUSN-1010	Business Enterprise	■ □ □ □	3
MGMT-1010	Principles of Management	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
BUSN-1080	Business Law 1	■ ■ ■ □	4
BCOM-2050	Business Communications	□ ■ ■ ■	4
			25

Required Program Core Courses for Finance

		SUGGESTED SEQUENCE	SEM HRS
ACCT-1090	Principles of Accounting 2	□ ■ □ □	4
FINC-1010	Introduction to Finance[1]	□ ■ □ □	3
ACCT-2270	Managerial Accounting	□ □ ■ □	4
FINC-2020	Bank & Lending Management	□ □ □ ■	3
FINC-2030	Corporate Finance	□ □ □ ■	3
FINC-2040	The Stock Market	□ □ □ ■	3
			20

[1] Students who successfully completed CRFN-1030 will not be required to take FINC-1010.

Required Arts and Sciences Course for Finance

		SEM HRS
ECON-1160	Principles of Economics 1	3

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing ECON-1160.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Finance** will be awarded to students successfully completing those courses in Section A made up of the Associate of Business Administration degree Common Core Requirements and Required Program Core Courses for Finance (45 Sem Hrs).

Fire Science

Center Campus

This program is designed to impart the skills, knowledge, and understanding necessary to be successful in and to increase the professionalization of the fire protection field.

This program develops technical competency and prepares the student for managerial and leadership positions in municipal, industrial, and business areas of fire protection, suppression, and prevention.

Program advisor Professor Kenneth Staelgraeve can be reached at 586.226.4991.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BCOM-2080	Business Communications for Public Service	■ ■ ■ ■	2
EMSA-1211	Basic EMT Lecture 1	■ □ □ □	3.5
EMSA-1220	Basic EMT Lab	■ □ □ □	4
EMSA-1241	Basic EMT Lecture 2	■ □ □ □	3.5
EMSA-1250	Clinical Rotation for the Basic EMT	■ □ □ □	1
FIRE-1010	Fundamentals of Fire Protection	□ ■ □ □	3
FIRE-1000	Philosophy of Fire Protection	□ □ ■ □	3
FIRE-1180	Fire Science 1	□ □ ■ □	4
FIRE-1280	Fire Protection Equipment & Systems 1	□ □ ■ □	3
FIRE-2130	Fire Hydraulics & Water Supply	□ □ ■ □	3
FIRE-2300	Fire Department Administration	□ □ ■ □	3
FIRE-1190	Fire Science 2	□ □ □ ■	4
FIRE-1290	Fire Protection Equipment & Systems 2	□ □ □ ■	3
FIRE-2410	Building Construction for Fire Protection	□ □ □ ■	3
FIRE-2510	Fire Fighting Tactics & Strategy	□ □ □ ■	3
			46

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Fire Science

		SUGGESTED SEQUENCE	SEM HRS
FIRE-1010	Fundamentals of Fire Protection	☐ ■ ☐ ☐	3
FIRE-1000	Philosophy of Fire Protection	☐ ☐ ■ ☐	3
FIRE-1180	Fire Science 1	☐ ☐ ■ ☐	4
FIRE-1280	Fire Protection Equipment & Systems 1	☐ ☐ ■ ☐	3
FIRE-2130	Fire Hydraulics & Water Supply	☐ ☐ ■ ☐	3
FIRE-2300	Fire Department Administration	☐ ☐ ■ ☐	3
FIRE-1190	Fire Science 2	☐ ☐ ☐ ■	4
FIRE-1290	Fire Protection Equipment & Systems 2	☐ ☐ ☐ ■	3
FIRE-2410	Building Construction for Fire Protection	☐ ☐ ☐ ■	3
FIRE-2510	Fire Fighting Tactics & Strategy	☐ ☐ ☐ ■	3
			46

NOTE: A student may be awarded credit if they have a current license as an Emergency Medical Technician–Basic (issued by the Michigan Department of Consumer & Industry Services–Division of Emergency Medical Services). Credit may be awarded for Fire Officer I, Fire Officer II, Fire Officer III, as well as certain National Fire Academy Program(s).

Fire Science with Fire Academy

Center Campus

This program is designed to impart the skills, knowledge, and understanding necessary to be successful in, and to increase the professionalization of the fire protection field.

This program develops technical competency and prepares the student for managerial and leadership positions in municipal, industrial, and business areas of fire protection, suppression, and prevention.

Program advisor Professor Kenneth Staelgraeve can be reached at 586.226.4991.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BCOM-2080	Business Communications for Public Service	■ ■ ■ ■	2
FIRE-2000	Basic Fire Academy-Firefighter 1	■ □ □ □	6
FIRE-2010	Basic Fire Academy-Firefighter 2	■ □ □ □	6
FIRE-1010	Fundamentals of Fire Protection	□ ■ □ □	3
FIRE-1000	Philosophy of Fire Protection	□ □ ■ □	3
FIRE-1180	Fire Science 1	□ □ ■ □	4
FIRE-1280	Fire Protection Equipment & Systems 1	□ □ ■ □	3
FIRE-2130	Fire Hydraulics & Water Supply	□ □ ■ □	3
FIRE-2300	Fire Department Administration	□ □ ■ □	3
FIRE-1190	Fire Science 2	□ □ □ ■	4
FIRE-1290	Fire Protection Equipment & Systems 2	□ □ □ ■	3
FIRE-2410	Building Construction for Fire Protection	□ □ □ ■	3
FIRE-2510	Fire Fighting Tactics & Strategy	□ □ □ ■	3
			46

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Fire Science with Fire Academy

		SUGGESTED SEQUENCE	SEM HRS
FIRE-2000	Basic Fire Academy–Firefighter 1	■ □ □ □	6
FIRE-2010	Basic Fire Academy–Firefighter 2	■ □ □ □	6
FIRE-1010	Fundamentals of Fire Protection	□ ■ □ □	3
FIRE-1000	Philosophy of Fire Protection	□ □ ■ □	3
FIRE-1180	Fire Science 1	□ □ ■ □	4
FIRE-1280	Fire Protection Equipment & Systems 1	□ □ ■ □	3
FIRE-2130	Fire Hydraulics & Water Supply	□ □ ■ □	3
FIRE-2300	Fire Department Administration	□ □ ■ □	3
FIRE-1190	Fire Science 2	□ □ □ ■	4
FIRE-1290	Fire Protection Equipment & Systems 2	□ □ □ ■	3
FIRE-2410	Building Construction for Fire Protection	□ □ □ ■	3
FIRE-2510	Fire Fighting Tactics & Strategy	□ □ □ ■	3
			46

General Business

Center and South Campuses

This program allows students the widest possible latitude in choosing business courses. Seven common core business courses provide basic knowledge and skills. In addition, students must select a minimum of 12 semester hours in business elective courses enabling students to tailor-make a business program suited to their educational needs.

This program is compatible with many bachelor's degree programs offered through local colleges and universities; see an academic advisor or counselor for full details.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010 AND	Business Enterprise	■ □ □ □	3
ACCT-1050 OR	Financial Record Keeping	■ ■ □ □	4
ACCT-1070 OR	Accounting for Entrepreneurs	■ ■ □ □	3
ACCT-1080 AND	Principles of Accounting 1	■ ■ □ □	4
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MGMT-1010	Principles of Management	□ ■ ■ □	3
MKTG-1010	Principles of Marketing	□ ■ ■ □	3
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ □ ■ ■	4
			24-25

An additional 12 semester hours must be selected from the following alpha codes:

ACCT	BCOM	BUSN	FINC	MGMT	MKTG

Information Technology courses beginning with “IT” including:

ITAP	ITBS	ITCS	ITIA	ITML
ITNC	ITNT	ITOS	ITWP	

36-37

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . 7-8 sem hrs

D. Certificate Option

General Business

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010	Business Enterprise	■ □ □ □	3
AND			
ACCT-1050	Financial Record Keeping	■ ■ □ □	4
OR			
ACCT-1070	Accounting for Entrepreneurs	■ ■ □ □	3
OR			
ACCT-1080	Principles of Accounting 1	■ ■ □ □	4
AND			
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MGMT-1010	Principles of Management	□ ■ ■ □	3
MKTG-1010	Principles of Marketing	□ ■ ■ □	3
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ □ ■ ■	4
			24-25

An additional 12 semester hours must be selected from the following alpha codes:

ACCT	BCOM	BUSN	FINC	MGMT	MKTG

Information Technology courses beginning with "IT" including:

ITAP	ITBS	ITCS	ITIA	ITML
ITNC	ITNT	ITOS	ITWP	

36-37

E. Skill Specific Certificates

Entrepreneurship

The **Skill Specific Certificate in General Business–Entrepreneurship** will meet the demand of students wishing to obtain knowledge and information for the startup and management of a new business venture.

		SEM HRS
ACCT-1070	Accounting for Entrepreneurs	3
BUSN-1210	Entrepreneurship Fundamentals	3
MGMT-1210	Entrepreneurship & Small Business Management	3
MKTG-1210	Small Business Marketing	3
		12

International Business

The **Skill Specific Certificate in General Business–International Business** is designed for students who desire to pursue a career in international business and to enhance their knowledge of global business practices. This program provides comprehensive knowledge of international business practices, marketing, supply chain management, and global entrepreneurship. Emphasis is also placed on the study of culture, economic, social, and political aspects affecting global business operations.

		SEM HRS
BUSN 2000	Global Entrepreneurship	3
BUSN-2030	Global Purchasing & Supply Chain Management	3
BUSN-2100	International Business	3
MKTG-2100	Global Marketing	3
		12

Health Information Technology

Center Campus

The Health Information Technology Program focuses on the information needs of health care. Its graduates are prepared with the knowledge and skills necessary to manage health care data used to support patient care, make business and clinical decisions, conduct research, evaluate services, and contribute to the development of computer-based patient record. The profession offers career flexibility and a variety of workplace options. Presently, opportunities for practice are found in numerous areas including hospitals, rehabilitation, pharmaceutical companies, mental health, home health, long term care, veterinary medicine, insurance companies, law firms, private industry and colleges and universities. Graduates of the program are eligible to write the national accreditation examination for the designation of Registered Health Information Technician (RHIT). While providing students with the skills necessary for immediate employment, the Health Information Technology Program also prepares the students for further study if they choose to pursue a Bachelor of Science degree in Health Information Management.

The program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) (www.cahiim.org). CAHIIM recognizes degree-granting programs in Health Informatics and Information Management that have undergone a rigorous process of voluntary peer review and have met or exceeded the minimum accreditation standards set by the professional association in cooperation with CAHIIM.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2710	Anatomy & Physiology	☐☐☐☐	6
HHSC-1700	Medical Terminology	☐☐☐☐	3
AND			
ENGL-1180	Communications	■☐☐☐	4
OR			
ENGL-1210	Composition	■☐☐☐	3
AND			
HITT-1102	Introduction to Health Information Management & the Health Care Environment	■☐☐☐	3
HITT-1103	Legal Aspects of Health Information Management	■☐☐☐	3
ITCS-1010	Computer & Information Processing Principles	■☐☐☐	4
HITT-1201	Pathophysiology & Pharmacology Applications in Health Information	☐■☐☐	3
HITT-1206	Health Information Management Systems	☐■☐☐	3
HITT-1207	International Classification of Disease (ICD) Coding	☐■☐☐	3
HITT-1208	Computers in Healthcare	☐■☐☐	2
PHIL-2100	Introduction to Ethics	☐☐■☐	3
HITT-2101	Professional Practice Experience 1	☐☐■☐	3
HITT-2105	Healthcare Reimbursement Systems	☐☐■☐	3
HITT-2106	CPT/HCPCS & Outpatient Coding	☐☐■☐	3
HITT-2107	Health Information Statistics	☐☐■☐	4
AND			
PSYC-1010	Introduction to Psychology	☐☐☐■	4
OR			
SOCY-1010	Principles of Sociology	☐■☐☐	4
AND			
HITT-2201	Professional Practice Experience 2	☐☐☐■	3

HITT-2202	Organization Performance for Health Information Management Professionals	☐	☐	☐	■	3
HITT-2203	Management for Health Information Management Professionals	☐	☐	☐	■	3
HITT-2204	Health Information Technology Seminar	☐	☐	☐	■	1
						63-64

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus or 586.445.7211 South Campus.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2710 or BIOL-2310.

Group III requirement is met by successfully completing PSYC-1010 and SOCY-1010.

Group IV requirement is met by successfully completing PHIL-2100.

Group V requirement is met by successfully completing a PHED Wellness course.

Students in the Associate of Applied Science degree in Health Information Technology program must achieve grade C or better in each course listed below for retention in the program.

BIOL-2710	HITT-1207	HITT-2201
ENGL-1180 or ENGL-1210	HITT-1208	HITT-2202
HHSC-1700	HITT-2101	HITT-2203
HITT-1102	HITT-2105	HITT-2204
HITT-1103	HITT-2106	ITCS-1010
HITT-1201	HITT-2107	PHIL-2100
HITT-1206		PSCY-1010 or SOCY-1010

If a student chooses to take BIOL-2310 instead of BIOL-2710 (which is the preferred course for this program) the Anatomy and Physiology prerequisite will be met, providing the class is passed with grade C or better.

Hospitality Management

Center and South Campuses

This program prepares students for entry-level positions in hospitality management as well as enhancing the skills of individuals currently employed in lodging, gaming, entertainment venues, and restaurants. The programs provide specialized knowledge in the various management techniques and skills as they are practiced in the hospitality industry.

Program advisors are Professors Dave Schneider and Paul Thacker.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS
(Minimum 65 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration Common degree Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010	Business Enterprise	■ □ □ □	3
MGMT-1010	Principles of Management	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
AND			
ACCT-1060	Fundamentals of Accounting for Hospitality	□ ■ ■ ■	4
OR			
ACCT-1080	Principles of Accounting	□ ■ ■ ■	4
	Recommended for students planning to transfer to a 4-year institution.		
AND			
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ ■ ■ ■	4
			25

Required Program Core Courses for Hospitality Management

		SUGGESTED SEQUENCE	SEM HRS
CULH-1150	Sanitation	■ □ □ □	1
CULH-1250	Table Service	□ ■ □ □	2
CULH-1440	Beverage Service	□ ■ □ □	2
HTMT-1010	Introduction to the Hospitality Industry	□ ■ □ □	4
HTMT-1020	Lodging Management 1	□ ■ ■ □	3
HTMT-1040	Hospitality Sales & Marketing	□ □ ■ ■	4
HTMT-2010	Lodging Management 2	□ □ ■ ■	3
HTMT-2915	Hospitality Management Program Internship	□ □ □ ■	3
			22

Required Arts and Sciences Course for Hospitality Management

		SEM HRS
ECON-1160	Principles of Economics 1	3
OR		
PSYC-1010	Introductory Psychology	4

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration degree (ABA). Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing ECON-1160 or PSYC-1010.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Hospitality Management** will be awarded to students successfully completing those courses in Section A made up of the Associate of Business Administration degree Common Core Requirements and the Required Program Core Courses for Hospitality Management. (47 Sem Hrs)

Associate of Business Administration Common degree Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1010	Business Enterprise	■ □ □ □	3
MGMT-1010	Principles of Management	■ ■ □ □	3
MKTG-1010	Principles of Marketing	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
AND			
ACCT-1060	Fundamentals of Accounting for Hospitality	□ ■ ■ ■	4
OR			
ACCT-1080	Principles of Accounting	□ ■ ■ ■	4
	Recommended for students planning to transfer to a 4-year institution.		
AND			
BUSN-1080	Business Law 1	□ ■ ■ □	4
BCOM-2050	Business Communications	□ ■ ■ ■	4
			25

AND

Required Program Core Courses for Hospitality Management

		SUGGESTED SEQUENCE	SEM HRS
CULH-1150	Sanitation	■ □ □ □	1
CULH-1250	Table Service	□ ■ □ □	2
CULH-1440	Beverage Service	□ ■ □ □	2
HTMT-1010	Introduction to the Hospitality Industry	□ ■ □ □	4
HTMT-1020	Lodging Management 1	□ ■ ■ □	3
HTMT-1040	Hospitality Sales & Marketing	□ □ ■ ■	4
HTMT-2010	Lodging Management 2	□ □ ■ ■	3
HTMT-2915	Hospitality Management Program Internship	□ □ □ ■	3
			22

NOTE: Please see related programs in Culinary Arts, Pastry Arts, and Restaurant Management.

Information Technology – Applications Professional

Center and South Campuses

Information Technology (IT) is a constantly evolving field. The dynamic nature of the Information Technology industry will require that this curriculum be updated during the life of the printed and PDF versions of the catalog.

The IT program emphasizes the use of computers to solve business problems. The curriculum currently consists of the following five specialties: Programming; IT Professional; Networking Specialist; Web Programming, and Applications Professional.

Please contact the program advisor at 445.7167 for the most current course and program specialty offerings.

Today's knowledge workers need to know how to take data and transform it into useful information that enhances productivity in the workplace. This program emphasizes software applications and communication skills required in business. The program focus is on developing expert-level application skills with special emphasis on enhancing critical thinking and decision-making capabilities while being sufficiently prepared for professional certification (Microsoft Office Specialist (MOS)). In addition to becoming proficient in the use of software applications, the program also emphasizes the development of effective communications skills so important in business today. Students will create focused, concise, thorough, applicable reports and proposals that include a specific level of critical detail used in the decision making process. Additionally, the program provides coverage of critical content management, compliance, and legislative issues that business is required to comply with in today's increasingly regulated world.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
BCOM-2050	Business Communications	■ □ □ □	4
ITAP-2000	Enterprise Content Management (ECM) Fundamentals	■ □ □ □	3
ITCS-1400	Micros in Business	□ ■ □ □	4
ITAP-1500	Advanced MS Word	□ ■ □ □	4
ITAP-2010	Fundamentals of Electronic Records Management (ERM).	□ ■ □ □	3
BCOM-2060	Advanced Business Communications.	□ □ ■ □	4
ITAP-1600	Advanced MS Excel: A Problem Solving Approach	□ □ ■ □	4
BCOM-2070	Technical Business Communications & Project Management Principles.	□ □ ■ □	3
ITAP-1700	Advanced MS Access: A Problem Solving Approach.	□ □ □ ■	4
AND	7-8 SEMESTER HOURS FROM THE FOLLOWING:		
MGMT-1010	Principles of Management.	■ ■ ■ □	3
MGMT-2000	Business Management Software Applications	□ ■ ■ ■	3
ITCS-1160	Introduction to Oracle: SQL	□ □ ■ ■	2
ITBS-1250	Introduction to Multimedia for Business	□ □ ■ ■	2
ITBS-1260	Multimedia Using Macromedia for Business.	□ □ ■ ■	2
ITBS-1280	Desktop Publishing for Windows	□ □ ■ ■	2
ITBS-1290	Advanced Desktop Publishing	□ □ ■ ■	2
			44-45

B. Arts and Sciences Component . . . . . .minimum 18 sem hrs

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Electives.. . . . . none required

D. Certificate Option

Certificate in Information Technology–Applications Professional

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
BCOM-2050	Business Communications	■ □ □ □	4
ITAP-2000	Enterprise Content Management (ECM) Fundamentals	■ □ □ □	3
ITCS-1400	Micros in Business	□ ■ □ □	4
ITAP-1500	Advanced MS Word	□ ■ □ □	4
ITAP-2010	Fundamentals of Electronic Records Management (ERM).	□ ■ □ □	3
BCOM-2060	Advanced Business Communications.	□ □ ■ □	4
ITAP-1600	Advanced MS Excel: A Problem Solving Approach	□ □ ■ □	4
BCOM-2070	Technical Business Communications & Project Management Principles.	□ □ ■ □	3
ITAP-1700	Advanced MS Access: A Problem Solving Approach.	□ □ □ ■	4
			37

Information Technology – IT *Professional*

Center and South Campuses

Information Technology (IT) is a constantly evolving field. The dynamic nature of the Information Technology industry will require that this curriculum be updated during the life of the printed and PDF versions of the catalog.

The IT program emphasizes the use of computers to solve business problems. The curriculum currently consists of the following five specialties: Programming; IT Professional; Networking Specialist; Web Programming, and Applications Professional.

Please contact the program advisor at 445.7167 for the most current course and program specialty offerings.

The Associate of Applied Science degree in Information Technology-IT Professional program is designed to prepare students for entry-level positions in today's Information Technology environment. The program will give the student a background in windows-based applications (word processing spreadsheet applications, presentations, database management), web design, programming, and networking. The program will give the student the broad background in computers necessary for business, industry, and government job environments.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
*BUSN-1010	Business Enterprise	■ □ □ □	3
*ITCS-1130	Introduction to Programming Logic	■ □ □ □	3
*ITCS-1160	Introduction to Oracle: SQL	□ ■ □ □	2
*ITCS-1400	Micros in Business	□ ■ □ □	4
*ITNT-1500	Principles of Networking	□ ■ □ □	4
*ITWP-1000	Introduction to Web Programming	□ ■ □ □	3
*ITCS-1180	Database Design Concepts	□ ■ □ □	2
*BCOM-2050	Business Communications	□ □ ■ □	4
*ITIA-1200	Introduction to Network Security	□ □ ■ □	3
*ITCS-2300	Introduction to UNIX	□ □ □ ■	2

AND

A minimum of 5 semester hours from the following:

ITWP-1100	Web Programming with JavaScript & Dynamic HTML	□ □ ■ □	3
ITOS-1400	Managing a Microsoft Windows Server Environment	□ □ ■ □	3
ITCS-1230	Visual Basic Programming	□ □ ■ □	4
ITCS-2530	C++ Programming 1	□ □ ■ □	4
ITCS-2590	Java 1	□ □ ■ □	4
ITCS-2790	C# Programming 1	□ □ □ ■	4
ITWP-2700	Programming: Perl	□ □ □ ■	2

AND

One of the following:

MGMT-1010	Principles of Management	■ □ □ □	3
ACCT-1080	Principles of Accounting 1	□ □ □ ■	4
			42-46

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . 0 to 2 sem hrs

D. Certificate Option

A **Certificate in Information Technology – IT Professional** will be awarded to students successfully completing those courses preceded by an asterisk (34 Sem Hrs).

Information Technology – Networking Specialist

Center and South Campuses

Information Technology (IT) is a constantly evolving field. The dynamic nature of the Information Technology industry will require that this curriculum be updated during the life of the printed and PDF versions of the catalog.

The IT program emphasizes the use of computers to solve business problems. The curriculum currently consists of the following five specialties: Programming; IT Professional; Networking Specialist; Web Programming, and Applications Professional.

Please contact the program advisor at 445.7167 for the most current course and program specialty offerings.

The Associate of Applied Science degree in Information Technology-Networking Specialist program is aimed at preparing students for positions in the Networking Industry. The student may select one of the following options: Network Administration Professional, Cisco Network Professional, or Network Security Professional. The Network Administration Professional option focuses on operating systems, wired and wireless networking technologies, network security, and troubleshooting techniques necessary for network administration. The Cisco Network Professional option focuses on the Cisco Networking Academy, preparation for the CCNA (Cisco Certified Network Associate) certification exam, wired and wireless networking technologies, network security, and troubleshooting techniques necessary to enter the Networking industry as a Cisco professional. The Network Security Professional option focuses entirely on Information Assurance issues, techniques, and policy as they relate to computer and information systems. Each option within the Networking Specialist program prepares the student for industry certifications. For further information, contact the program advisor at 586.445.7167.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

Network Administration Professional

(Minimum 70 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
BCOM-2050	Business Communications	■ □ □ □	4
ITNT-1500	Principles of Networking	■ □ □ □	4
ITCS-2300	Introduction to UNIX	□ ■ □ □	2
ITCS-2310	UNIX Administration	□ ■ □ □	2
ITWP-1000	Introduction to Web Programming	□ ■ □ □	3
ITOS-1300	Implementing & Supporting Microsoft WindowsXP Professional	□ ■ □ □	3
ITOS-1400	Managing a Microsoft Windows Server Environment	□ ■ □ □	3
ITOS-1500	Implementing Microsoft Server Active Directory	□ ■ □ □	3
ITOS-2400	Managing a Microsoft Windows Server Network	□ □ ■ □	3
ITOS-2500	Implementing & Managing Microsoft Exchange Server	□ □ ■ □	3
ITNT-1600	Introduction to Wireless Networks	□ □ ■ □	3
ITNT-1700	Wireless Network Integration	□ □ ■ □	3
ITIA-1200	Introduction to Network Security	□ □ ■ □	3
ITNT-2130	Network Design 1	□ □ ■ □	3
ITNT-2150	Network Troubleshooting	□ □ □ ■	3
ITNT-2800	Network Capstone Course	□ □ □ ■	3
			52

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required .

D. Certificate Option

A **Certificate in Information Technology – Networking Specialist – Network Administration Professional** will be awarded to students successfully completing the required hours in Part A (52 Sem Hrs).

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
Cisco Network Professional
(Minimum 66 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
BCOM-2050	Business Communications	■ □ □ □	4
ITNC-1000	Cisco Networking 1	■ □ □ □	4
ITOS-1400	Managing a Microsoft Windows Server Environment	□ ■ □ □	3
ITNC-1100	Cisco Networking 2	□ ■ □ □	4
ITNC-2000	Cisco Networking 3	□ □ ■ □	4
ITOS-2400	Managing a Microsoft Windows Server Network	□ □ ■ □	3
ITNT-1600	Introduction to Wireless Networks	□ □ ■ □	3
ITIA-1200	Introduction to Network Security	□ □ ■ □	3
ITNT-2130	Network Design 1	□ □ ■ □	3
ITNC-2100	Cisco Networking 4	□ □ □ ■	4
ITNT-1700	Wireless Network Integration	□ □ □ ■	3
ITNT-2150	Network Troubleshooting	□ □ □ ■	3
ITNT-2800	Network Capstone Course	□ □ □ ■	3
			48

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Information Technology – Networking Specialist – Cisco Network Professional** will be awarded to students successfully completing the required hours in Part A (48 Sem Hrs).

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
Network Security Professional
(Minimum 73 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
BCOM-2050	Business Communications	■ □ □ □	4
ITNT-1500	Principles of Networking	■ □ □ □	4
ITIA-1200	Introduction to Network Security	■ □ □ □	3
ITIA-1300	Information Security Safeguards	■ □ □ □	3
ITCS-2300	Introduction to UNIX	□ ■ □ □	2
ITCS-2310	UNIX Administration	□ ■ □ □	2
ITWP-1000	Introduction to Web Programming	□ ■ □ □	3
ITOS-1400	Managing a Microsoft Windows Server Environment	□ ■ □ □	3
ITIA-1400	Building an Information Protection Program	□ ■ □ □	3
ITIA-2300	Introduction to Threat Assessment	□ ■ □ □	3
ITWP-1600	Web Security	□ □ ■ □	3
ITNT-1600	Introduction to Wireless Networks	□ □ ■ □	3
ITNT-1700	Wireless Network Integration	□ □ ■ □	3
ITIA-2600	Principles of Cryptography	□ □ ■ □	3
ITNT-2130	Network Design 1	□ □ ■ □	3
ITIA-2700	Computer Forensics	□ □ □ ■	3
ITNT-2800	Network Capstone Course	□ □ □ ■	3
			55

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Information Technology – Networking Specialist – Network Security Professional** will be awarded to students successfully completing the required hours in Part A. (55 Sem Hrs).

E. Skill Specific Certificates

Information Technology– Networking Specialist–Cisco CCNA Networking

		SEM HRS
ITNC-1000	Cisco Networking 1	4
ITNC-1100	Cisco Networking 2	4
ITNC-2000	Cisco Networking 3	4
ITNC-2100	Cisco Networking 4	4
		16

Information Technology– Networking Specialist–Information Assurance

		SEM HRS
ITIA-1200	Introduction to Network Security	3
ITIA-1300	Information Security Safeguards	3
ITIA-1400	Building an Information Protection Program	3
ITIA-2300	Information Systems Threat Assessment	3
ITIA-2600	Principles of Cryptography	3
ITIA-2700	Computer Forensics	3
		18

Information Technology– Networking Specialist–Microsoft MCSA

		SEM HRS
ITOS-1300	Implementing & Supporting Microsoft Windows XP Professional	3
ITOS-1400	Managing a Microsoft Windows Server Environment	3
ITOS-1500	Implementing Microsoft Server Active Directory	3
ITOS-2400	Managing a Microsoft Windows Server Network	3
ITOS-2500	Implementing & Managing Microsoft Exchange Server	3
		15

Information Technology – Programming

Center and South Campuses

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Please contact the program advisor at 445.7167 for the most current course and program specialty offerings.

This sequence is aimed at preparing students for entry-level positions as programmers. Students who complete this sequence will be qualified to enter careers in which they function as a systems analyst (trainee) or a business applications programmer.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
*ITCS-1130	Introduction to Program Design & Development	■ □ □ □	3
*BUSN-1010	Business Enterprise	■ □ □ □	3
*BCOM-2050	Business Communications	□ ■ □ □	4
*ITCS-1160	Introduction to Oracle: SQL	□ ■ □ □	2
*ITCS-1180	Database Design Concepts	□ ■ □ □	2
*ITCS-2165	PL/SQL Programming	□ □ ■ □	3
*ITCS-2360	System Development Methodology	□ □ ■ □	4
*ITCS-2370	Computer Systems Design	□ □ □ ■	4
*ITWP-1000	Introduction to Web Programming	□ □ □ ■	3

AND

Select one of 5 Language Sequences:

Language Sequence 1

*ITCS-2530	C++ Programming 1	□ ■ □ □	4
*ITCS-2550	C++ Programming 2	□ □ ■ □	3

AND

*ITCS-2790	C# Programming 1	□ □ □ ■	4

OR

*ITCS-1230	Visual Basic Programming	□ □ □ ■	4

OR

*ITCS-2590	Java 1	□ □ □ ■	4

OR

Language Sequence 2

*ITCS-1230	Visual Basic Programming	□ ■ □ □	4
*ITCS-2220	Advanced Visual Basic	□ □ ■ □	3

AND

*ITCS-2590	Java 1	□ □ □ ■	4

OR

*ITCS-2530	C++ Programming 1	□ □ □ ■	4

OR

Language Sequence 3

*ITCS-1230	Visual Basic Programming	☐	■	☐	☐ 4
OR					
*ITCS-2530	C++ Programming 1	☐	■	☐	☐ 4
AND					
*ITCS-2590	Java 1	☐	☐	■	☐ 4
*ITCS-2620	Java 2	☐	☐	☐	■ 3
OR					

Language Sequence 4

*ITCS-2530	C++ Programming 1	☐	■	☐	☐ 4
*ITCS-2790	C# Programming 1	☐	☐	■	☐ 4
*ITCS-2820	C# Programming 2	☐	☐	☐	■ 3
OR					

Language Sequence 5

Choose 3 courses:

*ITCS-1230	Visual Basic Programming	☐	■	■	☐ 4
*ITCS-2530	C++ Programming 1	☐	■	■	☐ 4
*ITCS-2590	Java 1	☐	☐	■	■ 4
*ITCS-2790	C# Programming 1	☐	☐	■	■ 4
					43-44

B. Arts and Sciences Component. . . . . minimum 18 sem hrs

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . 0-1 sem hrs

D. Certificate Option

A **Certificate in Information Technology – Programming** will be awarded to students successfully completing those courses preceded by an asterisk (43-44 Sem Hrs).

E. Skill Specific Certificates

Information Technology – C++ Programming

		SEM HRS
*ITCS-1160	Introduction to Oracle: SQL	2
AND LANGUAGE SEQUENCE 1		
*ITCS-2530	C++ Programming 1	4
*ITCS-2550	C++ Programming 2	3
AND		
*ITCS-2790	C# Programming 1	4
OR		
*ITCS-1230	Visual Basic Programming	4
OR		
*ITCS-2590	Java 1	4
		13

Information Technology – VB Programming

		SEM HRS
*ITCS-1160	Introduction to Oracle: SQL	2
AND LANGUAGE SEQUENCE 2		
*ITCS-1230	Visual Basic Programming	4
*ITCS-2220	Advanced Visual Basic	3
AND		
*ITCS-2590	Java 1	4
OR		
*ITCS-2530	C++ Programming 1	4
		13

Information Technology – Java Programming

		SEM HRS
*ITCS-1160	Introduction to Oracle: SQL	2
AND LANGUAGE SEQUENCE 3		
*ITCS-1230	Visual Basic Programming	4
OR		
*ITCS-2530	C++ Programming 1	4
AND		
*ITCS-2590	Java 1	4
*ITCS-2620	Java 2	3
		13

Information Technology – C# Programming

		SEM HRS
*ITCS-1160	Introduction to Oracle: SQL	2
AND LANGUAGE SEQUENCE 4		
*ITCS-2530	C++ Programming 1	4
*ITCS-2790	C# Programming 1	4
*ITCS-2820	C# Programming 2	3
		13

Information Technology – Database Programming

		SEM HRS
*ITCS-1160	Introduction to Oracle: SQL	2
*ITCS-1180	Database Design Concepts.	2
*ITCS-2165	PL/SQL Programming	3
AND		
*ITCS-1230	Visual Basic Programming	4
OR		
*ITCS-2530	C++ Programming 1	4
OR		
*ITCS-2590	Java 1	4
		11

Information Technology – Web Site Programming

Center and South Campuses

Information Technology (IT) is a constantly evolving field. The dynamic nature of the Information Technology industry will require that this curriculum be updated during the life of the printed and PDF versions of the catalog.

The IT program emphasizes the use of computers to solve business problems. The curriculum currently consists of the following five specialties: Programming; IT Professional; Networking Specialist; Web Programming, and Applications Professional.

Please contact the program advisor at 445.7167 for the most current course and program specialty offerings.

Certifications: Web Master and Web Developer

These combined areas are aimed at preparing students for positions in service, support, and program development for the World Wide Web, Corporate Internet and/or Intranet. Students who complete this degree will have sufficient training to sit for one or both of the following certifications: iNet Web Certification, CIW Associate Certificate, JavaScript, Web languages Perl and Application Developer.

Graduates will have the skills necessary to serve the industry in positions ranging from Web Master, Web Development Specialist, Intranet/Internet implementers, and E-commerce site builder.

Certified WEB MASTERS possess the skills and knowledge critical to establishing and maintaining an effective presence on the Web. They are able to design the interface between the data storage component and the user, creating dynamic, data rich web pages; add interactivity and graphics to their pages using JavaScript or VBScript; and carry out secure electronic commerce.

Certified WEB DEVELOPERS (Internet/Intranet) possess the knowledge and skills needed to take full advantage of Internet services and resources. They know how to implement Internet technologies to gain full access to the Internet and set up a corporate intranet. They also know how to develop and establish dynamic Web sites, develop content-rich intranets and secure Web communications and web sites.

The web certification program is valuable for developers, Webmasters, Intranet/Internet specialists and others responsible for developing and maintaining their organization's web site. In addition, web developers, system and network administrators, technical staff, security specialists and those who want to take full advantage of Intranet/Internet resources and services for business applications will benefit from completing degree requirements.

Technology Requirements

Because this program is for eventual certification of Web Masters and Web Developers, it is designed to be offered online. In addition to the basic equipment and software required for traditional online classes, participants will be required to install curriculum specific software such as Personal Web Server, Visual Studio.Net, Java, Netscape Communicator and Composer, and Dreamweaver. Each of these packages are available at very deeply discounted pricing for students, some are free, or are available as a 60-90 day trial offer or as fully functioning programs shipped with textbooks. Texts and supplemental resource guides and programming manuals have been carefully chosen so as to reduce out-of-pocket expense for students.

Web Specialist Option students completing the Web Development or Web Master degree program are eligible to complete 24 hours in MACA Web Design courses to earn a Web Specialist degree.

iNet and CIW Industry Certifications

ITWP-2800	The iNet Web certification exam (automatically earns CIW Associate Certificate)
ITWP-1100	CIW Exam: JavaScript 1D0-437
ITWP-2700	CIW Exam: Web Languages Perl 1D0-435
ITWP-1200	
ITWP-1300	CIW Exam: Application Developer 1D0-430
ITWP-2300	

(See http://www.course.com/certification/ciw/ciwmapping.doc for more information.)

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

WEB SITE PROGRAMMING

(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*MKTG-1010	Principles of Marketing	■ □ □ □	3
*ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
*ITCS-1130	Introduction to Program Design & Development	■ □ □ □	3
*ITWP-1000	Introduction to Web Programming	■ □ □ □	3
*BCOM-2050	Business Communications	□ ■ □ □	4
*ITCS-2300	Introduction to UNIX	□ ■ □ □	2
*ITCS-2310	UNIX Administration	□ ■ □ □	2
*ITWP-1100	Web Programming with JavaScript & Dynamic HTML	□ □ ■ □	3
*ITWP-1200	Web Development with VBScript	□ □ ■ □	3
*ITWP-1300	Web Database Programming with Classic ASP	□ □ ■ □	3
*ITWP-2300	Building Dynamic, Intelligent Web Based Solutions with ASP.NET	□ □ ■ □	3
*ITWP-2600	Web Commerce (E-commerce)	□ □ □ ■	3
*ITWP-2700	Programming: Perl	□ □ □ ■	2
*ITWP-2800	Web Site Administration	□ □ □ ■	4
AND			
*4-6 SEMESTER HOURS FROM THE FOLLOWING:			
ITWP-1600	Web Security	□ ■ □ □	3
ITCS-1230	Visual Basic Programming	□ ■ □ □	4
ITCS-2530	C++ Programming 1	□ ■ □ □	4
ITCS-2590	Java 1	□ □ □ ■	4
ITCS-1160	Introduction to Oracle: SQL	□ ■ □ □	2
ITCS-1180	Database Design Concepts	□ ■ □ □	2
ITCS-2165	PL/SQL Programming	□ □ ■ □	3
ITCS-2790	C# Programming 1	□ □ ■ □	4
			46-48

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required

D. Certificate Option

A **Certificate in Information Technology – Web Site Programming** will be awarded to students successfully completing the courses preceded by an asterisk. (46-48 Sem Hrs).

E. Skill Specific Certificates

UNIX

		SEM HRS
ITCS-2300	Introduction to UNIX	2
ITCS-2310	UNIX Administration	2
ITWP-2700	Programming: Perl	2
		6

Web Programming Level 1 (Web Master)

		SEM HRS
ITWP-1100	Web Programming with JavaScript & Dynamic HTML	3
ITWP-1200	Web Development with VBScript	3
ITWP-1300	Web Database Programming with Classic ASP	3
		9

Web Programming Level 2 (Web Master)

(Web Programming Level 1 or equivalent is a prerequisite for this certificate.)

		SEM HRS
ITWP-2300	Building Dynamic, Intelligent Web Based Solutions with ASP.NET	3
ITWP-2600	Web Commerce (E-Commerce)	3
ITWP-2800	Web Site Administration	4
		10

Certificate in International Studies

Center and South Campuses

The program leading to the Certificate in International Studies is designed for students who seek an educational experience with an international emphasis. A minimum of 30 credit hours is required for the certificate.

A. Certificate Option

		SUGGESTED SEQUENCE	SEM HRS
FREN-#### / GRMN-#### / ITAL-#### / SPAN-####	Any language course sequence for a total of 8 semester hours, e.g., FREN-1260; FREN-1270; FREN-2360; FREN-2370; GRMN-1260; GRMN-1270; GRMN-2360; GRMN-2370 ITAL-1260; ITAL-1270; ITAL-2360; ITAL-2370 SPAN-1260; SPAN-1270; SPAN-2360; SPAN-2370	■ ■ □ □	8
GEOG-2000	World Regional Geography	■ □ □ □	4
AND			
ANTH-1000	Introduction to Anthropology	■ □ □ □	4
OR			
INTL-2000	Introduction to Latin America	□ ■ □ □	4
AND			
One non-western area-study course:			
POLS-1600	International Politics[1]	□ ■ □ □	3
OR			
HUMN-2000	Introduction to Asian Religions & Culture	□ ■ □ □	3
OR			
ARAB-1260	Introduction to Arabic Language & Culture	□ ■ □ □	4
			19-20

[1] prerequisite POLS-1000

B. Elective Courses . . . . . 10-11 sem hrs

The remaining credits filled through selection from the following electives. Students should select from at least three of the following five groups of courses.

		SEM HRS
Group A (3-4 Sem Hrs)		
ENGL-2800	World Literature to 1400[2]	3
OR		
ENGL-2810	World Literature from 1400[2]	3
OR		
SPCH-1400	Mass Media Communication in a Global Culture	3
OR		
SPCH-2300	Intercultural Communication	4
Group B (3 Sem Hrs)		
HUMN-1700	Comparative Religions	3
OR		
HUMN-1750	Introduction to Mythology	3

Group C (3-4 Sem Hrs)

BUSN-2100	International Business	3
OR		
PSYC-2300	Psychology of Adjustment[3]	3
OR		
PSYC-2700	Psychology of Health: Mind & Body Interaction[3]	3
OR		
SOSC-2010	Introduction to International Studies	4

Group D (3-4 Sem Hrs)

HIST-1260	Women in European History to 1450	3
OR		
HIST-1270	Women in European History 1450-1848	3
OR		
HIST-1500	Western Civilization to 1648.	4
OR		
HIST-1600	Western Civilization Since 1648.	4
OR		
HIST-1700	The World Since 1945	3
OR		
HIST-2420	Latin America in the Modern World	3
OR		
HIST-2520	Asia in the Modern World.	4

Group E (3 Sem Hrs)

PHED-2020	Wellness–Focus Lifestyle Choices	2

[2] prerequisite ENGL-1190 or ENGL-1220

[3] prerequisite PSYC-1010

Students electing a Certificate in International Studies should maintain close contact with an academic advisor or counselor to assure construction of a plan of studies harmonious with individual interests and needs.

Students are advised that completion of a Certificate in International Studies may not necessarily satisfy another college's requirements toward a bachelor's degree in International Studies.

Land Surveying Technology – Field Technician

South Campus

The Land Surveying Technology program offers specialty options in either Survey Office Technician or Survey Field Technician. Either specialty is designed to provide students the opportunity to develop skills, knowledge, and abilities for entry level and intermediate positions in the land surveying and construction industry. Students successfully completing this program will have the technical background to assist registered surveyors and civil engineers in completion of project tasks. The program offers both an Associate of Applied Science degree in Land Surveying Technology and Certificate option for those students already in the industry wishing to improve their skills.

Students who successfully complete the program will develop a solid foundation in surveying and will be prepared to take the Certification for Land Surveying Technicians exams (Levels I, II, III, IV), offered through the National Society of Professional Surveyors and Michigan Society of Professional Surveyors. These certifications (Levels I, II, III, IV) are recognized nationally for qualified survey technicians. The curriculum reflects a strong emphasis in state of the art surveying instrument operation, computer aided design drafting, and procedures for advanced construction layout control.

The program advisor Professor Gary Azbell can be reached at 586.445.7480

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MATH-1430	College Trigonometry	■ □ □ □	3
SURV-1100	Elementary Surveying	■ □ □ □	3
SURV-1200	Route Surveying	□ ■ □ □	3
ATBC-1510	Construction–Layout Surveying	□ ■ □ □	2
SURV-1110	Field Procedures	□ ■ □ □	2
SURV-2300	Boundary Surveying	□ □ ■ □	3
SURV-2400	Topographic Surveying	□ □ ■ □	3
SURV-2500	Introduction to Control Surveys	□ □ ■ □	3
SURV-2600	Advanced Construction Layout Surveying 2	□ □ □ ■	3
SURV-2700	Advanced Survey Instrumentation	□ □ □ ■	3
			35

B. Arts and Sciences Component . . . . . minimum 18 sem hrs

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing MATH-1430.

C. Elective Courses. . . . . 12 sem hrs

Suggested Elective Areas:

Architectural Technology	Construction Technology	
Business Law	Computer Information Systems	Civil Technology

Please check with a counselor. This associate's degree program may transfer to a variety of colleges for a technical, business, or general studies baccalaureate degree.

Land Surveying Technology – Office Technician

South Campus

The Land Surveying Technology program offers specialty options in either Survey Office Technician or Survey Field Technician. Either specialty is designed to provide students the opportunity to develop skills, knowledge, and abilities for entry level and intermediate positions in the land surveying and construction industry. Students successfully completing this program will have the technical background to assist registered surveyors and civil engineers in completion of project tasks. The program offers both an Associate of Applied Science degree in Land Surveying Technology and Certificate option for those students already in the industry wishing to improve their skills.

Students who successfully complete the program will develop a solid foundation in surveying and will be prepared to take the Certification for Land Surveying Technicians exams (Levels I, II, III, IV), offered through the National Society of Professional Surveyors and Michigan Society of Professional Surveyors. These certifications (Levels I, II, III, IV) are recognized nationally for qualified survey technicians. The curriculum reflects a strong emphasis in state of the art surveying instrument operation, computer aided design drafting, and procedures for advanced construction layout control.

The program advisor Professor Gary Azbell can be reached at 586.445.7480

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MATH-1430	College Trigonometry	■ □ □ □	3
SURV-1100	Elementary Surveying	■ □ □ □	3
ATTR-1150	Technical Report Writing	□ ■ □ □	2
SURV-1200	Route Surveying	□ ■ □ □	3
SURV-2300	Boundary Surveying	□ □ ■ □	3
SURV-2400	Topographic Surveying	□ □ ■ □	3
DRCG-1140	Interactive Computer Graphics – Introduction to 2D & 3D AutoCAD	□ □ ■ □	4
CIVL-2210	Drainage & Geology	□ □ □ ■	3
SURV-2220	Civil & Survey Drafting	□ □ □ ■	3
			34

B. Arts and Sciences Component . . . . . minimum 18 sem hrs

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing MATH-1430.

C. Elective Courses. . . . . 13 sem hrs

Suggested Elective Areas:

Architectural Technology	Construction Technology
Business Law	Computer Information Systems
Civil Technology	

Please check with a counselor. This associate's degree program may transfer to a variety of colleges for a technical, business, or general studies baccalaureate degree.

Land Surveying Technology – Certificate Options

D. Certificate Options

Certificate in Land Surveying

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MATH-1430	College Trigonometry	■ □ □ □	3
SURV-1100	Elementary Surveying	■ □ □ □	3
SURV-1200	Route Surveying	□ ■ □ □	3
SURV-2300	Boundary Surveying	□ □ ■ □	3
SURV-2400	Topographic Surveying	□ □ ■ □	3
			22

Certificate in Land Surveying – Office Technician

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MATH-1430	College Trigonometry	■ □ □ □	3
SURV-1100	Elementary Surveying	■ □ □ □	3
SURV-1200	Route Surveying	□ ■ □ □	3
ATTR-1150	Technical Report Writing	□ ■ □ □	2
SURV-2300	Boundary Surveying	□ □ ■ □	3
SURV-2400	Topographic Surveying	□ □ ■ □	3
DRCG-1140	Interactive Computer Graphics – Introduction to 2D & 3D AutoCAD	□ □ ■ □	4
CIVL-2210	Drainage & Geology	□ □ □ ■	3
SURV-2220	Civil & Survey Drafting	□ □ □ ■	3
			34

Certificate in Land Surveying – Field Technician

		SUGGESTED SEQUENCE	SEM HRS
DRAD-1110	Introduction to Architectural Drafting	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
MATH-1430	College Trigonometry	■ □ □ □	3
SURV-1100	Elementary Surveying	■ □ □ □	3
SURV-1200	Route Surveying	□ ■ □ □	3
ATBC-1510	Construction – Layout Surveying	□ ■ □ □	2
SURV-1110	Field Procedures	□ ■ □ □	2
SURV-2300	Boundary Surveying	□ □ ■ □	3
SURV-2400	Topographic Surveying	□ □ ■ □	3
SURV-2500	Introduction to Control Surveys	□ □ ■ □	3
SURV-2600	Advanced Construction Layout Surveying 2	□ □ □ ■	3
SURV-2700	Advanced Survey Instrumentation	□ □ □ ■	3
			35

Law Enforcement

Center Campus

This program prepares students for entry level positions in agencies identified with the criminal justice system in the United States as well as offers opportunities to current practitioners for improvement of their skills, knowledge and abilities. The student will develop or improve skills and knowledge of criminal law, current issues in policing, evidence and criminal procedures and investigation, as well as other facets of law enforcement.

The program advisors are Professor Donna Sherwood 586.268.2071, Gino Hliebay 586.286.2159, and Jack Ramsdell 586.286.2152.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BCOM-2080	Business Communications for Public Service	■ ■ ■ ■	2
LAWE-1100	Criminal Justice	■ □ □ □	3
LAWE-1280	The Police Function	■ □ □ □	3
LAWE-1290	Current Issues in Policing	□ ■ □ □	3
LAWE-1320	Interviewing	□ ■ □ □	3
LAWE-2350	Criminal Investigation & Laboratory Techniques	□ □ ■ □	4
LAWE-2680	Evidence & Criminal Procedures	□ □ ■ □	4
LAWE-1400	Crime Causation	□ □ □ ■	3
LAWE-2690	Criminal Law	□ □ □ ■	4
AND			
PSYC-1010	Introductory Psychology	□ □ □ □	4
OR			
SOCY-1010	Principles of Sociology	□ □ □ □	4
			33

AND four of the following courses (see note for alternative selection). Students planning to obtain a Bachelor's Degree in Criminal Justice should seek the advice of a Law Enforcement program advisor, counselor, or academic advisor when selecting elective courses.

		SEM HRS
ITCS-1010	Computer & Information Processing Principles	4
LAWE-1120	Introduction to Corrections	3
LAWE-1300	Police Field Study	3
LAWE-1410	Delinquency Prevention & Control	3
LAWE-1500	Analysis of Terrorism	3
LAWE-2700	Advanced Court Procedures	3
LAWE-2903	Directed Study	3
LAWE-2912	Introduction to Death Investigation	3
SECR-1000	Introduction to Security	3
SECR-1120	Principles of Loss Prevention	3
SOCY-1100	Modern Social Problems	3
SOCY-2000	Sociology of Health & Human Behavior	4
SOCY-2450	Marriage & the Family	3
		12-13

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing PSYC-1010 or SOCY-1010.

C. Elective Courses . . . . . 2-3 sem hrs

NOTE (Alternative Selection): The student may arrange to take courses specifically directed to the educational occupational goal for employment (of the student) with the consent of the faculty advisor and the department. The courses must be applicable to specific fields in Law Enforcement (corrections, courts, investigations, law, etc.) that would provide the student an improved background for the desired specific employment opportunities at the federal, state or local levels. Credit may be awarded for completion of an MCOLES-approved police academy.

D. Certificate Option

Certificate in Law Enforcement

		SUGGESTED SEQUENCE	SEM HRS
LAWE-1100	Criminal Justice	■ □ □ □	3
LAWE-1280	The Police Function	■ □ □ □	3
LAWE-1290	Current Issues in Policing	■ □ □ □	3
LAWE-1320	Interviewing	■ □ □ □	3
LAWE-2350	Criminal Investigation & Laboratory Techniques	□ ■ □ □	4
LAWE-2680	Evidence & Criminal Procedures	□ ■ □ □	4
LAWE-1400	Crime Causation	□ ■ □ □	3
LAWE-2690	Criminal Law	□ ■ □ □	4
			27

Law Enforcement with Police Academy

Center Campus

This program prepares students for entry level positions in agencies identified with the criminal justice system in the United States as well as offers opportunities to current practitioners for improvement of their skills, knowledge and abilities. The student will develop or improve skills and knowledge of criminal law, current issues in policing, evidence and criminal procedures and investigation, as well as other facets of law enforcement.

The program advisors are Professor Donna Sherwood 586.268.2071, Gino Hliebay 586.286.2159, and Jack Ramsdell 586.286.2152.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BCOM-2080	Business Communications for Public Service	□□□□	2
LAWE-2800	Basic Police Academy	□□□□	12
LAWE-1100	Criminal Justice	■□□□	3
LAWE-1280	The Police Function	■□□□	3
LAWE-1290	Current Issues in Policing	□■□□	3
LAWE-1320	Interviewing	□■□□	3
LAWE-2350	Criminal Investigation & Laboratory Techniques	□□■□	4
LAWE-2680	Evidence & Criminal Procedures	□□■□	4
LAWE-1400	Crime Causation	□□□■	3
LAWE-2690	Criminal Law	□□□■	4
AND			
PSYC-1010	Introductory Psychology	□□□□	4
OR			
SOCY-1010	Principles of Sociology	□□□□	4
			45

AND two of the following courses:

		SEM HRS
ITCS-1010	Computer & Information Processing Principles	4
LAWE-1120	Introduction to Corrections	3
LAWE-1300	Police Field Study	3
LAWE-1410	Delinquency Prevention & Control	3
LAWE-1500	Analysis of Terrorism	3
LAWE-2700	Advanced Court Procedures	3
LAWE-2903	Directed Study	3
LAWE-2912	Introduction to Death Investigation	3
SECR-1000	Introduction to Security	3
SECR-1120	Principles of Loss Prevention	3
SOCY-1100	Modern Social Problems	3
SOCY-2000	Sociology of Health & Human Behavior	4
SOCY-2450	Marriage & the Family	3
		6-8

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing PSYC-1010 or SOCY-1010.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Law Enforcement with Police Academy

		SUGGESTED SEQUENCE	SEM HRS
LAWE-1100	Criminal Justice	■ □ □ □	3
LAWE-1280	The Police Function	■ □ □ □	3
LAWE-1290	Current Issues in Policing	■ □ □ □	3
LAWE-1320	Interviewing	■ □ □ □	3
LAWE-2350	Criminal Investigation & Laboratory Techniques	□ ■ □ □	4
LAWE-2680	Evidence & Criminal Procedures	□ ■ □ □	4
LAWE-1400	Crime Causation	□ ■ □ □	3
LAWE-2690	Criminal Law	□ ■ □ □	4
LAWE-2800	Basic Police Academy	□ □ □ □	12
			39

Legal Assistant

Center and South Campuses

Students admitted to the Legal Assistant program are encouraged to attend a scheduled orientation within their first year. Students do not need to complete the orientation prior to registering for classes. Please call 586.445.7167 to make arrangements.

Legal Assistant courses are geared to prepare a student to relieve an attorney from those portions of the legal practice that require routine legal processes. At the completion of this program, the student will be able to assist and work under the control and supervision of an attorney but must not practice law or give legal advice.

The goals of the Legal Assistant program are that students will:

- Know their ethical and professional responsibilities as professional members of the legal services delivery team.
- Be able to conduct legal research, accurately prepare legal forms and documents, know the purpose and function of legal pleadings, and conduct and summarize factual investigations.
- Know the purpose and function of discovery and use electronic evidence.
- Know substantive law in family law, wills and estates, real estate, administrative law, bankruptcy, court procedure, corporations, and other business organizations.
- Demonstrate competence in related courses in general education in business law, accounting, communications, mathematics, office management, keyboarding, and computer information systems.

In order to receive a Macomb Community College Associate of Applied Science degree in Legal Assistant, a minimum of 15 semester hours must be taken at Macomb. At least 10 of those 15 semester hours must be taken in Legal Assistant specialty courses. No more than 6 semester hours of legal specialty courses may be obtained through Credit for Prior Learning.

The Associate of Applied Science degree in Legal Assistant program is approved by the American Bar Association, 321 North Clark Street, Chicago Illinois 60610.

Program advisor Professor Jennifer Gornicki can be reached at 586.445.7176.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BUSN-1080	Business Law 1	■ □ □ □	4
LEGA-2010	Michigan Legal System & Ethics	■ □ □ □	2
AND			
ACCT-1070	Accounting for Entrepreneurs	■ ■ □ □	3
OR			
ACCT-1080	Principles of Accounting 1	■ ■ □ □	4
AND			
BCOM-2050	Business Communications	■ ■ □ □	4
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
BUSN-1090	Business Law 2	□ ■ □ □	4
LEGA-2080	Legal Research	□ ■ □ □	4
LEGA-2100	Mechanics of Real Estate Law	□ ■ ■ □	3
LEGA-2120	Administration of Estates	□ ■ ■ □	2
LEGA-2090	Legal Procedure	□ □ □ ■	4
LEGA-2190	Legal Writing	□ □ □ ■	2
LEGA-2210	Electronic Evidence & Discovery	□ □ □ ■	4

AND 5-6 SEMESTER HOURS FROM THE FOLLOWING:

HHSC-1700	Medical Terminology	■ □ □ □	3
BUSN-2060	Corporate Responsibility	■ ■ □ □	3
LEGA-2110	Principles of Family Law	□ ■ ■ □	2
LEGA-2180	Business Associations	□ □ ■ ■	2
LEGA-2130	Proceedings Under the Federal Bankruptcy Code & Debt Collection	□ □ □ ■	2
LEGA-2160	Proceedings Under Administrative Agencies	□ □ □ ■	2
LEGA-2170	Criminal Law & Procedures	□ □ □ ■	2
BUSN-1010	Business Enterprise	□ □ □ ■	3
			45-47

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Under Group I.B., it is recommended that students take ENGL-1220, Composition 2.

Under Group IV of the Arts and Sciences Courses required for the Associate of Applied Science (AAS) Degree, the following courses are preferred for the Legal Assistant program per the American Bar Association.

		SEM HRS
ARTT-2610	Art of the Western World 1	3
ARTT-2620	Art of the Western World 2	3
MUSC-1030	Music Appreciation	3
MUSC-2710	Music History & Literature to 1750	3
MUSC-2720	Music History & Literature Since 1750	3

OR

Other courses from Creative Writing, Foreign Languages, Humanities, Literature, and Philosophy are acceptable.

C. Elective Courses. . . . . none required

Manufacturing Engineering

South Campus

The Manufacturing Engineering program will prepare the learner for a career in Manufacturing Engineering, and provide a learning environment with the relevant experiences allowing the learner to develop the appropriate skills necessary to provide solutions to real world manufacturing engineering situations. The Manufacturing Engineering program includes an articulation option with university academic partners to provide academic credit transfer.

Note: Up to 52 credit hours from this program will transfer directly toward a Bachelor of Science degree in Manufacturing Engineering (BMfgE) at the University of Detroit Mercy. Students should contact a counselor regarding transfer credits to other colleges and universities. Asterisks (*) denote courses that are transferable to the U of D Mercy Manufacturing Engineering program.

Program advisor Professor Dr. Harry J. Buhalis can be contacted at 586.445.7450 or via email at buhalish@macomb.edu.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
*ATMT-1300	Metallurgy–Characteristics of Ferrous Metals	■ □ □ □	2
*PRDE-1450	AutoCAD: Detailing & Assemblies	■ □ □ □	3
PRDE-1250	Basic Blueprint Reading	■ □ □ □	2
*PRDE-1300	Industrial Materials & Processes	■ □ □ □	4
*ENGR-1000	Introduction to Engineering	□ ■ □ □	3
*ATMT-1310	Metallurgy–Characteristics of Non-Ferrous Metals	□ ■ □ □	2
*PRDE-2200	Jig & Fixture Detailing & Design	□ ■ □ □	3
*QUAL-1010	Metrology 1	□ □ ■ □	3
			22

B. Arts and Sciences Component

		SUGGESTED SEQUENCE	SEM HRS
*ENGL-1210	Composition 1	■ □ □ □	3
*MATH-1760	Analytic Geometry & Calculus 1	□ ■ □ □	4
*ENGL-1220	Composition 2	□ ■ □ □	3
*MATH-1770	Analytic Geometry & Calculus 2	□ □ ■ □	4
*PHYS-2220	Analytical Physics 1	□ □ ■ □	5
*SPCH-1060	Speech Communication	□ □ ■ □	3
*MATH-2760	Analytic Geometry & Calculus 3	□ □ □ ■	4
*PHYS-2230	Analytical Physics 2	□ □ □ ■	5
*ECON-1160	Principles of Economics 1	□ □ □ ■	3
*PHIL-2010	Introduction to Philosophy	□ □ □ ■	3
PHED-2###	Any PHED Wellness course–2000 or above	■ ■ ■ ■	2
			39

C. Elective Courses. . . . . 1 sem hr

D. Skill Specific Certificate

Manufacturing Engineering – Basic Workcell Simulation Design

A **Skill Specific Certificate in Manufacturing Engineering – Basic Workcell Simulation Design** will be awarded to those students who successfully complete the following courses.

		SEM HRS
ENGR-1050	Introduction to Workcell Simulation	3
ENGR-1075	Introduction to Computer Aided Ergonomics	3
ENGR-1100	Workcell Simulation Programming & Kinematics	3
		9

Manufacturing Engineering Technology

South Campus

The Manufacturing Engineering Technology program will prepare individuals as qualified technologists to provide support for routine engineering operations in product design, development, and manufacturing, with focus on hands-on experience to contribute resourceful and innovative solutions to today's technical problems.

Note: This degree is primarily designed to transfer to various universities such as Wayne State, Lawrence Tech, Ferris State, Eastern Michigan, Western Michigan, and Michigan Tech.

Program advisor Dr. Harry Buhalis can be contacted at 586.445.7450 or via email at buhalish@macomb.edu.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ATMT-1300	Metallurgy–Characteristics of Ferrous Metals	■ □ □ □	2
PRDE-1250	Basic Blueprint Reading	■ □ □ □	2
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
PRDE-1450	AutoCAD: Detailing & Assemblies	■ □ □ □	3
ENGR-1000	Introduction to Engineering	□ ■ □ □	3
ATMT-1310	Metallurgy–Characteristics of Non-Ferrous Metals	□ ■ □ □	2
PRDE-2200	Jig & Fixture Detailing & Design	□ ■ □ □	3
QUAL-1011	Quality Fundamentals	□ □ ■ □	3
ELEC-1161	Electronic Technology 1	□ □ ■ □	3
ELEC-1171	Electronic Technology 2	□ □ ■ □	3
			28

B. Arts and Sciences Component

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR	Communications 1	■ □ □ □	4
ENGL-1210 AND	Composition 1	■ □ □ □	3
ENGL-1190 OR	Communications 2	■ □ □ □	4
ENGL-1220 AND	Composition 2	■ □ □ □	3
MATH-1460	Precalculus	□ ■ □ □	4
PHYS-1180	College Physics 1	□ ■ □ □	4
SPCH-1060	Speech Communication	□ ■ □ □	3
CHEM-1050	Introduction to General Chemistry	□ □ □ ■	4
PHYS-1190	College Physics 2	□ □ □ ■	4
ECON-1160	Principles of Economics 1	□ □ □ ■	3
PHED-2000 AND	Wellness–Focus Fitness	□ □ □ ■	3
PHIL-2010 OR	Introduction to Philosophy	□ □ □ ■	3
PHIL-2100	Introduction to Ethics	□ □ □ □	3
			34-36

Completion of these Arts and Sciences courses satisfy degree group requirements as follows:

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210

Group IB requirement is met by successfully completing ENGL-1190, ENGL-1220, or SPCH-1060

Group II requirement is met by successfully completing MATH-1460, CHEM-1050, PHYS-1180 or PHYS-1190

Group III requirement is met by successfully completing ECON-1160

Group IV requirement is met by successfully completing PHIL-2010 or PHIL-2100

Group V requirement is met by successfully completing PHED-2000

C. Elective Courses. . . . . none required

Marketing

Center and South Campuses

A business won't survive unless it can satisfy its customers while making a profit. This is what marketing is all about – providing value to customers. In the Marketing program, students will learn to identify, understand, and create relationships with the target market. They will also learn to analyze marketplace dynamics – changes in such things as the economy, social trends, technology, or competition. Finally, students will blend creativity and analysis to design marketing strategies. This includes designing a product or service, developing a pricing strategy, determining distribution points, and creating advertisements, incentives, or sales force strategies to promote it.

The Marketing program prepares students for a broad range of jobs, including those requiring:

- creative skills (advertising, special events promotions, retailing)
- people skills (customer service, professional sales, marketing management), and
- analytical skills (market research, database marketing, purchasing, pricing)

Specialized classes are offered in two areas: (1) Strategic Database Marketing (a Certificate option) and (2) Small Business Marketing.

The Marketing program is compatible with many bachelor's degree programs offered through local colleges and universities. See an academic advisor or counselor for full details.

Program advisor Professor Jennifer Gornicki can be reached at 586.445.7176.

ASSOCIATE OF BUSINESS ADMINISTRATION DEGREE REQUIREMENTS (Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
MKTG-1010	Principles of Marketing	■ □ □ □	3
BUSN-1010	Business Enterprise	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
MGMT-1010	Principles of Management	□ ■ ■ □	3
AND			
ACCT-1070	Accounting for Entrepreneurs	□ ■ ■ □	3
OR			
ACCT-1080	Principles of Accounting 1	□ ■ ■ □	4
AND			
BUSN-1080	Business Law 1	□ □ ■ ■	4
BCOM-2050	Business Communications	□ □ ■ ■	4
			24-25

Required Program Core Courses for Marketing

		SUGGESTED SEQUENCE	SEM HRS
MKTG-2010	Professional Selling	□ ■ ■ □	3
MKTG-2020	Advertising & Promotion Management	□ ■ ■ □	3
MKTG-1020	Dynamics of Retailing	□ ■ ■ □	3
MKTG-2000	Customer Relationship & Database Marketing	□ □ ■ ■	3
MKTG-2060	Consumer Behavior	□ □ ■ ■	3
			15

Required Arts and Sciences course for marketing

ECON-1160	Principles of Economics 1	3

B. Arts and Sciences Component . . . . . minimum sem hrs 18

See Arts and Sciences courses required for the Associate of Business Administration (ABA) degree. Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completeing the ECON-1160 (required).

C. Elective Courses. . . . . 4-5 sem hrs

Recommended elective course: MKTG-1210 Small Business Marketing

D. Certificate Option

A **Certificate in Marketing** will be awarded to students successfully completing those courses in Section A made up of the Associate of Business Administration degree Common Core Requirements and the Required Program Core courses for Marketing (39-40 Sem Hrs).

Associate of Business Administration degree Common Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
MKTG-1010	Principles of Marketing	■ □ □ □	3
BUSN-1010	Business Enterprise	■ ■ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
MGMT-1010	Principles of Management	□ ■ ■ □	3
AND			
ACCT-1070	Accounting for Entrepreneurs	□ ■ ■ □	3
OR			
ACCT-1080	Principles of Accounting 1	□ ■ ■ □	4
AND			
BUSN-1080	Business Law 1	□ □ ■ ■	4
BCOM-2050	Business Communications	□ □ ■ ■	4
			24-25

AND

Required Program Core Courses for Marketing

		SUGGESTED SEQUENCE	SEM HRS
MKTG-2010	Professional Selling	□ ■ ■ □	3
MKTG-2020	Advertising & Promotion Management	□ ■ ■ □	3
MKTG-1020	Dynamics of Retailing	□ ■ ■ □	3
MKTG-2000	Customer Relationship & Database Marketing	□ □ ■ ■	3
MKTG-2060	Consumer Behavior	□ □ ■ ■	3
			15

E. Skill Specific Certificate

Marketing – Strategic Database Marketing

Students who complete the **Skill Specific Certificate in Marketing–Strategic Database Marketing** will have a solid understanding of marketing concepts and customer relationship concepts as well as a proficiency in database applications. The combination of theory and practice is in demand by a wide variety of organizations that need to strengthen customer loyalty, giving them a strategic edge in today's competitive market environment.

		SEM HRS
MKTG-1010	Principles of Marketing	3
ITCS-1010	Computer & Information Processing Principles	4
MKTG-2000	Customer Relationship & Database Marketing	3
ITCS-1400	Micros in Business	4
		14

Mathematics – Associate of Arts

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills essential for transfer to a baccalaureate degree program in Mathematics. Students are encouraged to work closely with a counselor or academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) for assistance.

ASSOCIATE OF ARTS DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Pre-Core and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MATH-1760	Analytic Geometry & Calculus 1	■ □ □ □	4
MATH-1770	Analytic Geometry & Calculus 2	□ ■ □ □	4
MATH-2000	Introduction to Linear Algebra	□ □ ■ ■	3
MATH-2760	Analytic Geometry & Calculus 3	□ □ ■ ■	4
MATH-2770	Differential Equations	□ □ □ ■	4
			19

B. Arts and Sciences Component . . . . . minimum sem hrs 32-39

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus or 586.445.7211 South Campus).

C. Elective Courses . . . . . 4-11 sem hrs

Elective courses should be selected with the assistance of a counselor or academic advisor. Students who pursue an Associate of Arts degree in Mathematics are encouraged to select courses from the following list of suggested elective courses.

		SEM HRS
MATH-2200	Discrete Mathematics	4
ITCS-2530	C++ Programming 1	4
ITCS-2550	C++ Programming 2	3
CHEM-1050	Introduction to General Chemistry	4
CHEM-1060	Introduction to Organic Chemistry & Biochemistry	4
PHYS-1180	College Physics 1	4
PHYS-1190	College Physics 2	4

Mathematics – Associate of Science

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills essential for transfer to a baccalaureate degree program in Mathematics. Students are encouraged to work closely with a counselor or academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) for assistance.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Pre-Core and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MATH-1760	Analytic Geometry & Calculus 1	■ □ □ □	4
MATH-1770	Analytic Geometry & Calculus 2	□ ■ □ □	4
MATH-2000	Introduction to Linear Algebra	□ □ ■ ■	3
MATH-2760	Analytic Geometry & Calculus 3	□ □ ■ ■	4
MATH-2770	Differential Equations	□ □ □ ■	4
			19

B. Arts and Sciences Component . . . . . minimum sem hrs 23-30

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus or 586.445.7211 South Campus).

C. Elective Courses . . . . . 5-12 sem hrs

Elective courses should be selected with the assistance of a counselor or academic advisor. Students who pursue an Associate of Science degree in Mathematics are encouraged to select courses from the following list of elective courses.

		SEM HRS
MATH-2200	Discrete Mathematics	4
ITCS-2530	C++ Programming 1	4
ITCS-2550	C++ Programming 2	3
CHEM-1170	General Chemistry 1	4
CHEM-1180	General Chemistry 2	4
PHYS-2220	Analytical Physics 1	5
PHYS-2230	Analytical Physics 2	5

Media & Communication Arts

South Campus

The Media & Communication Arts program is designed to develop the creative, traditional, digital and multimedia skills required for job entry into a variety of media related industries.

The program core consists of both traditional and digital courses. Students then select from one of six speciality options. The options are Art For Advertising, Photographic Technologies, Digital Design & Layout, Web Page Design, Digital Video Production and Digital Art & Animation.

Program advisors Professors Matt Busch, Mike Crumb, Ron Hood, Will Romano, Brian Sauriol, Kris Small, and Bill Soule can be contacted at 586.445.7435 for program information.

ASSOCIATE OF APPLIED SCIENCE–MEDIA & COMMUNICATION ARTS–ART FOR ADVERTISING DEGREE REQUIREMENTS

(Minimum 86 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	□ ■ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2020	Design for Advertising	□ ■ ■ ■	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-2175	Illustration for Advertising	□ ■ ■ ■	4
MACA-2190	Figure Illustration 2	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
			68

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Media & Communication Arts–Art for Advertising

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	□ ■ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2020	Design for Advertising	□ ■ ■ ■	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-2175	Illustration for Advertising	□ ■ ■ ■	4
MACA-2190	Figure Illustration 2	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
			68

ASSOCIATE OF APPLIED SCIENCE–MEDIA & COMMUNICATION ARTS–PHOTOGRAPHIC TECHNOLOGIES DEGREE REQUIREMENTS

(Minimum 86 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2110	Photojournalism	□ ■ □ □	4
MACA-1065	Black & White Photography	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-2210	Studio Photography	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
MACA-2310	Advanced Photographic Techniques	□ □ ■ ■	4
			68

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Media & Communication Arts–Photographic Technologies

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2110	Photojournalism	□ ■ □ □	4
MACA-1065	Black & White Photography	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-2210	Studio Photography	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
MACA-2310	Advanced Photographic Techniques	□ □ ■ ■	4
			68

ASSOCIATE OF APPLIED SCIENCE–MEDIA & COMMUNICATION ARTS–DIGITAL DESIGN & LAYOUT DEGREE REQUIREMENTS
(Minimum 86 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-1350	Digital Scanning	□ ■ ■ ■	4
MACA-2020	Design for Advertising	□ ■ ■ ■	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-1720	Web Page Design: Dreamweaver	□ □ ■ ■	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
MACA-2500	Introduction to 3D Animation	□ □ □ ■	4
			68

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Media & Communication Arts–Digital Design & Layout

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1130	Advertising Art	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-1350	Digital Scanning	□ ■ ■ ■	4
MACA-2020	Design for Advertising	□ ■ ■ ■	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-1720	Web Page Design: Dreamweaver	□ □ ■ ■	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ ■ ■	4
MACA-2500	Introduction to 3D Animation	□ □ □ ■	4
			68

ASSOCIATE OF APPLIED SCIENCE – MEDIA & COMMUNICATION ARTS – WEB PAGE DESIGN DEGREE REQUIREMENTS

(Minimum 82 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-1350	Digital Scanning	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-1720	Web Page Design: Dreamweaver	□ □ ■ ■	4
MACA-2800	Advanced Web Media	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ □ ■	4
MACA-2730	Multimedia Flash	□ □ □ ■	4
MACA-2750	Multimedia Director	□ □ □ ■	4
			64

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Media & Communication Arts–Web Page Design

		SUGGESTED SEQUENCE	SEM HRS
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2150	Advanced Digital Layout	□ ■ ■ ■	4
MACA-1350	Digital Scanning	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-1720	Web Page Design: Dreamweaver	□ □ ■ ■	4
MACA-2800	Advanced Web Media	□ □ ■ ■	4
MACA-2300	Advanced Photoshop	□ □ □ ■	4
MACA-2730	Multimedia Flash	□ □ □ ■	4
MACA-2750	Multimedia Director	□ □ □ ■	4
			64

ASSOCIATE OF APPLIED SCIENCE–MEDIA & COMMUNICATION ARTS–DIGITAL VIDEO PRODUCTION DEGREE REQUIREMENTS
(Minimum 81 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MGMT-1010	Principles of Management	■ ■ ■ ■	3
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2110	Photojournalism	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-1410	Television/Video Studio Production	□ □ □ ■	4
MACA-2400	Advanced Digital Video	□ □ □ ■	4
			63

Required Arts and Sciences Course for Media & Communication Arts–Digital Video Production

HUMN-1460 The Film as Art 4

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group III requirement is met by successfully completing HUMN-1460.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Media & Communication Arts–Digital Video Production

		SUGGESTED SEQUENCE	SEM HRS
MGMT-1010	Principles of Management	■ ■ ■ ■	3
MACA-1010	Introduction to Photography	■ □ □ □	4
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1055	Digital Layout: Adobe	■ □ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-2110	Photojournalism	□ ■ ■ ■	4
MACA-1400	Introduction to Digital Video	□ □ ■ □	4
MACA-2200	Digital Editing	□ □ ■ ■	4
MACA-1410	Television/Video Studio Production	□ □ □ ■	4
MACA-2400	Advanced Digital Video	□ □ □ ■	4
			63

ASSOCIATE OF APPLIED SCIENCE–MEDIA & COMMUNICATION ARTS–DIGITAL ART & ANIMATION DEGREE REQUIREMENTS
(Minimum 82 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-1400	Introduction to Digital Video	□ □ □ ■	4
MACA-2200	Digital Editing	□ □ □ ■	4
MACA-2300	Advanced Photoshop	□ □ □ ■	4
MACA-2500	Introduction to 3D Animation	□ □ □ ■	4
MACA-2600	Advanced 3D Animation	□ □ □ ■	4
MACA-2650	3D Shorts & Animatics	□ □ □ ■	4
MACA-2750	Multimedia Director	□ □ □ ■	4
			64

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Options:

Certificate in Media & Communication Arts–Digital Art & Animation

		SUGGESTED SEQUENCE	SEM HRS
MACA-1020	Fundamentals of Design	■ □ □ □	4
MACA-1040	Illustration Fundamentals	■ □ □ □	4
MACA-1050	Digital Layout	■ □ □ □	4
MACA-1070	Rendering	□ ■ □ □	4
MACA-1090	Figure Illustration 1	■ □ □ □	4
MACA-1150	Storyboarding	□ ■ □ □	4
MACA-1200	Digital Illustration	□ ■ □ □	4
MACA-1300	Digital Color	□ ■ □ □	4
MACA-1400	Introduction to Digital Video	□ □ □ ■	4
MACA-2200	Digital Editing	□ □ □ ■	4
MACA-2300	Advanced Photoshop	□ □ □ ■	4
MACA-2500	Introduction to 3D Animation	□ □ □ ■	4
MACA-2600	Advanced 3D Animation	□ □ □ ■	4
MACA-2650	3D Shorts & Animatics	□ □ □ ■	4
MACA-2750	Multimedia Director	□ □ □ ■	4
			64

Medical Assistant

Center Campus

The Medical Assistant program is designed to prepare the student with the necessary skills and abilities to assist the physician in rendering professional services to their patients. Employment may be available in private offices, clinics, hospitals, and federal and public health facilities.

The medical assisting program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) located at 35 East Wacker Drive, Suite 1970, Chicago, IL 60601-2208, on recommendation of the Committee on Accreditation for Medical Assistant Education. CAAHEP's phone number is 312.553.9355, Ext. 24, and the American Association of Medical Assistants can be reached at 1.800.ACT.AAMA (1.800.228.2262).

Additional expenses to be met by the student are (1) a health history and physical examination including diagnostic testing and immunizations; (2) uniforms; (3) stethoscope and blood pressure cuff; (4) CPR and Standard First Aid certification; (5) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses, and (6) students are encouraged to purchase professional liability insurance during clinical and externship.

Students who successfully complete the Certificate in Medical Assistant or Associate of Applied Science degree in Medical Assistant program requirements will be eligible to sit for the American Association of Medical Assistant's (AAMA) national certification exam to become a Certified Medical Assistant (CMA). The CMA is awarded to candidates who have successfully completed the CMA Examination administered by the Certifying Board of the American Association of Medical Assistants. Like other professional designations, the CMA is evidence of competence in a demanding field. CMA's may benefit from broader career advancement opportunities and job security.

The clinical courses of this program are graded with a Pass/Fail. The student must receive a Pass grade in the clinical courses.

Medical Assistant Program Coordinator Delena Kay Austin can be reached at 586.286.2194 or email austind@macomb.edu.

The Medical Assistant program is designed to provide students with a medical career ladder. Students may complete these certificate opportunities in as little as one semester. This may provide the student with employment opportunities and career growth while allowing them to continually work toward higher education. The courses required to earn a Skill Specific Certificate in Medical Assistant–Medical Front Office Administration apply toward the Skill Specific Certificate in Medical Assistant–Phlebotomy. The courses required to earn a Skill Specific Certificate in Medical Assistant–Phlebotomy apply toward the Certificate in Medical Assistant. The courses required to earn the Certificate in Medical Assistant apply toward the Associate of Applied Science degree in Medical Assistant.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
HHSC-1700	Medical Terminology	■ □ □ □	3
PSYC-1010	Introductory Psychology	■ □ □ □	4
AND			
ENGL-1180	Communications 1	■ □ □ □	4
OR			
ENGL-1210	Composition 1	■ □ □ □	3
AND			
BCOM-2050	Business Communications	□ ■ □ □	4
MAST-1360	Medical Assistant Administration 1	□ ■ □ □	3
MAST-1390	Medical Assistant Administration 2	□ ■ □ □	2
MAST-1400	Medical Assistant Insurance Forms	□ ■ □ □	3
MAST-1420	Computer Applications for Medical Assistants	□ ■ □ □	3
MAST-2300	Medical Assistant Administration Practicum	□ ■ □ □	1
AND	either MAST-1720 & MAST-1730 or BIOL-2710 & HHSC-1800		
MAST-1720	Body Systems 1	□ □ ■ □	3
AND			
MAST-1730	Body Systems 2	□ □ ■ □	3
OR			
BIOL-2710	Human Physiological Anatomy	□ □ ■ □	6
AND			
HHSC-1800	Pharmacology for Healthcare Professionals	□ □ ■ □	3
AND			
MAST-1300	Medical Assistant Laboratory Techniques A	□ □ ■ □	2
MAST-1310	Medical Assistant Laboratory Techniques B	□ □ ■ □	2
MAST-1601	Medical Assistant Phlebotomy	□ □ ■ □	3
MAST-2600	Medical Assistant Phlebotomy Practicum	□ □ ■ □	1
MAST-1150	Applied Math for Medical Assistants	□ □ □ ■	2
MAST-1180	Medical Diagnostic Procedures	□ □ □ ■	2
MAST-2000	Medical Assistant Clinical Skills	□ □ □ ■	6
MAST-2800	Medical Assistant Externship	□ □ □ ■	3
PHED-2070	Wellness–Focus Prevention, Intervention, Treatment of Disease, Illness & Injury	□ □ □ ■	3
			56-60

NOTES:

Students are encouraged to take PHED-2070 in their final Spring/Summer or Fall semester to provide current certification for Externship. PHED-2070 (3 cr hrs) is suggested for students who need CPR certification and PHED-2025 (2 cr hrs) is suggested for students considering a healthcare career.

Students in the Associate of Applied Science degree in Medical Assistant program must achieve grade of C or better in each course listed below for retention in the program.

BCOM-2050	ENGL-1210	MAST-1150	MAST-1360	MAST-1420	MAST-1730
BIOL-2710	HHSC-1700	MAST-1180	MAST-1390	MAST-1601	MAST-2000
ENGL-1180	HHSC-1800	MAST-1300	MAST-1400	MAST-1720	PSYC-1010

Students in the Associate of Applied Science degree in Medical Assistant program must achieve grade Pass in each of the courses listed below for retention in the program:

MAST-1130	MAST-2300	MAST-2600	MAST-2800

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210

Group II requirement is met by successfully completing BIOL-2710 or the recommended course BIOL-1400

Group III requirement is met by successfully completing PSYC-1010

Group IV requirement is met by successfully completing the recommended course PHIL-2100 or HUMN-1700

Group V requirement is met by successfully completing PHED-2070 or PHED-2025

C. Elective Courses. . . . . 2-6 sem hrs

D. Certificate Option

Certificate in Medical Assistant

		SUGGESTED SEQUENCE	SEM HRS
HHSC-1700	Medical Terminology	■ □ □ □	3
PSYC-1010	Introductory Psychology	■ □ □ □	4
AND			
ENGL-1180	Communications 1	■ □ □ □	4
OR			
ENGL-1210	Composition 1	■ □ □ □	3
AND			
BCOM-2050	Business Communications	□ ■ □ □	4
MAST-1360	Medical Assistant Administration 1	□ ■ □ □	3
MAST-1390	Medical Assistant Administration 2	□ ■ □ □	2
MAST-1400	Medical Assistant Insurance Forms	□ ■ □ □	3
MAST-1420	Computer Applications for Medical Assistants	□ ■ □ □	3
MAST-2300	Medical Assistant Administration Practicum	□ ■ □ □	1
AND	either MAST-1720 & MAST-1730 or BIOL-2710 & HHSC-1800		
MAST-1720	Body Systems 1	□ □ ■ □	3
AND			
MAST-1730	Body Systems 2	□ □ ■ □	3
OR			
BIOL-2710	Human Physiological Anatomy	□ □ ■ □	6
AND			
HHSC-1800	Pharmacology for Healthcare Professionals	□ □ ■ □	3
AND			
MAST-1300	Medical Assistant Laboratory Techniques A	□ □ ■ □	2

MAST-1310	Medical Assistant Laboratory Techniques B	☐☐■☐	2
MAST-1601	Medical Assistant Phlebotomy	☐☐■☐	3
MAST-2600	Medical Assistant Phlebotomy Practicum	☐☐■☐	1
MAST-1150	Applied Math for Medical Assistants	☐☐☐■	2
MAST-1180	Medical Diagnostic Procedures	☐☐☐■	2
MAST-2000	Medical Assistant Clinical Skills	☐☐☐■	6
MAST-2800	Medical Assistant Externship	☐☐☐■	3
PHED-2070	Wellness–Focus Prevention, Intervention, Treatment of Disease, Illness & Injury	☐☐☐■	3
			56-60

NOTES:

For retention in the program, students must achieve grade C or better or grade Pass in all courses in the Certificate in Medical Assistant program.

Students are encouraged to take PHED-2070 in their final Spring/Summer or Fall semester to provide current certification for Externship. PHED-2070 is suggested for students who need CPR certification and PHED-2025 is suggested for students considering a healthcare career.

E. Skill Specific Certificates

Medical Assistant–Medical Front Office Administration

The courses below provide the essentials of front office administration in the medical office. The student will benefit from courses designed to give instruction and practice running the front office of a medical clinic. The fundamentals of medical billing and computer applications for the medical front office are also examined.

		SUGGESTED SEQUENCE	SEM HRS
HHSC-1700	Medical Terminology	■☐☐☐	3
PSYC-1010	Introductory Psychology	■☐☐☐	4
AND			
ENGL-1180	Communications 1	■☐☐☐	4
OR			
ENGL-1210	Composition 1	■☐☐☐	3
AND			
BCOM-2050	Business Communications	☐■☐☐	4
MAST-1360	Medical Assistant Administration 1	☐■☐☐	3
MAST-1390	Medical Assistant Administration 2	☐■☐☐	2
MAST-1400	Medical Assistant Insurance Forms	☐■☐☐	3
MAST-1420	Computer Applications for Medical Assistants	☐■☐☐	3
MAST-2300	Medical Assistant Administration Practicum	☐■☐☐	1
			26-27

NOTES:

For retention in the program, students must achieve grade C or better or grade Pass in all courses in the Certificate in Medical Assistant–Medical Front Office Administration program.

Medical Assistant – Phlebotomy

The courses below collectively provide the fundamentals of phlebotomy. These courses are designed to give instruction in common medical terminology, anatomy and physiology, as well as theory and practical experience in venipuncture.

		SUGGESTED SEQUENCE	SEM HRS
HHSC-1700	Medical Terminology	■ □ □ □	3
AND	either MAST-1720 & MAST-1730 or BIOL-2710 & HHSC-1800		
MAST-1720	Body Systems 1	□ ■ □ □	3
AND			
MAST-1730	Body Systems 2	□ ■ □ □	3
OR			
BIOL-2710	Human Physiological Anatomy	□ ■ □ □	6
AND			
HHSC-1800	Pharmacology for Healthcare Professionals	□ ■ □ □	3
AND			
MAST-1300	Medical Assistant Laboratory Techniques A	□ □ ■ □	2
MAST-1310	Medical Assistant Laboratory Techniques B	□ □ ■ □	3
MAST-1601	Medical Assistant Phlebotomy	□ □ ■ □	3
MAST-2600	Medical Assistant Phlebotomy Practicum	□ □ ■ □	1
			17-20

NOTES:

For retention in the program, students must achieve grade C or better or grade Pass in all courses in the Certificate in Medical Assistant–Phlebotomy program.

Pre-Medical Studies

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills requisite to transfer to a baccalaureate degree program and major appropriate for premedical studies. Popular transfer majors include Biology, Chemistry, and Biochemistry. Students are advised to consult with an academic advisor (586.286.2228 Center Campus or 586.445.7211 South Campus) when selecting options and elective course work in order to tailor their program for the appropriate transfer destination.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Pre-Professional and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-1000	General Biology 1	■ □ □ □	4
CHEM-1170	General Chemistry 1[1]	■ ■ □ □	4
AND			
MATH-1450	Algebra & Trigonometry	■ ■ □ □	4
OR			
MATH-1760	Analytic Geometry & Calculus 1	■ ■ □ □	4
AND			
PHYS-1180	College Physics 1	■ ■ ■ ■	4
BIOL-1010	General Biology 2	□ ■ □ □	4
CHEM-1180	General Chemistry 2	□ ■ ■ □	4
PHYS-1190	College Physics 2	□ ■ ■ ■	4
CHEM-2260	Organic Chemistry 1	□ □ ■ □	4
PSYC-1010	Introductory Psychology	□ □ ■ □	4
BIOL-2400	General Microbiology	□ □ ■ □	4
CHEM-2270	Organic Chemistry Lab (if required)	□ □ □ ■	0-2
CHEM-2280	Organic Chemistry 2	□ □ □ ■	4
			44-46

[1] Placement test is required or CHEM-1050 as a prerequisite.

NOTE: The following courses are frequently available in the Spring/Summer semester: BIOL-1000, BIOL-2400, CHEM-1170, PHYS-1180, PHYS-1190, MATH-1450, MATH-1760, PSYC-1010.

B. Arts and Sciences Component . . . . . minimum sem hrs 23

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirements met by successfully completing ENGL-1210 or ENGL-1180 and ENGL-1220 or ENGL-1190.

Group II requirements met by successfully completing one course in Biology, Chemistry, Physics or Geology and one course in Mathematics (1450 or above). MATH-1420 and 1430 may substitute for MATH-1450.

Group III requirements partially met by successfully completing PSYC-1010, one additional course required in Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology, or SOSC-1010.

Group IV requirements–one (1) course required.

Group V requirements–one (1) course required.

C. Elective Courses . . . . . 0-5 sem hrs

Elective courses should be selected with the assistance of an academic advisor and tailored to the student's transfer destination.

D. Certificate Option

Certificate in Pre-Medical Studies

		SUGGESTED SEQUENCE	SEM HRS
BIOL-1000	General Biology 1	■ □ □ □	4
ENGL-1180 OR	Communications 1	■ □ □ □	4
ENGL-1210 AND	Composition 1	■ □ □ □	3
CHEM-1170 AND	General Chemistry 1**	■ ■ □ □	4
MATH-1450 OR	Algebra & Trigonometry	■ ■ □ □	4
MATH-1760 AND	Analytic Geometry & Calculus 1	■ ■ □ □	4
PHYS-1180	College Physics 1	■ ■ □ □	4
BIOL-1010 AND	General Biology 2	□ ■ □ □	4
ENGL-1190 OR	Communications 2	□ ■ □ □	4
ENGL-1220	Composition 2	□ ■ □ □	3
			26-28

**Placement test is required or CHEM-1050 as a prerequisite.

Molecular Biotechnology

Center and South Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills requisite to transfer to a baccalaureate degree program and major appropriate for Biotechnology or Biology. Students are advised to consult with an academic advisor (586.286.2228 Center Campus, or 586.445.7211 South Campus) when selecting courses for the Arts and Sciences component and elective course work in order to tailor their program for the appropriate transfer destination.

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS
(Minimum 63 Sem Hrs)

A. Pre-Professional Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-1000	General Biology 1	■ □ □ □	4
AND			
MATH-1450 OR	Algebra & Trigonometry [1]	■ □ □ □	4
MATH-1760	Analytic Geometry & Calculus 1 [1]	■ □ □ □	4
AND			
CHEM-1170	General Chemistry 1 [2]	■ □ □ □	4
BIOL-1010	General Biology 2	□ ■ □ □	4
CHEM-1180	General Chemistry 2	□ ■ □ □	4
BTEC-2540	Biotechnology	□ ■ □ □	4
AND			
BIOL-2310 OR	Human Anatomy & Physiology [1]	□ □ ■ □	6
BIOL-2400	General Microbiology [1]	□ □ ■ □	4
AND			
PHYS-1180	College Physics 1	□ □ ■ □	4
CHEM-2260	Organic Chemistry 1	□ □ ■ □	4
PHYS-1170	Microphysics	□ □ □ ■	4
CHEM-2270	Organic Chemistry Lab (if required)	□ □ □ ■	0-2
CHEM-2280	Organic Chemistry 2	□ □ □ ■	4
			44-48

[1] Mathematics and second year Biology options should be chosen based on intended transfer destination.

[2] Placement test required or CHEM-1050 and MATH-1000 competency as a prerequisite.

B. Arts and Sciences Component . . . . . minimum sem hrs 23-30

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor (586.286.2228 Center Campus, or 586.445.7211 South Campus).

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210 and ENGL-1190 or ENGL-1220.

Group II requirement is met by successfully completing pre-professional courses in Part A.

Group III requirement–two (2) courses required.

Group IV requirement–one (1) course required.

Group V requirement–one (1) course required.

C. Elective Courses . . . . . none required

Music Performance – Certificate

Center Campus

The Certificate in Music Performance is designed to prepare the student for opportunities in music which do not require the traditional degrees.

		SUGGESTED SEQUENCE	SEM HRS
MUSC-1060	Theory 1	■ □ □ □	2
MUSC-1160	Ear Training 1	■ □ □ □	2
MUSC-1260	Piano 1	■ □ □ □	2
AND			
MUSC-1300	Concert Choir	■ ■ ■ ■	1
OR CHOOSE 4 OF THE FOLLOWING:			
MUSC-1351	Jazz Lab Band – Alto Sax	■ ■ ■ ■	1
MUSC-1352	Jazz Lab Band – Tenor Sax	■ ■ ■ ■	1
MUSC-1353	Jazz Lab Band – Baritone Sax	■ ■ ■ ■	1
MUSC-1354	Jazz Lab Band – Trumpet	■ ■ ■ ■	1
MUSC-1355	Jazz Lab Band – Trombone	■ ■ ■ ■	1
MUSC-1356	Jazz Lab Band – Electric Bass	■ ■ ■ ■	1
MUSC-1357	Jazz Lab Band – Drums	■ ■ ■ ■	1
MUSC-1358	Jazz Lab Band – Guitar	■ ■ ■ ■	1
MUSC-1359	Jazz Lab Band – Piano	■ ■ ■ ■	1
AND CHOOSE 4 OF THE FOLLOWING:			
MUSC-1801	Applied Music – Piano	■ ■ ■ ■	1
MUSC-1802	Applied Music – Organ	■ ■ ■ ■	1
MUSC-1803	Applied Music – Voice	■ ■ ■ ■	1
MUSC-1804	Applied Music – Brasswinds	■ ■ ■ ■	1
MUSC-1805	Applied Music – Woodwinds	■ ■ ■ ■	1
MUSC-1806	Applied Music – Percussion	■ ■ ■ ■	1
MUSC-1807	Applied Music – Strings	■ ■ ■ ■	1
MUSC-1808	Applied Music – Classical Guitar	■ ■ ■ ■	1
AND			
MUSC-1070	Theory 2	□ ■ □ □	2
MUSC-1170	Ear Training 2	□ ■ □ □	2
MUSC-1270	Piano 2	□ ■ □ □	2
MUSC-2080	Theory 3	□ □ ■ □	2
MUSC-2180	Ear Training 3	□ □ ■ □	2
AND			
MUSC-2710	Music History & Literature to 1750	□ □ ■ □	3
OR			
MUSC-2720	Music History & Literature since 1750	□ □ ■ ■	3

Elective courses (minimum 5 semester hours from the list below, courses not already selected above)

		SEM HRS
MUSC-1090		2
MUSC-1300		1
MUSC-1351	thru 1359	1
MUSC-2710	or MUSC-2720	3
		32

Nuclear Medicine Technology

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College General Information section for detailed information on selective admissions procedures.

The nuclear medicine curriculum is designed to prepare students for board certification as registered nuclear medicine technologists [CNMT and/or RT(N)]. Nuclear Medicine and Arts and Sciences courses are reinforced by directed clinical experiences.

Additional expenses to be met by the student are (1) a health history and physical examination including testing for tuberculosis and other communicable diseases, (2) uniforms, (3) lab and general supplies and (4) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses.

The Nuclear Medicine Technology Certification Board and the American Registry of Radiologic Technologists may deny certification to an applicant who has been convicted of a crime or is addicted to drugs or alcohol. Additionally students must have a criminal background check performed before they are admitted to the Program.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Nuclear Medicine Technology program is seeking accreditation by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, 2000 W. Danforth Rd., Ste 130 #203 Edmond OK 73003. The JRCNMT's phone number is 405.285.0546

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR ENGL-1210	Communications 1 (see note 1) OR Composition 1 (see note 1)	□□□□□	4 OR 3
AND			
BIOL-2710	Human Physiological Anatomy (see note 1)	□□□□□	6
CHEM-1050	Introduction to General Chemistry (see note 1)	□□□□□	4
HHSC-1700	Medical Terminology (see note 1)	□□□□□	3
AND			
PSYC-1010 OR SOCY-1010	Introductory Psychology (see note 2) OR Principles of Sociology (see note 2)	■□□□□	4 OR 4
AND			
NUMT-1100	Nuclear Medicine Physics	■□□□□	3
NUMT-1120	Radiation Safety in Nuclear Medicine	■□□□□	2
SPCH-1060	Speech Communications (see note 2)	■□□□□	3
ITCS-1010	Computer Information Processing Principles (see note 2)	□■□□□	4
NUMT-1200	Nuclear Medicine Instrumentation	□■□□□	3
NUMT-1225	Instrumentation Lab	□■□□□	1
NUMT-1250	Care of Patients in Nuclear Medicine	□■□□□	2
PHED-2070	Wellness-Focus Prevention, Intervention, Treatment of Disease, Illness and Injury (see note 2)	□■□□□	3
NUMT-1300	Methodology of Nuclear Medicine 1	□□■□□	3
NUMT-1320	Radiopharmacy 1	□□■□□	1

NUMT-1355	Clinical Nuclear Medicine 1	☐☐■☐☐	3
NUMT-2100	Methodology of Nuclear Medicine 2	☐☐☐■☐	3
NUMT-2120	Radiopharmacy 2	☐☐☐■☐	2
NUMT-2140	Non-imaging Nuclear Medicine Procedures	☐☐☐■☐	2
NUMT-2155	Clinical Nuclear Medicine 2	☐☐☐■☐	3
NUMT-2200	Methodology of Nuclear Medicine 3	☐☐☐■☐	3
NUMT-2220	Radiopharmacy 3	☐☐☐■☐	2
NUMT-2255	Clinical Nuclear Medicine 3	☐☐☐■☐	3
AND			
HUMN-1700	Comparative Religions (see note 2)	☐☐☐■☐	3
OR			
PHIL-2100	Introduction to Ethics (see note 2)	☐☐☐■☐	3
			69-70

NOTES:

1. ENGL-1180 or ENGL-1210, BIOL-2710, CHEM-1050, and HHSC-1700, must be taken prior to starting the first nuclear medicine course. In addition, students must score 51 or higher in algebra on the COMPASS placement test OR take MATH-1000 prior to starting the first nuclear medicine course.
2. Nuclear Medicine Technology courses must be taken in this sequence. Any course without the NUMT prefix may be taken prior to its marked sequence but not after.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

- **Group I requirement** is met by successfully completing ENGL-1180 or ENGL-1210 and SPCH-1060.
- **Group II requirement** is met by successfully completing BIOL-2710, MATH-1000, and CHEM-1050.
- **Group III requirement** is met by successfully completing PSYC-1010 or SOCY-1010.
- **Group IV requirement** is met by successfully completing PHIL-2100 or HUMN-1700.
- **Group V requirement** is met by successfully completing PHED-2070.

Students in the Associate of Applied Science degree in Nuclear Medicine Technology program must achieve grade C or better in each course listed below for retention in the program.

BIOL-2710	MATH-1000	NUMT-1300	NUMT-2220
CHEM 1050	NUMT-1100	NUMT-1320	PHED-2070
ENGL-1180 or ENGL-1210	NUMT-1120	NUMT-2100	PSYC-1010 or SOCY-1010
HHSC-1700	NUMT-1200	NUMT-2120	SPCH-1060
HUMN-1700 or PHIL-2100	NUMT-1225	NUMT-2140	
ITSC-1010	NUMT-1250	NUMT-2200	

Students in the Associate of Applied Science degree in Nuclear Medicine Technology program must achieve grade Pass in each course listed below for retention in the program.

NUMT-1355 NUMT-2155 NUMT-2255

Nursing

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College catalog General Information section for detailed information on selective admissions procedures.

The nursing curriculum is designed to prepare students for licensure as registered nurses (RN). Nursing and Arts and Sciences courses are reinforced by directed clinical experiences.

Additional expenses to be met by the student are (1) a health history and physical examination including testing for tuberculosis and other communicable diseases, (2) uniforms, (3) Lab Supplies Pacs (Nurse Pacs), and (4) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses.

The Michigan Board of Nursing may deny a RN license to an applicant who has been convicted of a crime or is addicted to drugs or alcohol.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Nursing program is approved by the Michigan Board of Nursing, located at Department of Consumer & Industry Services, 611 W. Ottawa, 4th Floor, P.O. Box 30193, Lansing, MI 48909-7518. The Michigan Board of Nursing's phone number is 517.335.0918. The Associate of Applied Science degree in Nursing program is accredited by the National League for Nursing Accreditation Commission (NLNAC) located at 61 Broadway, 33rd Floor, New York, NY 10006. The NLNAC's phone number is 800.669.1656, Ext. 153 or 212.363.5555, Ext. 153.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65.5 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR	Communications 1 (see note 1) ..	□□□□	4
ENGL-1210 AND	Composition 1 (see note 1)	□□□□	3
BIOL-2710	Human Physiological Anatomy (see note 1)	□□□□	6
BIOL-1400	Fundamentals of Nutrition (see note 1)	□□□□	3
PSYC-1010 AND	Introductory Psychology (see note 2)	□□□□	4
BIOL-2400 OR	General Microbiology (see note 2) ..	■□□□	4
BIOL-2730 AND	Pathogenic Microbiology (see note 2)	■□□□	4
NURS-1510	Fundamentals of Nursing Theory	■□□□	1
NURS-1520	Health Assessment in Nursing 1	■□□□	1
NURS-1530	Basic Nursing Skills	■□□□	1
NURS-1610	Fundamentals of Nursing 2	■□□□	1
NURS-1620	Health Assessment in Nursing 2	■□□□	1
NURS-1630	Fundamentals of Nursing Clinical	■□□□	2
NURS-1710	Medical-Surgical Nursing 1 A	□■□□	1.5
NURS-1720	Medical-Surgical Nursing 1 B	□■□□	1.5
NURS-1730	Medical-Surgical Nursing 1 Clinical	□■□□	2.5
NURS-1810	Mental Health Nursing A	□■□□	1.5
NURS-1820	Mental Health Nursing B	□■□□	1.5
NURS-1830	Mental Health Nursing Clinical	□■□□	2.5

NURS-2510	Medical-Surgical Nursing 2 A	☐	☐	■	☐	1.5
NURS-2520	Medical-Surgical Nursing 2 B	☐	☐	■	☐	1.5
NURS-2530	Medical-Surgical Nursing 2 Clinical	☐	☐	■	☐	2.5
NURS-2610	Maternity Nursing A.	☐	☐	■	☐	1.5
NURS-2620	Maternity Nursing B.	☐	☐	■	☐	1.5
NURS-2630	Maternity Nursing Clinical	☐	☐	■	☐	2.5
AND						
HUMN-1700	Comparative Religions (see note 2) ..	☐	☐	■	☐	3
OR						
PHIL-2100	Introduction to Ethics (see note 2) ..	☐	☐	■	☐	3
AND						
NURS-2710	Pediatric Nursing A	☐	☐	☐	■	1.5
NURS-2720	Pediatric Nursing B	☐	☐	☐	■	1.5
NURS-2730	Pediatric Nursing Clinical	☐	☐	☐	■	2.5
NURS-2810	Leadership & Management in Nursing	☐	☐	☐	■	1.5
NURS-2820	Medical-Surgical Nursing 3	☐	☐	☐	■	1.5
NURS-2830	Clinical Nursing Management	☐	☐	☐	■	3
						63.5-64.5

NOTES:

1. ENGL-1180 or ENGL-1210, and BIOL-2710 and BIOL-1400 must be taken prior to starting the first nursing course.
2. Nursing courses must be taken in this sequence. Any course without the NURS prefix may be taken prior to its marked sequence but not after.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2710, BIOL-1400, BIOL-2400, or BIOL-2730.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing PHIL-2100 or HUMN-1700.

Group V requirement is the same as that for any AAS degree.

Students in the Associate of Applied Science degree in Nursing program must achieve grade C or better in each course listed below for retention in the program.

BIOL-1400	NURS-1610	NURS-1820	NURS-2710
BIOL-2400 or BIOL-2730	NURS-1620	NURS-2510	NURS-2720
BIOL-2710	NURS-1710	NURS-2520	NURS-2810
ENGL-1180 or ENGL-1210	NURS-1720	NURS-2610	NURS-2820
NURS-1510	NURS-1810	NURS-2620	PHIL-2100 or HUMN-1700
NURS-1520			PSYC-1010

Students in the Associate of Applied Science degree in Nursing program must achieve grade Pass in each course listed below for retention in the program.

NURS-1530	NURS-1730	NURS-2530	NURS-2730
NURS-1630	NURS-1830	NURS-2630	NURS-2830

If a student chooses to take BIOL-2310 instead of BIOL-2710, the anatomy and physiology prerequisite will be met, providing the class is passed with a grade C or better.

Occupational Therapy Assistant

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College catalog General Information section for detailed information on selective admissions procedures.

Additional expenses to be met by the student before entering the first semester are (1) a health history and physical examination including testing for tuberculosis and other communicable diseases, (2) uniforms, and (3) hospitalization insurance as neither the clinical agencies nor the college insures the student against accidents or illnesses.

The Occupational Therapy Assistant program is designed to prepare students for certification as Certified Occupational Therapy Assistants (COTA). Occupational Therapy Assistant and Arts and Sciences courses are reinforced by supervised clinical fieldwork experiences. The Level II clinical fieldwork must be completed within 18 months of the didactic course work.

The Certified Occupational Therapy Assistant works under the supervision of an Occupational Therapist, Registered (OTR) to provide skilled treatment that helps individuals of all ages with physical, developmental, social, or emotional problems achieve independence.

Graduates of the program will be able to sit for the national certification examination for the Occupational Therapy Assistant administered by the National Board for Certification in Occupational Therapy (NBCOT). The National Board for Certification in Occupational Therapy (NBCOT) may deny certification to Occupational Therapy Assistant graduates in violation of ethical and legal standards.

After successful completion of the NBCOT exam, the individual will be a Certified Occupational Therapy Assistant (COTA). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Michigan requires state registration.

The Associate of Applied Science degree in Occupational Therapy Assistant program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220. AOTA's phone number is 301.652.AOTA.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 63 semester hours)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
HHSC-1030	Orientation to Occupational Therapy (See Notes 1 & 2)	□ □ □ □	1
BIOL-2710	Human Physiological Anatomy (See Notes 1 & 2)	□ □ □ □	6
PSYC-1010	Introductory Psychology (See Notes 1 & 2)	□ □ □ □	4
AND			
ENGL-1180	Communications 1 (See Note 2)	■ ■ ■ ■	4
OR			
ENGL-1210	Composition 1 (See Note 2)	■ ■ ■ ■	3
AND			
PHIL-2100	Introduction to Ethics (See Note 2)	■ ■ ■ ■	3
OR			
HUMN-1700	Comparative Religions	■ ■ ■ ■	3
AND			
PHED-2###	Any PHED Wellness course 2000 or above (See Note 2)	■ ■ ■ ■	2-3
OTAS-1010	Activity Media & Task Analysis	■ □ □ □	1.5
OTAS-1020	Medical Language	■ □ □ □	1.5
OTAS-1110	Mental Health Conditions	■ □ □ □	3
OTAS-1210	Clinical Kinesiology	■ □ □ □	3
OTAS-1310	Life Span Development	■ □ □ □	2
OTAS-1330	Patient Interactive Communication Skills	■ □ □ □	1
OTAS-1220	Kinesiology Laboratory	■ □ □ □	1.5
OTAS-1150	Mental Health Techniques and Treatment	□ ■ □ □	2
OTAS-1160	Mental Health Techniques & Treatment Laboratory	□ ■ □ □	1.5
OTAS-1290	Rehabilitation Conditions	□ ■ □ □	4
OTAS-1350	Pediatrics	□ ■ □ □	1
OTAS-1360	Pediatrics Laboratory	□ ■ □ □	1
OTAS-1380	Documentation Skills 1	□ ■ □ □	1
OTAS-1450	Level 1 Fieldwork–First Placement	□ ■ □ □	1
OTAS-2210	Physical Dysfunction Tech & Treatment–Lecture	□ □ ■ □	2
OTAS-2220	Physical Dysfunction Tech & Treatment–Laboratory	□ □ ■ □	1.5
OTAS-2310	Gerontics Lecture	□ □ ■ □	1
OTAS-2320	Gerontics Laboratory	□ □ ■ □	1
OTAS-2340	Program Support	□ □ ■ □	1
OTAS-2360	Fieldwork Preparation: From Classroom to Clinic	□ □ ■ □	1
OTAS-2380	Documentation Skills 2	□ □ ■ □	1
OTAS-2390	Assistive Technology	□ □ ■ □	1.5
OTAS-2450	Level 1 Fieldwork–Second Placement	□ □ ■ □	1
OTAS-2580	Level 2 Fieldwork–First Placement	□ □ □ ■	4
OTAS-2590	Level 2 Fieldwork–Second Placement	□ □ □ ■	4
			63-65

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with an academic advisor, counselor or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2710.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing PHIL-2100 or HUMN-1700.

Group V requirement is met by successfully completing any PHED Wellness course 2000 or above.

Students in the associate's degree Occupational Therapy Assistant program must achieve a grade C or better in each course listed below for retention in the program.

OTAS-1010	OTAS-1310	OTAS-2310	OTAS-2590
OTAS-1020	OTAS-1330	OTAS-2320	BIOL-2710
OTAS-1110	OTAS-1350	OTAS-2340	ENGL-1180 or ENGL-1210
OTAS-1150	OTAS-1360	OTAS-2360	HHSC-1030
OTAS-1160	OTAS-1380	OTAS-2380	PHIL-2100 or HUMN-1700
OTAS-1210	OTAS-1450	OTAS-2390	PSYC-1010
OTAS-1220	OTAS-2210	OTAS-2450	
OTAS-1290	OTAS-2220	OTAS-2580	

NOTES:

1. BIOL-2710 and PSYC-1010 and HHSC-1030 are to be taken prior to any OTAS course listed in the Career Preparation and Related Courses section.
2. All Career Preparation and Related Courses and Arts and Sciences component course work must be completed prior to registering for OTAS-2580 and/or OTAS-2590.

   If a student chooses to take BIOL-2310 instead of BIOL-2710, the Anatomy and Physiology prerequisite will be met providing the class is passed with grade C or better.

Paraprofessional Education

South and Center Campuses

This program is designed to provide students with the basic competencies, knowledge, and skills requisite to seek employment in local school districts as an educational paraprofessional. Principles of learning, human growth and development, and instructional strategies for working with special needs students are included. There is a practicum component that gives students the opportunity to directly apply classroom theory in a K-12 educational environment.

To participate in the practicum students must have a criminal background check and physical including a TB test. Student health care is not provided by the college or practicum site.

Students interested in combining the goal of an associate's degree with further study to become a teacher are encouraged to work closely with an academic advisor or counselor to plan their courses. Teacher education programs are highly selective. Academic performance at Macomb (GPA) will be a significant factor in admission to a university program.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
EDUC-1010	Paraprofessional Theory & Practice	■ □ □ □	4
AND			
ENGL-1180	Communications 1	■ □ □ □	4
OR			
ENGL-1210	Composition 1	■ □ □ □	3
AND			
PSYC-1010	Introductory Psychology	■ □ □ □	4
PSYC-2210	Child Growth & Development	□ ■ □ □	3
PSYC-2310	Educational Psychology	□ ■ □ □	3
PHED-2070	Wellness-Prevention/Intervention/Treatment of Disease, Illness & Injury	□ ■ □ □	3
MUSC-1400	Music for Teachers and Classroom Assistants	□ ■ □ □	3
MATH-1280	Mathematics for Education 1 (see note 1)	□ ■ □ □	4
ENGL-2640	Children's Literature	□ □ ■ □	3
EDUC-1580	School-Age Care (see note 2)	□ □ ■ □	3
SPCH-1060	Speech Communication	□ □ ■ □	3
ECHS-1520	The Exceptional Child	□ □ ■ □	3
			39-40

NOTES:

[1] MATH-1000 is a prerequisite for MATH-1280 but may be waived if student has a college mathematics course comparable to MATH-1000 or equivalent high school college prep course or an acceptable score on a placement exam.

[2] This course is cross-listed with ECHS-1580. Students in this program register for EDUC-1580. Students seeking the Early Childhood degree register for this course as ECHS-1580.

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students are required to earn a minimum of 18 semester hours of Arts and Sciences courses in specific groups in order to obtain an Associate of Applied Science degree (see Degree & Certificate Requirements). If students follow Part A above, they will have completed these group requirements as follows:

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing MATH-1280.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing MUSC-1400.

Group V requirement is met by successfully completing PHED-2070.

C. Elective Courses. . . . . 22–25 sem hrs

Suggested Electives:

		SEM HRS
BIOL-1000	General Biology 1	4
ECHS-1100	Early Childhood Development	4
ENGL-1190	Communications 2	4
OR		
ENGL-1220	Composition 2	3
HIST-####	Any History	3-4
MATH-1290	Mathematics for Education 2	4
MUSC-1260	Piano 1	2
POLS-1000	Introduction to American Politics	4
PSYC-2210	Child Growth & Development	3
SOCY-1010	Principles of Sociology	4

Pastry Arts

Center Campus

The Associate of Applied Science degree in Pastry Arts program prepares students for managerial careers in pastry shops, hotels and restaurants, county clubs, catering facilities, and institutional food services. Students will learn quality and quantity baking and pastry creations in well-equipped commercial facilities with related work in sanitation, nutrition, food purchasing and storage, and human relations.

The AAS Pastry Arts program at Macomb is accredited by the American Culinary Federation Foundation Accrediting Commission (ACFFAC). Upon graduation, students will receive American Culinary Federation Certified Pastry Culinarian status.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 66 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CULH-1050	Culinary Techniques	■ □ □ □	4
CULH-1150	Sanitation	■ □ □ □	1
CULH-1200	Cost Control	■ □ □ □	3
CULH-1340	Production Baking	■ □ □ □	4
CULH-1310	Culinary Skills Development	□ ■ □ □	4
CULH-1400	Supervision	□ ■ □ □	3
CULH-1420	Purchasing	□ ■ □ □	3
CULH-2180	Pastry Arts	□ ■ □ □	4
BIOL-1400	Fundamentals of Nutrition[1]	□ □ ■ □	3
CULH-1440	Beverage Service	□ □ ■ □	2
CULH-2080	Wedding Cakes	□ □ ■ □	4
CULH-2120	Chocolate Creations	□ □ ■ □	4
CULH-2100	Centerpieces	□ □ □ ■	4
CULH-2160	Plated Desserts	□ □ □ ■	4
CULH-2200	Artisan & Special Breads	□ □ □ ■	4
			51

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

[1] **Group II requirement** is met by successfully completing BIOL-1400.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate in Pastry Arts

		SUGGESTED SEQUENCE	SEM HRS
CULH-1150	Sanitation	■ □ □ □	1
CULH-1340	Production Baking	■ □ □ □	4
CULH-1400	Supervision	□ ■ □ □	3
CULH-2180	Pastry Arts	□ ■ □ □	4
CULH-2080	Wedding Cakes	□ □ ■ □	4
CULH-2120	Chocolate Creations	□ □ ■ □	4
CULH-2100	Centerpieces	□ □ □ ■	4
CULH-2160	Plated Desserts	□ □ □ ■	4
CULH-2200	Artisan & Special Breads	□ □ □ ■	4
			32

E. Skill Specific Certificate

Pastry Arts–Assistant Baker

The following Skill Specific Certificate will provide the student with employable skills in just 16 weeks. After just one semester, the student will have the skills needed to seek employment or to upgrade a current job.

		SEM HRS
CULH-1150	Sanitation	1
CULH-1340	Production Baking	4
		5

NOTE: Please see related programs in Culinary Arts, Hospitality Management, and Restaurant Management.

Physical Therapist Assistant

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College General Information section for detailed information on selective admissions procedures.

The Physical Therapist Assistant (PTA) curriculum is designed to prepare the student to assume a position as a skilled technical health worker. A balanced curriculum in general education and specialized courses enables the student to develop technical competency necessary to enter this rewarding health career. Correlation of the clinical experience is an integral part of the academic program.

The Physical Therapist Assistant works within a physical therapy service under the supervision of a professional physical therapist. He/She assists the physical therapist in performing selected procedures related to the physical management of illness, injury, and wellness throughout the lifespan.

Additional expenses to be met by the student before entering the first clinical placement are (1) a health history and physical examination including testing for tuberculosis, and (2) hospitalization insurance as neither the hospital nor the College insures the student against accidents or illnesses.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Physical Therapist Assistant program is accredited by the Commission on Accreditation in Physical Therapy Education located at 1111 North Fairfax Street, Alexandria, VA 22314. The phone number is 703.706.3245.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65.5 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2710	Human Physiological Anatomy (see note 1)	☐☐☐☐	6
HHSC-1020	Physical Therapy Careers	■☐☐☐	1
PTAS-1020	Physical Therapy Procedures 1–Lecture	■☐☐☐	2
PTAS-1030	Physical Therapy Procedures 1–Laboratory	■☐☐☐	3
PTAS-1070	Joint Structure & Function–Lecture	■☐☐☐	2
PTAS-1080	Joint Structure & Function–Laboratory	■☐☐☐	1
PTAS-1090	Medical Issues for the Physical Therapist Assistant	■☐☐☐	1.5
PSYC-1010	Introductory Psychology	☐■☐☐	4
PTAS-1140	Life Span Development for PTA	☐■☐☐	2
PTAS-1150	Kinesiology–Lecture	☐■☐☐	3
PTAS-1160	Kinesiology–Laboratory	☐■☐☐	1.5
PTAS-1170	Physical Therapy Procedures 2–Lecture	☐■☐☐	2
PTAS-1180	Physical Therapy Procedures 2–Laboratory	☐■☐☐	2
PTAS-2110	Neuromuscular Techniques–Lecture	☐☐■☐	2
PTAS-2120	Neuromuscular Techniques–Laboratory	☐☐■☐	1.5
PTAS-2130	Muscoskeletal Physical Therapy–Lecture	☐☐■☐	2
PTAS-2140	Muscoskeletal Physical Therapy–Laboratory	☐☐■☐	1.5
PTAS-2190	Physical Therapy Procedures 3–Lecture	☐☐■☐	1
PTAS-2200	Physical Therapy Procedures 3–Laboratory	☐☐■☐	1
PTAS-2340	Clinical Internship 1 (see note 2)	☐☐■☐	2
PTAS-2350	Clinical Internship 2	☐☐■☐	2

PTAS-2440	Rehabilitation Techniques–Lecture	☐☐☐■	2
PTAS-2450	Rehabilitation Techniques–Laboratory	☐☐☐■	1.5
PTAS-2460	Pediatrics	☐☐☐■	2
PTAS-2470	Cardiopulmonary Rehabilitation	☐☐☐■	2
PTAS-2500	Seminar for Physical Therapist Assistants	☐☐☐■	2
PTAS-2390	Clinical Internship 3	☐☐☐■	4
			57.5

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing BIOL-2710.

Group III requirement is met by successfully completing PSYC-1010.

Students in the Associate of Applied Science degree in Physical Therapist Assistant program must achieve grade C or better in each course listed below for retention in the program.

HHSC-1020	PTAS-1080	PTAS-1180	PTAS-2200
BIOL-2710	PTAS-1090	PTAS-2110	PTAS-2440
PSYC-1010	PTAS-1140	PTAS-2120	PTAS-2450
PTAS-1020	PTAS-1150	PTAS-2130	PTAS-2460
PTAS-1030	PTAS-1160	PTAS-2140	PTAS-2470
PTAS-1070	PTAS-1170	PTAS-2190	PTAS-2500

Students in the Associate of Applied Science degree in Physical Therapist Assistant program must achieve grade Pass in each course listed below for retention in the program.

PTAS-2340	PTAS-2350	PTAS-2390

NOTES:

1. BIOL-2710 is to be taken prior to any PTAS course listed in the Career Preparation and Related Courses section.
2. Forty hours (40) of volunteer service in a Physical Therapy department is required prior to any PTAS course listed in the Career Preparation and Related Courses section.
3. If a student chooses to take BIOL-2310 instead of BIOL-2710, the Anatomy & Physiology prerequisite will be met, providing class is passed with a grade C or better.

Plant Maintenance – Certificate

Center and South Campuses

This certificate program is designed to prepare plant maintenance technicians and mechanics in the troubleshooting and repair of various types of manufacturing equipment. It is a specialty program that provides basic training in welding, fluid power, mechanical systems, and electrical or electronic equipment found in today's manufacturing plants.

Program Advisor is Professor Al Manore, 586.445.7544.

A **Certificate in Plant Maintenance** will be awarded to those students who successfully complete the following courses. This certificate will apply toward an Associate of Applied Science degree in Maintenance Technology by completing specific technical elective courses.

		SUGGESTED SEQUENCE	SEM HRS
ATAM-1150	Mathematics – Shop Arithmetic	■ □ □ □	2
ATFP-1100	Fluid Power – Fundamentals	■ □ □ □	2
ATFP-1120	Fluid Power – Control	■ □ □ □	2
CORE-1060	Industrial Computer Technology	■ □ □ □	4
ATEE-1300	Electric Theory – Electrical Equipment & Introduction to Machine Circuits	■ □ □ □	2
ATEE-1350	Electrical – Direct Current Fundamentals	■ □ □ □	2
ATFP-1140	Fluid Power – Basic Circuits (Special Extended Lab Experience)	■ □ □ □	3
ATEE-1640	Electrical – Automation Circuits & Introduction to Programmable Controllers	□ ■ □ □	3
ATFP-1210	Fluid Power – Pneumatic Controls & Circuits	□ ■ □ □	2
ATMT-1650	Millwright Theory 1	□ ■ □ □	2
ATMT-1660	Millwright Theory 2	□ ■ □ □	2
ATWD-1100	Welding Metallurgy	□ ■ □ □	2
ATWD-1110	Fundamentals of Gas & Arc Welding	□ ■ □ □	2
ATWD-1140	Gas Metal Arc Welding (MIG)	□ ■ □ □	2
			32

Product Development – Die Design

South Campus

The Product Development program is designed to provide the knowledge and skills required for entry-level positions in a variety of design environments. The program focuses on the development of both technical and professional proficiencies. The curriculum includes industrial processes and materials, rapid-prototyping, computer-aided design, applied problem solving skills, and presentation techniques.

The following Product Development programs are available:

- Associate of Applied Science degree in Product Development – Die Design
- Associate of Applied Science degree in Product Development – Tool, Fixture Design
- Associate of Applied Science degree in Product Development – Vehicle Design
- Certificate in Product Development – Die Design
- Certificate in Product Development – Tool Fixture Design
- Certificate in Product Development – Vehicle Design
- Skill Specific Certificate in Product Development – Basic SolidWorks
- Skill Specific Certificate in Product Development – Unigraphics
- Skill Specific Certificate in Product Development – CATIA V5
- Skill Specific Certificate in Product Development – Basic AutoCAD

A student who may need assistance in scheduling or planning their technical program should contact a program advisor: Professors Harry Buhalis, 586.445.7450, Jim Carlson, 586.445.7473, Lisa Richter, 586.445.7191, Bill Thomas 586.445.7344.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Applied Science degree in Product Development Program Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
AutoCAD			
DRCG-1140	AutoCAD: Introduction to 2D & 3D	☐ ■ ☐ ☐	4
PRDE-1450	AutoCAD: Detailing & Assemblies	☐ ☐ ■ ☐	3
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1610	CATIA V5: Assemblies & Drafting	☐ ☐ ■ ☐	3
SolidWorks			
PRDE-1400	Introduction to SolidWorks & 3D Parametric Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1410	SolidWorks: Components & Assemblies	☐ ☐ ■ ☐	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1510	Unigraphics: Assemblies & Drafting	☐ ☐ ■ ☐	3
			6-7

AND

		SUGGESTED SEQUENCE	SEM HRS
PRDE-2300	Die Design 1	☐ ☐ ☐ ■	3
PRDE-2310	Die Design 2	☐ ☐ ☐ ■	3
			6
			46-47

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students planning to transfer should contact a Macomb counselor or academic advisor to develop an Arts and Sciences program of study by calling 586.445.7211, and/or discuss their individual transfer plans with a counselor at their selected university.

C. Elective Courses. . . . . none required

Product Development–Tool, Fixture Design

South Campus

The Product Development program is designed to provide the knowledge and skills required for entry-level positions in a variety of design environments. The program focuses on the development of both technical and professional proficiencies. The curriculum includes industrial processes and materials, rapid-prototyping, computer-aided design, applied problem solving skills, and presentation techniques.

The following Product Development programs are available:

- Associate of Applied Science degree in Product Development–Die Design
- Associate of Applied Science degree in Product Development–Tool, Fixture Design
- Associate of Applied Science degree in Product Development–Vehicle Design
- Certificate in Product Development–Die Design
- Certificate in Product Development–Tool Fixture Design
- Certificate in Product Development–Vehicle Design
- Skill Specific Certificate in Product Development–Basic SolidWorks
- Skill Specific Certificate in Product Development–Unigraphics
- Skill Specific Certificate in Product Development–CATIA V5
- Skill Specific Certificate in Product Development–Basic AutoCAD

A student who may need assistance in scheduling or planning their technical program should contact a program advisor: Professors Harry Buhalis, 586.445.7450, Jim Carlson, 586.445.7473, Lisa Richter, 586.445.7191, Bill Thomas 586.445.7344.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 64 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Applied Science degree in Product Development Program Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
AutoCAD			
DRCG-1140	AutoCAD: Introduction to 2D & 3D	☐ ■ ☐ ☐	4
PRDE-1450	AutoCAD: Detailing & Assemblies	☐ ☐ ■ ☐	3
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1610	CATIA V5: Assemblies & Drafting	☐ ☐ ■ ☐	3
SolidWorks			
PRDE-1400	Introduction to SolidWorks & 3D Parametric Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1410	SolidWorks: Components & Assemblies	☐ ☐ ■ ☐	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1510	Unigraphics: Assemblies & Drafting	☐ ☐ ■ ☐	3
			6-7

AND

		SUGGESTED SEQUENCE	SEM HRS
PRDE-2200	Jig & Fixture Detailing & Design	☐ ☐ ☐ ■	3
PRDE-2210	Body Fixture Design	☐ ☐ ☐ ■	3
			6
			46-47

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students planning to transfer should contact a Macomb counselor or academic advisor to develop an Arts and Sciences program of study by calling 586.445.7211, and/or discuss their individual transfer plans with a counselor at their selected university.

C. Elective Courses. . . . . none required

Product Development–Vehicle Design

South Campus

The Product Development program is designed to provide the knowledge and skills required for entry-level positions in a variety of design environments. The program focuses on the development of both technical and professional proficiencies. The curriculum includes industrial processes and materials, rapid-prototyping, computer-aided design, applied problem solving skills, and presentation techniques.

The following Product Development programs are available:

- Associate of Applied Science degree in Product Development–Die Design
- Associate of Applied Science degree in Product Development–Tool, Fixture Design
- Associate of Applied Science degree in Product Development–Vehicle Design
- Certificate in Product Development–Die Design
- Certificate in Product Development–Tool Fixture Design
- Certificate in Product Development–Vehicle Design
- Skill Specific Certificate in Product Development–Basic SolidWorks
- Skill Specific Certificate in Product Development–Unigraphics
- Skill Specific Certificate in Product Development–CATIA V5
- Skill Specific Certificate in Product Development–Basic AutoCAD

A student who may need assistance in scheduling or planning their technical program should contact a program advisor: Professors Harry Buhalis, 586.445.7450, Jim Carlson, 586.445.7473, Lisa Richter, 586.445.7191, Bill Thomas 586.445.7344.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 65 Sem Hrs)

A. Career Preparation and Related Courses

Associate of Applied Science degree in Product Development Program Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1610	CATIA V5: Assemblies & Drafting	☐ ☐ ■ ☐	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	☐ ■ ☐ ☐	3
PRDE-1510	Unigraphics: Assemblies & Drafting	☐ ☐ ■ ☐	3
			6

AND

		SUGGESTED SEQUENCE	SEM HRS
PRDE-2400	Plastics Design & Manufacturing	☐ ☐ ☐ ■	3
PRDE-2410	Vehicle Systems Overview	☐ ☐ ☐ ■	3
			6
			46

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students planning to transfer should contact a Macomb counselor or academic advisor to develop an Arts and Sciences program of study by calling 586.445.7211, and/or discuss their individual transfer plans with a counselor at their selected university.

C. Elective Courses. . . . . none required

Product Development–Certificate Options

CERTIFICATE IN PRODUCT DEVELOPMENT–DIE DESIGN

Certificate in Product Development–Die Design Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
AutoCAD			
DRCG-1140	AutoCAD: Introduction to 2D & 3D	□ ■ □ □	4
PRDE-1450	AutoCAD: Detailing & Assemblies	□ □ ■ □	3
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	□ ■ □ □	3
PRDE-1610	CATIA V5: Assemblies & Drafting	□ □ ■ □	3
SolidWorks			
PRDE-1400	Introduction to SolidWorks & 3D Parametric Solid Modeling	□ ■ □ □	3
PRDE-1410	SolidWorks: Components & Assemblies	□ □ ■ □	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	□ ■ □ □	3
PRDE-1510	Unigraphics: Assemblies & Drafting	□ □ ■ □	3
			6-7

AND

PRDE-2300	Die Design 1	□ □ □ ■	3
PRDE-1510	Die Design 2	□ □ □ ■	3
			6
			46

Product Development–Certificate Options

CERTIFICATE IN PRODUCT DEVELOPMENT–TOOL, FIXTURE DESIGN

Certificate in Product Development–Tool, Fixture Design Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
AutoCAD			
DRCG-1140	AutoCAD: Introduction to 2D & 3D	□ ■ □ □	4
PRDE-1450	AutoCAD: Detailing & Assemblies	□ □ ■ □	3
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	□ ■ □ □	3
PRDE-1610	CATIA V5: Assemblies & Drafting	□ □ ■ □	3
SolidWorks			
PRDE-1400	Introduction to SolidWorks & 3D Parametric Solid Modeling	□ ■ □ □	3
PRDE-1410	SolidWorks: Components & Assemblies	□ □ ■ □	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	□ ■ □ □	3
PRDE-1510	Unigraphics: Assemblies & Drafting	□ □ ■ □	3
			6-7

AND

PRDE-2200	Jig & Fixture Detailing & Design	□ □ □ ■	3
PRDE-2210	Body Fixture Design	□ □ □ ■	3
			6
			46

Product Development–Certificate Options

CERTIFICATE IN PRODUCT DEVELOPMENT–VEHICLE DESIGN

Certificate in Product Development–Vehicle Design Core Requirements

		SUGGESTED SEQUENCE	SEM HRS
PRDE-1000	Fundamentals of Design	■ □ □ □	4
PRDE-1100	Design Communications	■ □ □ □	4
PRDE-1300	Industrial & Materials Processes	■ □ □ □	4
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
PRDE-1200	Theory of Sheet Metal Fabrication	□ ■ □ □	3
QUAL-2400	Project Management	□ ■ □ □	3
PRDE-1700	Teamcenter Engineering	□ □ ■ □	3
PRDE-2000	Product Development Process	□ □ ■ □	3
PRDE-2100	Design Intent & Analysis	□ □ ■ □	3
PRDE-2420	Capstone Project	□ □ □ ■	4
			34

AND CHOOSE ONE COMPUTER GRAPHICS GROUP:

		SUGGESTED SEQUENCE	SEM HRS
CATIA V5			
PRDE-1600	CATIA V5: Introduction & Solid Modeling	□ ■ □ □	3
PRDE-1610	CATIA V5: Assemblies & Drafting	□ □ ■ □	3
Unigraphics			
PRDE-1500	Unigraphics: Introduction to Solid Modeling	□ ■ □ □	3
PRDE-1510	Unigraphics: Assemblies & Drafting	□ □ ■ □	3
			6
AND			
PRDE-2400	Plastics Design & Manufacturing	□ □ □ ■	3
PRDE-2410	Vehicle Systems Overview	□ □ □ ■	3
			6
			46

Product Development–Skill Specific Certificate Options

SKILL SPECIFIC CERTIFICATES IN PRODUCT DEVELOPMENT

		SEM HRS
Skill Specific Certificate in Product Development–Basic AutoCAD		
DRCG-1140	AutoCAD: Introduction to 2D & 3D	4
PRDE-1450	AutoCAD: Detailing & Assemblies	3
		7
Skill Specific Certificate in Product Development–Basic SolidWorks		
PRDE-1400	Introduction to SolidWorks & 3D Parametric Solid Modeling	3
PRDE-1410	SolidWorks: Components & Assemblies	3
		6
Skill Specific Certificate in Product Development–CATIA V5		
PRDE-1600	CATIA V5: Introduction & Solid Modeling	3
PRDE-1610	CATIA V5: Assemblies & Drafting	3
PRDE-2600	CATIA V5: Introduction to Generative Shape Design	3
PRDE-2610	CATIA V5: Introduction to Surfacing	3
		12
Skill Specific Certificate in Product Development–Unigraphics		
PRDE-1500	Unigraphics: Introduction to Solid Modeling	3
PRDE-1510	Unigraphics: Assemblies & Drafting	3
PRDE-2500	Unigraphics: Hybrid Modeling	3
PRDE-2510	Unigraphics: Freeform Modeling	3
		12

Quality Systems Technology

South Campus

The Quality Systems Technology program provides a strong background in measurement tools and management systems. It offers maximum flexibility reflecting the needs and backgrounds of individual students. It will provide students with the knowledge and skills necessary to be successfully employed, transfer to a bachelor degree program, and become certified through the American Society for Quality (ASQ). National, international, and industry standards are used extensively. Hands-on training includes typical hand tools, the optical comparator, surface finish, surface plate layout, and coordinate measuring machines (CMM). Statistical process control (SPC), geometric dimensioning and tolerancing (GD & T), and course projects demonstrate competency. Management and system skills include project management, standards, cost, supply chain, continuous improvement, problem solving, leadership and audits. Documentation, speaking and writing simulate work situations and/or APA formatted reports. This program is excellent preparation for American Society of Quality (ASQ) certification. The ASQ student chapter offers many benefits. Several Skill Specific Certificates can be earned. This program will transfer to many universities for completion of a bachelor degree.

Program advisor Professor Carol Malone can be contacted at 586.445.7472 or email malonec@macomb.edu.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
QUAL-1011	Quality Fundamentals	■ □ □ □	3
QUAL-1021	Inspection Techniques	■ □ □ □	3
QUAL-1030	Statistical Quality Control	■ □ □ □	4
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	■ □ □ □	3
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
			16

And a minimum of 28 semester hours from the following. (See notes for additional information.)

		SUGGESTED SEQUENCE	SEM HRS
QUAL-1101	Layout Methods & CMM Introduction	□ ■ □ □	4
QUAL-1801	Quality Auditing for ISO TS16949	□ ■ □ □	2
QUAL-2451	Applied Problem Solving & Design for Experiments	□ ■ □ □	2
PRDE-1600	CATIA V5: Introduction & Solid Modeling	□ ■ □ □	3
QUAL-1610	Introduction to Lean Six sigma	□ □ ■ □	4
QUAL-2111	Advanced Metrology Laboratory	□ □ ■ □	3
QUAL-2330	Quality Costs, Process Mapping, & the Supply Chain	□ □ ■ □	3
QUAL-2400	Project Management	□ □ ■ □	3
QUAL-2550	Continuous Improvement	□ □ ■ □	3
QUAL-1151	CMM Programming	□ □ □ ■	3
QUAL-2211	Calibration, ISO 17025, & Uncertainty	□ □ □ ■	3
QUAL-2301	Quality Management Systems (QMS), Leadership, & Teams	□ □ □ ■	3
QUAL-2600	Environment & Safety Standards	□ □ □ ■	3
			28
			44

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses . . . . . none required

D. Certificate Option

Certificate in Quality Systems Technology

		SUGGESTED SEQUENCE	SEM HRS
QUAL-1011	Quality Fundamentals	■ □ □ □	3
QUAL-1021	Inspection Techniques	■ □ □ □	3
QUAL-1030	Statistical Quality Control	■ □ □ □	4
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	■ □ □ □	3
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	■ □ □ □	3
			16

And a minimum of 28 semester hours from the following. (See notes for additional information.)

		SUGGESTED SEQUENCE	SEM HRS
QUAL-1101	Layout Methods & CMM Introduction	□ ■ □ □	4
QUAL-1801	Quality Auditing for ISO TS16949	□ ■ □ □	2
QUAL-2451	Applied Problem Solving & Design for Experiments	□ ■ □ □	2
PRDE-1600	CATIA V5: Introduction & Solid Modeling	□ ■ □ □	3
QUAL-1610	Introduction to Lean Six sigma	□ □ ■ □	4
QUAL-2111	Advanced Metrology Laboratory	□ □ ■ □	3
QUAL-2330	Quality Costs, Process Mapping, & the Supply Chain	□ □ ■ □	3
QUAL-2400	Project Management	□ □ ■ □	3
QUAL-2550	Continuous Improvement	□ □ ■ □	3
QUAL-1151	CMM Programming	□ □ □ ■	3
QUAL-2211	Calibration, ISO 17025, & Uncertainty	□ □ □ ■	3
QUAL-2301	Quality Management Systems (QMS), Leadership, & Teams	□ □ □ ■	3
QUAL-2600	Environment & Safety Standards	□ □ □ ■	3
			28
			44

E. Skill Specific Certificates

Quality Systems Technology – Calibration

		SEM HRS
QUAL-1011	Quality Fundamentals	3
QUAL-1021	Inspection Techniques	3
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	3
QUAL-1801	Quality Auditing for ISO TS16949	2
QUAL-2111	Advanced Metrology Laboratory	3
QUAL-2211	Calibration, ISO 17025, & Uncertainty	3
		17

Quality Systems Technology – Coordinate Measuring Machines (CMM)

		SEM HRS
QUAL-1011	Quality Fundamentals	3
QUAL-1021	Inspection Techniques	3
QUAL-1101	Layout Methods & CMM Introduction	4
QUAL-1151	CMM Programming	3
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	3
QUAL-1600	CATIA V5: Introduction to Solid Modeling	3
		19

Quality Systems Technology – Fundamentals

		SEM HRS
QUAL-1011	Quality Fundamentals	3
QUAL-1021	Inspection Techniques	3
QUAL-1030	Statistical Quality Control	4
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	3
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	3
		16

Quality Systems Technology – International Quality Manager

		SEM HRS
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	3
QUAL-2330	Quality, Costs, Process Mapping, & the Supply Chain	3
QUAL-2400	Project Management	3
QUAL-2451	Applied Problem Solving & Design of Experiments	2
BUSN-2100	International Business	3
AND		
HIST-2420	Latin America in the Modern World	3
OR		
HIST-2520	Asia in the Modern World	4
AND		
	Any Foreign Language	4
		21-22

Quality Systems Technology – Lean Six Sigma

		SEM HRS
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	3
QUAL-1610	Introduction to Lean Six Sigma	4
QUAL-2301	Quality Management Systems (QMS), Leadership, & Teams	3
QUAL-2330	Quality, Costs, Process Mapping, & the Supply Chain	3
QUAL-2400	Project Management	3
QUAL-2451	Applied Problem Solving & Design of Experiments	2
QUAL-2550	Continuous Improvement	3
		21

Quality Systems Technology – Quality Management Systems (QMS)

		SEM HRS
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	3
QUAL-1801	Quality Auditing for ISO TS16949	2
QUAL-2301	Quality Management Systems (QMS), Leadership, & Teams	3
QUAL-2330	Quality, Costs, Process Mapping, & the Supply Chain	3
QUAL-2400	Project Management	3
QUAL-2451	Applied Problem Solving & Design of Experiments	2
QUAL-2600	Environment & Safety Standards	3
		19

NOTE:

Group III requirement for an Associate of Applied Science degree is met by successfully completing HIST-2420 or HIST-2520. Group IV requirement for an Associate of Applied Science degree is met by successfully completing the foreign language course.

NOTE: ASQ Certification Testing, Potential Course Substitutions

		NOTES*				
PRDE-1600	CATIA V5: Introduction & Solid Modeling	a				
QUAL-1011	Quality Fundamentals	a	b	c		
QUAL-1021	Inspection Techniques	a	b	c		
QUAL-1030	Statistical Quality Control	a	b			e
QUAL-1051	Standards–AIAG, ANSI/ASQ, ASME, ISO	a	b	c		e
QUAL-1101	Layout Methods & CMM Introduction	a				
QUAL-1151	CMM Programming	a				
QUAL-1201	Geometric Dimensioning & Tolerancing with Applications Lab	a	b			
QUAL-1610	Introduction to Lean Six Sigma		b		d	e
QUAL-1801	Quality Auditing for ISO TS16949		b	c		e
QUAL-2111	Advanced Metrology Laboratory	a		c		
QUAL-2211	Calibration, ISO 17025, & Uncertainty	a		c		
QUAL-2301	Quality Management Systems (QMS), Leadership, & Teams		b		d	e
QUAL-2330	Quality Costs, Process Mapping, & the Supply Chain		b		d	e
QUAL-2400	Project Management		b		d	e
QUAL-2451	Applied Problem Solving & Design of Experiments		b		d	e
QUAL-2550	Continuous Improvement		b		d	e
QUAL-2600	Environment & Safety Standards (ISO 14000 c, ISO 18000 b, c, e)		b		d	e

a Courses are suggested for students pursuing skills as a Quality Technician

Courses may be substituted for b courses or suggested alternative courses with consent of program advisor

Students are advised to take the ASQ Certified Quality Inspector test after completing the Certificate in Quality Systems Technology–Fundamentals and 2 years of quality-related work experience. (See Body of Knowledge at www.asq.org/certification/quality-inspector/index.html.)

Students are advised to take the ASQ Certified Quality Technician test after completing the Skill Specific Certificate in Quality Systems Technology and 4 years of quality-related work experience. (See Body of Knowledge at www.asq.org/certification/quality-technician/index.html.)

b Courses are suggested for students pursuing skills as Quality manager

Courses may be substituted for a courses or suggested alternative courses with consent of program advisor.

Students are advised to take the ASQ Certified Quality Process Analyst test after completing the Certificate in Quality Systems Technology containing the b courses and 2 years of quality-related work experience. (See Body of Knowledge at www.asq.org/certification/quality-process-analyst/index.html.)

c Calibration related courses

Students are advised to take the ASQ Certified Calibration Technician test after completing the Certificate in Quality Systems Technology containing the c courses and 5 years of quality-related work experience. (See Body of Knowledge at www.asq.org/certification/calibration-technician/index.html.)

d Lean Six Sigma related courses

Students are advised to take the ASQ Certified Six Sigma test after completing the Certificate in Quality Systems Technology containing the d courses and 3 years of quality-related work experience with 2 completed projects. (See Body of Knowledge at www.asq.org/certification/six-sigma-green-belt/index.html.)

e Quality Management Systems related courses

Students are advised to take the ASQ Certified Manager of Quality/Organizational Excellence test after completing the b and c courses as well as 10 years of quality-related work experience. (See Body of Knowledge at www.asq.org/certification/manager-of-quality/index.html.)

Note: **Potential Substitutions –** Students will contact the program advisor before selecting alternative courses to replace program-required courses. The advisor will determine appropriateness on the skills and requirements of the course and the students.

		NOTES		SEM HRS
ATAM-1150	Mathematics–Shop Arithmetic	a		2
ATAM-1170	Mathematics–Geometry	a		2
ATAM-2150	Mathematics–Trigonometry	a		2
ATMT-1300	Metallurgy–Characteristics of Ferrous Metals	a		2
BUSN-2100	International Business		b	3
HIST-2420	Latin America in the Modern World		b	3
HIST-2520	Asia in the Modern World		b	4
HUMN-2000	Introduction to Asian Religions & Culture		b	3
MATH-1000	Intermediate Algebra	a		4
MGMT-2110	Management Decision Making & Critical Analysis		b	3
PRDE-1500	Unigraphics: Introduction to Solid Modeling		b	3

Reciprocal Programs

With Oakland Community College Royal Oak/Southfield Campus only

- **Diagnostic Medical Sonography**
- **Hospital Pharmacy Technology**
- **Radiologic Technology**

Macomb Community College and Oakland Community College have established reciprocal arrangements for the Diagnostic Medical Sonography (DMS), Hospital Pharmacy Technology (HPT), and Radiologic Technology (RAD) programs. Although the specialized courses for the program are given at Oakland Community College, students who complete specific prerequisite courses at Macomb Community College are eligible to participate in this reciprocal arrangement. This means that upon completion of the prerequisite courses at Macomb and acceptance into Oakland Community College's Diagnostic Medical Sonography Program (DMS), Hospital Pharmacy Technology (HPT), or Radiologic Technology (RAD) programs. The student will take all the DMS, HPT, or RAD courses at OCC and will pay the "in-district" tuition to Oakland Community College

NOTE: In order to participate in this reciprocal payment arrangement, the student must be considered an in-district (live in Macomb County) Macomb student.

YOU MUST SUBMIT A LETTER OF APPLICATION to MACOMB COMMUNITY COLLEGE-HEALTH & HUMAN SERVICES DEPARTMENT prior to DECEMBER 1 of the year admission is desired if you plan to be completed with the prerequisite courses.

For further information regarding the Diagnostic Medical Sonography (DMS), Hospital Pharmacy Technology (HPT), or Radiologic Technology (RAD) programs, please contact:

Oakland Community College
Theresa Wangler–Southfield Campus
Health Programs
22322 Rutland Drive
Southfield, MI 48075
248.233.2917

Macomb Community College
Charlene McPeak, C/O Barbara Walzak
Health & Human Services–E-219
44575 Garfield Road
Clinton Township, MI 48038
586.286.2073

Respiratory Therapy

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College catalog General Information section for detailed information on selective admissions procedures.

The respiratory care practitioner (RCP) supports the physician in the care of patients suffering from cardiopulmonary disease. A balanced program in general education and specialized courses enables the student to develop the technical competencies necessary to enter this paramedical specialty. Practical clinical experience is received in local area hospitals.

Respiratory Therapists in Michigan are required to pass the Certification Examination provided by the National Board for Respiratory Care (www.NBRC.org) and to obtain a license issued by the State of Michigan (www.mi.gov/mdch).

Employment opportunities for qualified respiratory therapists are excellent. Administrative, educational, and clinical positions may be available to the registered Respiratory Therapist. The Associate of Applied Science degree in Respiratory Therapy program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 1361 Park Street, Clearwater, FL 33756, Phone: 727.210.2350, Fax: 727.210.2354 on recommendation of the Committee on Accreditation of Respiratory Care (CoARC), 1248 Harwood Road, Bedford, TX 76021-4244. CoARC's phone number is 817.283.2835 and fax number is 817.354.8519.

Additional expenses to be met by the student before entering RSPT-1260 include (1) a health and physical examination including testing for tuberculosis and other communicable diseases, (2) uniforms and supplies (3) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses, and (4) a criminal background check and drug screen.

Special Admission Procedure for Certified Respiratory Therapy Technicians: Students who have successfully completed the Certification Examination of the National Board for Respiratory Care for Entry-Level Respiratory Therapy Practitioners (CRT) may apply for admission to the Advance Standing program. Students are admitted for the fall semester based upon the availability of clinical sites for internship. Information regarding this program and the admission procedure can be obtained by contacting the Program Coordinator at 586.286.2150.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

(Minimum 69 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2710	Human Physiological Anatomy (See Note 1)	☐☐☐☐	6
RSPT-1050	Clinical Cardiorespiratory Physiologic Anatomy	■☐☐☐	4
RSPT-1060	Physiochemical Basis of Respiratory Therapy	■☐☐☐	3
RSPT-1080	Respiratory Therapy Procedures 1 – Lecture	■☐☐☐	2
RSPT-1090	Respiratory Therapy Procedures 1 – Laboratory	■☐☐☐	2
AND			
BIOL-2730	Pathogenic Microbiology	■☐☐☐	4
OR			
BIOL-2400	General Microbiology	■☐☐☐	4
AND			
RSPT-1111	Respiratory Therapy Procedures 2 – Lecture	☐■☐☐	3
RSPT-1120	Respiratory Therapy Procedures 2 – Laboratory	☐■☐☐	4
RSPT-1140	Cardiopulmonary Pathology	☐■☐☐	3
RSPT-1200	Cardiopulmonary Pharmacology	☐■☐☐	1.5

RSPT-1210	Pediatric/Neonatal Respiratory Care	☐	■	☐	☐	1.5
RSPT-1260	Clinical Internship 1 (See Note 2)	☐	☐	☐	☐	4
RSPT-2250	Clinical Internship 2	☐	☐	■	☐	2
RSPT-2260	Clinical Internship 3	☐	☐	■	☐	2
RSPT-2330	Mechanical Ventilation-Lecture	☐	☐	■	☐	2
RSPT-2340	Mechanical Ventilation-Laboratory	☐	☐	■	☐	1
RSPT-2350	Acid Base & Electrolyte Balance & Advanced Diagnostics	☐	☐	■	☐	3
RSPT-2360	Clinical Internship 4	☐	☐	☐	■	2
RSPT-2370	Clinical Internship 5	☐	☐	☐	■	2
RSPT-2420	Advanced Concepts In Respiratory Care	☐	☐	☐	■	3
RSPT-2430	Certification & Registry Review	☐	☐	☐	■	2
						57

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group II requirement is met by successfully completing BIOL-2710 and BIOL-2730 or BIOL-2400.

Group V requirement is met by successfully completing any PHED-2000 or higher Wellness course. PHED-2070 is recommended for respiratory therapy students.

Students in the Respiratory Therapy Program must achieve grade C or better in each course listed below for retention in the program.

RSPT-1050	RSPT-1111	RSPT-1210	RSPT-2420
RSPT-1060	RSPT-1120	RSPT-2330	RSPT-2430
RSPT-1080	RSPT-1140	RSPT-2340	BIOL-2710 or BIOL-2310
RSPT-1090	RSPT-1200	RSPT-2350	BIOL-2730 or BIOL-2400

Students in the Respiratory Therapy program must achieve grade Pass in each course listed below for retention in the program.

RSPT-1260	RSPT-2250	RSPT-2260	RSPT-2360	RSPT-2370

NOTES:

1. BIOL-2710 or BIOL-2310 is to be taken prior to any RSPT course. BIOL-2710 is recommended for RSPT students but BIOL-2310 will also be accepted.
2. Competency in arithmetic and basic algebra is needed. Consider taking MATH-0050 if the Pre-Algebra section of your COMPASS test was less than 27.
3. ITML-1000 is recommended for students lacking basic computer skills.

Restaurant Management

Center Campus

Prepares students for technical and managerial careers in restaurants and institutional food service operations. Students learn basic kitchen operations as well as business law, marketing, management, and information technology.

Graduates have employment opportunities to start as assistant managers at food service related operations or to start their own food service related business.

The program advisors are Professors David Schneider, Jeffrey Wolf, Francois Faloppa, and Scott O'Farrell.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 69 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
CULH-1050	Culinary Techniques	■ □ □ □	4
CULH-1150	Sanitation	■ □ □ □	1
CULH-1200	Cost Control	■ □ □ □	3
MKTG-1010	Principles of Marketing	■ □ □ □	3
ITCS-1010	Computer & Information Processing Principles	■ ■ □ □	4
CULH-1250	Table Service	□ ■ □ □	2
CULH-1310	Culinary Skills Development	□ ■ □ □	4
CULH-1400	Supervision	□ ■ □ □	3
CULH-1420	Purchasing	□ ■ □ □	3
CULH-1440	Beverage Service	□ ■ □ □	2
AND			
ACCT-1050	Financial Record Keeping	□ ■ □ □	4
OR			
ACCT-1060	Fundamentals of Accounting for Hospitality	□ ■ □ □	4
OR			
ACCT-1080	Principles of Accounting 1	□ ■ □ □	4
AND			
MGMT-1150	Personnel & Human Resource Management	□ ■ □ □	3
OR			
MGMT-1210	Entrepreneurship & Small Business Management	□ ■ □ □	3
AND			
BUSN-1080	Business Law 1	□ ■ ■ □	4
CULH-1430	Menu Planning	□ □ ■ □	3
CULH-2010	A La Carte Dining	□ □ □ ■	5
CULH-2030	Mechanical Equipment & Restaurant Design	□ □ □ ■	3
			51

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Recommend BIOL-1400 to meet the Group II Arts and Sciences requirement. Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

C. Elective Courses. . . . . none required

NOTE: Please see related programs in Culinary Arts, Hospitality Management, and Pastry Arts.

Speech Communication Arts–Intercultural/Interpersonal Communication

South Campus

This program prepares students either to transfer to a four-year institution or to assume entry-level positions in communication. Students complete Arts and Sciences requirements and seven Career Preparation and Related Courses. They then select one of four tracks to specialize in: Public Relations, Mass Media, Presentation, or Intercultural/Interpersonal.

The following Speech Communication Arts programs are available:

- Associate of Applied Science degree in Speech Communication Arts–Public Relations
- Associate of Applied Science degree in Speech Communication Arts–Mass Media
- Associate of Applied Science degree in Speech Communication Arts–Presentation
- Associate of Applied Science degree in Speech Communication Arts–Intercultural/Interpersonal
- Certificate in Speech Communication Arts–Public Relations
- Certificate in Speech Communication Arts–Mass Media
- Certificate in Speech Communication Arts–Presentation
- Certificate in Speech Communication Arts–Intercultural/Interpersonal

Program advisor Professor Janet McKenney can be contacted at 586.445.7144 for program information.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 70 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23

AND

POLS-1000	Introduction to American Politics	■ □ □ □	4
PSYC-1010	Introductory Psychology	■ □ □ □	4
BUSN-2100	International Business	■ ■ □ □	3
POLS-1600	International Politics	□ ■ ■ □	3
SPCH-1800	Broadcast Video	□ □ ■ □	4
SPCH-2110	Persuasion	□ □ ■ □	3
SPCH-2600	Public Relations Communication	□ □ ■ ■	4
SPCH-2700	Change, Conflict, & Crisis Communication	□ □ □ ■	4
GEOG-2000	World Regional Geography	□ □ □ ■	4
			33

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I.B. requirement is met by successfully completing any SPCH course.

Group III requirement is met by successfully completing GEOG-2000, POLS-1000, POLS-1600, or PSYC-1010.

Students planning to transfer for bachelor's degree completion should consult with an academic advisor or counselor when selecting courses.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate in Speech Communication Arts–Intercultural/interpersonal Communication

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
POLS-1000	Introduction to American Politics	■ □ □ □	4
PSYC-1010	Introductory Psychology	■ □ □ □	4
BUSN-2100	International Business	■ ■ □ □	3
POLS-1600	International Politics	□ ■ ■ □	3
SPCH-1800	Broadcast Video	□ □ ■ □	4
SPCH-2110	Persuasion	□ □ ■ □	3
SPCH-2600	Public Relations Communication	□ □ ■ ■	4
SPCH-2700	Change, Conflict, & Crisis Communication	□ □ □ ■	4
GEOG-2000	World Regional Geography	□ □ □ ■	4
			33
			56

Speech Communication Arts–Mass Media

South Campus

This program prepares students either to transfer to a four-year institution or to assume entry-level positions in communication. Students complete Arts and Sciences requirements and seven Career Preparation and Related Courses. They then select one of four tracks to specialize in: Public Relations, Mass Media, Presentation, or Intercultural/Interpersonal.

The following Speech Communication Arts programs are available:

- Associate of Applied Science degree in Speech Communication Arts–Public Relations
- Associate of Applied Science degree in Speech Communication Arts–Mass Media
- Associate of Applied Science degree in Speech Communication Arts–Presentation
- Associate of Applied Science degree in Speech Communication Arts–Intercultural/Interpersonal
- Certificate in Speech Communication Arts–Public Relations
- Certificate in Speech Communication Arts–Mass Media
- Certificate in Speech Communication Arts–Presentation
- Certificate in Speech Communication Arts–Intercultural/Interpersonal

Program advisor Professor Janet McKenney can be contacted at 586.445.7144 for program information.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 67 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23

AND

SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-1700	Broadcast Television	□ ■ □ □	4
ELEC-1250	Introduction to Audio & Video Technology	□ ■ ■ □	2
SPCH-1480	Broadcast Announcing	□ □ ■ □	3
SPCH-1800	Broadcast Video	□ □ ■ □	4
POLS-1101	Politics in Film, Music & Art–Contemporary Political Issues	□ □ ■ □	3
MACA-1410	Television/Video Studio Production	□ □ ■ ■	4
SPCH-2800	Interpretative Performance Communication	□ □ □ ■	4
SPCH-1490	Broadcast Radio	□ □ □ ■	2
HUMN-1460	The Film As Art	□ □ □ ■	3
			32

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

G**roup III requirement** is met by successfully completing POLS-1101.

Group IV requirement is met by successfully completing HUMN-1460.

Students planning to transfer for bachelor's degree completion should consult with an academic advisor or counselor when selecting courses.

C. Elective Courses. . . . . none required

D. Certificate Option

Certificate in Speech Communication Arts–Mass Media

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-1700	Broadcast Television	□ ■ □ □	4
ELEC-1250	Introduction to Audio & Video Technology	□ ■ ■ □	2
SPCH-1480	Broadcast Announcing	□ □ ■ □	3
SPCH-1800	Broadcast Video	□ □ ■ □	4
POLS-1101	Politics in Film, Music & Art–Contemporary Political Issues	□ □ ■ □	3
MACA-1410	Television/Video Studio Production	□ □ ■ ■	4
SPCH-2800	Interpretative Performance Communication	□ □ □ ■	4
SPCH-1490	Broadcast Radio	□ □ □ ■	2
HUMN-1460	The Film As Art	□ □ □ ■	3
			32
			55

Speech Communication Arts–Presentation

South Campus

This program prepares students either to transfer to a four-year institution or to assume entry-level positions in communication. Students complete Arts and Sciences requirements and seven Career Preparation and Related Courses. They then select one of four tracks to specialize in: Public Relations, Mass Media, Presentation, or Intercultural/Interpersonal.

The following Speech Communication Arts programs are available:

- Associate of Applied Science degree in Speech Communication Arts–Public Relations
- Associate of Applied Science degree in Speech Communication Arts–Mass Media
- Associate of Applied Science degree in Speech Communication Arts–Presentation
- Associate of Applied Science degree in Speech Communication Arts–Intercultural/Interpersonal
- Certificate in Speech Communication Arts–Public Relations
- Certificate in Speech Communication Arts–Mass Media
- Certificate in Speech Communication Arts–Presentation
- Certificate in Speech Communication Arts–Intercultural/Interpersonal

Program advisor Professor Janet McKenney can be contacted at 586.445.7144 for program information.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 67 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-1480	Broadcast Announcing	□ ■ □ □	3
SPCH-1490	Broadcast Radio	□ ■ □ □	2
AND			
THEA-1150	Acting 1	□ ■ ■ □	3
OR			
HUMN-1300	Theater Arts	□ ■ ■ □	4
AND			
SPCH-1700	Broadcast Television	□ □ ■ □	4
SPCH-2110	Persuasion	□ □ ■ □	3
MKTG-2010	Professional Selling	□ □ ■ ■	3
SPCH-2600	Public Relations Communication	□ □ ■ ■	4
SPCH-2700	Change, Conflict, & Crisis Communication	□ □ □ ■	4
SPCH-2800	Interpretative Performance Communication	□ □ □ ■	4
			33-34

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group IV requirement is met by successfully completing THEA-1150 OR HUMN-1300.

Students planning to transfer for bachelor's degree completion should consult with an academic advisor or counselor when selecting courses.

C. Elective Courses. . . . . none required

D. Certificate Option

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-1480	Broadcast Announcing	□ ■ □ □	3
SPCH-1490	Broadcast Radio	□ ■ □ □	2
AND			
THEA-1150	Acting 1	□ ■ ■ □	3
OR			
HUMN-1300	Theater Arts	□ □ □ □	4
SPCH-1700	Broadcast Television	□ □ ■ □	4
SPCH-2110	Persuasion	□ □ ■ □	3
MKTG-2010	Professional Selling	□ □ ■ ■	3
SPCH-2600	Public Relations Communication	□ □ ■ ■	4
SPCH-2700	Change, Conflicy & Crisis Communication	□ □ □ ■	4
SPCH-2800	Interpretative Performance Communication	□ □ □ ■	4
			33-34
			56-57

Speech Communication Arts–Public Relations

South Campus

This program prepares students either to transfer to a four-year institution or to assume entry-level positions in communication. Students complete Arts and Sciences requirements and seven Career Preparation and Related Courses. They then select one of four tracks to specialize in: Public Relations, Mass Media, Presentation, or Intercultural/Interpersonal.

The following Speech Communication Arts programs are available:

- Associate of Applied Science degree in Speech Communication Arts–Public Relations
- Associate of Applied Science degree in Speech Communication Arts–Mass Media
- Associate of Applied Science degree in Speech Communication Arts–Presentation
- Associate of Applied Science degree in Speech Communication Arts–Intercultural/Interpersonal
- Certificate in Speech Communication Arts–Public Relations
- Certificate in Speech Communication Arts–Mass Media
- Certificate in Speech Communication Arts–Presentation
- Certificate in Speech Communication Arts–Intercultural/Interpersonal

Program advisor Professor Janet McKenney can be contacted at 586.445.7144 for program information.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 67 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-2110	Persuasion	□ □ ■ □	3
SPCH-2600	Public Relations Communication	□ □ ■ □	4
JOUR-1100	Writing News for Publication	□ □ ■ □	3
POLS-1101	Politics in Film, Music & Art–Contemporary Political Issues	□ □ ■ □	3
AND			
MKTG-1010 OR	Principles of Marketing	□ □ ■ □	3
MGMT-1010	Principles of Management	□ □ ■ □	3
AND			
BCOM-2050 OR	Business Communications	□ □ □ ■	4
BCOM-2070	Technical Business Communications & Project Management	□ □ □ ■	3
AND			
SPCH-2700	Change, Conflict, & Crisis Communication	□ □ □ ■	4
			26-27

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group III requirement is met by successfully completing POLS-1101.

Students planning to transfer for bachelor's degree completion should consult with an academic advisor or counselor when selecting courses.

C. Elective Courses. . . . . none required

D. Certificate Option

		SUGGESTED SEQUENCE	SEM HRS
SPCH-1060	Speech Communication	■ □ □ □	3
SPCH-1100	Interpersonal Communication	■ □ □ □	3
SPCH-1400	Mass Media Communication in a Global Culture	■ □ □ □	3
SPCH-1200	Group Discussion & Leadership	□ ■ □ □	3
SPCH-1300	Voice & Speech Improvement Communication	□ ■ □ □	3
SPCH-2300	Intercultural Communication	□ □ ■ □	4
SPCH-2500	Argumentation & Debate	□ □ □ ■	3
SPCH-2850	Speech Communication Capstone Course	□ □ □ ■	1
			23
AND			
SPCH-1460	Introduction to Broadcasting	□ ■ □ □	3
SPCH-2110	Persuasion	□ □ ■ □	3
SPCH-2600	Public Relations Communication	□ □ ■ □	4
JOUR-1100	Writing News for Publication	□ □ ■ □	3
POLS-1101	Politics in Film, Music & Art–Contemporary Political Issues	□ □ ■ □	3
AND			
MKTG-1010	Principles of Marketing	□ □ ■ □	3
OR			
MGMT-1010	Principles of Management	□ □ ■ □	3
AND			
BCOM-2050	Business Communications	□ □ □ ■	4
OR			
BCOM-2070	Technical Business Communications & Project Management	□ □ □ ■	3
AND			
SPCH-2700	Change, Conflict, & Crisis Communication	□ □ □ ■	4
			26-27
			49-50

Surgical Technology

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College catalog General Information section for detailed information on selective admissions procedures.

The Associate of Applied Science degree in Surgical Technology, the Certificate in Surgical Technology – Surgical Technologist, and the Certificate in Surgical Technology – Surgical First Assistant are Selective Admissions programs. The one-semester Skill Specific Certificate in Surgical Technology – Central Processing Distribution Technician is NOT a Selective Admissions program.

The Surgical Technology program is set up in a clinical career ladder fashion providing students employment opportunities and career growth while continually working toward a degree in higher education. The first opportunity is the certificate in Central Processing Distribution Technician. The second opportunity for students accepted into the Surgical Technology program is the Certificate in Surgical Technology. The third opportunity for students accepted into the Surgical Technology program is the Associate of Applied Science Degree in Surgical Technology

The Program Coordinator, Elizabeth Ness, can be reached at 586.286.2192.

The clinical courses of this program are graded with a Pass/Fail grade. The student must receive a Pass grade in the clinical courses.

The Associate of Applied Science degree in Surgical Technology program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 35 East Wacker Drive, Suite 1970, Chicago, IL 60601-2208, 312.553.9355, on recommendation of the Accreditation Review Committee on Education in Surgical Technology, 6 West. Dry Creek Circle, Suite 210, Littleton, CO 80120, 303.694.9262.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 72 Sem Hrs)

The goal of the Associate of Applied Science degree in Surgical Technology is to provide graduates entry-level skills in surgical technology. These skills will prepare students for immediate access to the job market and provide a foundation for the baccalaureate degree in allied health or a related field. Professional preparation is developed through the use of both didactic and practice learning activities in the classroom, practice laboratories, and clinical experiences. Only two additional courses are required in addition to the courses required for the Certificate in Surgical Technology – Surgical Technologist: PSYC-1010, and PHIL-2100 or HUMN-1700.

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR ENGL-1210	Communications 1 OR Composition 1	☐☐☐☐	4
AND			
BIOL-2710	Human Physiological Anatomy	☐☐☐☐	6
AND			
BIOL-2400 OR BIOL-2730	General Microbiology OR Pathogenic Microbiology	☐☐☐☐	6
AND			
HHSC-1700	Medical Terminology	☐☐☐☐	3

PHED-2070	Wellness – Focus Prevention, Intervention, Treatment of Disease, Illness & Injury	■ □ □ □	3
SURG-1050	Introduction to Surgical Technology	■ □ □ □	2
SURG-1060	Orientation to Central Processing Distribution Technician	■ □ □ □	4
SURG-1070	Central Processing Distribution Technician Clinical	■ □ □ □	8
SURG-1051	Introduction to Surgical Patient Care Techniques	□ □ ■ □	2
SURG-1200	Surgical Clinical 1	□ □ ■ □	8
SURG-1250	Surgical Specialties 1	□ □ ■ □	4
SURG-1260	Surgical Pharmacology	□ □ ■ □	3
SURG-1300	Surgical Clinical 2	□ □ □ ■	8
SURG-1350	Surgical Specialties 2	□ □ □ ■	4
SURG-1360	Surgical Seminar	□ □ □ ■	3
PSYC-1010	Introductory Psychology	□ □ □ □	4
AND			
PHIL-2100	Introduction to Ethics	□ □ □ □	3
OR			
HUMN-1700	Comparative Religions	□ □ □ □	3
			72-73

Notes:

1. ENGL-1180 or ENGL-1210; BIOL-2710; BIOL-2400 or BIOL-2730; HHSC-1700; PHED-2070, SURG-1050, SURG-1060, and SURG-1070 are prerequisites for the Associate of Applied Science degree in Surgical Technology and must be taken prior to starting the first Surgical Technology courses.
2. Surgical Technology courses (SURG) must be taken in the sequence listed above. Any course without the SURG prefix may be taken prior to its marked sequence but not after.
3. Students must have their Health History Form (physical examination), TB, and Hepatitis Series/ Titers on file in the Health & Human Services Department BEFORE starting the program. Students must show proof of health insurance and have drug testing performed.

Students in the Surgical Technology program must achieve grade C or better in each course listed below for retention in the program.

BIOL-2710	SURG-1050	BIOL-2400 or BIOL-2730	SURG-1051
ENGL-1180 or ENGL-1210	SURG-1060	HHSC-1700	SURG-1250
PHED-2070	SURG-1260	PHIL-2100 or HUMN-1700	SURG-1350
PSYC-1010	SURG-1360		

Students in the Surgical Technology program must achieve grade Pass in each course listed below for retention in the program.

SURG-1070 SURG-1200 SURG-1300

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Group I requirement is met by successfully completing ENGL-1180 or ENGL-1210.

Group II requirement is met by successfully completing BIOL-2710, and BIOL-2400 or BIOL-2730.

Group III requirement is met by successfully completing PSYC-1010.

Group IV requirement is met by successfully completing PHIL-2100 or HUMN-1700.

Group V requirement is met by successfully completing PHED-2070.

C. Elective Courses. . . . . none required

D. Certificate Options

Surgical Technologist

The curriculum is designed to enable students to perform a variety of duties as well as provide technical support to the surgical team in an operating room before, during, and after surgery. The surgical technologist is trained to maintain a sterile and safe surgical environment. Duties include but are not limited to the following: setting up sterile supplies, equipment, instrumentation, and drapes for surgical procedures; gowning and gloving the surgical team members; positioning patients for surgery; passing instruments, sponges and sutures to the surgeons or their assistants; preparing specimens for laboratory analysis; cleaning and sterilizing equipment and supplies, etc.

		SUGGESTED SEQUENCE	SEM HRS
ENGL-1180 OR ENGL-1210	Communications 1 . . . . . Composition 1	□□□□ □□□□	4 3
AND			
BIOL-2710	Human Physiological Anatomy	□□□□	6
AND			
BIOL-2400 OR BIOL-2730	General Microbiology . . . . . Pathogenic Microbiology	□□□□ □□□□	4 4
AND			
HHSC-1700	Medical Terminology	□□□□	3
PHED-2070	Wellness–Focus Prevention, Intervention, Treatment of Disease, Illness & Injury	■□□□	3
SURG-1050	Introduction to Surgical Technology	■□□□	2
SURG-1060	Orientation to Central Processing Distribution Technician	■□□□	4
SURG-1070	Central Processing Distribution Technician Clinical	■□□□	8
SURG-1051	Introduction to Surgical Patient Care Techniques	□□■□	2
SURG-1200	Surgical Clinical 1	□□■□	8
SURG-1250	Surgical Specialties 1	□□■□	4
SURG-1260	Surgical Pharmacology	□□■□	3
SURG-1300	Surgical Clinical 2	□□□■	8
SURG-1350	Surgical Specialties 2	□□□■	4
SURG-1360	Surgical Seminar	□□□■	3
			65-66

Surgical Technology – Surgical First Assistant

The Certificate in Surgical Technology – Surgical First Assistant program provides opportunities for career growth for experienced operating room/surgical personnel in the field of Surgical Assisting. This is an advanced practitioner certificate and is designed toward earning a degree in higher education. The Surgical First Assistant directly assists the surgeon with the operation. The Surgical First Assistant is specially trained to handle tissue, provide exposure using surgical instruments, provide homeostasis, and suturing during surgery.

		SUGGESTED SEQUENCE	SEM HRS
SURG-2000	Surgical Anatomy for the Surgical First Assistant	■ □ □ □	6
SURG-2110	Ethical & Legal Responsibilities for the Surgical First Assistant	■ □ □ □	3
SURG-2120	Role of Surgical First Assistant	□ ■ □ □	3
SURG-2130	Anesthesia & Pharmacology for the Surgical First Assistant	□ ■ □ □	2
SURG-2140	Fundamental Skills for the Surgical First Assistant	□ ■ □ □	3
SURG-2150	Surgical First Assistant Clinical 1	□ □ ■ □	2
SURG-2160	Surgical First Assistant Clinical 2	□ □ ■ □	2
			21

Students must achieve grade C or better in SURG-2000, SURG-2110, SURG-2120, SURG-2130, and SURG-2140 and must achieve grade Pass in SURG-2150 and SURG-2160 to be awarded the Certificate in Surgical Technology-Surgical First Assistant.

E. Skill Specific Certificates

Surgical Technology – Central Processing Distribution Technician

Taking these courses provides the fundamentals of central processing, supply, and distribution of hospital instrumentation, supplies, and equipment. These courses are designed to give instruction and practice in aseptic techniques, patient center concepts, and theories and practices of central service departments. Students will receive from Macomb Community College a Skill Specific Certificate in Surgical Technology – Central Processing Distribution Technician. Students who receive this certificate from Macomb are eligible to sit for the American Society for Healthcare Central Service Personnel (ASHCSP) National Certifying Examination or the International Association of Healthcare Central Service Material Management (IAHCSMM) National Certifying Examination.

This one semester certificate program is NOT a selective admission program.

		SUGGESTED SEQUENCE	SEM HRS
BIOL-2400 OR	General Microbiology	□ □ □ □	6
BIOL-2730 AND	Pathogenic Microbiology	□ □ □ □	4
HHSC-1700	Medical Terminology	□ □ □ □	3
SURG-1050	Introduction to Surgical Technology	■ □ □ □	2
SURG-1060	Orientation to Central Processing Distribution Technician	■ □ □ □	4
SURG-1070	Central Processing Distribution Technician Clinical	■ □ □ □	8
			23-24

Notes:

1. Students must have their Health History Form (physical examination), TB, and Hepatitis Series/ Titers on file in the Health & Human Services Department BEFORE starting the program. Students must show proof of health insurance and have drug testing performed.
2. Students in the Central Processing Distribution Technician Skill Specific Certificate program must achieve grade C or better in BIOL-2400 or BIOL-2730, SURG-1050, SURG-1060 and HHSC-1700, and grade Pass in SURG-1070.

Veterinary Technician

Center Campus

ADMISSION REQUIREMENTS: See the Macomb Community College catalog General Information section for detailed information on selective admissions procedures.

The Veterinary Technician curriculum is designed to prepare the student to assist with the technical aspects of modern veterinary practice and animal related fields, including: medical laboratory procedures, anesthesia, radiology, and surgical assisting. Major emphasis is on dogs and cats, although instruction will also be given on large animal and laboratory animal techniques. Students are also instructed to develop their skills with people, so as to relate to the owners of the animals.

Students selecting this program should contact the program coordinator at 586.286.2096 or 586.286.2073 for messages.

Additional expenses to be met by the student before entering the internship component of the program are: (1) a health history and physical examination including testing for tuberculosis, and proof of a current tetanus vaccine; (2) uniforms; and (3) hospitalization insurance as neither the hospital nor the college insures the student against accidents or illnesses.

The Associate of Applied Science degree in Veterinary Technician program is accredited by the American Veterinary Medical Association (AVMA), 1931 N. Meacham Road, Suite 100, Schaumburg, IL 60173, 847.925.8070 or 800.248.2862.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A. Career Preparation and Related Courses

		SUGGESTED SEQUENCE	SEM HRS
VETT-1020	Applied Anatomy & Physiology-Lecture	■ □ □ □	4
VETT-1030	Applied Anatomy & Physiology-Laboratory	■ □ □ □	1
VETT-1080	Small Animal Techniques-Lecture	■ □ □ □	1
VETT-1090	Small Animal Techniques-Laboratory	■ □ □ □	1
VETT-1720	Veterinary Office Procedures & Hospital Management	■ □ □ □	2
HHSC-1010	Animal Health Careers	■ □ □ □	1
ITCS-1010	Computer & Information Processing Principles	■ □ □ □	4
CHEM-1050	Introduction to General Chemistry	■ □ □ □	4
VETT-1220	Veterinary Anesthesia-Lecture	□ ■ □ □	2
VETT-1230	Veterinary Anesthesia-Laboratory	□ ■ □ □	1.5
VETT-1300	Assisting in Veterinary Surgery-Lecture	□ ■ □ □	1
VETT-1310	Assisting in Veterinary Surgery-Laboratory	□ ■ □ □	1
VETT-1440	Clinical Pathology 1-Lecture	□ ■ □ □	2
VETT-1450	Clinical Pathology 1-Laboratory	□ ■ □ □	3
VETT-1700	Pharmacology for Veterinary Technicians	□ ■ □ □	2
VETT-1580	Veterinary Technician Internship 1	□ □ □ ■	4
VETT-2050	Large Animal Techniques-Lecture	□ □ ■ □	1
VETT-2060	Large Animal Techniques-Laboratory	□ □ ■ □	1
VETT-2220	Small Animal Diseases	□ □ ■ □	3
VETT-2300	Laboratory Animal Procedures-Lecture	□ □ ■ □	1
VETT-2310	Laboratory Animal Procedures-Laboratory 1	□ □ ■ □	1
VETT-2620	Radiology for Veterinary Technicians-Lecture	□ □ ■ □	1.5
VETT-2630	Radiology for Veterinary Technicians-Laboratory	□ □ ■ □	1
VETT-2100	Large Animal Diseases	□ □ □ ■	3
VETT-2480	Clinical Pathology 2-Lecture	□ □ □ ■	1
VETT-2490	Clinical Pathology 2-Laboratory	□ □ □ ■	2
VETT-2580	Veterinary Technician Internship 2	□ □ □ ■	4
PSYC-1010	Introductory Psychology	□ □ □ ■	4
			58

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

Groups I, IV, and V requirements are the same as those for any AAS degree

Group II requirement is met by successfully completing CHEM-1050.

Group III requirement is met by successfully completing PSYC-1010.

Students in the Veterinary Technician program must achieve grade C or better in each course listed below for retention in the program.

VETT-1020	VETT-1310	VETT-2060	VETT-2580
VETT-1030	VETT-1440	VETT-2100	VETT-2620
VETT-1080	VETT-1450	VETT-2220	VETT-2630
VETT-1090	VETT-1580	VETT-2300	HHSC-1010
VETT-1220	VETT-1700	VETT-2310	CHEM-1050
VETT-1230	VETT-1720	VETT-2480	ITCS-1010
VETT-1300	VETT-2050	VETT-2490	PSYC-1010

Web Specialist

Center and South Campuses

This third year program is designed as a multi-discipline AAS degree for students from MACA to gain WEB programming skills or for ITCS students in WEB Master/WEB Programming to gain useful experience in the design phase of Web Applications development.

Students completing the MACA degree program in Web Design will gain skills necessary to understand and implement XHTML, XML, and other Web programming and coding techniques. ITCS students will gain invaluable skills in page design and software development tools.

MACA students will find the ITCS courses are designed to be offered online. MACA students must demonstrate proficiency coding and debugging native HTML code*. In addition to the basic equipment and software required for traditional online classes, participants will be required to install curriculum specific software such as Internet Information Services (IIS) or Personal Web Server (PWS), Netscape Communicator and Composer, and FrontPage. Each of these packages are available at very deeply discounted pricing for students, some are free, or are available as a 90 day trial offer or as fully functioning programs shipped with textbooks. Texts are supplemental resource guides and programming manuals have been carefully chosen so as to reduce out-of-pocket expense for students.

ITCS students will find that the MACA courses are traditional lab intensive courses offered primarily at South Campus. College resources are available to support in-lab use of specialized software packages necessary for the completion of this track.

Macomb has 3+1 bachelor degree options available for students completing the Web Specialist degree option. Please contact a program advisor for specifics.

The MACA program advisors are Professors Mike Crumb, Ron Hood, Will Romano, Brian Sauriol, Kris Small, and Bill Soule. To talk with an MACA program advisor, please call 586.445.7435.

The ITCS program advisor is Professor Paul Sbraccia. To talk with an ITCS program advisor, please call 586.445.7167.

*Coding & Debugging skills can be acquired in the introduction to Web Programming and Javascript course taught in the ITWP area.

ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS
(Minimum 62 Sem Hrs)

A1. Prerequisite: Completion of the MACA Specialty IV–Web Page Design

		SUGGESTED SEQUENCE	SEM HRS
ITCS-1130	Introduction to Program Design & Development	■ □ □ □	3
ITWP-1100	Web Programming with JavaScript & Dynamic HTML	■ □ □ □	3
ITWP-1200	Web Development with VBScript	■ □ □ □	3
ITWP-1300	Web Database Programming with Classic ASP	■ □ □ □	3
ITWP-2300	Building Dynamic, Intelligent Web Based Solutions with ASP.NET	□ ■ □ □	3
ITWP-2600	Web Commerce (E-commerce)	□ ■ □ □	3
ITWP-2700	Programming: PERL	□ ■ □ □	2
ITWP-2800	Web Site Administration	□ ■ □ □	4
			24

A2. Prerequisite: Completion of the ITCS Specialty–Web Master/Web Programming

		SUGGESTED SEQUENCE	SEM HRS
MACA-1050 OR	Digital Layout	■ □ □ □	4
MACA-1055 AND	Digital Layout: Adobe	■ □ □ □	4
MACA-1210	Digital Imaging	■ □ □ □	4
MACA-1350	Digital Scanning	■ □ □ □	4
MACA-2200	Digital Editing	■ □ □ □	4
MACA-1720	Web Page Design: Dreamweaver	□ ■ □ □	4
MACA-2730	Multimedia Flash	□ ■ □ □	4
MACA-2750	Multimedia Director	□ ■ □ □	4
			28

B. Arts and Sciences Component . . . . . minimum sem hrs 18

Students should plan Arts and Sciences courses with a counselor, academic advisor, or program advisor.

NOTE: Arts and Sciences requirements are already met for students who have completed the AAS degree requirements for their MACA or ITCS web degree.

C. Elective Courses. . . . . none required

D. Certificate Option

A Certificate will be awarded to students successfully completing 24 or 28 hours in their core concentration (A1 or A2 respectively).

Course Descriptions

(Listed alphabetically by course code)

This section has descriptions of courses offered for credit at Macomb Community College. Courses are listed alphabetically by course name. The course name consists of a course subject **(ACCT)** and course number **(2270)** and title **(Managerial Accounting)**. The numbering system will be helpful to you in planning your schedule and in completing registration forms. The number of **Credit Hours** for each course is indicated immediately after the course title.

Course names beginning with AT are Applied Technology & Apprenticeship 15-week courses.

Directed Study courses, are not listed by subject in the following pages because the course description is the same for all subjects:

[SUBJECT-290#] - DIRECTED STUDY - (1-4 credit hrs) *Prerequisite: Approval of directed study agreement.* Under the direction of an appropriate faculty member, students may pursue studies related to their academic interests on an independent basis. This course may be selected more than once (4 credit hours maximum) with the written consent of the associate dean (1-4 contact hrs).

Terms used in this section and their definitions are:

CREDIT HOURS OR SEMESTER HOURS—Official number of hours of credit given for the course.

CONTACT HOURS—The number of hours the class meets per week for 16 weeks except for Applied Technology (AT...) courses it is the number of hours the class meets for 15 weeks, unless stated otherwise.

PREREQUISITE—A course that prepares students with mandatory entry-level skills to facilitate a student successfully meeting the learning outcomes for a specific course. The student must successfully complete the prerequisite course before registering for the course that has the prerequisite course. In cases where prior training or education is documented, specific requisites may be waived.

COREQUISITE—A course which must be taken at the same time as another specific course or courses.

RECOMMENDED COREQUISITE—A course that the department suggests be taken at the same time as another specific course or courses.

Course Name Index

SUBJECT	COURSE
ACCT	Accounting
ANTH	Anthropology
ARAB	Arabic Language & Culture
ARTT	Art
ASTR	Astronomy
ATAM	Applied Mathematics
ATAP	Advanced Processes
ATBC	Building Construction & Maintenance
ATDD	Drafting & Design
ATEE	Electricity & Electronics
ATEM	Electro Mechanical
ATFP	Fluid Power Technology
ATMT	Metal Craft Theory
ATPP	Plumbing & Pipefitting
ATRA	Refrigeration & Air Conditioning
ATSS	Stationary Steam
ATTR	Applied Technology Related
ATWD	Welding
AUTO	Automotive Technology
BCOM	Business Communications
BIOL	Biology
BTEC	Biotechnology
BUSN	Business
CHEM	Chemistry
CHIN	Chinese Language & Culture
CIVL	Civil Technology
CLCT	Climate Control Technology
CLTA	Clinical Laboratory Technology
CORE	Mechanical Technology
CSSK	College Survival Skills
CULH	Culinary Arts
DRAD	Drafting – Architectural
DRCG	Drafting & Computer Graphics
EAPP	English for Academic Purposes
ECHS	Early Childhood Studies
ECON	Economics
EDUC	Education
EETE	Electronic Engineering Technology
ELEC	Electronic Technology
EMSA	Emergency Medical Services
ENGL	English
ENGR	Pre-Engineering
ENVS	Environmental Science
FINC	Finance
FIRE	Fire Science
FREN	French Language
GEOG	Geography
GEOL	Geology
GRMN	German Language
HHSC	Health & Human Service, General
HIST	History
HITT	Health Information Technology
HTMT	Hospitality Management
HUMN	Humanities
INTL	International Studies

SUBJECT	COURSE
ITAL	Italian Language
ITAP	IT – Applications Professional
ITBS	Business Information Systems
ITCS	Computer Information Systems
ITIA	IT – Information Assurance
ITML	Microcomputer Literacy
ITNC	IT – Networking – –Cisco
ITNT	IT – Networking
ITOS	IT – Operating Systems
ITWP	IT – Web Programming
JOUR	Journalism
LAWE	Law Enforcement
LEGA	Legal Assistant
LIFE	Life Career Development
LMGT	Labor – Management Relations
MACA	Media & Communication Arts
MAST	Medical Assistant
MATH	Mathematics
MECT	Automated Systems – Mechatronics
MGMT	Management
MKTG	Marketing
MUSC	Music
NATS	Natural Science
NUMT	Nuclear Medicine Technology
NURS	Nursing
OTAS	Occupational Therapy Assistant
PHED	Physical & Health Education
PHIL	Philosophy
PHSA	Physical Science
PHYS	Physics
POLS	Political Science
PRDE	Product Development
PSYC	Psychology
PTAS	Physical Therapist Assistant
QUAL	Quality Systems Technology
READ	Reading
ROBO	Robotics
RSPT	Respiratory Therapy
SECR	Security Administration
SIGN	Sign Language
SOCY	Sociology
SOSC	Social Science
SPAN	Spanish Language
SPCH	Speech
SURG	Surgical Technology
SURV	Land Surveying Technology
TMTH	Technical Math
VETT	Veterinary Technician

ACCT - ACCOUNTING

ACCT-1050 - Financial Record Keeping - (4.00 Credit hours)
Prerequisite: None
(formerly ACC 105) This course is not recommended for accounting majors or transfer students. This course will provide a procedural and practical approach to maintaining accounting records. The accounting cycle for a service company and a merchandising concern will be covered. Topics will include journals, ledgers, trial balances, financial statements, subsidiary ledgers, and payroll records. Manual and computerized accounting are used. (4 contact hrs)

ACCT-1060 - Fundamentals of Accounting for Hospitality - (4.00 Credit hours)
Prerequisite: None
No credit after ACCT-1080. This course introduces the student to fundamental accounting principles and procedures applied to the hospitality and service industries. Includes study of the uniform system of accounts, financial statements, special purpose journals, and subsidiary ledgers unique to the hospitality and service industries. (4 contact hrs)

ACCT-1070 - Accounting for Entrepreneurs - (3.00 Credit hours)
Prerequisite: None
(formerly ACC 107) This course will focus on reading and understanding financial statements. Students will learn how to analyze financial statements and how financial information can be effectively used to properly plan, control operations, and to make the right business decisions. (3 contact hrs)

ACCT-1080 - Principles of Accounting 1 - (4.00 Credit hours)
Prerequisite: None
(formerly ACC 108) Introduction to accounting techniques and theories as they relate to business organizations. Transaction analysis and information processing for a service and merchandising concern. Measurement and reporting of assets, liabilities, and equity. The emphasis is on financial accounting. (4 contact hrs)

ACCT-1090 - Principles of Accounting 2 - (4.00 Credit hours)
Prerequisite: ACCT-1080
(formerly ACC 109) Continuation of financial accounting and introduction to managerial accounting. Topics include statement of cash flow, statement analysis, accounting for a manufacturing concern, cost-volume-profit relationships, and budgeting. (4 contact hrs)

ACCT-1150 - Microcomputer Applications in Accounting - (3.00 Credit hours)
Prerequisite: ACCT-1090
(formerly ACC 115) The student uses a microcomputer to complete accounting tasks and to solve various accounting problems. These accounting systems are studied: general ledger, accounts receivable, accounts payable, depreciation and payroll. In addition, a number of spreadsheet applications are covered. (3 contact hrs)

ACCT-2180 - Intermediate Accounting 1 - (4.00 Credit hours)
Prerequisite: ACCT-1090
(formerly ACC 218) Review of the accounting process and theory. Coverage in detail of cash and temporary investments, receivables, inventories, long-term investments in stocks, and tangible and intangible assets. (4 contact hrs)

ACCT-2190 - Intermediate Accounting 2 - (4.00 Credit hours)
Prerequisite: ACCT-2180
(formerly ACC 219) ACCT-2190 is strongly recommended for students who plan on transferring to a senior college which accepts ACCT-2190. Analysis of current, contingent, and long-term liabilities including bonds, pensions, and leases. Extensive coverage of corporations and stockholders equity including capital at and after formation, retained earnings and appropriations, cash flow statements, and analysis of statements. (4 contact hrs)

ACCT-2270 - Managerial Accounting - (4.00 Credit hours)
Prerequisite: ACCT-1090
(formerly ACC 227) Accumulation of information useful to management in a variety of decision-making situations. Emphasizes manufacturing accounting, cost-volume relations, relevant costs, budgeting, and standard cost system, and quantitative techniques in managerial accounting. (4 contact hrs)

ACCT-2300 - Federal Income Tax - Individual - (4.00 Credit hours)
Prerequisite: ACCT-1080 or 2 years work experience in accounting
(formerly ACC 230) Orientation to current federal tax laws and techniques in filing annual U.S. individual income tax returns. Provides practical experience in preparation of annual returns and a basic foundation for further study in the tax field. (4 contact hrs)

ANTH - ANTHROPOLOGY

ANTH-1000 - Introduction to Anthropology - (4.00 Credit hours)
Prerequisite: None
(formerly ANT 100) An introduction to man's biological evolution and cultural origins. Prehistoric man, racial differences, and the growth of language and culture will be considered. A cross-cultural study of social institutions, art, beliefs, and values will be included as well as a discussion of contemporary anthropological problems. (4 contact hrs)

ANTH-2220 - Introduction to Archaeology - (4.00 Credit hours)
Prerequisite: None
This course is an introduction to the techniques, methods, and theories that archaeologists use to interpret the human past. The class will also explore archaeological evidence from both the Old and the New Worlds. (4 contact hours)

ARAB - ARABIC LANGUAGE & CULTURE

ARAB-1260 - Introduction to Arabic Language & Culture - (4.00 Credit hours)
Prerequisite: None
(formerly ARAB-2920) This course emphasizes everyday conversational patterns to give the beginning student of Arabic a useful working knowledge of the language through aural-oral practice and a systematic study of the grammar. The course also introduces the student to the fundamentals of Arabic culture. (5 contact hrs)

ARTT - ART

ARTT-1060 - Basic Drawing 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 106) Basic drawing skills for both commercial and general art. Introductions to elements of drawing, perspective, and drawing media, such as charcoal, ink, conte crayon, pencil, etc. Composition with still life, figure, and landscape. Required for pre-art majors. (6 contact hrs)

ARTT-1070 - Basic Drawing 2 - (3.00 Credit hours)
Prerequisite: ARTT-1060
(formerly ART 107) Continuation of ARTT-1060 with greater emphasis on composition, rendering, perspective, and personal expression. Required for pre-art majors. (6 contact hrs)

ARTT-1360 - Color & Design 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 136) Principles of design as a foundation for all work in art. Creative experimentation in two-dimensional design with line, shape, value, texture, and color in various media. Required for pre-art majors. (6 contact hrs)

ARTT-1370 - Color & Design 2 - (3.00 Credit hours)
Prerequisite: ARTT-1360
(formerly ART 137) Continuation of ARTT-1360. Color composition; color systems and phenomena. Three-dimensional approaches explored in paper, wood, plastic, metal, etc. Required for pre-art majors. (6 contact hrs)

ARTT-1460 - Ceramics 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 146) Introduction to ceramic handcraft; design processes, hand building methods, throwing on the potter's wheel, decoration, glazing, and firing. (6 contact hrs) Center Campus.

ARTT-1470 - Ceramics 2 - (3.00 Credit hours)
Prerequisite: ARTT-1460
(formerly ART 147) Continuation of ARTT-1460. Emphasis on increased conceptual and technical skills, particularly wheel-throwing and leather-hard slab construction. (6 contact hrs) Center Campus.

ARTT-1480 - Ceramics 3 - (3.00 Credit hours)
Prerequisite: ARTT-1470
(formerly ART 148) Advanced work in the art and craft of clay and glazes. Additive, reductive, and formative construction; lab practice; architectural scale ceramics; combining media, field trips. May be taken twice for credit. (6 contact hrs) Center Campus.

ARTT-1610 - Elements of Art - (3.00 Credit hours)
Prerequisite: None
(formerly ART 161) Open to all students to develop insight and gain experience in the visual arts. Non-historical introduction to the aesthetic elements of architecture, sculpture, crafts, painting, drawing, printmaking, design, etc. (3 contact hrs)

ARTT-2060 - Life Drawing 1 - (3.00 Credit hours)
Prerequisite: ARTT-1060
(formerly ART 206) Basic study of the human form. Includes anatomy, structural, and visual form. Required for pre-art majors. (6 contact hrs)

ARTT-2070 - Life Drawing 2 - (3.00 Credit hours)
Prerequisite: ARTT-2060
(formerly ART 207) Continuation of ARTT-2060 with greater development of personal skills. (6 contact hrs) Center Campus.

ARTT-2160 - Basic Painting 1 - (3.00 Credit hours)
Prerequisite: ARTT-1060 and ARTT-1360
(formerly ART 216) Abstract and realistic approaches for the technical handling of tools, pigments, and processes in acrylic and/or oil painting. (6 contact hrs) Center Campus.

ARTT-2170 - Oil Painting - Painting 2 - (3.00 Credit hours)
Prerequisite: ARTT-2160
(formerly ART 217) Classical handling of the medium with some research into contemporary methods and material. (6 contact hrs) Center Campus.

ARTT-2200 - Jewel & Metalwork - (3.00 Credit hours)
Prerequisite: None
(formerly ART 220) Elements of design and production of handcrafted jewelry, small sculpture, and functional objects in metals and other media. Centrifugal casting (of "lost wax" and other organic models), gas welding. Work in construction (with sheet, wire, gemstones, inlaying, etc.). (6 contact hrs) Center Campus.

ARTT-2560 - Sculpture 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 256) Emphasis on basic techniques of modeling, casting, construction, and elementary carving. Abstract and figurative approaches. (6 contact hrs) Center Campus.

ARTT-2570 - Sculpture 2 - (3.00 Credit hours)
Prerequisite: ARTT-2560
(formerly ART 257) Continuation of ARTT-2560 with emphasis on greater individual direction and choice of media. (6 contact hrs) Center …Campus.

ARTT-2600 - Figurative Sculpture 1 - (3.00 Credit hours)
Prerequisite: None
This course introduces creation of sculpture art using the human figure. It covers a basic study and understanding of the human form in space, including anatomy, reduction, structure and other sculpture practices. (6 contact hrs) Center Campus.

ARTT-2602 - Figurative Sculpture 2 - (3.00 Credit hours)
Prerequisite: ARTT-2600
This course extends creation of sculpture using the human figure. The student will gain a greater understanding of anatomy and structure through advanced work with the casting process. (6 contact hrs) Center Campus

ARTT-2610 - Art of the Western World 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 261) Survey of architecture, sculpture, painting from prehistoric era to the Renaissance. Outstanding personalities and historical background. (3 contact hrs)

ARTT-2620 - Art of the Western World 2 - (3.00 Credit hours)
Prerequisite: None
(formerly ART 262) Survey of architecture, sculpture, painting from the Renaissance through modern times. Outstanding personalities and historical background. (3 contact hrs)

ASTR - ASTRONOMY

ASTR-1030 - General Astronomy 1 - (2.00 Credit hours)

Prerequisite: None

(formerly AST 103) Descriptive course analyzing the solar system, historical aspects, including the astronomy of ancient civilizations and most important astronomers, and the instruments used by the astronomer. (2 contact hrs)

ASTR-1040 - General Astronomy 2 - (2.00 Credit hours)

Prerequisite: ASTR-1030

(formerly AST 104) Descriptive course analyzing the universe outside our solar system: stars, galaxies, nebulae, and interstellar material; also a brief exploration of cosmology dealing with the main theories about the origin of the universe. (2 contact hrs)

ATAM - APPLIED MATHEMATICS

ATAM-1150 - Mathematics - Shop Arithmetic - (2.00 Credit hours)

Prerequisite: None

(formerly ATM 115) Review of basic arithmetic; whole numbers, fractions, decimals, signed numbers, grouping symbols, square root, ratio and proportion, flat and round tapers, simple and complex gear ratios; practical industrial shop problems are employed. (2 contact hrs) South Campus.

ATAM-1160 - Mathematics - Algebra - (2.00 Credit hours)

Prerequisite: ATAM-1150 or consent of apprenticeship coordinator

(formerly ATM 116) Fundamental operations of positive and negative numbers, grouping symbols, algebraic axioms, equations, special products and factoring. Solution of practical shop problems. (2 contact hrs) South Campus.

ATAM-1170 - Mathematics - Geometry - (2.00 Credit hours)

Prerequisite: ATAM-1160 or consent of apprenticeship coordinator

(formerly ATM 117) Quadratic formula, review solutions, shop formulas. Definitions and description of geometric terms, axioms, and theorems. An explanation is given to propositions dealing with straight lines, triangles, and circles, with emphasis on applications to practical shop problems. (2 contact hrs) South Campus.

ATAM-1350 - Mathematics - Arithmetic & Introductory Algebra for Electrical & Allied Crafts - (2.00 Credit hours)

Prerequisite: None

(formerly ATM 135) An intensive review of arithmetic with emphasis on common and decimal fractions, ratio and proportion, percentage, and square root. Systems, units of measurement, and conversions. An introduction to algebra including terminology, additive functions, grouping symbols, axioms, basic procedures, multiplication and division. (2 contact hrs) South Campus.

ATAM-1360 - Mathematics - Electrical Circuitry - Algebra & Trigonometry - (2.00 Credit hours)

Prerequisite: ATAM-1350 or consent of apprenticeship coordinator

(formerly ATM 136) Sign numbers, grouping symbols, factoring equations in one unknown, fractions, fractional equations, exponents and radicals, solution of simultaneous equations, and introduction to j factor. (2 contact hrs) South Campus.

ATAM-2150 - Mathematics - Trigonometry - (2.00 Credit hours)

Prerequisite: ATAM-1170 or consent of apprenticeship coordinator or related work experience

(formerly ATM 215) Covers definitions of the trigonometric functions, construction and use of trigonometric tables, solutions of right triangle problems, and applications of trigonometry to practical shop problems. (2 contact hrs) South Campus.

ATAM-2160 - Mathematics - Trigonometry & Shop Application - (2.00 Credit hours)

Prerequisite: ATAM-2150 or consent of apprenticeship coordinator.

(formerly ATM 216) Solutions of oblique triangles by use of altitude method; law of sines, cosines, and cotangent law. Applications to practical shop problems. Emphasis is placed upon standardized types of shop and drafting room problems using above methods. (2 contact hrs) South Campus.

ATAM-2170 - Mathematics - Compound Angles - (2.00 Credit hours)

Prerequisite: ATAM-2150 or consent of apprenticeship coordinator or related work experience

(formerly ATM 217) Use of principles of trigonometry to determine plane and face angles in solid figures, classification of solid geometric figures into five basic types, analysis and recognition of types. Demonstration and practice in solving shop problems, determination of angles of tilt and rotation for mounting parts on adjustable angle plates for tool operations. (2 contact hrs) South Campus.

ATAM-2190 - Mathematics - Gearing - (2.00 Credit hours)

Prerequisite: ATAM-2150 or consent of apprenticeship coordinator or related work experience

(formerly ATM 219) Mathematics of standard screw threads, standard notations and formulas for spur gears, bevel gears, worm and worm wheels, helical gears. Replacement of spur gears with helical gears. Charts, gear models, and gears are used as aids in visualization of practical shop problems. (2 contact hrs) South Campus.

ATAM-2350 - Mathematics - A.C. Circuitry - Trigonometry & Vectors - (2.00 Credit hours)

Prerequisite: ATAM-1360 or consent of apprenticeship coordinator or related work experience

(formerly ATM 235) Angles, angular measure (degrees, radians), angular velocity frequency, similar triangles, trig functions, solutions of right triangles, law of cosines, vector addition and subtraction, vector components, and graphing trig functions. (2 contact hrs) South Campus.

ATAP - ADVANCED PROCESSES

ATAP-1030 - Feeds, Speeds, & Advanced Tools - (2.00 Credit hours)
Prerequisite: None
This course teaches the student advanced cutting tool technologies, such as proper selection of tools for CNC mills and lathes, optimum feedrate, spindle speed, surface feet per minute calculations, maximum depth of cut, side steps, high speed machining, and hard milling and turning. The student will learn the importance of tool geometries. (2 contact hrs) South Campus.

ATAP-2010 - Drafting - 2D CAD with MasterCAM - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of two dimensional modeling and drafting using MasterCAM. Through lecture and lab assignments, the student will learn basic two-dimensional modeling skills. Beginning with 2D wireframe construction, students will learn the interface and how to design basic models. These models are then used to create drawings, complete with dimensions and annotations. Terminology used in the field of CAD will be emphasized. (2 contact hrs) South Campus.

ATAP-2020 - Art-To-Part - Digital Art to 3D CNC Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of Art-to-Part using ArtCAM software. Through lecture and lab assignments, the student will learn basic skills necessary to convert two-dimensional digital pictures into three-dimensional CAD data for surface machining. Toolpaths will be generated and parts will be machined using CNC Machine Tools. Terminology used in the field of CAD/CAM will be emphasized. (2 contact hrs) South Campus.

ATAP-2030 - 2D MasterCAM - Mill Programming & Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of MasterCAM for milling. Through lecture and lab assignments, the student will learn basic two-dimensional toolpath skills. Beginning with 2D wireframe construction, students will learn the interface and how to design basic models. These models are then used to create drawings and 2D CNC mill toolpaths using the CAM module. Terminology used in the field of CAD/CAM will be emphasized. (2 contact hrs) South Campus.

ATAP-2310 - CNC Mill G & M Programming & CNC Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of CNC Mill Programming. Through lecture and lab assignments, the student will learn offline programming, shop floor programming, and the principles of 2-1/2 axis CNC milling. Profiling, facing, drilling, reaming, tapping, threading and pocketing cycles will be emphasized, accompanied by demonstrations, student programming, and hands-on setup and machine operation. (2 contact hrs) South Campus.

ATAP-2320 - CNC Lathe G & M Programming & CNC Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of CNC Lathe Programming and Machining. Through lecture and lab assignments, the student will learn offline programming, shop floor programming, and the principles of 2 axis CNC turning. Turning, facing, drilling, reaming, tapping, and threading will be emphasized, accompanied by demonstrations, student programming, and hands-on setup and machine operation. (2 contact hrs) South Campus.

ATAP-2330 - EDM RAM - G & M Programming & Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of RAM Electrical Discharge Machining, a method involving electrical discharges between an electrode and a conductive workpiece to remove material in a non-conventional manner. Through lecture and lab assignments, the student will learn multiple EDM skills, beginning with an overview of EDM technology, followed by electrode material selection, proper design of electrodes, spark gap theory, and the principles of 2 and 3-D electrode orbiting. Terminology used in the field of RAM, Wire, and Fast Hole EDM will be emphasized, accompanied by demonstrations, student programming, and EDM setup and operation. (2 contact hrs) South Campus.

ATAP-2340 - EDM WIRE - G & M Programming & Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of Wire Electrical Discharge Machining, a method involving electrical discharges between a wire and a conductive workpiece to remove material in a non-conventional manner. Through lecture and lab assignments, the student will learn multiple EDM skills, beginning with an overview of Wire EDM technology, followed by wire selection, spark gap theory, and the principles of rough cuts and skim passes. Terminology used in the field of Wire EDM will be emphasized, accompanied by demonstrations, student programming, and EDM setup and operation. (2 contact hrs) South Campus.

ATAP-2350 - 3D MasterCAM - Die/Mold CNC Machining - (2.00 Credit hours)
Prerequisite: ATAP-2030
This course teaches the advanced concepts of MasterCAM milling. Through lecture and lab assignments, the student will learn advanced CAD/CAM modeling skills. Students will design 3D models. These models are then used to create CNC 3D toolpaths using the CAM module. Terminology used in the field of CAD/CAM will be emphasized. (2 contact hrs) South Campus.

ATAP-2360 - 3D Cimatron CAD/CAM - Die/Mold Machining - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of Cimatron CAD/CAM milling. Through lecture and lab assignments, the student will learn basic CAD/CAM modeling skills. Beginning with Solids, students will learn the interface and how to design basic models. These models are then used to create drawings and CNC toolpaths using the CAM module. Terminology used in the field of CAD/CAM will be emphasized. (2 contact hrs) South Campus.

ATAP-2370 - 3D Computer Aided Mold/Electrode Design - (2.00 Credit hours)
Prerequisite: ATAP-2360
This course teaches the general concepts of electrode design and manufacture, along with mold (tool) design using Cimatron CAD/CAM software. Through lecture and lab assignments, the student will design electrodes for use in the Electrical Discharge Machining industry. The student will also learn how to design mold tooling and moldbases using Cimatron CAD/CAM. Terminology used in the field of Mold Design will be emphasized. (2 contact hrs) South Campus.

ATAP-2380 - Rapid Prototyping & Reverse Engineering - (2.00 Credit hours)
Prerequisite: None
This course teaches the general concepts of Rapid Prototyping and Reverse Engineering. Through lecture and lab assignments, the student will learn basic skills necessary to convert CAD models into STL files and either CNC machine them or print them three dimensionally. Students will also be exposed to Reverse Engineering, which consists of three-dimensional scanning using a probe and laser, and an articulating arm. Terminology used in the field of Rapid Prototyping and Reverse Engineering will be emphasized. (2 contact hrs) South Campus.

ATBC - BUILDING CONSTRCTN & MAINTNCE

ATBC-1100 - Blueprint & Math - Residential - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 110) A course designed to provide a means for the student to interpret prints of existing residences, and to relate construction problems with general mathematics; further, this course will expand to cover some specific items imposed by inspection authorities. Contains material that will help the student prepare to take the Michigan Residential Builders License Examination. (2 contact hrs) South Campus.

ATBC-1150 - Blueprint & Math - Commercial - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 115) Study of blueprints of commercial, industrial, or institutional structures. Special emphasis on interpretation of details as they relate to construction problems. (2 contact hrs) South Campus.

ATBC-1160 - Construction - Cost Estimating - (2.00 Credit hours)
Prerequisite: ATBC-1150 or ATBC-1100
(formerly ATC 116) A study of methods and procedures that are currently used to perform a construction estimate. Course includes examination of plans and specifications, outlining of material takeoff methods, and labor pricing schedules. (2 contact hrs) South Campus.

ATBC-1180 - Construction - Electrical Blueprint Reading (Residential) - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 118) The interpretation of residential plans, wiring diagrams, wiring systems, and specifications. The National Electric Code regulations that apply to each step of the installation are analyzed. (2 contact hrs) South Campus.

ATBC-1190 - Construction - Electrical Blueprint Reading (Commercial) - (2.00 Credit hours)
Prerequisite: ATBC-1180
(formerly ATC 119) The interpretation of plans for commercial type buildings in regards to the electrical installation involved. NEC requirements that pertain to commercial installations are analyzed. (2 contact hrs) South Campus.

ATBC-1250 - Construction - Wiring Residential - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 125) After a brief review of electrical fundamentals and Ohm's law and its applications, this course covers basic code requirements, standard electrical symbols used on plans, and the installation of various types of wiring systems permitted by national and local codes. Latest methods for rewiring inadequate wiring systems are covered. Large appliance and service equipment installations are well stressed. (2 contact hrs) South Campus.

ATBC-1260 - Construction - Wiring Commercial & Industrial - (2.00 Credit hours)
Prerequisite: ATBC-1250
(formerly ATC 126) The course covers special purpose commercial and industrial wiring problems, including a practical approach to wiring methods, lighting (design and maintenance) equipment, and other materials and components peculiar to modern application of the National Electrical Code (NEC). (2 contact hrs) South Campus.

ATBC-1400 - Construction - Hand Woodworking Tools - Care & Use - (3.00 Credit hours)
Prerequisite: None
(formerly ATC 140) This course consists of the selection, safe use, and maintenance of hand woodworking tools used in the carpentry and building maintenance occupations. For example: framing square, sawing tools, planes, cutting edge tools, coring tools, smoothing tools, and layout tools. (3 contact hrs) South Campus.

ATBC-1410 - Construction - Power Tools - Care & Use - (3.00 Credit hours)
Prerequisite: ATBC-1400
(formerly ATC 141) This course consists of the selection, safe use, and maintenance of portable power tools used in the carpentry and building maintenance occupations. For example: circular saw, radial saw, saber saw, electric drill, router, and sanders. (3 contact hrs) South Campus.

ATBC-1510 - Construction - Layout Surveying - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 151) The objective of this course is to instruct the apprentice and/or technician in the proper care and fundamental use of the engineer's tape, transit, and level. The student will use these instruments to establish the horizontal and vertical control to lay out a simple masonry foundation, wall, or building in its proper location and elevation. (2 contact hrs) South Campus.

ATBC-2600 - Construction Law & Contract Administration - (2.00 Credit hours)
Prerequisite: None
(formerly ATC 260) A study of contracts, the Michigan builder's licensing statute, mechanic's liens, real estate law, warranties, construction financing, and taxes designed to introduce the student to the areas of the law he should be familiar with in the construction industry. Contains material that will help student prepare to take the Michigan Residential Builders License Examination. (2 contact hrs) South Campus.

ATDD - DRAFTING & DESIGN

ATDD-1620 - Drafting - Structural Drawing - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 162) Acquaintance with types of stress. The use of the Steel Construction Manual charts in the selection and drawing of framed beams, seated beams, stiffened and unstiffened beam seats, columns, right and left hand parts. Fastening methods such as rivets, bolts, and welds. The application of welding symbols and determining the strength of fillet welds. (2 contact hrs) South Campus.

ATDD-1630 - Drafting - Conveyors - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 163) Blueprint reading and simplified drawing of conveyors, chain, slat, piano hinged, rubber belt, roller, monorail, over and under, power and free. (2 contact hrs) South Campus.

ATDD-1640 - Drafting - Plant Layout & Equipment - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 164) Blueprint reading and simplified drawings for the fabrication and installation of hoists, catwalks, platforms, machinery foundations, exhaust systems, heat treat furnaces, helical and continuous washers. Practice in making simple plant layouts. (2 contact hrs) South Campus.

ATDD-1750 - Drafting - Sheet Metal - Parallel Line Layout - (2.00 Credit hours)
Prerequisite: ATDD-1950
(formerly ATD 175) Application of the parallel line method of layout. The layout and fabrication of rectangular fittings (take-off risers, reducers, head fittings, Hess fittings, Y-branches and elbows). Layout and fabrication of intersecting cylinders of equal or unequal diameters intersecting at 90 degrees or at some angle on center or off center. The layout and fabrication of round elbows, Y-branches and shoe T fittings. Instruction in types of material, standard seams, and machine and hand processes used in the industry. (2 contact hrs) South Campus.

ATDD-1760 - Drafting - Sheet Metal - Radial Line & Triangulation Layout - (2.00 Credit hours)
Prerequisite: ATDD-1750
(formerly ATD 176) Layout and metal fabrication of pyramidal or conical shaped fittings using the radical line method of development. Layout and fabrication of the square to round fittings using the triangulation method of development. (2 contact hrs) South Campus.

ATDD-1770 - Drafting - Sheet Metal Triangulation Applications - (2.00 Credit hours)
Prerequisite: ATDD-1750
(formerly ATD 177) The course concerns layout and metal fabrication of various transition fittings (transition elbows, offsets, stack boot fittings, etc.) using the triangulation method of development. (2 contact hrs) South Campus.

ATDD-1780 - Drafting - Sheet Metal - Short Cut Applications - (2.00 Credit hours)
Prerequisite: ATDD-1750
(formerly ATD 178) Emphasis is on short cut methods of layout of standard fittings. Wye branch and Bullnose Tee fittings are also covered. Based on problems and projects adapted from industry. (2 contact hrs) South Campus.

ATDD-1900 - Drafting - Machine Tool Blueprint Reading - (2.00 Credit hours)
Prerequisite: None
(formerly ATD 190) An introduction to blueprint reading; interpretation of various kinds of lines, position of views, symbols, conventions, dimensioning practices, sectioning, auxiliary views and symmetry with emphasis on techniques employed to show details in relation to assembly drawings. (2 contact hrs) South Campus.

ATDD-1920 - Drafting - Geometric Dimensioning & Tolerancing Fundamentals - (2.00 Credit hours)
Prerequisite: ATDD-1960 or DRST-1110
(formerly ATD 192) The content for this course is based on the latest ANSI/ASME Y14.5 Dimensioning and Tolerancing Standard. An introduction to tolerancing, symbology, form controls, datum referencing, orientation controls, position controls, runout and profile controls, location of fixed and floating fasteners, position of coaxial features and position on non-cylindrical features. (2 contact hrs) South Campus.

ATDD-1950 - Drafting - Essentials - (2.00 Credit hours)
Prerequisite: None
(formerly ATD 195) Introduction to blueprint reading and drafting: class exercises in interpreting lines, view positions, conventions, and standards found on prints; use of drawing tools, simple geometric construction, fundamentals of orthographic projection, use of finish symbols, the application of scale and precision dimensioning and an introduction to metric dimensioning. (2 contact hrs) South Campus.

ATDD-1960 - Drafting - Conventions & Symbols - (2.00 Credit hours)
Prerequisite: ATDD-1950
(formerly ATD 196) Drawings to illustrate assembly and detail drawings, print identification, holes, sections, tapers, and casting. Practice in reading related shop prints, and metric dimensioning. (2 contact hrs) South Campus.

ATDD-1970 - Drafting - Three Dimensional Shape Interpretation - (2.00 Credit hours)
Prerequisite: ATDD-1950
(formerly ATD 197) Pictorial drawing concentrating on the isometric and oblique methods. Practice in three-dimensional visualization interpretation of orthographic prints is stressed by modeling clay into forms related to prints that cover the fundamentals of shape interpretation. (2 contact hrs) South Campus.

ATDD-1980 - Drafting - Advanced Drawing Techniques - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 198) Orthographic drawing of single and double auxiliaries, weldments, castings, and symmetrically opposite parts. The study and application of metrics, base line dimensioning and practice in reading related shop drawings. (2 contact hrs) South Campus.

ATDD-2050 - Drafting - Introduction to Body Drafting - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 205) The fundamental practices and techniques of body drafting. The use of grid lines in projection between views, sheet metal drafting, working with surface and auxiliary views and sections. The student will cut simple sections and place them in proper body position. (2 contact hrs) South Campus.

ATDD-2060 - Drafting - Advanced Body Drafting - (2.00 Credit hours)
Prerequisite: ATDD-2050
(formerly ATD 206) Advanced problems in projection, section cutting, construction, and surfaces, radial sections; completes views and then sketches an isometric view of the complete problem. Understanding and visualization of the complete part is emphasized. An introduction to design. (2 contact hrs) South Campus.

ATDD-2150 - Drafting - Tool Detailing & Assembly - (2.00 Credit hours)
Prerequisite: ATDD-1980
(formerly ATD 215) Drawing of outline and working assemblies and detailing of functional tool draftings. Print reading of tool assemblies interspersed with drawing assignments to illustrate current industrial drafting standards. (2 contact hrs) South Campus.

ATDD-2160 - Drafting - Tool Detailing & Cam Layout - (2.00 Credit hours)
Prerequisite: ATDD-2150
(formerly ATD 216) Elements of tool and machine details. Drawing and theory of cam motions and layouts, gears, and tool details. (2 contact hrs) South Campus.

ATDD-2170 - Drafting - Tool & Gage Design - (2.00 Credit hours)
Prerequisite: ATDD-2150
(formerly ATD 217) The course covers the design of drilling, milling, boring, and welding fixtures. The design of plug, ring, feeler, indicator, and relation gages is also covered. (2 contact hrs) South Campus.

ATDD-2210 - Plastic Molds & Die Cast Dies - (2.00 Credit hours)
Prerequisite: ATMT-1700 and ATMT-2210
Corequisite: ATMT-1750 (Recommended)
(formerly ATD 221) Will familiarize the student with injection and diecast mold design. The student will learn the essential elements in mold design as well as mold construction, mold finishing, texturing and maintenance of tools, and will undertake the complete design of an actual mold as a class project. (2 contact hrs) South Campus.

ATDD-2220 - Advanced Plastic Mold Design & Construction - (2.00 Credit hours)
Prerequisite: ATMT-1750 and ATDD-2210
(formerly ATD 222) Advanced construction techniques in designing molds for more complex injection molded parts as well as an understanding of special mold requirements for thermoset and reinforced thermoplastic materials. Design considerations for large molds requiring automation, moving slides, cores and inserts. New tooling techniques, including use of computers for mold making. (2 contact hrs) South Campus.

ATDD-2750 - Drafting - Industrial Application Machine Guards - (2.00 Credit hours)
Prerequisite: ATDD-1750 and ATDD-1770 or related work experience
(formerly ATD 275) A course dealing with design layout and fabrication of industrial safety guards for belt and chain driven pulley systems; splash guards for wet operations; guards with an exhaust takeoff for grinding and polishing operations, guards used with material handling systems; and air intake or exhaust opening guards. (2 contact hrs) South Campus.

ATDD-2850 - Drafting - Descriptive Geometry - Points & Lines - (2.00 Credit hours)
Prerequisite: ATDD-1960
(formerly ATD 295) Fundamentals of three view projection, auxiliary views, and oblique views of lines and solids utilizing Hood's coordinate system of plotting points. (2 contact hrs) South Campus.

ATDD-2860 - Drafting - Descriptive Geometry - Lines & Planes - (2.00 Credit hours)
Prerequisite: ATDD-2850
(formerly ATD 296) Planes and their relationships to points, lines and other planes, angles between lines and planes, intersections of planes, and principles of revolution about an inclined or oblique axis. (2 contact hrs) South Campus.

ATDD-2870 - Drafting - Descriptive Geometry - Intersection of Solids - (2.00 Credit hours)
Prerequisite: ATDD-2860
(formerly ATD 297) Advanced construction of various intersecting solids and surface development of various single curved and double curved surfaces. (2 contact hrs) South Campus.

ATDD-2880 - Drafting - Panel Tipping - (2.00 Credit hours)
Prerequisite: ATDD-2870
(formerly ATD 298) Descriptive geometry applied to the tipping of body panels from car position into required position for manufacturing purposes. Problems start with flat planes and advance into contour surfaces. (2 contact hrs) South Campus.

ATEE - ELECTRICITY & ELECTRONICS

ATEE-1110 - Electrical Fundamentals for Non-Electrical Tradesmen - (2.00 Credit hours)

Prerequisite: None

(formerly ATE 111) For non-electrical apprentices. Topics: Atomic structure; Ohm's Law; series and parallel A.C. circuits; magnetism and induction; D.C. motors and generators; D.C. meters; A.C. fundamentals; capacitance; inductance; alternators; A.C. motors; A.C. meters. (2 contact hrs) South Campus.

ATEE-1250 - Electrical - Basic Direct & Alternating Current Motor Control Circuits (2.00 Credit hours)

Prerequisite: ATAM-1350 or ATEE-1300 or ATEE-1350

(formerly ATE 125) An introduction to D.C. and A.C. motor control circuits. Topics include: fundamental concepts of electricity and magnetism, series and parallel circuits, D.C. motors and generators, basic electrical instruments, A.C. motors, and electric motor control symbols and circuits. (2 contact hrs) South Campus.

ATEE-1300 - Electric Theory - Electrical Equipment & Introduction to Machine Circuits - (2.00 Credit hours)

Prerequisite: None

(formerly ATE 130) After a brief introduction to the fundamentals of electricity, this course covers wire size, insulation, connections, and wiring methods. Also covered are switches, relays, motor starters, and other control components. Machine tool control circuits are introduced along with maintenance procedures and safe working practices. (2 contact hrs) South Campus.

ATEE-1350 - Electrical - Direct Current Fundamentals - (2.00 Credit hours)

Prerequisite: ATAM-1350 and ATEE-1300

(formerly ATE 135) Electron theory, Ohm's Law, series and parallel circuits, power, Kirchoff's Law, work efficiency, heat torque, motor sizes, wire sizes, voltage drop, wiring systems, and kind of wire insulation. (2 contact hrs) South Campus.

ATEE-1410 - Electrical Line Design - (2.00 Credit hours)

Prerequisite: None

Overhead lines are the most common type of electrical equipment found in power systems, these lines are held by utility poles. This course will focus on the loads that utility poles are subjected to. Loads such as ice, wind, and physical loads are covered. Also the effects that cable and telephone conductors have on these poles and methods used to stabilize utility poles are covered. (2 contact hrs) South Campus.

ATEE-1640 - Electrical - Automation Circuits and Introduction to Programmable Controllers - (3.00 Credit hours)

Prerequisite: ATEE-1110 or ATEE-1300 or INDT-2300 or EETE-2290 or related work experience

(formerly ATE 164) An introduction to automation circuits and logic fundamentals. Topics include: elementary diagrams, shuttle circuits, traverse and feed circuits, in-line machines, self contained work head circuits, trouble shooting procedures, press controls, furnace combustion controls, binary arithmetic, basic logic circuits and laboratory experience with logic circuits including programmable controllers. (3 contact hrs) South Campus.

ATEE-2250 - Electrical - Direct Current Motors & Instruments - (2.00 Credit hours)
Prerequisite: ATEE-1350 or related work experience
(formerly ATE 225) Direct current motor construction and principles of operation, kinds of D.C. motors and their characteristics and control, permanent magnet meter movement, ammeter and voltmeter construction, operation care and use, watt-meter and Wheatstone bridge are topics covered, including laboratory experiences with D.C. motors. (2 contact hrs) South Campus.

ATEE-2260 - Electrical - Alternating Current Machines - (2.00 Credit hours)
Prerequisite: ATEE-2360 or related work experience
(formerly ATE 226) Alternators, rotating magnetic fields, A.C. motors, speed control, types of winding, introduction to A.C. motor control. (2 contact hrs) South Campus.

ATEE-2350 - Electrical - Single Phase Alternating Current Fundamentals - (2.00 Credit hours)
Prerequisite: ATAM-1360 and ATEE-1350 or related work experience
(formerly ATE 235) Properties of alternating current, A.C. measurement, inductance and inductive reactance, capacitance and capacitive reactance, impedance, series and parallel A.C. circuits, resonance, power and factor correction. (2 contact hrs) South Campus.

ATEE-2360 - Electrical - Polyphase Alternating Current Fundamentals, Electrical Instruments & Illumination - (2.00 Credit hours)
Prerequisite: ATEE-2350 or related work experience
(formerly ATE 236) Three and four-wire two-phase circuits, three-phase induction, star and delta circuits, power, balanced and unbalanced loads, transformer principles, characteristics and connection, electrical instruments, self synchronous systems, protective relays, lamps and illumination. (2 contact hrs) South Campus.

ATEE-2410 - Electrical - National Electrical Code - (2.00 Credit hours)
Prerequisite: None
(formerly ATE 241) A study of the national and local electrical codes for wiring and apparatus. It covers wiring design and protection, wiring methods and materials, general use equipment, special occupancies, special equipment, use of table and diagrams for the solution of practical wiring problems. (2 contact hrs) South Campus.

ATEE-2550 - Electrical - Industrial Electronic Fundamentals - (2.00 Credit hours)
Prerequisite: ATEE-2350 or related work experience
(formerly ATE 255) An introduction to electronics which includes semiconductor theory and circuits, transistor theory and circuits, power supplies, vacuum tube theory and circuits, oscillator circuits, photosensitive devices, and pulse circuits. (2 contact hrs) South Campus.

ATEE-2560 - Electrical - Welding Controllers - (2.00 Credit hours)
Prerequisite: ATEE-2550 or related work experience
(formerly ATE 256) Resistance welders and controllers are the main topics. Subtopics include spot welders, various types of welder controllers, plug-in accessories, test equipment, portable and stationary welders, arc welders. (2 contact hrs) South Campus.

ATEE-2570 - Electrical - Electronic Controller Applications - (2.00 Credit hours)
Prerequisite: ATEE-2560 or consent of apprenticeship coordinator or related work experience
(formerly ATE 257) Electronic motor control circuits, variable speed drives and application, draw press controllers, vacuum tube and solid state motor control systems, silicon controlled rectifiers and unijunction transistors, balancing and crankshaft balancer, high frequency heating. (2 contact hrs) South Campus.

ATEE-2640 - Programmable Logic Controllers, Part 1 - (3.00 Credit hours)
Prerequisite: ATEE-1640 or consent of apprenticeship coordinator or related work experience
(formerly ATE 264) An introduction into programming techniques, hardware configuration and theory of operation of a programmable logic controller. Systems to be studied include the Allen-Bradley PLC-2 and Modicon Industrial Controllers. (3 contact hrs) South Campus.

ATEE-2670 - Electrical - Industrial Controls - (2.00 Credit hours)
Prerequisite: ATEE-2550
(formerly ATE 267) Digital and analogue control of industrial machines. (2 contact hrs) South Campus.

ATEE-2740 - Programmable Logic Controllers, Part 2 - (3.00 Credit hours)
Prerequisite: ATEE-2640 or consent of apprenticeship coordinator or related work experience
(formerly ATE 274) An introduction into advanced programming concepts and hardware analysis of the industrial programmable logic controller. Systems to be studied include the Allen-Bradley PLC3. (3 contact hrs) South Campus.

ATEE-2840 - Panelview - (3.00 Credit hours)
Prerequisite: ATEE-1640 or ATEE-2740
(formerly ATEE-2926) This course will provide hands-on experience in developing operator interface screens for the Panelview terminal. Entering and editing instructions, creating and editing display screens on the Panelview and Panelbuilding software will be among the topics covered. (3 contact hrs)

ATEM - ELECTRO MECHANICAL

ATEM-1350 - Electrical - Mechanical Blueprint Reading - (2.00 Credit hours)
Prerequisite: ATEE-1300 and ATFP-1100 or consent of apprenticeship coordinator
(formerly AEM 135) Practice in print reading using large blueprints for process control for temperature, flow, pressure, etc., delta-y connections, application of SCR controls, relay circuit for automated conveyor systems, robot operated hoist systems using programmable controllers, application of hydraulic, pneumatic and combustion controls, plumbing layout, power wiring layout, plant layout and interconnecting wiring. (2 contact hrs) South Campus.

ATFP - FLUID POWER TECHNOLOGY

ATFP-1100 - Fluid Power - Fundamentals - (2.00 Credit hours)
Prerequisite: ATAM-1150 or ATAM-1350 or consent of apprenticeship coordinator
(formerly ATF 110) Survey of the basic components of hydraulic systems and the basic laws and formulas in simple fluid power calculation. Covers such topics as: pumps, control valves, actuators, the use of A.S.A.I.S. symbols, and the maintenance procedure. (2 contact hrs) South Campus.

ATFP-1110 - Fluid Power - Pumps - (2.00 Credit hours)
Prerequisite: ATFP-1100
(formerly ATF 111) Pumps used in fluid power, the principles of pump operation, construction, and maintenance. Covered are the fixed and variable delivery pumps, gear, vanes, axial and radial piston, combination pumps, as well as self-contained power units. (2 contact hrs) South Campus.

ATFP-1120 - Fluid Power - Control - (2.00 Credit hours)
Prerequisite: ATFP-1100
(formerly ATF 112) Controls used in fluid power. Covered are pressure and volume theory, operation and construction of valves and circuit applications. The valves studied are the relief pressure reducing sequence, counterbalance, brake, volume control, directional, assemblies and various types of valve controls, including electrical control circuitry and air logic. (2 contact hrs) South Campus.

ATFP-1140 - Fluid Power - Basic Circuits (Special Extended Laboratory Experience) - (3.00 Credit hours)
Prerequisite: ATFP-1100
(formerly ATF 114) Students are advised to take ATFP-1110 and ATFP-1120 before ATFP-1140. Treatment of fluid power circuit fundamentals, calculations, and simple design. The circuits studied are pump-unloading, speed, pressure, volume, deceleration, sequence, servo, oil conditioning, and transfer line including electrical control circuitry and air logic. (3 contact hrs) South Campus.

ATFP-1210 - Fluid Power - Pneumatic Controls & Circuits - (2.00 Credit hours)
Prerequisite: ATFP-1100
(formerly ATF 121) Fundamental pneumatic principles, gas laws, calculations, A.S.A.I.S. symbols, and terminology. The course deals with the way air is compressed, the compressed air system, controlling pneumatic power, and the use introduction of fluidics. (2 contact hrs) South Campus.

ATMT - METAL CRAFT THEORY

ATMT-1150 - Machine Theory - Machine Tool Laboratory 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ATT 115) Basic theory and operations of the fundamental machines used in a modern machine shop. Basic skills and technical knowledge are covered for drill presses, shapers, lathes, and milling machines. Safe work habits are emphasized. Inspection is an integral part of the course. (3 contact hrs) South Campus.

ATMT-1160 - Machine Theory - Machine Tool Laboratory 2 - (3.00 Credit hours)
Prerequisite: ATMT-1150 or consent of apprenticeship coordinator
(formerly ATT 116) Advanced operations on the drill press and lathe in a modern machine shop. Safety in threading, taper turning and boring is emphasized. Layout and bench procedures are also an integral part of this course. (3 contact hrs) South Campus.

ATMT-1210 - Machine Theory - Benchwork, Drill Presses & Lathes - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 121) Theory of linear and surface finish measurement as well as the proper use of the tools and instruments used in these areas. Also covered is the proper use and care of the hand tools used in such operations as scraping, filing, sawing, chipping, and layout procedures. Drill press and lathe operations and the tools and accessories used on each are studied in addition to screw threads and standard taper design. (2 contact hrs) South Campus.

ATMT-1250 - Machine Theory - Shapers, Planers, Mills & Grinders - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 125) The mechanism, operations, tools, and accessories of the shaper, planer, milling machines, cylindrical grinders, internal grinders, centerless grinders, surface grinders, jig grinders, and cutter grinders are studied. Theory and application of indexing, helical and spiral milling, grinding wheel, and lapping are included. (2 contact hrs) South Campus.

ATMT-1300 - Metallurgy - Characteristics of Ferrous Metals - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 130) Provides an understanding of the production structure and application of ferrous metals. Includes properties of ferrous metals, production of steel, cast iron, and a general background in basic heat treatment of steel. (2 contact hrs) South Campus.

ATMT-1310 - Metallurgy - Characteristics of Non-Ferrous Metals - (2.00 Credit hours)
Prerequisite: ATMT-1300
(formerly ATT 131) Understanding metals and their application. Topics to be covered: non-ferrous metals, theory of alloys, physical metallurgy, aluminum, magnesium, copper, bearing metals, die casting, powder metallurgy, surface treatment, new metals and applications, and welding metallurgy. (2 contact hrs) South Campus.

ATMT-1400 - Science - Industrial Chemistry - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 140) A study of the chemical and physical properties of materials used in industry and commerce and the related manufacturing processes and usage. Basic concepts of matter and energy; the atomic theory; laws of moving particles, water and solutions and the families of elements; nuclear and organic chemistry as related to industrial use and a survey of minerals, ores, and metals constitute the text material. Lectures are related to industrial and commercial problems in production, distribution, safety, and pollution control. (2 contact hrs) South Campus.

ATMT-1650 - Millwright Theory - Millwright Theory 1 - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 165) The proper use of tools and equipment used by the industrial millwright will be studied. The principles of machinery and equipment, i.e., screw threads, flat belts, belt splicing, structural steel, wire rope, wire rope fittings, slings, hoisting chains, grinding wheels, and metal saws will also be studied. (2 contact hrs) South Campus.

ATMT-1660 - Millwright Theory - Millwright Theory 2 - (2.00 Credit hours)
Prerequisite: ATMT-1650
(formerly ATT 166) Mechanical power transmission equipment principles of anti-friction bearings, bearing life and failure, bearing maintenance, mounting of bearings, trouble shooting, couplings, universal joints, drive chains, speed reducers, V-belts, mechanical fasteners, lubrication. (2 contact hrs) South Campus.

ATMT-1700 - Thermoplastic & Thermosetting Materials - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 170) A practical overview of the plastics industry, sources of plastics and typical plastic applications. The basic chemistry of polymers, material properties, cost and composition of both thermoplastic and thermosetting materials are studied. The fundamentals for material selection, testing procedures and product design are reviewed. Plastics to be studied include engineering resins, elastomers, reinforced materials and high strength composites. (2 contact hrs) South Campus.

ATMT-1750 - Plastic Product Design & Tooling - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 175) A course focusing on plastic product and tooling design, including the product design process, designing for assembly, machining, finishing and decorating of plastic. Material selection is reviewed including injection systems, ejection systems, undercuts and mold components. Students will complete a comprehensive plastic product design. (2 contact hrs) South Campus.

ATMT-1800 - Forge Theory - Forging Principles - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 180) In covering principles of forging, consideration is given to advantages and application, metallurgical characteristics, processes and methods, design principles and practices, and heat treatment of forgings. (2 contact hrs) South Campus.

ATMT-1930 - Applied Statistical Process Control - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 193) Provide students with the basic skills and knowledge for a logical, organized, rational process to insure continuous ongoing improvements in productivity using the seven tools of applied statistical process control. (2 contact hrs) South Campus.

ATMT-1950 - Science - Physics 1: Mechanics - (2.00 Credit hours)
Prerequisite: ATAM-2150 or consent of apprenticeship coordinator
(formerly ATT 195) A study of measurement; molecular motion; liquid pressure and Pascal's law; force systems; rectilinear motion; work power and energy; momentum and simple machine elements. Emphasis is on practical application utilizing the English engineering system of units. (2 contact hrs) South Campus.

ATMT-2210 - Plastic Mold & Die Cast Die Theory - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 221) Plastic molding processes and the construction and engineering requirements of molds used for each molding process. The various mold making techniques, materials and fabrication techniques used to manufacture molds. Engineering and design specifications for mold construction and costing are studied. (2 contact hrs) South Campus.

ATMT-2250 - Machine Theory - Modern Metal Removal Processes - (2.00 Credit hours)
Prerequisite: None
(formerly ATT 225) Introduction to the latest non-traditional machining methods. Basic concepts and applications of abrasive jet, ultrasonic machining, electrochemical machining, electrolytic grinding, electrical discharge machining, ion beam, laser, electron beam are studied. (2 contact hrs) South Campus.

ATMT-2270 - Computer Numerical Control Concepts 1 - (2.00 Credit hours)
Prerequisite: ATMT-1210 or ATMT-1250 or related work experience
Corequisite: ATAM-2150
(formerly ATT 227) Beginning theory and application of computer numerical control; the machine tools; providing computer basics, the design requirements, process planning and functional CNC experiments. (2 contact hrs) South Campus.

ATMT-2280 - Computer Numerical Control Concepts 2 - (2.00 Credit hours)
Prerequisite: ATMT-2270 or ATAM-2150 or related work experience
(formerly ATT 228) Advanced theory and application of computer numerical control; the machine tools, providing advanced computer concepts, design requirements, process planning, functional CNC experiments. (2 contact hrs) South Campus.

ATMT-2350 - Metallurgy - Heat Treatment of Ferrous Alloys - (2.00 Credit hours)
Prerequisite: ATMT-1300 or related work experience
(formerly ATT 235) First six weeks covers basic metallurgy, iron-carbon diagram, S Curves, tempering curves, mechanics of quenching, furnace design, furnace atmospheres, theory of alloy additions and liquid heating baths. Seventh through 14th weeks involve the study of characteristics, selection and heat treatment of tool steels from water hardening to high speed steels and special alloys. (2 contact hrs) South Campus.

ATPP - PLUMBING & PIPEFITTING

ATPP-1100 - Plumbing Fundamentals - (2.00 Credit hours)
Prerequisite: ATAM-1150 or ATAM-1160 or consent of apprenticeship coordinator
(formerly ATP 110) Specifications, applications, and maintenance of pipes, fittings, and valves. Provides a basic knowledge of simple pipe calculations and template development. A study of tools used in piping. Proper valve installation and maintenance. Consideration of safe working pressures of pipes and valves. (2 contact hrs) South Campus.

ATPP-1110 - Plumbing - Drain, Waste & Vent - (2.00 Credit hours)
Prerequisite: ATAM-1150 or ATAM-1160 or consent of apprenticeship coordinator
(formerly ATP 111) Proper materials of sewer, soil, vent, and waste pipes. The principles of drainage flow and proper venting. A study of traps and installation of unit sanitation equipment. Includes a study of joints and fittings used on drainage systems. (2 contact hrs) South Campus.

ATPP-1120 - Plumbing - Heating - (2.00 Credit hours)
Prerequisite: ATPP-1100
(formerly ATP 112) Principles of steam and hydronic heating. The various types of steam systems in use. The proper sizing and trapping of steam units. An extensive study of hydronic heating including: one pipe, two pipe, high temperature and pressure systems. Considerations will be given to heat loss calculations and the design of hydronic systems. (2 contact hrs) South Campus.

ATPP-1130 - Plumbing - Code - (2.00 Credit hours)
Prerequisite: ATPP-1100
(formerly ATP 113) Plumbing rules and regulations governing installation of plumbing systems. Considerations are also given to the rules and regulations pertaining to joints, traps, cleanouts, water distribution, fixtures and drainage. (2 contact hrs) South Campus.

ATPP-1140 - Pipefitting - Power Piping Systems - (3.00 Credit hours)
Prerequisite: ATPP-1100 and ATWD-1110, or consent of apprenticeship coordinator or related work experience
(formerly ATP 114) Introduction to maintenance for power piping systems, steam, gas, water, and air. The study of generating power for industrial application and conversion of water to steam for power. Considerations are also given to safety, definitions, and application of piping terms; materials such as hangars, flanges, valves, and gaskets for the various systems are included. Specifications standards of threaded and welded systems, fabrication, including welding hot and cold bending of steel and tubing, are thoroughly examined. (3 contact hrs) South Campus.

ATPP-1150 - Pipe Fitting Fundamentals - (3.00 Credit hours)
Prerequisite: None
(formerly ATPP-2913) A study of piping, joints, fittings, valves, hangers, fluid flow in pipes, and pumps. An overview Steam Fitting, Hydronic Fitting, and Refrigeration Fitting. (3 contact hrs) South Campus.

ATRA - REFRIGERATION & AIR CONDITIONG

ATRA-1100 - Refrigeration - Fundamentals - (2.00 Credit hours)
Prerequisite: ATAM-1150 or ATAM-1350
(formerly ATR 110) Practical refrigerating principles for the maintenance and operating engineer. Topics covered are fundamentals and basic theory of refrigeration cycles, compression systems and components, refrigerants, controls, lubrication, accessories, and absorption systems. (2 contact hrs) South Campus.

ATRA-1150 - Refrigeration - Commercial & Industrial - (2.00 Credit hours)
Prerequisite: ATRA-1100
(formerly ATR 115) Applications of refrigeration equipment for commercial and industrial systems. Topics covered are operating, servicing, liquid and air cooling, commercial and low temperature equipment, defrosting, electric and mechanical drives, piping and multiple units. (2 contact hrs) South Campus.

ATSS - STATIONARY STEAM

ATSS-1150 - Steam - Heat Fundamentals - (2.00 Credit hours)
Prerequisite: ATAM-1150 or ATAM-1350
(formerly ATS 115) Basic physics concepts such as force, pressure, work, energy, matter, heat, temperature, transfer and effect of heat, expansion and contraction of solids and liquids, heat phenomena of gases, melting and freezing of substances, vaporization, and steam and other vapors. (2 contact hrs) South Campus.

ATSS-1160 - Steam - Steam Boilers (Low & High Pressure Operations) - (2.00 Credit hours)
Prerequisite: ATSS-1150 or ATAM-1150 or consent of apprenticeship coordinator or related work experience
(formerly ATS 116) Covers firetube, watertube, and package boilers, and their appurtenances. Includes boiler operation and safety in firing oil, gas, stokers and pulverized fuels. Explains requirements for good combustion and how to maintain them. Also includes maintenance and repair procedures on the boiler proper including tubes, fans, air preheater, superheater and economizers with stress on proper selection of materials and their location. Auxiliaries such as coal pulverizers and coal burners. (2 contact hrs) South Campus.

ATTR - APPLIED TECHNOLOGY RELATED

ATTR-1000 - Trade Related Preparation - (3.00 Credit hours)
Prerequisite: None
(formerly ATV 100) These questions: “What are skilled tradesmen, and what do they do?” are explored through an exposure to industrial processes. Spatial perception is enhanced by doing orthographic projection sketches. The shop uses of the scales and micrometer are covered. A study of some simple machines will enhance mechanical comprehension. There is also a review of math relative to shop application. The student receives diagnostic evaluation through testing in basic math, reading, and comprehension. (3 contact hrs) South Campus.

ATTR-1150 - Technical Report Writing - (2.00 Credit hours)
Prerequisite: None
(formerly ATV 115) Principles of effective industrial reports and letters; industrial reports; obtaining data; analysis of data; outlining and organizing of materials; letter writing techniques. (2 contact hrs) South Campus.

ATTR-1600 - Industrial Safety - Skilled Trades - (2.00 Credit hours)
Prerequisite: None
(formerly ATV 160) Encompasses safety/health rules, procedures, safety responsibilities, and hazard recognition associated with the following: lockouts, machine tools, machine guarding, hand tools, portable power tools, safe use of energy sources, powered trucks, material handling, hazardous materials, lifting, climbing, ladders, scaffolds, rigging, slings, ropes, cranes, hoists, and basic fire safety. Accident causation, impact, prevention, and basic human anatomy and physiology will be studied. (2 contact hrs) South Campus.

ATWD - WELDING

ATWD-1100 - Welding Metallurgy - (2.00 Credit hours)
Prerequisite: None
(formerly ATW 110) The student shall study the metallurgy of welding, the types of steel and their manufacture, the welding methods and processes, the temperature change in welding, the structure and the properties of metals, the effects of alloying elements, fluxes, slags, gases for welding, the simple welds in iron and steel. (2 contact hrs) South Campus.

ATWD-1110 - Fundamentals of Gas & Arc Welding - (2.00 Credit hours)
Prerequisite: None
(formerly ATW 111) The student shall know how to set up and operate gas welding and shielded metal arc welding equipment and safely function in a welding shop. The student shall weld various joints using gas welding and arc welding processes in the flat position. (2 contact hrs) South Campus.

ATWD-1130 - Shielded Metal Arc Welding 1 - SMAW - (2.00 Credit hours)
Prerequisite: ATWD-1110
(formerly ATW 113) The student shall know how to set up, select electrodes and operate arc welding equipment and safely function in a welding shop. The student shall pass an open-butt joint in the flat position tested in accordance with A.W.S. procedures. (2 contact hrs) South Campus.

ATWD-1140 - Gas Metal Arc Welding - MIG - (2.00 Credit hours)
Prerequisite: None
(formerly ATW 114) The student shall write procedures, fabricate sample welds using the GMAW process of the basic joints in the flat position. These welds are to be made in various thickness of steel and aluminum. The testing of these welds should be in accordance with A.W.S. procedures. (2 contact hrs) South Campus.

ATWD-1150 - Gas Tungsten Arc Welding - TIG - (3.00 Credit hours)
Prerequisite: ATWD-1110
(formerly ATW 115) The student shall know how to set up and safely operate the GTAW welding equipment, select the proper filler material and welding procedure, and weld shielding gas. The student shall pass bend test of groove joints in steel and aluminum using different filler metal, metal thickness, and shielding gases in the flat position. The weld tests are to be done in accordance with the A.W.S. procedures. (4 contact hrs) South Campus.

ATWD-1160 - Advanced Welding & Welder Certification - SMAW - (3.00 Credit hours)
Prerequisite: ATWD-1130
(formerly ATW 116A) The student shall write welding procedures, fabricate sample weldments in the vertical and overhead positions in the SMAW process. The testing of the welds shall be in accordance with A.W.S. procedures and welding codes. The student will receive welder certification upon completion of the welding tests within the requirements of the welding codes. May be taken twice for credit. (4 contact hrs) South Campus.

ATWD-1161 - Advanced Welding & Welder Certification - GMAW - (3.00 Credit hours)
Prerequisite: ATWD-1140
(formerly ATW 116B) The student shall write welding procedures, fabricate sample weldments in the vertical and overhead positions in the GMAW process. The testing of the welds shall be in accordance with A.W.S. procedures and welding codes. The student will receive welder certification upon completion of the welding tests within the requirements of the welding codes. May be taken twice for credit. (4 contact hrs) South Campus.

ATWD-1162 - Advanced Welding & Welder Certification - GTAW - (3.00 Credit hours)
Prerequisite: ATWD-1150
(formerly ATW 116C) The student shall write welding procedures, fabricate sample weldments in the vertical and overhead positions in the GTAW process. The testing of the welds shall be in accordance with A.W.S. procedures and welding codes. The student will receive welder certification upon completion of the welding tests within the requirements of the welding codes. May be taken twice for credit. (4 contact hrs) South Campus.

ATWD-1163 - Advanced Welding & Welder Certification - Pipewelding - (3.00 Credit hours)
Prerequisite: ATWD-1130 or ATWD-1140 or ATWD-1150
(formerly ATW 116D) The student shall write welding procedures, fabricate sample weldments in the vertical and overhead positions in the pipewelding process. The testing of the welds shall be in accordance with A.W.S. procedures and welding codes. The student will receive welder certification upon completion of the welding tests within the requirements of the welding codes. May be taken twice for credit. (4 contact hrs) South Campus.

ATWD-1164 - Advanced Welding & Welder Certification - Special Testing - (3.00 Credit hours)
Prerequisite: ATWD-1130 or ATWD-1140 or ATWD-1150
(formerly ATW 116E) The student shall write welding procedures, fabricate sample weldments in the vertical and overhead positions in the Special Testing process. The testing of the welds shall be in accordance with A.W.S. procedures and welding codes. The student will receive welder certification upon completion of the welding tests within the requirements of the welding codes. May be taken twice for credit. (4 contact hrs) South Campus.

ATWD-2390 - Welding Codes & Certification - (3.00 Credit hours)
Prerequisite: ATWD-1150
(formerly ATW 239) The student shall demonstrate his ability to use the welding codes to solve welding supervision problems. The student shall write a weld qualification procedure, qualify the procedure by the required tests, and pass the weld or qualification test necessary for certification in a process available selected by the students. (4 contact hrs) South Campus. Winter semester of odd years.

ATWD-2400 - Maintenance Welding - (3.00 Credit hours)
Prerequisite: ATWD-1150 or related work experience
(formerly ATW 240) The student shall know the welding procedure and demonstrate proficiency in: soldering, silver brazing, aluminum brazing, hard surfacing, spray metallizing arc cutting, cast iron welding, plasma arc welding, flame bending and straightening and plastic welding. The student shall complete three repair projects complete with written procedures. (4 contact hrs) South Campus. Winter semester of even years.

ATWD-2420 - Tool & Die Welding - (3.00 Credit hours)
Prerequisite: ATWD-1150 or related work experience
(formerly ATW 242) The student shall study tool and die steels, their heat treatment, tempering and chemical analysis with emphasis on filler metal selection and welding procedures used in repair and fabrication with tool and die steels. The student shall weld samples with tool and die electrodes using different welding processes. (4 contact hrs) South Campus. Fall semester of odd years.

AUTO - AUTOMOTIVE TECHNOLOGY

AUTO-1000 - Automotive Systems - (3.00 Credit hours)
Prerequisite: None
(formerly AUT 100) This course provides an introduction of today's automobile. The course offers student exposure to the various pieces of shop equipment and details of the automotive service business. A working knowledge of the basic automotive components and general maintenance necessary for vehicle operation will be emphasized. An introduction to Hybrid Electric Vehicles (HEV) will be included in this course. The inclusion of this material will lead to students with an understanding of Hybrid Electric Vehicle technology. (4 contact hrs) South Campus.

AUTO-1010 - Automotive Electrical Systems - (3.00 Credit hours)
Prerequisite: None
(formerly AUT 101) This course provides an introduction to the fundamentals of electricity. This course will focus on a working knowledge of the basic automotive electrical systems, components, and general diagnosis. Emphasis is placed on locating and interpreting specifications, electrical tests, and correct use of meters and test equipment. (4 contact hrs) South Campus.

AUTO-1030 - Automotive Electronics - (3.00 Credit hours)
Prerequisite: AUTO-1000 and AUTO-1010
(formerly AUT 103) This course will focus on the operation and application of vehicle's electronic controlled circuitry and locating the components on the vehicles. It introduces semi-conductors and microprocessors to facilitate the understanding of components used on automotive electronic systems. On-bench and on-car practical exercises provide additional substance to the course and reinforce classroom learning. (4 contact hrs) South Campus.

AUTO-1100 - Automotive Brake Systems - (3.00 Credit hours)
Prerequisite: AUTO-1000
(formerly AUT 110) A study of the principles and theory of both disc and drum brake designs. Emphasis placed on inspection, parts replacement, diagnosis, use of specifications, special tools and machining operations. (4 contact hrs) South Campus.

AUTO-1110 - Automotive Suspension Component Service - (2.00 Credit hours)
Prerequisite: AUTO-1000
(formerly AUT 111) A study of the principles and theory of suspension designs. Emphasis is placed on part identification, inspection and replacement, safety procedures and use of special tools. (3 contact hrs) South Campus.

AUTO-1120 - Automotive Suspension Alignment Procedures - (2.00 Credit hours)
Prerequisite: AUTO-1110
(formerly AUT 112) A study of the principles and theory of suspension angles. Emphasis will be placed on measuring, adjusting, use of specifications, and alignment equipment. (3 contact hrs) South Campus.

AUTO-1200 - Automotive Engines - (3.00 Credit hours)
Prerequisite: AUTO-1000
(formerly AUT 120) Provides the student with practical experience rebuilding engines (engines will be provided for class use). The students will use engines, parts, precision measuring tools, and other related tools to rebuild engines. (4 contact hrs) South Campus.

AUTO-1270 - Small Engine Service/Repair - (2.00 Credit hours)
Prerequisite: None
(formerly AUT 127) This course will focus on servicing and repairing of two and four cycle engines. The class will service and repair mechanical, ignition, electrical, fuel, cooling, and starting systems. Disassembly, inspection for wear, assembly, and proper serviceability techniques using appropriate materials and proper check procedures for service/repair are stressed. (3 contact hrs) South Campus.

AUTO-1320 - Automotive - Automatic Transmission Theory & Diagnosis - (2.00 Credit hours)
Prerequisite: None
(formerly AUT 132) A study of the theory of operation of the automatic transmission with a major emphasis on automatic transmission hydraulics. (3 contact hrs) South Campus.

AUTO-1330 - Automotive - Manual Transmission & Powertrain Systems - (3.00 Credit hours)
Prerequisite: AUTO-1000
(formerly AUT 133) Designed to give the student a thorough understanding of the principle of torque multiplication and speed reduction through the use of gearing. The power developed in the engine is traced through the power train components. The class will service and repair: clutches, transmissions, differentials, drive shafts, axles and transaxles. (4 contact hrs) South Campus.

AUTO-1400 - Automotive Starting & Charging Systems - (2.00 Credit hours)
Prerequisite: AUTO-1000 and AUTO-1010
(formerly AUT 140) A study of the theory and operation of cranking and charging systems including their individual components. Emphasis is placed on system operation, circuitry, testing and diagnosis. State of the industry test equipment will be used by the student. (3 contact hrs) South Campus.

AUTO-1420 - Automotive Air Conditioning Theory & Service - (3.00 Credit hours)
Prerequisite: AUTO-1000, AUTO-1010, and AUTO-1030
(formerly AUT 142) The theory of automotive vehicle air conditioning and its operation. The principles of climate control in the vehicle are studied as part of the air conditioning unit. Experience is gained in the servicing and adjusting of standard air conditioning equipment. (4 contact hrs) South Campus.

AUTO-1440 - Hybrid Electric Vehicle Fundamentals - (3.00 Credit hours)
Prerequisite: None
This course provides an introduction to Hybrid Electric Vehicles (HEV). Material covered includes hybrid batteries, regenerative braking, safety procedures, and hybrid maintenance and diagnostics. (4 contact hrs) South Campus.

AUTO-1500 - Automotive Ignition Systems - (3.00 Credit hours)
Prerequisite: AUTO-1000 and AUTO-1010
(formerly AUT 150) A study of the theory and operation of the ignition systems and their components in relationship to the combustion cycle. Emphasis on operation, circuitry, testing and diagnosis, to include distributorless ignition systems, and the interface of the computer to the ignition system. (4 contact hrs) South Campus.

AUTO-1510 - Automotive Emissions - (2.00 Credit hours)
Prerequisite: AUTO-1000
(formerly AUT 151) A study of the principles, terminology, and theory of emission systems. Emphasis is placed on emission systems, part replacement, diagnosing malfunctions. Use of testing equipment will be featured. (3 contact hrs) South Campus.

AUTO-1520 - Automotive Fuel Systems - (3.00 Credit hours)
Prerequisite: AUTO-1000, AUTO-1010, and AUTO-1030
(formerly AUT 152) A comprehensive study of the fuel system, principles of operation, adjustments, inspection and repair. Experiences involved will be with fuel injection, carburetors, and computer controlled carburetors. (4 contact hrs) South Campus.

AUTO-1550 - Diesel Engine Theory & Fuel Systems - (3.00 Credit hours)
Prerequisite: AUTO-1000 and AUTO-1010
(replaces but does not equate to AUTO-2914) This course focuses on the principles of diesel operation and fuel systems as they relate to modern passenger vehicles and light duty truck applications. Topics include diesel and gasoline fuel properties, electronic fuel injection, filtration, primary and secondary fuel distribution, and emissions and driveability. (4 contact hrs) South Campus.

AUTO-2190 - Automotive Brakes & Suspension Laboratory - (3.00 Credit hours)
Prerequisite: AUTO-1100, AUTO-1110, and AUTO-1120, or related work experience
(formerly AUT 219) Provides the student with actual brake and suspension service experience. Complete brakes and suspension diagnosing and repair procedures will be emphasized. (5 contact hrs) South Campus.

AUTO-2191 - Automotive Brakes & Suspension Laboratory - CAT - (5.00 Credit hours)
Prerequisite: AUTO-1100 and AUTO-1110 and AUTO-1120
(formerly AUTO-2911) This course provides laboratory experience in servicing brakes and suspensions and emphasizes brakes and suspension diagnostic and repair procedures. All lab activities will follow the NATEF (ASE) task list. (7.5 contact hrs) South Campus.

AUTO-2200 - Automotive Upper Engine Service - (3.00 Credit hours)
Prerequisite: AUTO-1200
(formerly AUT 220) Provides the student with actual upper engine service procedures with hands-on experience. Covers the use of valve grinders, head shop, magnetic particle inspection, and cleaning equipment. Surface grinder for head and manifold work will be utilized. (4 contact hrs) South Campus.

AUTO-2210 - Automotive Lower Engine Service - (3.00 Credit hours)
Prerequisite: AUTO-1200
(formerly AUT 221) Provides the student with actual lower engine procedures with hands-on experience. Covers the use of lower block cleaning equipment, engine boring, crankshaft polishing and camshaft bearing tools. The class will cover the fitting of rods, pistons, and cover the use of the surface grinder for lower block squaring. (4 contact hrs) South Campus.

AUTO-2290 - Automotive Engine Laboratory - (3.00 Credit hours)
Prerequisite: AUTO-1200, AUTO-2200, and AUTO-2210
(formerly AUT 229) Provides the student with actual engine diagnosis and reconditioning procedures. Major and minor engine service will be analyzed and estimates made for parts and labor repairs. (5 contact hrs) South Campus.

AUTO-2300 - Rear Wheel Drive Automatic Transmission Service - (2.00 Credit hours)
Prerequisite: AUTO-1320
(formerly AUT 230) The emphasis of the course is on RWD automatic transmission disassembly, measurement, inspection, overhaul, and assembly of various RWD automatic transmissions. R & R procedures and trans-dyno testing will also be covered. (3 contact hrs) South Campus.

AUTO-2310 - Front Wheel Drive Automatic Transmission Service - (2.00 Credit hours)
Prerequisite: AUTO-1320
(formerly AUT 231) The emphasis of this course is on FWD automatic transaxle disassembly, measurements, inspection, overhaul and assembly of various FWD automatic transaxles. R & R procedures and trans-dyno testing will also be covered. (3 contact hrs) South Campus.

AUTO-2390 - Automotive Driveline Laboratory - (3.00 Credit hours)
Prerequisite: AUTO-1320, AUTO-1330, AUTO-2300, and AUTO-2310; or related work experience
(formerly AUT 239) Provides laboratory experience in servicing of various manual and automatic transmissions, transaxle and rear axle components. Emphasis is placed on live job activities. (5 contact hrs) South Campus.

AUTO-2400 - Turbine Engines - (1.00 Credit hours)
Prerequisite: This course is part of the TACOM program. Only TACOM students will be allowed to enroll in this course.
A study of the theory and practical application of operation, overhaul practices, inspection, installation, testing, and troubleshooting techniques covering the subject areas of reciprocating and turbine engines, ignition, induction, supercharging, cooling, and exhaust systems. (1 contact hr) Online only.

AUTO-2410 - Advanced Automotive Electronics - (2.00 Credit hours)
Prerequisite: AUTO-1030 or related work experience
(formerly AUT 241) This course is designed to provide the student with the latest state-of-the-art technology as related to automotive electronics. This course will focus on such criteria as: test equipment for solid state circuitry, electronic cruise control, level ride, travel assist and driver information centers, keyless entry system, and sound systems including service. On-bench and on-car practical exercises are featured with the classroom activities. (2 contact hrs) South Campus.

AUTO-2440 - Hybrid Electric Vehicle Power Management - (3.00 Credit hours)
Prerequisite: AUTO-1440
This course is a study in the practical application of the Hybrid Electric Vehicle's power management system. Areas of study will include computer controls of the Internal Combustion Engine (ICE) and electric power plant. Service procedures and diagnostic procedures will be covered. (4 contact hrs) South Campus.

AUTO-2490 - Automotive Electrical & Air Conditioning Laboratory - (3.00 Credit hours)
Prerequisite: AUTO-1010, AUTO-1030, AUTO-1420, and AUTO-2410; or related work experience
(formerly AUT 249) Provides laboratory experience in servicing of automotive electrical and air conditioning systems. Emphasis is placed on live job activities. (5 contact hrs) South Campus.

AUTO-2491 - Automotive Electrical & Air Conditioning Laboratory - CAT - (5.00 Credit hours)
Prerequisite: AUTO-1010 and AUTO-1030 and AUTO-1420
(formerly AUTO-2912) This course provides laboratory experience in servicing automotive electrical and air conditioning systems and emphasizes electrical and air conditioning diagnostic and repair procedures. All lab activities will follow the NATEF (AES) task list. (7.5 contact hrs) South Campus.

AUTO-2500 - Automotive Driveability & Diagnosis - (3.00 Credit hours)
Prerequisite: AUTO-1500, AUTO-1510, and AUTO-1520; or related work experience
(formerly AUT 250) The course covers the proper procedures of tune-up and diagnosis of the automobile internal combustion engine. Emphasis is placed on isolating malfunctions to a particular system and following with the correct procedure to locate the exact problem. The student learns how to make an intelligent diagnosis according to the way in which the vehicle operates. Emphasis is placed on correct use of specifications, equipment, and interpreting test results. (4 contact hrs) South Campus.

AUTO-2590 - Automotive Driveability Lab - (3.00 Credit hours)
Prerequisite: AUTO-1500, AUTO-1510, AUTO-1520, and AUTO-2500; or related work experience
(formerly AUT 259) Provides the student with actual driveability diagnosis, emission and fuel system service experience. Complete diagnosis procedure will be stressed using the appropriate test equipment with an emphasis on troubleshooting and repair. (5 contact hrs) South Campus.

AUTO-2591 - Automotive Driveability Lab - CAT - (5.00 Credit hours)
Prerequisite: Admission into the Automotive Technology - Comprehensive Automotive Training (CAT) program, and AUTO-1500 and AUTO-1510 and AUTO-1520
(formerly AUTO-2918) This course covers actual driveability diagnosis, emissions, and fuel system service and stresses complete diagnostic procedures using the appropriate test equipment with an emphasis on troubleshooting and repair. All lab activities will follow the National Automotive Technicians Education Foundation Task List (NATEF). (7.5 contact hrs) South Campus.

AUTO-2810 - Dealership Experience 1 - (3.00 Credit hours)
Prerequisite: Arrangement with Corporate Coordinator
(formerly AUT 281) This course provides full-time, on-the-job experience. Fundamental principals and instructional theory derived from previous courses are applied to sponsoring dealership work setting, namely new car prepping, basic electrical and service operations. (40 contact hrs)

AUTO-2820 - Dealership Experience 2 - (3.00 Credit hours)
Prerequisite: Arrangement with Corporate Coordinator
(formerly AUT 282) This course provides hands-on experience. Fundamental principals and instructional theory derived from previous courses are applied to the sponsoring dealership work setting. Includes alignment, suspension, engine repair, ignition system service in dealership. (40 contact hrs)

AUTO-2830 - Dealership Experience 3 - (3.00 Credit hours)
Prerequisite: Arrangement with Corporate Coordinator
(formerly AUT 283) This course provides full-time, on-the-job experience. Fundamental principles and instructional theory derived from previous courses are applied to the sponsoring dealership service operations. Special Electronics GM set, transmissions, A/C in dealership. (40 contact hrs)

AUTO-2840 - Dealership Experience 4 - (3.00 Credit hours)
Prerequisite: Arrangement with Corporate Coordinator
(formerly AUT 284) This course provides full-time, on-the-job experience. Fundamental principals and instructional theory derived from previous courses are applied to the sponsoring dealership work operation (Fuel systems, automatic transmissions) in dealership. (40 contact hrs)

AUTO-2850 - Dealership Experience 5 - (3.00 Credit hours)
Prerequisite: Arrangement with Corporate Coordinator
(formerly AUT 285) This course provides full-time, on-the-job experience. Fundamental principals and instructional theory derived from previous courses are applied to the sponsoring dealership work setting, namely driveability and transmission servicing in dealership. (40 contact hrs)

AUTO-2860 - International Automotive Technology - (3.00 Credit hours)
Prerequisite: None
(formerly AUTO-2910) This course provides an opportunity to develop knowledge and understanding of automobiles sold worldwide. Topics include similarities and differences in government regulations, Environment Protection Agencies (EPAs) rulings, and service and diagnostic procedures that are used in global regions. (4 contact hrs) South Campus.

BCOM - BUSINESS COMMUNICATIONS

BCOM-2050 - Business Communications - (4.00 Credit hours)
Prerequisite: None
(formerly BCO 205) Develops entry level vocational skills in business letters and interoffice memoranda, resumes and employment interviews, telephone communications, primary and secondary business research methods, graphic presentations, and written and oral business reports. (4 contact hrs)

BCOM-2060 - Advanced Business Communications - (4.00 Credit hours)
Prerequisite: BCOM-2050
Emphasis on the development of business communication skills needed to support a rapidly changing environment. Information, communication, teamwork, presentations, reports and proposals, and listening skills are just part of what is required to today's business professionals. Important aspects needed to be an effective Knowledge Worker will be presented, investigated, and discussed. (4 contact hrs)

BCOM-2070 - Technical Business Communications & Project Management Principles - (3.00 Credit hours)
Prerequisite: BCOM-2050
The course will focus on the role of the business professional and the specific components required to successfully manage projects and systems. The course emphasizes managing information technology and communicating ideas to others through project management. Various projects will include an overview of current and emerging technologies impacting project management. (3 contact hrs)

BCOM-2080 - Business Communications for Public Service - (2.00 Credit hours)
Prerequisite: None
This course develops entry-level skills in business letters and interoffice memoranda, technical writing, and resumes and employment interviews, specifically designed for Public Service personnel. (2 contact hrs)

BIOL - BIOLOGY

BIOL-1000 - General Biology 1 - (4.00 Credit hours)
Prerequisite: None
(formerly BIO 100) An introductory lecture and laboratory course in basic biological principles aimed at an understanding of the life processes common to all living things. The major areas of emphasis include the chemical and cellular basis of life, reproduction, growth, development, heredity, evolution, and ecology. (7 contact hrs)

BIOL-1010 - General Biology 2 - (4.00 Credit hours)
Prerequisite: BIOL-1000
(formerly BIO 101) A lecture and laboratory course in principles of biological diversity: taxonomy and systematics, comparative physiology, evolution, and ecology of plants and animals. (7 contact hrs)

BIOL-1400 - Fundamentals of Nutrition - (3.00 Credit hours)
Prerequisite: None
(formerly BIO 140) A study of the nature and role of human nutrition with emphasis on changing needs in life's cycle. The relationship between nutrition and health throughout life is explored. No lab. (3 contact hrs)

BIOL-2110 - Local Michigan Plants - (3.00 Credit hours)
Prerequisite: None
(formerly BIO 211) A lecture and field course designed to acquaint the student with the common plants in the area, their identification, structural characteristics, biogeography, and economic importance. The technique of collecting and preserving plants will also be emphasized. (3 contact hrs)

BIOL-2310 - Human Anatomy & Physiology - (6.00 Credit hours)
Prerequisite: BIOL-1000 with grade C or better
(formerly BIO 231) Students will NOT receive credit for both BIOL-2710 and BIOL-2310. An integrated lecture/laboratory course in human anatomy and physiology stressing the importance of homeostatic mechanisms in organ system functions. The laboratory includes physiological experiments and use of cadavers in anatomical studies. (8 contact hrs) South Campus.

BIOL-2400 - General Microbiology - (4.00 Credit hours)
Prerequisite: BIOL-1000
(formerly BIO 240) An introduction to the study of bacteria and other microorganisms emphasizing the interrelationships of their anatomy, physiology, and biochemistry to their roles in the living environment. Designed to meet the requirements of the science major and preprofessional student. (6 contact hrs)

BIOL-2710 - Human Physiological Anatomy - (6.00 Credit hours)
Prerequisite: None
(formerly BIO 271) Students will NOT receive credit for both BIOL-2710 and BIOL-2310. This course is designed for students in Health and Human Services programs. It is an intensive lecture/laboratory course emphasizing the basic concepts and principles of human anatomy and physiology. BIOL-1000 is strongly recommended as a prerequisite to BIOL-2710 for those planning to transfer to a four-year health science program. (7 contact hrs) Center Campus.

BIOL-2730 - Pathogenic Microbiology - (4.00 Credit hours)
Prerequisite: None
(formerly BIO 273) This lecture/laboratory course is designed for students in Health and Human Services programs. An introduction to the study of medically significant microorganisms from groups such as the viruses, bacteria, and fungi, emphasizing their relationships to mankind, especially pertaining to disease production. (6 contact hrs) Center Campus.

BTEC - BIOTECHNOLOGY

BTEC-2540 - Biotechnology - (4.00 Credit hours)
Prerequisite: BIOL-1000 with grade C or better
(formerly BTC 254) This lecture and laboratory course studies the use of DNA, RNA and proteins to improve the quality of life. Designed for students interested in pursuing careers such as biotechnology, biochemistry, medicine, and pharmacy. (4 contact hrs)

BUSN - BUSINESS

BUSN-1010 - Business Enterprise - (3.00 Credit hours)
Prerequisite: None
(formerly BUS 101) A fundamentals course designed to provide a comprehensive overview of American business enterprise, an exposure to business operations (business ownership, management, finance, marketing, accounting, information management), a basis upon which to establish a realistic business-related career objective, and a stepping stone to advanced business courses. (3 contact hrs)

BUSN-1080 - Business Law 1 - (4.00 Credit hours)
Prerequisite: None
(formerly BUS 108) A fundamentals course designed to provide a comprehensive overview of the legal and social environment of business, contracts, sales, and lease of goods. (4 contact hrs)

BUSN-1090 - Business Law 2 - (4.00 Credit hours)
Prerequisite: BUSN-1080
(formerly BUS 109) A fundamentals course designed to provide a comprehensive overview of liability of the parties under negotiable instruments, debtor-creditor relationships, agency and employment, equal employment opportunity law, business organizations and real property and estates. (4 contact hrs)

BUSN-1210 - Entrepreneurship Fundamentals - (3.00 Credit hours)
Prerequisite: None
This course focuses on the fundamentals of creating a new business venture from an entrepreneurial point-of-view. Emphasis will be placed on the entrepreneurial perspectives, the creation, financing, and growth of a new business opportunity. This is achieved through the completion of case studies, web exercises, current application assignments, and computer simulation exercises. (3 contact hrs)

BUSN-2000 - Global Entrepreneurship - (3.00 Credit hours)
Prerequisite: None
This course focuses on how small companies recognize and seek out business opportunities worldwide, and explores the knowledge necessary to create a global start-up, acquire sustained competitive advantage, and make global venturing decisions based on threats faced by entrepreneurs in today's global economy. (3 contact hours)

BUSN-2010 - Personal Money Management - (3.00 Credit hours)
Prerequisite: None
(formerly BUS 201) (former title: Personal Finance) Principles and practices of personal financial planning. Current and future financial issues are explored. Topics such as financial services, stocks, bonds, mutual funds, budgeting, insurance, real estate, estate planning, and taxes are addressed. (3 contact hrs)

BUSN-2020 - Personal Investment Fundamentals - (3.00 Credit hours)
Prerequisite: None
(replaces but does not equate to BUSN-2050) An introductory course designed for students who are interested in learning about personal investments in financial assets. Topics addressed include techniques for participating in security markets, analysis and valuation of equity securities, fixed-income securities, mutual funds, the international securities markets, retirement planning (401Ks, IRAs, pension plans, and annuities), and portfolio management. (3 contact hrs)

BUSN-2030 - Global Purchasing & Supply Chain Management - (3.00 Credit hours)
Prerequisite: None
This course is designed to introduce the student to the basic concepts of global purchasing. Key elements in this course include managing international logistics and customs operations; indirect transactions; supplier source development issues; cultural, pre-procurement and quality considerations; counter-trade; methods of payment; and evaluating quotations. (3 contact hours)

BUSN-2060 - Corporate Responsibility - (3.00 Credit hours)
Prerequisite: None
A fundamental course designed to provide a comprehensive overview of the roles and responsibilities of American business in society. The topics covered include corporate social responsibility, legal and regulatory compliance, corporate governance, business ethics, and stakeholder relationships. (3 contact hrs)

BUSN-2100 - International Business - (3.00 Credit hours)
Prerequisite: None
(formerly BUS 210) An overview of international business designed to provide a global perspective on international trade. Focuses on the current international business environment, growth strategies, management issues, marketing strategies, economic and monetary issues, and regional economic integration. (3 contact hrs)

CHEM - CHEMISTRY

CHEM-1050 - Introduction to General Chemistry - (4.00 Credit hours)
Prerequisite: MATH-0070 proficiency (demonstrated by math placement score, completing MATH-0070 with grade C or better, being enrolled in a higher level math, or having higher level math on college transcript)
(formerly CHM 105) This course is intended for those students who have never had or need a review of high school chemistry, and for some degree programs (Health and Human Services and other career preparation programs) requiring a course in chemistry basics. Topics introduced include: math and measurement, atomic structure, chemical bonding, naming and formulas, treatment of chemical reactions, stoichiometry, gas laws, solutions, and acid-base chemistry. The laboratory component complements lecture material while introducing students to a variety of experimental techniques. (7 contact hrs)

CHEM-1060 - Introduction to Organic Chemistry & Biochemistry - (4.00 Credit hours)
Prerequisite: CHEM-1050 with grade C or better, or equivalent
(formerly CHM 106) This course introduces basics of organic and biochemistry and meets the degree requirements for many health science fields. Organic chemistry topics include nomenclature, structure, and reactivity of hydrocarbons and functional groups. Biochemistry topics include structure, reactivity, and metabolism of carbohydrates, lipids, proteins, and nucleic acid. The laboratory component complements and reinforces the topics covered in lecture. This course is strongly recommended as preparation for CHEM-2260. (7 contact hrs)

CHEM-1170 - General Chemistry 1 - (4.00 Credit hours)
Prerequisite: CHEM-1050 with grade C or better and MATH-1000 proficiency (demonstrated by math placement score, completing MATH-1000 with grade C or better, being enrolled in higher level math, or having higher level math on transcript); or a passing score on the American Chemical Society Placement Test
(formerly CHM 117) This course, intended for those seeking a degree in science or a pre-professional program (e.g. engineering, pre-medical, etc.), examines the areas of atomic and molecular structure, chemical periodicity, chemical bonding, reactions and stoichiometry, thermodynamics, solutions, and gas laws. The laboratory component enhances the lecture topics and begins to develop the student's repertoire of laboratory skills. (7 contact hrs)

CHEM-1180 - General Chemistry 2 - (4.00 Credit hours)
Prerequisite: CHEM-1170 with grade C or better
(formerly CHM 118) A continuation of CHEM-1170 with emphasis on kinetics, chemical equilibrium of gaseous and aqueous environments, acid-base interactions, electrochemistry, nuclear chemistry, and coordination compounds. The laboratory component develops more independent skills as students plan and implement a series of qualitative semimicro analyses of ions in addition to demonstrating lecture concepts. (8 contact hrs)

CHEM-2260 - Organic Chemistry 1 - (4.00 Credit hours)
Prerequisite: CHEM-1180 with grade C or better
(formerly CHM 226) This course is intended for science majors or those in pre-professional programs (e.g., pre-medical, pre-pharmacy, etc.). The structure, nomenclature, preparation, and reactivity of aliphatic and aromatic compounds are studied, including reaction mechanisms, stereochemistry, conformational analysis, and bonding theories. Carbocation chemistry is also studied. Functional groups and the principles of organic synthesis are introduced. (4 contact hrs)

CHEM-2270 - Organic Chemistry Laboratory - (2.00 Credit hours)
Prerequisite: CHEM-2260 with grade C or better
(formerly CHM 227) This laboratory class introduces students to important organic chemistry techniques used for the purification and characterization of organic compounds (e.g., crystallization, melting point, distillation, chromatography, etc.). Molecular spectroscopy (NMR, IR, etc.) is incorporated with an emphasis on structure determination. A variety of organic syntheses are carried out to give students a hands-on experience with the range of reactions discussed in lecture. (7 contact hrs)

CHEM-2280 - Organic Chemistry 2 - (4.00 Credit hours)
Prerequisite: CHEM-2260 with grade C or better
(formerly CHM 228) This course is a continuation of CHEM-2260. Electrophilic and nucleophilic aromatic reactions are explored. The chemistry of the functional groups (alcohols, aldehydes, ketones, acids, acid derivatives, ethers, amines, thiols, etc.) is studied with a continuing emphasis on mechanisms. Organic synthesis is also a major theme of this course, including the role of carbanions. (4 contact hrs)

CIVL - CIVIL TECHNOLOGY

CIVL-1000 - Materials - (3.00 Credit hours)
Prerequisite: None
(formerly CIV 100) Introductory study of the nature, origin, properties, and use of construction materials. Elementary chemical nature of materials and their interactions. Field and laboratory test studies for identification, classification, and control. (3 contact hrs) South Campus.

CIVL-1010 - Civil Technology Seminar - (1.00 Credit hours)
Prerequisite: None
(formerly CIV 101) Designed to acquaint the student with the programs of study, nature of work performed by technicians, and opportunities available to them. (1 contact hr) South Campus.

CIVL-1050 - Construction Safety Policy & Procedures - (3.00 Credit hours)
Prerequisite: None
Introductory study of construction safety and the ethics of safety. Students will learn about the governing bodies, safety standards, and the responsibilities of the employees and the employers. (3 contact hrs) South Campus.

CIVL-2200 - Soils & Foundations - (3.00 Credit hours)
Prerequisite: None
(formerly CIV 220) Elementary study of exploring, sampling, testing, and evaluating subsurface materials, and their effect on types of foundations and construction. (4 contact hrs) South Campus.

CIVL-2210 - Drainage & Geology - (3.00 Credit hours)
Prerequisite: None
(formerly CIV 221) This course introduces the student to the study of basic fluid mechanics which includes the geology of streams, watersheds, flood plains, backwaters and drainage and their influence on design of drainage systems. (4 contact hrs) South Campus.

CIVL-2220 - Materials Testing - (3.00 Credit hours)
Prerequisite: CIVL-1000
This course will emphasize field and laboratory test studies for identification, classification, and control of materials. Structure, composition, and engineering properties of aggregates, cement, steel, concrete, and asphalt. The student will create mix designs, practice quality control, create reports, and perform nondestructive testing. (4 contact hrs)

CLCT - CLIMATE CONTROL TECHNOLOGY

CLCT-1200 - Fundamentals of Air Conditioning & Refrigeration - (3.00 Credit hours)
Prerequisite: None
(formerly CCT 120) Theory, application and principles of air conditioning and refrigeration; study of basic cycle, systems, system components, accessories and refrigerants.
(4 contact hrs) South Campus.

CLCT-1300 - Refrigeration 1 - (3.00 Credit hours)
Prerequisite: CLCT-1200 and CLCT-1700, or related work experience
(formerly CCT 130) Application, installation and servicing of domestic refrigeration systems, including operation and trouble analysis of hermetic units, compressors and electrical components. (4 contact hrs) South Campus.

CLCT-1400 - Air Conditioning 1 - (3.00 Credit hours)
Prerequisite: CLCT-1200 and CLCT-1700, or related work experience
(formerly CCT 140) Residential air conditioning systems: application, selection, installation, piping and service, including basic psychrometrics. (4 contact hrs) South Campus.

CLCT-1500 - Heating 1 - (3.00 Credit hours)
Prerequisite: CLCT-1700 or related work experience
(formerly CCT 150) Fundamentals of warm air heating: including the function control, service and testing of major components for gas, oil and electric residential and light commercial systems. (4 contact hrs) South Campus.

CLCT-1600 - Duct Layout & Fabrication - (3.00 Credit hours)
Prerequisite: None
(formerly CCT 160) Sheet metal layout fundamentals and fabrication techniques as applied to cooling, heating and ventilation duct work. (4 contact hrs) South Campus.

CLCT-1650 - Systems Design of Heating & Air Conditioning - (3.00 Credit hours)
Prerequisite: None
(formerly CCT 165) Covers architectural house plan, through the heat load computation, heating and cooling equipment selection, energy code requirements, and duct sizing for a complete residential forced-air system. (4 contact hrs) South Campus.

CLCT-1700 - Fundamentals of Controls - (3.00 Credit hours)
Prerequisite: None
(formerly CCT 170) Elementary control systems for air conditioning, heating and refrigeration. Theory and construction of schematic and pictorial wiring diagrams. Study of electrical system components. (4 contact hrs) South Campus.

CLCT-1750 - Intermediate Controls - (3.00 Credit hours)
Prerequisite: CLCT-1700 or related work experience
(formerly CCT 175) Intermediate control systems for air conditioning, heating and refrigeration. Theory and construction of schematic and pictorial wiring diagrams related to the systems. (4 contact hrs) South Campus.

CLCT-2300 - Refrigeration 2 - (3.00 Credit hours)
Prerequisite: CLCT-1300, CLCT-1650, and CLCT-1750; or related work experience
(formerly CCT 230) Commercial systems: application, calculation of heat loads, installation, piping and service. Includes operating and testing of low and medium temperature and multiple systems. (4 contact hrs) South Campus.

CLCT-2350 - Mechanical Codes - (3.00 Credit hours)
Prerequisite: CLCT-1200 and CLCT-1500 or industry field experience
(formerly CCT 235) Local and national codes governing the safe design, construction, installation, altering, servicing, testing and licensing as applied to mechanical heating, ventilating, air conditioning and refrigeration. (3 contact hrs) South Campus.

CLCT-2400 - Air Conditioning 2 - (3.00 Credit hours)
Prerequisite: CLCT-1400, CLCT-1650, and CLCT-1750; or related work experience
(formerly CCT 240) Commercial systems: application, installation, piping and service. Includes heat pumps, absorption and centrifugal equipment, testing and balancing of systems. (4 contact hrs) South Campus.

CLCT-2500 - Heating 2 - (3.00 Credit hours)
Prerequisite: CLCT-1500, CLCT-1650, and CLCT-1750; or related work experience
(formerly CCT 250) Trouble analysis and service of residential and commercial warm air heating systems: including humidifiers, electronic air cleaners, installation of oil tanks, piping for oil and gas units, and combustion testing. (4 contact hrs) South Campus.

CLCT-2550 - Steam & Hot Water Heating Systems - (3.00 Credit hours)
Prerequisite: CLCT-1500, CLCT-1650, and CLCT-1750; or related work experience
(formerly CCT 255) Application of hot water and steam units for residential and light commercial systems: boilers, piping, circulators, heat transfer elements and controls. Installation and service of both mechanical and electrical components. (4 contact hrs) South Campus.

CLCT-2700 - Advanced Controls - (3.00 Credit hours)
Prerequisite: CLCT-1300, CLCT-1400, CLCT-1750, and CLCT-2550; or related work experience
(formerly CCT 270) Advanced control systems for regulating the air conditioning, heating and ventilation in commercial and industrial buildings. Pneumatic and electronic controls are used; emphasis on service and maintenance. (4 contact hrs) South Campus.

CLTA – CLINICAL LABORATORY TECHNOLOGY

CLTA-1000 - Fundamentals of Clinical Laboratory Technology - (3.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-1000, ENGL-1180 or ENGL-1210, and PSYC-1010 with grade C or better; and MATH-0070 with grade C or better or COMPASS algebra score of 27 or higher.
This course acquaints the student with the various activities performed in the clinical laboratory. Operation and general maintenance of common laboratory instruments, introduction to quality control, and medical ethics will be covered. Laboratory experiences include exercises such as blood smear preparation, cell counting, simple chemistry procedures, blood typing, microbiology plate examination, and phlebotomy. (4 contact hrs) Center Campus. Fall semester only.

CLTA-1100 - Clinical Hematology - (5.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-2710, CHEM-1050, CLTA-1000, and PHIL-2100 with grade C or better
Corequisite: CLTA-1200
This course is the study of blood cell maturation, morphology, and function. Diseases of erythrocytes and the mathematics related to hematology are included. Other topics include aspects of abnormal hematology such as infectious mononucleosis, leukemias, lymphomas, sarcomas, and myeloma. Laboratory exercises will concentrate on normal and abnormal differentials. Students will complete differential cell counts, specimen processing, slide staining, and cell enumeration procedures. (7 contact hrs) Center Campus. Winter semester only.

CLTA-1200 - Clinical Immunology - (3.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-2710, CHEM-1050, CLTA-1000, and PHIL-2100 with grade C or better
Corequisite: CLTA-1100
This course includes the theory and clinical aspects of the immune response. Diseases diagnosed by serologic procedures are considered in detail. Laboratory exercises teach routine diagnostic tests used in the immunology department, including latex and cell agglutination tests, RPR, and an ELISA method. Fluorescent antibody methods will be covered. (5 contact hrs) Center Campus. Winter semester only.

CLTA-1300 - Urinalysis & Body Fluids - (2.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-2730, CHEM-1060, CLTA-1100, and CLTA-1200 with grade C or better
Corequisite: CLTA-1400, CLTA-1500
This course includes the physiology and clinical aspects of routine body fluid analysis including urine, gastric, seminal, synovial, and cerebral spinal fluids and their relationship to various diseases and pathology. Laboratory exercises will teach the techniques of macroscopic and microscopic urinalysis and manual cell counting. The morphology of normal and abnormal cells will be considered. (3 contact hrs) Center Campus. Spring/Summer semester only.

CLTA-1400 - Clinical Hemostasis - (2.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-2730, CHEM-1060, CLTA-1100, and CLTA-1200 with grade C or better
Corequisite: CLTA-1300, CLTA-1500
This course studies coagulation mechanisms that are related to hemostatic abnormalities and coagulation tests performed in the clinical laboratory. Included are blood vasculature structure and physiology, the megakaryocytic series, platelet function in hemostasis, quantitative and qualitative platelet disorders, blood coagulation factors, and bleeding disorders related to blood clotting factors. (3 contact hrs) Center Campus. Spring/Summer semester only.

CLTA-1500 - Immunohematology - (3.00 Credit hours)
Prerequisite: Admission into Clinical Laboratory Technology program; and BIOL-2730, CHEM-1060, CLTA-1100, and CLTA-1200 with grade C or better
Corequisite: CLTA-1300, CLTA-1400
This course includes the theory and clinical aspects of normal and abnormal immunohematology. Laboratory exercises teach the techniques used in blood banking including blood typing, antibody screening and identification, and quality control. (5 contact hrs) Center Campus. Spring/Summer semester only.

CLTA-2200 - Clinical Chemistry - (5.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technology Program; and CLTA-1300, CLTA-1400, and CLTA-1500 with grade C or better
Corequisite: CLTA-2300
This course studies chemistry techniques as they apply to the clinical laboratory. Included are the chemical components of body fluids and the application of methods used to measure various blood substances. Test results are related to various diseases. Laboratory exercises teaching the techniques used in the clinical chemistry laboratory include the principles and instrumentation used to measure blood gases, electrolytes, enzymes, glucose, lipids, protein, and non-protein-nitrogen substances. Electrophoresis will be considered. Laboratory mathematics will be emphasized. (7 contact hrs) Center Campus. Fall semester only.

CLTA-2300 - Clinical Microbiology - (4.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technology program; and CLTA-1300, CLTA-1400, and CLTA-1500 with grade C or better
Corequisite: CLTA-2200

This course covers the bacterial, fungal, and common parasitic diseases found in humans. Pathogenic microorganisms are studied with emphasis on morphology, taxonomy, nutritional requirements, biochemical activity, and chemotherapy inhibition patterns. Laboratory exercises teaching the techniques used to identify microorganisms include both manual methods and consideration of automated techniques. Staining methods will be reviewed and applied to various case situations. Common methods used to determine antimicrobial sensitivity will be included. (7 contact hrs) Center Campus. Fall semester only.

CLTA-2400 - Clinical Seminar - (1.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technician program; and BTEC-2540, CLTA-2200, and CLTA-2300, with grade C or better
Corequisite: CLTA-2501, CLTA-2502, CLTA-2503, CLTA-2504
As a capstone review of clinical laboratory science in preparation for practical work in the clinical setting, this course provides a review of clinical theory using directed review questions and case studies of instrument and diagnostic problems from all clinical areas encountered by the laboratory technician. (1 contact hr) Center Campus. Winter semester only.

CLTA-2501 - Clinical Practicum - Hematology - (3.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technician program, and BTEC-2540, CLTA-2200, and CLTA-2300, with grade C or better
Corequisite: CLTA-2400
Practical experience in affiliated clinical laboratories will introduce students to a professional working environment. Students apply techniques learned in previous CLTA courses to expand their experience and knowledge while rotating in various clinical departments. This rotation provides supervised practice performing diagnostic tests in hematology, hemostasis, and urinalysis. Clinical microscopy and phlebotomy techniques will be included, with skill development continuing throughout the semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hours per week for 4 weeks) Center Campus. Winter semester only.

CLTA-2502 - Clinical Practicum - Chemistry - (3.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technician program, and BTEC-2540, CLTA-2200, and CLTA-2300, with grade C or better; and CLTA -2501 with grade Pass
Corequisite: CLTA-2400
Practical experience in affiliated clinical laboratories will introduce students to a professional working environment. Students apply techniques learned in previous CLTA courses to expand their experience and knowledge while rotating in various clinical departments. This rotation provides supervised practice performing diagnostic tests on various body fluids using chemical methods. Phlebotomy techniques will be included, with skill development continuing throughout the semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hours per week for 4 weeks) Center Campus. Winter semester only.

CLTA-2503 - Clinical Practicum - Immunohematology - (3.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technician program; and BTEC-2540, CLTA-2200, and CLTA-2300, with grade C or better; and CLTA-2502 with grade Pass
Corequisite: CLTA-2400
Practical experience in affiliated clinical laboratories will introduce students to a professional working environment. Students apply techniques learned in previous CLTA courses to expand their experience and knowledge while rotating in various clinical departments. This rotation provides supervised practice performing diagnostic tests on various body fluids using chemical methods. Phlebotomy techniques will be included, with skill development continuing throughout the semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hours per week for 4 weeks) Center Campus. Winter semester only.

CLTA-2504 - Clinical Practicum - Microbiology - (3.00 Credit hours)
Prerequisite: Admission into the Clinical Laboratory Technician program; and BTEC-2540, CLTA-2200, and CLTA-2300, with grade C or better; and CLTA-2503 with grade Pass
Corequisite: CLTA-2400
Practical experience in affiliated clinical laboratories will introduce students to a professional working environment. Students apply techniques learned in previous CLTA courses to expand their experience and knowledge while rotating in various clinical departments. This rotation provides supervised practice performing microbiologic examinations of clinical specimens. Phlebotomy techniques will also be included, with skill development continuing throughout the semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hours per week for 4 weeks) Center Campus. Winter semester only.

CORE - MECHANICAL TECHNOLOGY

CORE-1000 - Industrial Technology Fundamentals - (2.00 Credit hours)

Prerequisite: None

(formerly COR 100) An introductory course for students with little classroom or work related technical experience. The course will include an overview of both the technology and related terminology used in today's manufacturing and service industries. This class will provide a basis for continued studies in technological programs as well as providing a basis of understanding for students pursuing nontechnical degrees. (2 contact hrs) South Campus.

CORE-1060 - Industrial Computer Technology - (4.00 Credit hours)

Prerequisite: None

(formerly COR 106) This course is designed to provide students enrolled in technical programs an understanding of how the computer can be used as a tool to address a variety of situations utilizing multiple input sources common to industry. Word processing, spreadsheets with graphing capabilities, and illustration and drawing applications will be used by each student to develop a technical presentation. (4 contact hrs) South Campus.

CSSK - COLLEGE SURVIVAL SKILLS

CSSK-1100 - College Survival Skills - (3.00 Credit hours)

Prerequisite: None

(formerly CSS 110) This course covers essential college skills such as note taking, test taking, studying textbooks, and thinking and reasoning. In addition, effective use of the library and other informational resources such as CD ROM databases and the Internet will be taught. (3 contact hrs)

CULH - CULINARY ARTS

CULH-1050 - Culinary Techniques - (4.00 Credit hours)

Prerequisite: None

Corequisite: CULH-1150

(formerly CUL 105) A course designed to introduce students to the kitchen or "back of the house" operations. Students will gain competence in culinary terms, equipment and utensil use, mise' en place, sauces, stocks, soups, thickening agents, vegetables, potato/starch products, and pasta products. Students will cook under the guidance of a chef-instructor and are required to work an assigned departmental dinner. (6 contact hrs) Center Campus.

CULH-1150 - Sanitation - (1.00 Credit hours)

Prerequisite: None

(formerly CUL 115) Designed for supervisory personnel of food service establishments in Michigan. Course content includes: basic microbiology; safe food handling techniques; good hygienic practices; pest control; employee training; and the Michigan State law governing food service establishments. Upon successful completion, this course earns Educational Foundation Certification credits for the National Restaurant Association Diploma program, and also satisfies a requirement for certification for the American Culinary Federation. (1.5 contact hrs) Center Campus. Fall and Winter semesters only.

CULH-1200 - Cost Control - (3.00 Credit hours)

Prerequisite: None

(formerly CUL 120) A course designed to relate principles of calculation to the food service industry. Recipe computations, food cost estimates, cash procedures, and payroll practices are studied. (3 contact hrs) Center Campus.

CULH-1250 - Table Service - (2.00 Credit hours)
Prerequisite: None
A course designed to introduce students to the dining room or front-of-the-house operations. Students will gain competence in dining room operation and table service techniques. The students will perform duties in the dining room of our student-run restaurant. (3 contact hrs) Center Campus.

CULH-1310 - Culinary Skills Development - (4.00 Credit hours)
Prerequisite: CULH-1050 and CULH-1150
(formerly CUL 131) A course designed to give students a basic understanding of "back of the house" operations. The processing of meats, poultry, and seafood are taught as well as pantry, breakfast preparation, and hot and cold hors d'oeuvres. Students will cook under the guidance of a chef-instructor and are required to work an assigned departmental dinner. (6 contact hrs) Center Campus.

CULH-1320 - International Kitchen - (5.00 Credit hours)
Prerequisite: CULH-1050 and CULH-1150 and CULH-1310
The study and preparation of international foods using standardized recipes in a commercial kitchen. Successful completion of this course, combined with successful completion of CULH-1340 (Production Baking) earns Educational Credit for the National Restaurant Association Diploma Program. In order for this class to satisfy the NRA Diploma requirement, the student must either have completed or be currently enrolled in Production Baking (CULH-1340). Students will cook under the direction of a chef-instructor and are required to work an assigned departmental dinner. (8 contact hrs) Center Campus.

CULH-1340 - Production Baking - (4.00 Credit hours)
Prerequisite: None
(formerly CUL 134) This course is designed to give the students an understanding of baking, how breads and baked goods are produced, and teach the methods and skills used in this trade. Students will learn to effectively produce a variety of breads, cakes, pies, and cookies. (6 contact hrs) Center Campus.

CULH-1400 - Supervision - (3.00 Credit hours)
Prerequisite: None
(formerly CUL 140) A study of the conditions that will confront the professional food supervisor or manager. Supervisory procedures, management techniques, employee evaluation, training, and communication are some of the areas to be covered. This course earns Educational Foundation Certification credits for the National Restaurant Association through the American Culinary Federation. (3 contact hrs) Center Campus.

CULH-1420 - Purchasing - (3.00 Credit hours)
Prerequisite: None
A course designed to acquaint the students with all aspects of food purchasing for a quantity food operation. Upon successful completion, this course earns Educational Certification credits for the National Restaurant Association Diploma program. (3 contact hrs) Center Campus.

CULH-1430 - Menu Planning - (3.00 Credit hours)
Prerequisite: None
(formerly CUL 143) A course designed to reflect the importance of a menu in various food operations. The menu is considered to be the controlling factor in both commercial and noncommercial operations. Using a menu as a management tool in every area of operation from planning the facility, purchasing food items, promoting items to customers, and providing excellent service can help ensure success. The student will plan and write a variety of menus. (3 contact hrs) Center Campus.

CULH-1440 - Beverage Service - (2.00 Credit hours)
Prerequisite: None
(formerly CULH-2911) A study of conditions that will confront the professional supervisor or manager in an establishment that serves beverages. This introductory class touches on wine, beer, spirits, and non-alcoholic beverages. Purchasing, controls equipment needs, and regulations are covered. An additional lab fee is required for TIPS (Training for Intervention ProcedureS). (3 contact hrs)

CULH-2010 - A la Carte Dining - (5.00 Credit hours)
Prerequisite: CULH-1150 and CULH-1250 and CULH-1310
(formerly CULH-2000) Students will operate our signature restaurant using equipment of the type commonly found in today's business world to serve paying customers from a typical menu. Duties are rotated and each student has several opportunities to achieve proficiency in every aspect of the operation. (8 contact hrs) Center Campus.

CULH-2030 - Mechanical Equipment & Restaurant Design - (3.00 Credit hours)
Prerequisite: CULH-1050 and CULH-1310
(formerly CUL 203) Students will become familiar with the machinery of a food service facility. Consideration will be given to its proper selection, installation, preventive maintenance and to the proper handling of repairs when necessary. Simple troubleshooting and on-the-spot repairs will be taught. (3 contact hrs) Center Campus.

CULH-2040 - Garde Manger - (3.00 Credit hours)
Prerequisite: CULH-1050 and CULH-1150 and CULH-1310
(formerly CUL 204) The artistic and decorative side of food preparation. Students will be introduced to pates, hors d'oeuvres, canapes, aspics, marinations, brines, smoking, food sculpturing, and various decorative buffet presentations. (5 contact hrs) Center Campus.

CULH-2050 - Catering - (3.00 Credit hours)
Prerequisite: None
(formerly CUL 205) This course is designed to give students an overview of catering by highlighting and emphasizing the management and organizational responsibilities of a catered event. (3 contact hrs) Center Campus.

CULH-2080 - Wedding Cakes - (4.00 Credit hours)
Prerequisite: CULH-1340
(formerly CULH-2915) This course is designed to give the student an overall appreciation and understanding of wedding cakes. The student will learn to effectively create different styles of wedding cakes using many techniques and doing so in a cost and time effective way. The class is not geared toward food competition but toward putting these techniques in practice for the "real world." (6 contact hrs) Center Campus.

CULH-2100 - Centerpieces - (4.00 Credit hours)
Prerequisite: None
(formerly CULH-2914) This course is designed to give the student an overall appreciation and understanding of centerpieces used for displays. The student will learn how to create gum paste and cast sugar centerpieces in a cost effective way in order to make them saleable for parties, sweet tables, weddings, etc. Many of the techniques learned may be used for pastry competitions. (6 contact hrs) Center Campus.

CULH-2120 - Chocolate Creations - (4.00 Credit hours)
Prerequisite: CULH-2180
This course is designed to give the student an overall appreciation and understanding of chocolate work. Students will learn to use chocolate and create candies, fillings, centerpieces, molds, and decorations. Many of the techniques learned may be used for pastry competitions. (6 contact hrs) Center Campus.

CULH-2160 - Plated Desserts - (4.00 Credit hours)
Prerequisite: CULH-2180
This course is designed to give the student an overall appreciation and understanding of plated desserts and the techniques used to create high quality, visually attractive desserts for restaurants, country clubs, and conference centers. (6 contact hrs) Center Campus.

CULH-2180 - Pastry Arts - (4.00 Credit hours)
Prerequisite: CULH-1150 and CULH-1340
(formerly CULH-2020) This course is designed to give the student an overall appreciation and understanding of fine pastries. The student will learn to effectively produce a variety of specialty doughs, pastries, and desserts such as flans, tarts, individual and miniature pastries, souffles, chocolates, plated desserts, ice cream and sugar work, tortes and mousse tortes. (6 contact hrs) Center Campus.

CULH-2200 - Artisan & Special Breads - (4.00 Credit hours)
Prerequisite: CULH-1340
(formerly CULH-2060) This course is designed to give the student advanced training in the production of breads, learning the artisan bread making techniques from the old world and from around the world, as well as producing effectively a variety of breads, decorated loaves, and bread centerpieces for parties, buffets, etc. (6 contact hrs) Center Campus.

DRAD - DRAFTING - ARCHITECTURAL

DRAD-1110 - Introduction to Architectural Drafting - (3.00 Credit hours)
Prerequisite: None
(formerly DRAD-1180) This is a beginning course in architectural drafting fundamentals. The student will develop basic skills and techniques required for architectural drafting, lettering, line quality, symbol recognition, and term definition. Lab work will consist of exercises detailing various architectural elements and principles. The student will also practice these principles on various architectural drafting projects. Career opportunities, education, and duties will be discussed. The student will generate all drafting from the drawing board. (6 contact hrs) South Campus.

DRAD-1120 - Architectural Illustration 1 - (3.00 Credit hours)
Prerequisite: None
(formerly DRAD-1100) The student will develop skills in illustrating architectural elements. The student will learn layout and illustrate these elements in two- and three-dimensional representation. Problems consist of designing and illustrating various presentation drawings. (6 contact hrs) South Campus.

DRAD-1140 - Residential Drafting & Design - (3.00 Credit hours)
Prerequisite: DRAD-1110 and DRCG-1140, or high school equivalent with consent of program advisor
(formerly DRCG-1190) This course is designed to provide the student with the information needed to design a residential building. In addition, the student will learn about the various component systems that make up a residential building. In the lab, the student will create a complete set of construction documents for a residential building. The student will be expected to generate drawing assignments from the drawing board and the computer using AutoCAD software. Design, production, accuracy, and craftsmanship will be stressed. (6 contact hrs) South Campus.

DRAD-1200 - History of Architecture - (3.00 Credit hours)
Prerequisite: None
(formerly DAC 120) A historical study of the development of architecture; starting with a look at each of the periods of architecture, and progressing through to contemporary architecture and the problems therein. (3 contact hrs) South Campus.

DRAD-2090 - Architectural Commercial Drafting & Design - (3.00 Credit hours)
Prerequisite: DRAD-1140
(formerly DRAD-1190) Emphasis is placed upon commercial and industrial construction design. Problems consist of existing structures, a medical clinic, storage facility, offices, lavatories, and laboratory. Introduction to technical aspects required in building design. Emphasizes greater use of materials, framing and section problems. Different types of drawings will be discussed and drawn such as reflective ceiling, electrical, equipment, structural steel, site, details and schedules. (6 contact hrs) South Campus.

DRAD-2110 - Applied Building Construction - (3.00 Credit hours)
Prerequisite: None
(formerly CIVL-2110) No credit after CIVL-2110. This course acquaints the student with terminology, methods, procedures, materials, sequences of operation, types of construction, and planning involved in construction of buildings. (4 contact hrs) South Campus.

DRAD-2120 - Structural Detailing & Design - (3.00 Credit hours)
Prerequisite: DRAD-1110
(formerly DAC 212) Course is designed to train the student to make detail drawings of structural members for fabrication. Includes working with architectural layouts, standard rolled steel cross sections, beams, plates, and angles in the design of structural members. Covers the design of structural elements in construction of buildings. Includes study of stresses, defection, bending moments and column loading. (6 contact hrs) South Campus.

DRAD-2140 - Architectural Illustration 2 - (3.00 Credit hours)
Prerequisite: DRAD-1120 and DRAD-1140
This course introduces color architectural illustration to the student. The student will learn to work with various fundamental color applications. Laboratory work will consist of exercises applicable to Architectural Illustration. The student will be expected to generate illustration assignments by hand and/or various computer graphic techniques. (6 contact hrs) South Campus.

DRAD-2200 - Mechanical & Electrical Systems for Buildings - (3.00 Credit hours)
Prerequisite: None
(formerly DAC 220) A study of the mechanical and electrical equipment used to control the environment in today's buildings and the principles and practical uses of such equipment. Among the topics studied are water supply, sanitary and storm drainage, heating, ventilation, air conditioning, electricity and lighting, fire protection, energy conservation techniques and solar energy. (3 contact hrs) South Campus.

DRAD-2220 - Architectural Design Procedures - (3.00 Credit hours)
Prerequisite: DRAD-1140
(formerly DRAD-1210) A study of concepts and procedures essential to architectural design, including site analysis, programming, schematics, and design development. The student will solve a practical design problem and prepare a complete graphic solution. (6 contact hrs) South Campus.

DRAD-2230 - Construction Specifications - (3.00 Credit hours)
Prerequisite: None
No credit after DRAD-2210. A survey of the content of various construction contracts and documents required as part of the designing and construction of various building projects. General conditions, specifications, organization, addendums, bulletins, and terminology will be discussed. (3 contact hrs) South Campus.

DRAD-2280 - Architectural Drafting & Design Studio - (4.00 Credit hours)
Prerequisite: DRAD-2090
Further emphasis is placed on commercial industrial design techniques. Introduction to structural framing, design of a building for multi-function purposes. Emphasizes foundation problems, sections, structures, varied details, and schedules. The student will also have to work with the material selection, material finish, functional flow diagrams, siting of the property, roads, walks, parking lots, and paving. (6 contact hrs) South Campus.

DRCG - DRAFTING & COMPUTER GRAPHICS

DRCG-1140 - Interactive Computer Graphics - Introduction to 2D & 3D AutoCAD - (4.00 Credit hours)
Prerequisite: None
This course is designed as an introduction to computer graphics using a PC-based system with AutoCAD software. This course covers computer graphic components, terms, and commands associated with AutoCAD software. This course covers basic file management, two-dimensional, and three-dimensional drawings. (6 contact hrs) South Campus.

EAPP - ENGLISH FOR ACADEMIC PURPOSES

EAPP-0054 - Basic Speaking & Listening Skills - (4.00 Credit hours)
Prerequisite: Placement
(formerly ESLL-0053) This course is designed for students who want to improve their ability to communicate orally in English. Assignments are structured to emphasize verbal exchanges about American cultural experiences, current events, and national and international issues. Correct pronunciation, rhythms of speech, and use of idioms are emphasized. Course may be taken twice for credit. (4 contact hrs)

EAPP-1100 - Integrated Skills & Preparatory Composition 1 - (4.00 Credit hours)
Prerequisite: Placement
(formerly ESLL-1010) This course begins to develop a working knowledge of basic English grammatical structures through listening, speaking, reading, and writing activities (four short paragraphs). Primary grammatical structures include the simple present, present progressive, and simple past tenses; yes/no and wh-questions; prepositions of time and place; count nouns; subject, object, and demonstrative pronouns; possessive nouns; descriptive and possessive adjectives; imperatives; direct and indirect objects; statements and questions using “there”; numbers, quantifiers, and questions with “how many”; and affirmative and negative statements. Regular use of laboratory facilities is also included. (5 contact hrs)

EAPP-1150 - Extensive Reading 1 - (4.00 Credit hours)
Prerequisite: Placement
(formerly ESLL-2914) In this course, students in the lower level of the placement range select and read books (primarily classic novels and biographies) that have been written (or rewritten in the case of classic literature) at their ability level. As they read many pages of interesting material, they increase their word recognition ability and general vocabulary, become fluent readers, and learn to enjoy reading in English. Brief oral and written book reports are required. (4 contact hrs)

EAPP-1200 - Integrated Skills & Preparatory Composition 2 - (4.00 Credit hours)
Prerequisite: EAPP-1100 with grade C or better, or placement
(formerly ESLL-1020) This course continues to develop a working knowledge of basic English grammatical structures through listening, speaking, reading, and writing activities. The four assigned paragraphs are slightly longer than those in EAPP-1100. Primary grammatical structures include the past progressive tense, future tense ("will" and "be going to"), comparative and superlative forms of adjectives and adverbs, stative verbs, possessive pronouns, adverbs and expressions of frequency, negative questions, count and non-count nouns, quantifiers, and modals focused on the present and future. Regular use of laboratory facilities is also included. (5 contact hrs)

EAPP-1300 - Integrated Skills & Preparatory Composition 3 - (4.00 Credit hours)
Prerequisite: EAPP-1200 with grade C or better, or placement
(formerly ESLL-1030) This course continues to develop a working knowledge of basic English grammatical structures through listening, speaking, reading, and writing activities. The four paragraphs in this class emphasize more complex sentence structure than in EAPP-1200. In addition, students summarize simple articles after learning to quote and paraphrase. Primary grammatical structures include future time clauses, present perfect and present perfect progressive tenses; gerunds and infinitives; reflexive and reciprocal pronouns, and phrasal verbs. Regular use of laboratory facilities is also included. (5 contact hrs)

EAPP-1350 - Extensive Reading 2 - (4.00 Credit hours)
Prerequisite: EAPP-1150 with grade C or better, or placement
In this course, students in the upper level of the placement range select and read books (primarily classic novels and biographies) that have been written (or rewritten in the case of classic literature) at their ability level. As they read many pages of interesting material, they increase their word recognition ability and general vocabulary, become fluent readers, and learn to enjoy reading in English. Brief oral and written book reports are required. (4 contact hrs)

EAPP-1400 - Integrated Skills & Preparatory Composition 4 - (4.00 Credit hours)
Prerequisite: EAPP-1300 with grade C or better, or placement
(formerly ESLL-1040) This course continues to develop a working knowledge of basic English grammatical structures through listening, reading, and writing activities. The writing assignments in this class stress analytical thinking. They include four paragraphs, one of which involves the use of an outside source, and two summary-reaction papers. Primary grammatical structures include past perfect, past perfect progressive, future progressive, future perfect, and future perfect progressive tenses; tag questions; conditionals; adjective clauses; and modals focused on the past. Regular use of laboratory facilities is also included. (5 contact hrs)

EAPP-1500 - Integrated Skills & Preparatory Composition 5 - (4.00 Credit hours)
Prerequisite: EAPP-1400 with grade C or better, or placement
(formerly ESLL-1050) This course provides a bridge from EAP classes to freshman English by (a) working intensively with paragraph structure, sentence structure, and sentence variety; (b) summarizing and reacting to college-level articles; (c) writing an argumentative essay that uses information from outside sources; and (d) adhering to college-level standards for usage, diction, punctuation, and spelling. It also completes the development of a working knowledge of English grammatical structures through listening, speaking, reading, and writing activities. Primary structures include noun, adjective, and verb phrases; passive voice; noun, adjective, and adverb clauses; and embedded questions. Regular use of laboratory facilities is also included. (5 contact hrs)

ECHS - EARLY CHILDHOOD STUDIES

ECHS-1100 - Early Childhood Development - (4.00 Credit hours)
Prerequisite: None
Corequisite: ECHS-1110 (Recommended)
(formerly ECH 110) This course emphasizes developmental processes of the young child to age nine, including the physical, social, emotional and cognitive changes. The influence of environment on the developing child's emerging sense of self-esteem is studied. Various methods of observing and assessing children are introduced. Theories related to play as a young child's tool for learning are included. (4 contact hrs) Center Campus.

ECHS-1110 - Field Observation - (1.00 Credit hours)
Prerequisite: None
Corequisite: ECHS-1100, ECHS-1200, ECHS-2100, ECHS-2110 (Recommended)
(formerly ECH 111) This course has been designed to provide an early childhood observation experience for the student not currently working in the early childhood field. This observation experience gives the student opportunity to directly apply classroom theory in an early childhood setting. May be taken three times for credit. (4 contact hrs) Center Campus.

ECHS-1200 - Early Childhood Curriculums - (4.00 Credit hours)
Prerequisite: None
Corequisite: ECHS-1100, ECHS-1110 (Recommended)
(formerly ECH 120) This course includes identification of curriculum areas and development of activities to be implemented in each curriculum area that meet individual children's developmental needs in the areas of social, emotional, physical and cognitive growth and development. This course clarifies, describes methods, practices and theories of early childhood education that will assist in directing, administrating and working in a day care or preschool center. This course discusses equipment, environments and schedules used in early childhood programs. Students will become acquainted with physical, emotional, social and cognitive managerial educational and developmental needs of children ages 2-1/2 to 5. (4 contact hrs) Center Campus.

ECHS-1300 - Art & Representing Skills for Children - (3.00 Credit hours)
Prerequisite: ECHS-1100
(formerly ECH 130) Child-centered art and creative expressive activities related to the growth and development of the child 2-9 are explored. Students will develop, implement and evaluate art activities in various mediums and materials. (3 contact hrs) Center Campus.

ECHS-1400 - Music & Movement for Children - (3.00 Credit hours)
Prerequisite: ECHS-1100 and ECHS-1200
(formerly ECH 140) This course studies the relationship of music and movement to cognitive development and cultural awareness. Students will gain skills needed to incorporate developmentally appropriate music and movement activities in the early childhood curriculum. Experiences in planning, creating, and implementing movement activities, singing, musical games and instruments, and music appreciation will be provided. (3 contact hrs) Center Campus.

ECHS-1520 - The Exceptional Child - (3.00 Credit hours)
Prerequisite: ECHS-1100 or PSYC-2210 or permission of program coordinator
(formerly ECHS-2915) This course is designed to help the early childhood educator understand the difference between normal and exceptional development of young children including identification of developmental delays; sensory impairment; physical, learning and behavioral disabilities; and chronic health problems. Methods for planning how environments, curriculum and materials can be adapted to accommodate special needs are identified. Strategies for working with parents and collaborating with support services are included. Federal and state legislation, including the state administrated special education code, are studied. (3 contact hrs) Center Campus.

ECHS-1540 - Curriculum Skills; Birth to 3 Years - (3.00 Credit hours)
Prerequisite: None. Documentation of a negative TB test and an Internet criminal background check (ICHAT) is required.
(formerly ECH 154) This course focuses on planning safe, stimulating, developmentally appropriate environments for the care of infants and toddlers. Schedules and activities will be planned to promote social, emotional, cognitive, physical, and language growth and development of the young child. Appropriate observation, documentation, and assessment techniques of infant and toddler growth are studied and implemented. Strategies that support and empower families through respectful and reciprocal relationships are included. Students will complete 15 observation hours with infants and toddlers. (3 contact hrs)

ECHS-1560 - Family Day Care Provider - (2.00 Credit hours)
Prerequisite: None
(formerly ECH 156) The major focuses of this course are: understanding growth and development from birth to ten years, planning age-appropriate activities, developing positive child management skills, making adaptations of your home and family, assuring a safe, healthy environment and meeting state regulations, National Association of Family Day Care accrediting and Child Development Associate competency standards. (2 contact hrs) Center Campus.

ECHS-1580 - School-Age Care - (3.00 Credit hours)
Prerequisite: None
(formerly ECH 158) No credit after EDUC-1580. This course is designed for the paraprofessional who works with school-age children. The physical, social/emotional, cognitive and motor development of the child 5-12 years is reviewed. Methods of planning and implementing environments and activities that promote literacy, creativity, problem solving, independence, and self-esteem are studied. Strategies that support and empower families through respectful, reciprocal relationships are also included. (3 contact hrs) Center Campus.

ECHS-1600 - Parents As Partners - (3.00 Credit hours)
Prerequisite: None
(formerly ECH 160) This course focuses on the early child care worker's relationship with parents. The worker is playing a greater role in the life of the child today and the need for close communication is essential. Methods and skills that will enable the worker to initiate and maintain friendly, cooperative relationships with the child's family, to support parent-child relationships and encourage parental involvement in the program are studied. (3 contact hrs) Center Campus.

ECHS-1710 - Child Care Management - (3.00 Credit hours)
Prerequisite: ECHS-1100 and ECHS-1200
(formerly ECHS-1700) This course is designed to help students develop the necessary knowledge and skills to manage child care centers. Through the use of a theoretical model the student will demonstrate the ability to maintain a healthy and safe environment, assure developmentally appropriate curriculum, manage a budget including supplies and equipment, schedule and work with staff and with working parents, meet licensing regulations, and demonstrate an awareness of NAEYC accreditation criteria and procedures. (3 contact hrs) Center Campus.

ECHS-1800 - Child Development Associate Credential Preparation, Part 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ECH 180) This course is designed to fulfill the following Child Development Associate Credential Content areas: Competency Goal #2: To advance physical and intellectual competence in the functional areas of the physical, cognitive, communication, and creative. Competency Goal #3: To support social and emotional development and provide guidance in the functional areas of self, social, and guidance in children. (3 contact hrs) Center Campus.

ECHS-1810 - Child Development Associate Credential Preparation, Part 2 - (3.00 Credit hours)
Prerequisite: ECHS-1800
(formerly ECH 181) This course is designed to fulfill the following Child Development Associate Credential Content areas: Competency Goal #1: To establish a safe, healthy, learning environment. Competency Goal #4: To establish positive and productive relationship with families. Competency Goal #5: To ensure a well-run, purposeful program responsive to participant needs. (3 contact hrs) Center Campus.

ECHS-1820 - Child Development Associate Credential Preparation, Part 3 - (2.00 Credit hours)
Prerequisite: ECHS-1800 and ECHS-1810
(formerly ECH 182) This course is designed to fulfill the Child Development Associate Credential area. Competency Goal #6: Maintaining a commitment to professionalism. This course will provide guidance in the preparation of competency documentation materials and the resource file. The student will be assisted in writing, speaking, and demonstrating competence in the 13 functional areas of the CDA. (2 contact hrs) Center Campus.

ECHS-2100 - Implementing the Curriculum - (2.00 Credit hours)
Prerequisite: ECHS-1100 and ECHS-1200
Corequisite: ECHS-2110
(formerly ECH 210) This course provides theory and principles related to the skills required to design and implement the ECH curriculum. Methods of incorporating all areas of curriculum - math, science, sociodramatic play, technology, motor skills, language, and the arts - will be included with an emphasis on integrating emergent literacy throughout the curriculum. Understanding of group and individual behavior will also be included. If not currently working in an early childhood setting, the student must take ECHS-1110 concurrently. (2 contact hrs) Center Campus.

ECHS-2110 - Curriculum Skills - (2.00 Credit hours)
Prerequisite: ECHS-1100 and ECHS-1200
Corequisite: ECHS-2100
(formerly ECH 211) This course provides an opportunity for the student to practice and gain skills designing and implementing the early childhood curriculum. Students will develop curriculum plans as well as organize, create, and implement experiences in art, movement, music, literacy, sociodramatic play, science, technology, and cooking. Students will gain beginning skills in observation, documentation and assessment. If not currently working in an early childhood setting, the student must take ECHS-1110 concurrently. (2 contact hrs) Center Campus.

ECHS-2300 - Early Childhood Practicum - (4.00 Credit hours)
Prerequisite: ECHS-2100 and ECHS-2110, with grade C or better
Corequisite: ECHS-2310 (Recommended)
(formerly ECH 230) In a practicum setting the student is given the opportunity to assess growth and development of preschool children and gain skill in interacting with children. The student will plan, implement and evaluate learning activities of the individual child and for groups of children. (16 contact hrs per week for 16 wks) Center Campus.

ECHS-2310 - Professional Issues in Early Childhood - (1.00 Credit hours)
Prerequisite: ECHS-2100 and ECHS-2110
(formerly ECH 231) This course explores the current issues in the field of early childhood. These issues include advocacy, professional ethics, continuing education, and professionalism. Students will gain experience using the NAEYC Code of Ethical Conduct. (2 contact hrs per week for 8 wks) Center Campus.

ECON - ECONOMICS

ECON-1160 - Principles of Economics 1 - (3.00 Credit hours)
Prerequisite: None
(formerly ECO 116) An introduction to basic principles of economics with an emphasis on macroeconomic theory. This course of study will include an analysis of national income, employment, and prices, and concludes with a discussion of monetary and fiscal policies. It is recommended that students should follow ECON-1160 with ECON-1170 for a more complete introduction to economics. (3 contact hrs)

ECON-1170 - Principles of Economics 2 - (3.00 Credit hours)
Prerequisite: ECON-1160
(formerly ECO 117) A continuation of the basic principles of economics with an introduction to microeconomic theory. This course of study will include an analysis of supply and demand and the decision-making processes of firms in perfectly and imperfectly competitive markets. (3 contact hrs)

EDUC - EDUCATION

EDUC-1010 - Paraprofessional Theory & Practice - (4.00 Credit hours)

Prerequisite: None

This course and practicum is intended for students seeking to meet the standards of the No Child Left Behind Legislation and to introduce the student to the role and responsibilities of the paraprofessional in the K-12 setting. It may be used as a "first step" in a career ladder toward obtaining a paraprofessional certificate or teaching certification. Topics covered include human growth and development, learning principles, instructional strategies for reading, math, and writing, behavior management, professionalism and strategies for working with special needs students. The Practicum component (*24 hours of field work with a K-12 teacher) complements the classroom material while providing the student the opportunity to directly apply classroom theory in a K-12 educational environment. *Student responsible for acquiring fieldwork site. *Before attending a school to complete the Practicum, it is necessary to have a Family Independent Agency (FIA) background check and a criminal background check. The college instructor will provide appropriate forms. (4 contact hrs) Center Campus.

EDUC-1580 - School-Age Care - (3.00 Credit hours)

Prerequisite: None

No credit after ECHS-1580. This course is designed for the paraprofessional who works with school-age children. The physical, social/emotional, cognitive and motor development of the child 5-12 years is reviewed. Methods of planning and implementing environments and activities that promote literacy, creativity, problem solving, independence and self-esteem are studied. Strategies that support and empower families through respectful, reciprocal relationships are also included. Note: This course is equivalent to ECHS-1580 and students should not take EDUC-1580 if they have taken ECHS-1580. (3 contact hrs)

EDUC-2010 - Introduction to Education - (4.00 Credit hours)

Prerequisite: ENGL-1180 or ENGL-1210

An introductory course designed to provide prospective education majors with the opportunity to explore the teaching profession. Course content focuses on the foundations of education including the overview of the history and philosophy of education, school governance and finance, best practices in learning theories and instruction strategies, as well as exploration of current issues and trends. This course also provides an overview of unique teaching opportunities, university transfer requirements, and the Michigan requirements for teacher certification. Students will complete 30 hours of field observation. (94 total contact hrs)

EETE - ELECTRONIC ENGINEERING TECHNOLOGY

EETE-1100 - Introduction to Electronics - (3.00 Credit hours)

Prerequisite: None

(formerly EET 110) This course is designed for non-EETE majors who lack a formal training experience in the following areas: series, parallel, series-parallel and basic A.C. circuits. Basic algebra, scientific calculators and an electronic software program will be used in this class. (4 contact hrs) South Campus.

EETE-2010 - Analog Instrumentation & Transducer Fundamentals - (3.00 Credit hours)
Prerequisite: ELEC-1211
(formerly EET 201) Theory and application of the following devices and topics: Thevenin's Theorem, operational amplifiers, passive and active filters, loading, oscilloscope operation and the following transducers: I.C. temperature, thermistor, RTD, thermocouple, capacitance sensor, strain gauge, LVDT and others. Electronics Workbench will be used to simulate electronic circuits and instrumentation. (4 contact hrs) South Campus.

EETE-2270 - Microcontroller Programming - (3.00 Credit hours)
Prerequisite: ELEC-1191 and ELEC-1211
(formerly EET 227) This course stresses the concepts of microcontroller programming including instruction sets, loops, software delays and data structures. (4 contact hrs) South Campus.

EETE-2280 - Automated Control Devices & Systems 1 - (3.00 Credit hours)
Prerequisite: ELEC-1191
(formerly EET 228) Theory and practical experimentation using the following electronic devices: SCR, UJT, PUT, Triac, Diac, Four Layer Diode, SUS, SBS, GCS, and opto-electronics. Circuit design including amplitude control, phase-shift control and relaxation oscillators. The use of ladder diagram in automated systems. (4 contact hrs) South Campus.

EETE-2290 - Automated Control Devices & Systems 2 - (3.00 Credit hours)
Prerequisite: EETE-2280
(formerly EET 229) Theory and practical experimentation using the following electronic systems: digital and relay motor systems, AC motor speed control, three-phase half and fullwave rectifiers, voltage regulation, op-amps and multivibrators. Automated system theory in the following areas: digital welders, temperature and pressure control and other feedback systems. (4 contact hrs) South Campus.

EETE-2400 - Microprocessor Interfacing - (3.00 Credit hours)
Prerequisite: EETE-2270
(formerly EET 240) Interfacing the microcomputer in serial and parallel format including handshake control, PIA, ACIA, UARTS, AD and DA conversions, interfacing the microcomputer to TTYs CRTs Modems, floppy disks, dynamic and static memories, and electrical/mechanical devices. (4 contact hrs) South Campus.

EETE-2490 - Instrumentation 2 - (3.00 Credit hours)
Prerequisite: EETE-2010
(formerly EET 249) This course focuses on operational amplifier applications, passive and active filters, voltage compositors, phase-locked-loop and data acquisition. (4 contact hrs) South Campus.

EETE-2720 - C Programming for Technicians - (3.00 Credit hours)
Prerequisite: ELEC-1191
(formerly EET 272) An introduction to C Programming. Basic Programming concepts are stressed. Digital I/O as well as computer architectures are covered. A simple parallel interface is programmed and used. (4 contact hrs) South Campus.

ELEC - ELECTRONIC TECHNOLOGY

ELEC-1161 - Electronic Technology 1 - (3.00 Credit hours)

Prerequisite: None

(formerly EETE-1160) This course is intended for those students seeking entry-level knowledge in electronic technology. This course will provide the student with theory and practical experimentation in the following areas as applied to D.C. circuits: Series, Parallel, and Series-Parallel circuits. Meters will be used to measure and evaluate signals and operating voltages. Identification of basic electronic components as they relate to actual and schematic symbols. Ohm's Law, Watt's Law, Kirchhoff's Laws, and the Superposition Theorem will be employed. An electronic software program will be applied to various circuits in class. Scientific calculators and basic algebra will be used in class. (4 contact hrs) South Campus.

ELEC-1171 - Electronic Technology 2 - (3.00 Credit hours)

Prerequisite: ELEC-1161

(formerly EETE-1170) This course is a continuation for students seeking entry-level knowledge in electronic technology. This course will provide theory and experimentation in the following areas as applied to A.C. circuits: alternators, sine waves, capacitance, inductance, RC, RL and RCL series and parallel circuits, phase shift and filter, phase lead and lag circuits. Experimentation will include the use of meters, the oscilloscope, and the function generator. (4 contact hrs) South Campus.

ELEC-1181 - Semiconductor Theory & Devices - (3.00 Credit hours)

Prerequisite: ELEC-1171

(formerly EETE-1180) This course will provide students with the knowledge required to understand and troubleshoot electronic circuits containing diodes, transistors, FETs, and MOSFETs. Among the topics discussed are semiconductor theory, half-wave and full-wave rectifiers, transistor biasing circuits, discrete amplifier circuits including class A, B, and C operation, FET biasing and MOSFET biasing. Knowledge will be gained through lecture, textbook assignments, hands-on laboratory experimentation, and simulated virtual experiments utilizing computer software. (4 contact hrs) South Campus.

ELEC-1191 - Introduction to Op-Amps & Linear Integrated Circuits - (3.00 Credit hours)

Prerequisite: ELEC-1181

(formerly EETE-1190) This course will provide students with the knowledge required to understand and troubleshoot electronic circuits containing operational amplifiers and linear integrated circuits. Among the topics discussed are basic op-amp circuit configurations, data sheet parameters, open and closed loop response, summing amps, comparators, 555 timer and oscillator circuits, IC voltage regulation, and phase locked loops. Knowledge will be gained through lecture, textbook assignments, hands-on laboratory experimentation, and simulated virtual experiments utilizing computer software. (4 contact hrs) South Campus.

ELEC-1211 - Digital Electronics Basics - (3.00 Credit hours)
Prerequisite: ELEC-1171
(formerly EETE-1210) This course will provide students with the knowledge required to understand and troubleshoot digital electronic circuits. Among the topics discussed are number systems, codes, logic gates, Boolean statements, combinational logic, flip-flops, counters, shift registers, memory and storage, and integrated circuit technologies. Knowledge will be gained through lecture, textbook assignments, hands-on laboratory experiments, and simulated virtual experiments utilizing virtual circuit software. (4 contact hrs) South Campus.

ELEC-1221 - Microcontrollers With Robotic Application - (3.00 Credit hours)
Prerequisite: ELEC-1211
This course will provide students with the knowledge required to understand, program, and apply microcontrollers (pic chips) to robotic applications using the Basic Stamp. The first half of the class will be spent learning to program and interface simple circuitry using the Basic Stamp interface board. The second half of the class will be spent applying this knowledge to a mobile robot with onboard sensors. Among the topics discussed are pic chip programming, controlling inputs and outputs, motion and rotational control, digital displays, measurement of light, frequency and sound, controlling servo motors, robotic navigation, tactile sensing, light sensitive navigation, and robotic control with distance detection. Knowledge will be gained through lecture, textbook assignments, hands-on laboratory experiments, and project troubleshooting. (4 contact hrs) South Campus.

ELEC-1230 - Troubleshooting 1 - (3.00 Credit hours)
Prerequisite: ELEC-1171
Corequisite: ELEC-1240 (Recommended)
(formerly ECS 123) Study of signal processing circuitry. Horizontal and vertical scan circuits, video display terminals, RF circuitry, power supplies. Use of test equipment to trace signal flow paths and to evaluate operating parameters. (4 contact hrs) South Campus.

ELEC-1240 - Troubleshooting 2 - (3.00 Credit hours)
Prerequisite: ELEC-1230
(formerly ECS 124) Diagnosis of faults in signal processing circuits and associated control circuits. Fault location and correction in video display terminals. Replacement procedures for defective components. Use of test equipment to locate defective components. (4 contact hrs) South Campus.

ELEC-1250 - Introduction to Audio & Video Technology - (2.00 Credit hours)
Prerequisite: None
This course focuses on application of electronic concepts with components in audio and video technology. Also covered are mechanical hookups, connections and basic electronic troubleshooting, and servicing. The student will become familiar with basic electronic equipment used in an audio and video studio, and troubleshoot operational and connection problems. (2 contact hrs) South Campus.

ELEC-2650 - Computer Servicing 1 - (4.00 Credit hours)
Prerequisite: None
(formerly ECS 265) The student will become familiar with personal computer equipment and computer servicing concepts. Topics covered are disassembly and assembly procedures, identification and replacement of parts, configuration problems, and electrostatic considerations. Emphasis will be on troubleshooting and diagnostic routines and procedures. (4 contact hrs) South Campus.

ELEC-2660 - Computer Servicing 2 - (4.00 Credit hours)
Prerequisite: ELEC-2650
(formerly ECS 266) Continuation of ELEC-2650. The course will acquaint the student with fundamental computer servicing concepts. The student will become familiar with computer equipment and peripherals, including monitors, mice, printers, CD-ROM drives and sound cards. Emphasis will be on troubleshooting and diagnostic routines and procedures. (4 contact hrs) South Campus.

EMSA - EMERGENCY MEDICAL SERVICES

EMSA-1211 - Basic EMT Lecture 1 - (3.50 Credit hours)
Prerequisite: None
Corequisite: EMSA-1220, EMSA-1241, EMSA-1250
(formerly EMSA-1210) Introduction to Basic EMT. This course is designed to provide the student with an outline of the EMS system, introduce assessment skills, as well as provide pathophysiology of common neurological, respiratory, and cardiac related emergencies. (3.5 contact hrs) Center Campus.

EMSA-1220 - Basic EMT Lab - (4.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-1211, EMSA-1241, EMSA-1250
(formerly EMTC-1220) Practical skills of Basic EMT are learned. (6 contact hrs) Center Campus.

EMSA-1230 - Basic EMT Computer Lab - (1.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-1211, EMSA-1220, EMSA-1241, EMSA-1250
(formerly EMTC-1230) The student uses computer and video media to identify anatomy, practice medical terminology, and reinforce concepts. (1 contact hr) Center Campus.

EMSA-1241 - Basic EMT Lecture 2 - (3.50 Credit hours)
Prerequisite: None
Corequisite: EMSA-1211, EMSA-1220, EMSA-1250
(formerly EMSA-1240) Continuation of Basic EMT Lecture 1. (3.5 contact hrs) Center Campus.

EMSA-1250 - Clinical Rotation for the Basic EMT - (1.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-1211, EMSA-1220, EMSA-1241
(formerly EMTC-1250) Clinical rotation in the hospital and EMS units for the Basic EMT. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. Off-site, by arrangement. (5 contact hrs per week for 8 weeks) Center Campus.

EMSA-2510 - Introduction to Paramedic Procedures - (4.00 Credit hours)
Prerequisite: Permission from instructor
Corequisite: EMSA-2520, EMSA-2530, EMSA-2540
(formerly EMTC-2510) Introduction to paramedic. Reviews traumatic injuries, the physical exam, and prepares the student to enter the clinical environment. (4 contact hrs) Center Campus.

EMSA-2520 - Pharmacology for the Paramedic 1 - (3.00 Credit hours)
Prerequisite: Permission from instructor
Corequisite: EMSA-2510, EMSA-2530, EMSA-2540, EMSA-2550
(formerly EMTC-2520) Study of generalized drug therapy for the paramedic. (3 contact hrs) Center Campus.

EMSA-2530 - Paramedic Lab 1 - (3.00 Credit hours)
Prerequisite: Permission from instructor
Corequisite: EMSA-2510, EMSA-2520, EMSA-2540, EMSA-2550
(formerly EMTC-2530) Practical applications for Introduction to Paramedic Procedures and Paramedic Lecture 2. (6 contact hrs) Center Campus.

EMSA-2540 - Paramedic Computer Lab 1 - (1.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-2510, EMSA-2520, EMSA-2530, EMSA-2550
(formerly EMTC-2540) Computerized assignments to help students practice concepts taught in EMSA-2510 and EMSA-2550. (3 contact hrs) Center Campus.

EMSA-2550 - Paramedic Lecture 2 - (4.00 Credit hours)
Prerequisite: EMSA-2510 with grade C or better
Corequisite: EMSA-2520, EMSA-2530, EMSA-2540
(formerly EMTC-2550) Study of cardiology and introduction to the EKG. (4 contact hrs) Center Campus.

EMSA-2560 - Paramedic Lecture 3 - (3.00 Credit hours)
Prerequisite: EMSA-2550 with grade C or better
Corequisite: EMSA-2570, EMSA-2580, EMSA-2590
(formerly EMTC-2560) Study of common medical emergencies, obstetrics, shock, and allergies. (3 contact hrs) Center Campus.

EMSA-2570 - Pharmacology for the Paramedic 2 - (3.00 Credit hours)
Prerequisite: EMSA-2520 with grade C or better
Corequisite: EMSA-2560, EMSA-2580, EMSA-2590, EMSA-2620
(formerly EMTC-2570) Study of cardiac-related drug therapy for the paramedic. (3 contact hrs) Center Campus.

EMSA-2580 - Paramedic Lab 2 - (3.00 Credit hours)
Prerequisite: EMSA-2530 with grade C or better
Corequisite: EMSA-2560, EMSA-2570, EMSA-2612, EMSA-2620
(formerly EMTC-2580) Practical applications for Paramedic Lecture 3 and 4. (6 contact hrs) Center Campus.

EMSA-2590 - Computer Lab for the Paramedic 2 - (1.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-2560, EMSA-2570, EMSA-2580, EMSA-2612, EMSA-2620
(formerly EMTC-2590) Computerized simulations to enhance material in Paramedic Lecture 3 and 4. (3 contact hrs) Center Campus.

EMSA-2600 - Advanced Life Support Internship - (6.00 Credit hours)
Prerequisite: Permission of instructor
(formerly EMTC-2600) Internship with a paramedic in an out-of-hospital environment. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (Up to 25 contact hrs per week for 12 wks are provided to meet minimal competencies) Off-site, by arrangement.

EMSA-2611 - Hospital Clinical Rotation for the Paramedic - (2.00 Credit hours)
Prerequisite: Permission of instructor
(formerly EMSA-2610) (Note: EMSA-2611 & EMSA-2612 together equal EMSA-2610) In-hospital clinical rotation class offered first semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (12.5 contact hrs per week for 8 weeks) Off-site, by arrangement.

EMSA-2612 - Hospital Clinical Rotation for the Paramedic 2 - (4.00 Credit hours)
Prerequisite: EMSA-2611
(formerly EMSA-2610) (Note: EMSA-2611 & EMSA-2612 together equal EMSA-2610) In-hospital clinical rotation class offered second semester. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (12.5 contact hrs per week for 16 weeks) Off-site, by arrangement.

EMSA-2620 - Paramedic Lecture 4 - (3.00 Credit hours)
Prerequisite: None
Corequisite: EMSA-2570, EMSA-2580, EMSA-2590, EMSA-2612
(formerly EMTC-2620) 12-lead EKG and Advanced Cardiac Life Support for the Paramedic. (3 contact hrs) Center Campus.

ENGL - ENGLISH

ENGL-0050 - Preparatory Composition - (3.00 Credit hours)
Prerequisite: Placement
(formerly ENG 005) Extensive work with punctuation, sentence and paragraph structure. Designed as preparatory for successful work in freshman composition courses. (3 contact hrs)

ENGL-1000 - Sentence Structure & Style - (3.00 Credit hours)
Prerequisite: None
(formerly ENG 100) Students get a thorough review of sentence elements before moving on to extensive practice with stylistic devices that improve their expression at the sentence level. Designed to give students confidence when they prepare college assignments or do any writing as part of their jobs. (The course cannot be substituted for required composition classes where principles of organization for paragraphs and essays are taught and practiced.) (3 contact hrs)

ENGL-1110 - English Composition for Automotive Technology - (1.00 Credit hours)
Prerequisite: ENGL-1180 or equivalent
(formerly ENG 111) A workshop for corporate programs in the principles of effective business reports, briefings, and correspondence; efficient use of writing time; revising skills; writing with word processing software and microcomputers. (1 contact hr) South Campus.

ENGL-1180 - Communications 1 - (4.00 Credit hours)
Prerequisite: Placement, or ENGL-0050 or EAPP-1500 with grade C- or better
(formerly ENG 118) No credit after ENGL-1210. The focus of this course is College-level expository and argumentative writing. This course places extensive emphasis on organization and development of essays along with the study of grammar and mechanics. This course develops competence in English sentence elements and skill in organizing, proofreading, and revising essays. Students who have completed ENGL-1210 successfully should NOT take ENGL-1180. Students will NOT receive credit for both. (4 contact hrs)

ENGL-1190 - Communications 2 - (4.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210
(formerly ENG 119) No credit after ENGL-1220. The focus of this course is to continue the development of writing skills learned in ENGL-1180 or ENGL-1210. This course places extensive emphasis upon research and documentation. Students who have completed ENGL-1220 successfully should NOT take ENGL-1190. Students will NOT receive credit for both. (4 contact hrs)

ENGL-1210 - Composition 1 - (3.00 Credit hours)
Prerequisite: Placement, or ENGL-0050 or EAPP-1500 with grade C- or better
(formerly ENG 121) No credit after ENGL-1180. The focus of this course is the writing of expository and argumentative essays. This course emphasizes logical development of ideas and refinement of personal style. Students who have completed ENGL-1180 successfully should NOT take ENGL-1210. Students will NOT receive credit for both. (3 contact hrs)

ENGL-1220 - Composition 2 - (3.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210
(formerly ENG 122) No credit after ENGL-1190. The focus of this course is the writing of critical essays based upon readings in literature, and the further development of writing skills learned in ENGL-1180 or ENGL-1210. The course places extensive emphasis upon research. Students who have completed ENGL-1190 successfully should NOT take ENGL-1220. Students will NOT receive credit for both. (3 contact hrs)

ENGL-1730 - Contemporary American Literature - (3.00 Credit hours)
Prerequisite: None
(formerly ENG 173) Reading of American works which are currently influencing and defining thought and art, as a means of introducing stimulating writers and books. Emphasis on discussion and critical analysis. (3 contact hrs)

ENGL-2410 - Creative Writing - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190 or consent of instructor
(formerly ENG 241) Course primarily in writing the short story and poetry with emphasis on creation of personal imaginative work. Faculty approval on South Campus consists of written recommendation of ENGL-1210 instructor and written permission of literature course instructor. (3 contact hrs)

ENGL-2420 - Advanced Creative Writing - (3.00 Credit hours)
Prerequisite: ENGL-2410 or consent of instructor
(formerly ENG 242) Course designed for the experienced writer who has mastered the fundamentals taught in ENGL-2410. Revising and marketing manuscripts will be covered. (3 contact hrs)

ENGL-2510 - British Literature to 1760 - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
This course begins with a study of the literature from the Medieval period and moves to study works written throughout the age of Chivalry, the Elizabethan era, the Seventeenth century political upheaval and Restoration, and the Age of Enlightenment in the Eighteenth Century. Authors that may be covered include Chaucer, Mallory, More, Sidney, Spenser, Marlowe, Shakespeare, Raleigh, Donne, Herrick, Marvell, Milton, Dryden, Swift, and Pope. (3 contact hrs) Center Campus.

ENGL-2520 - British Literature From 1760 to Present - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
This course carries on the study of British Literature from the pre-Romantics through the modernist period and into the present day. Authors that may be covered in this course include Blake, Burns, Wordsworth, Coleridge, Keats, Byron, Shelley(s), Browning(s), Tennyson, Arnold, Rossetti, Hardy, Hopkins, Yeats, Joyce, Eliot, Lawrence, Thomas, and Heaney. (3 contact hrs) Center Campus.

ENGL-2600 - Introduction to Poetry - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 260) Readings to discover and understand the pleasures of poetry. Selections from among the best poems produced by Western Civilization. Writing of critical papers. (3 contact hrs)

ENGL-2610 - Introduction to Prose Fiction - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 261) Reading and discussion of fiction, such as novels, novellas, and short stories. Readings, discussions, and lectures on representative works that have influenced Western Civilization with a consideration of the individual work's style, form, and milieu. Writing of critical papers. (3 contact hrs)

ENGL-2640 - Children's Literature - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190 or consent of instructor
(formerly ENG 264) Study of picture books, novels, folk tales, and poetry intended for children from preschool through high school with an emphasis on developing the student's analytical abilities and broadening the student's knowledge of children's literature. (3 contact hrs)

ENGL-2710 - American Literature: Colonial to 1865 - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 271) This course begins with the earliest American literature written by Native Americans, and moves on to European expectations, settlements, and explorations of the "new world". It also covers the literature of the American Revolution, the literary life of the new nation, culminating in the voices of American Romanticism and anti-slavery reform. Authors to be covered may include Bradford, Winthrop, Edwards, Bradstreet, Franklin, Wheatley, Jefferson, Poe, Emerson, Thoreau, Hawthorne, Stowe, and Douglass. (3 contact hrs)

ENGL-2720 - American Literature, 1865 to 1920 - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 272) This course presents a study of major cultural and literary developments between the end of the Civil War and the end of World War I. We will consider Reconstruction, Western Expansion, industrialization and urban growth, the role of the new immigrants, the "woman question" and how these issues found literary expression in what is commonly referred to as Realism and Naturalism. Authors to be discussed may include Whitman, Dickinson, Twain, Davis, James, Howells, Dreiser, Crane, Norris, Cahan, Dos Passos, Gilman, Chopin, Wharton, Freeman, Jewett, Sinclair, Dunbar, and Chesnutt. (3 contact hrs)

ENGL-2730 - American Literature, 1920 to Present - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 273) This course traces the cultural and literary concerns faced by Americans in the twentieth century; the Depression, World War II, post-war prosperity, the ethnic revival of the sixties, and the current political, social, and cultural concerns. Authors to be covered may include Anderson, Hemingway, Fitzgerald, Hurston, O'Connor, Welty, Cummings, Wright, Faulkner, Steinbeck, Odets, O'Neill, Miller, Gold, Ellison, Bellow, Malamud, Roth, Updike, Frost, Eliot, Sandburg, Williams, Millay, Moore, Toomer, Hughes, Baraka, Brooks, Baldwin, and Walker. (3 contact hrs)

ENGL-2800 - World Literature to 1400 - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 280) Study of the gods and heroes of Greek and Roman myth, poetry, and drama which pervade Western thought. Beginnings to Christian influence. Writing of critical papers. (3 contact hrs)

ENGL-2810 - World Literature From 1400 - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 281) Western man's changing vision of salvation, reason, and identity as described by great European writers since the Renaissance. Writing of critical papers. (3 contact hrs)

ENGL-2850 - Shakespeare Survey - (3.00 Credit hours)
Prerequisite: ENGL-1220 or ENGL-1190
(formerly ENG 285) Study of Shakespeare's life, sonnets, comedies, histories, and tragedies. Writing of critical papers. (3 contact hrs)

ENGR - PRE-ENGINEERING

ENGR-1000 - Introduction to Engineering - (3.00 Credit hours)
Prerequisite: None
(formerly EGR 100) An introduction to the engineering professions through lectures and guest speakers. This course emphasizes engineering research, covers work place expectations, academic preparation, computers in engineering and problem solving through teamwork. (3 contact hrs)

ENGR-1050 - Introduction to Workcell Simulation - (3.00 Credit hours)
Prerequisite: DRCG-1140 or PRDE-1400 or PRDE-1500 or PRDE-1600
The student will be introduced to basic workcell simulation design and the basic development of workcell simulation, layout, and off-line programming using simulation software, including simulation and analysis, collisions, part modeling, device assembly, and basic CAD modeling applications. (4 contact hrs) South Campus.

ENGR-1075 - Introduction to Computer Aided Ergonomics - (3.00 Credit hours)
Prerequisite: ENGR-1050
This course in ergonomics provides the student with "hands-on" experience aided by ergonomic analysis in the virtual environment to develop and improve new and existing ergonomic applications as used in industry operations. Activities include the design, development, layout and implementation of workplace scenarios that lead the student through the set up of actual ergonomic concerns and ways to alleviate these conditions utilizing ergonomic simulation software. (4 contact hrs) South Campus.

ENGR-1100 - Workcell Simulation Programming & Kinematics - (3.00 Credit hours)
Prerequisite: ENGR-1050
This course will cover such topics as advanced kinematics routines; advanced programming for workcell, camera, and view control; advanced I/O mapping; and file commonality within the simulation environment. (4 contact hrs) South Campus.

ENVS - ENVIRONMENTAL SCIENCE

ENVS-1050 - Environmental Science - (4.00 Credit hours)
Prerequisite: None
(formerly EVS 105) This interdisciplinary science course is a study of environmental problems and alternative solutions to these problems. The integral nature of all parts of the environment as well as specific environmental problems are stressed. Such topics as man and his relationship to the environment, energy resource limitations, land use, water and air pollution are included. (4 contact hrs) South Campus.

FINC - FINANCE

FINC-1010 - Introduction to Finance - (3.00 Credit hours)
Prerequisite: None
(formerly CRFN-1030) This course introduces students to the various financial markets. Emphasis will be placed on exploring the function and operation of the Federal Reserve System, interest rates, the characteristics of different financial markets/institutions, and financial risk management. Students will learn how these topics relate to financial management in the business environment. (3 contact hrs)

FINC-2020 - Bank & Lending Management - (3.00 Credit hours)
Prerequisite: None
This course introduces students to the banking and financial-services industry (FSI). Emphasis will be placed on an overview of the industry, assessment of risk factors, business and commercial real estate lending. The theory and objectives of bank regulation, bank failures, and ethics specific to FSI will be explored. (3 contact hrs)

FINC-2030 - Corporate Finance - (3.00 Credit hours)
Prerequisite: ACCT-1080, and FINC-1010 or CRFN-1030
This course introduces students to various corporate finance techniques. Emphasis will be placed on understanding the goals and functions of financial management, financial analysis, forecasting, planning, short and long-term financing, and the capital budgeting process. (3 contact hrs)

FINC-2040 - The Stock Market - (3.00 Credit hours)
Prerequisite: None
This course introduces students to stocks, bonds, and other securities. Emphasis will be placed on analysis of the financial markets, risks associated with securities, and the methods used to control these risks. (3 contact hrs)

FIRE - FIRE SCIENCE

FIRE-1000 - Philosophy of Fire Protection - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 100) The philosophy and history of fire protection; history of loss of life and property from fire; review of municipal fire defenses; study of the organization and function of federal, state, county, and private fire protection agencies; survey of professional fire protection career opportunities. (3 contact hrs) Center Campus.

FIRE-1010 - Fundamentals of Fire Prevention - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 101) Organization and function of the fire prevention organization; inspections, surveying and mapping procedures; recognition of fire hazards; engineering a solution to the hazard; enforcement of the solution; public relations as affected by fire prevention. (3 contact hrs) Center Campus.

FIRE-1180 - Fire Science 1 - (4.00 Credit hours)
Prerequisite: None
(formerly FSC 118) Fundamentals of fire investigation; chemistry of fire and fire behavior; determining point of origin and ignition sources; properties of combustibles and residues of pyrolysis; recognition of arson evidence. (4 contact hrs) Center Campus.

FIRE-1190 - Fire Science 2 - (4.00 Credit hours)
Prerequisite: None
(formerly FSC 119) Coordinated lab and lecture on hazardous materials and special hazards as they apply to the field of fire protection. Chemical and physical properties of hazardous material, processing hazards, life hazards, storage, handling, and fire fighting techniques. Regulations by various governmental agencies, insurance services, and suggested codes. (4 contact hrs) Center Campus.

FIRE-1280 - Fire Protection Equipment & Systems 1 - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 128) Introduction to the concept of fire protection systems. Study of extinguishing agents and their application. Concentration on fixed and portable water, carbon dioxide, dry chemical, dry powder, foam, and halogenated systems. (3 contact hrs) Center Campus.

FIRE-1290 - Fire Protection Equipment & Systems 2 - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 129) Continuation of FIRE-1280 with special emphasis on sprinkler systems, automatic detection systems, municipal alarm systems, and the design requirements for application in fire prevention and fire suppression. (3 contact hrs) Center Campus.

FIRE-2000 - Basic Fire Academy - Firefighter 1 - (6.00 Credit hours)
Prerequisite: Consent of Department. Michigan State law mandates that persons taking this course must be at least 18 years of age, have a valid Michigan driver's license, no felony convictions, and successfully pass the Michigan Municipal League Physical Agility test prior to being accepted.
FIRE-2000 is for students who are currently employed by a fire department recognized by the Michigan Fire Marshall, are currently seeking employment, and/or are a volunteer in a recognized fire district. This course provides an introduction to basic fire suppression, prevention procedures, and skill development. This course meets the State-mandated requirements for preparing students to take the exam for State certification for entry-level or on-call or volunteer firefighters. (12.5 contact hrs) East Campus.

FIRE-2010 - Basic Fire Academy - Firefighter 2 - (6.00 Credit hours)
Prerequisite: FIRE-2000 and consent of department
FIRE-2010 is for students who are currently employed by a fire department recognized by the Michigan Fire Marshall, are currently seeking employment, and/or are a volunteer in a recognized fire district. This course deals with advanced fire suppression techniques, including prevention procedure and skill development. This course meets the State-mandated requirements for preparing students to take the exam for State certification for entry-level or on-call or volunteer firefighters. (12.5 contact hrs) East Campus.

FIRE-2130 - Fire Hydraulics & Water Supply - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 213) Hydrostatics and hydrokinetics, Bernoulli's Theorem, Pascal's Theorem, Venturi Action, Hazen-Williams Formula, water distribution systems, pump velocity, discharge, friction loss, engine and nozzle pressures as they relate to the study of fire science. Concentration on theory followed by practical application to the fire service. (3 contact hrs) Center Campus.

FIRE-2300 - Fire Department Administration - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 230) Organization, supervision, and effective management of modern fire departments; survey of municipal fire problems; fire defenses and insurance rates; legal aspects of fire prevention; records and measurement of results. (3 contact hrs) Center Campus.

FIRE-2410 - Building Construction for Fire Protection - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 241) Fundamental building construction and design; fire protection features, special considerations. (3 contact hrs) Center Campus.

FIRE-2510 - Fire Fighting Tactics & Strategy - (3.00 Credit hours)
Prerequisite: None
(formerly FSC 251) Review of fire chemistry, equipment, and manpower; basic fire fighting tactics and strategy; methods of attack; pre-planning fire problems. (3 contact hrs) Center Campus.

FREN - FRENCH LANGUAGE

FREN-1260 - Elementary French 1 - (4.00 Credit hours)
Prerequisite: None
(formerly FRE 126) A multimedia course that combines video, audio, and print to teach French language and culture. Emphasis on communicative efficiency - the development of skills, self-expression, and cultural insight. Regular use of laboratory facilities. (5 contact hrs)

FREN-1270 - Elementary French 2 - (4.00 Credit hours)
Prerequisite: FREN-1260 or two or more years of high school French
(formerly FRE 127) A continuation of FREN-1260: a multimedia course. Students learn French in a series of cultural contexts. Regular use of laboratory facilities. (5 contact hrs)

FREN-2360 - Intermediate French 1 - (4.00 Credit hours)
Prerequisite: FREN-1270
(formerly FRE 236) Part 2 of a multimedia course combining audio, video and text. Students are placed in the presence of authentic, unsimplified French, and are trained to use it in the dynamic context of actual communication. Regular use of laboratory facilities. (5 contact hrs)

FREN-2370 - Intermediate French 2 - (4.00 Credit hours)
Prerequisite: FREN-2360
(formerly FRE 237) A continuation of FREN-2360, with emphasis on the development of skills, self-expression and cultural insight. Regular use of laboratory facilities. (5 contact hrs)

GEOG - GEOGRAPHY

GEOG-1100 - Principles of Geography - (3.00 Credit hours)
Prerequisite: None
(formerly GEO 110) Geographic principles underlying the patterns of man's activity on earth's surface. Systematic geography. (3 contact hrs)

GEOG-1500 - Geography of Michigan & the Upper Great Lakes - (3.00 Credit hours)
Prerequisite: None
(formerly GEO 150) A geographic study of the landforms, culture and economic activities of Michigan and the surrounding Great Lakes states and provinces. (3 contact hrs)

GEOG-2000 - World Regional Geography - (4.00 Credit hours)
Prerequisite: None
(formerly GEO 200) An introductory study of geography from a world regional perspective focusing upon the distribution and interconnections of the world's physical, economic, cultural, and political systems. (4 contact hrs)

GEOL - GEOLOGY

GEOL-1080 - Geology of Michigan - (3.00 Credit hours)
Prerequisite: None
(formerly GEL 108) A basic introduction to Michigan geology, including its minerals and rocks, fossils, scenic features and the processes that formed them, geologic history, and economic geology. Not intended for geology majors. (3 contact hrs) South Campus.

GEOL-1140 - Introduction to Physical Geology - (4.00 Credit hours)
Prerequisite: None
(formerly GEL 114) An integrated lecture-laboratory course that introduces students to the study of Geology. Coverage includes formation and identification of common minerals and rocks, development of Earth's landscape through the study of surface processes, origin of volcanoes, earthquakes, and mountain ranges, and their relationship to the Theory of Plate Tectonics. One optional field trip. (6 contact hrs)

GEOL-1150 - Historical Geology: the Study of the Geologic History of Planet Earth - (4.00 Credit hours)
Prerequisite: GEOL-1140 or NATS-1210 or GEOL-1080
(formerly GEL 115) An integrated lecture-laboratory-field course that studies the geologic history of Planet Earth from its creation to the present time. The first part of the course focuses on the methods geologists use to investigate and unravel Earth's history; the second part of the course applies these methods to present the geologic history of the North American continent. One required field trip. (6 contact hrs)

GEOL-2170 - Regional Geology of the Cascade Range - (3.00 Credit hours)
Prerequisite: GEOL-1140 with grade C or better
(formerly GEL 217) This course introduces the student to the location and formation of prominent geological features within the Cascade Range. Students are required to take an extended field trip to the area following the lecture portion of the class. Costs of the field trip are the student's responsibility. (5 contact hrs)

GRMN - GERMAN LANGUAGE

GRMN-1260 - Elementary German 1 - (4.00 Credit hours)
Prerequisite: None
(formerly GER 126) Emphasis on everyday conversational patterns to give the beginning student of German a useful working knowledge of the language, mainly through aural-oral practice, based upon a systematic study of practical grammar. Regular use of language laboratory. (5 contact hrs)

GRMN-1270 - Elementary German 2 - (4.00 Credit hours)
Prerequisite: GRMN-1260 or two or more years of high school German
(formerly GER 127) A continuation of GRMN-1260. Regular use of language tapes and laboratory facilities. (5 contact hrs)

GRMN-2360 - Intermediate German 1 - (4.00 Credit hours)
Prerequisite: GRMN-1270
(formerly GER 236) Review and elaboration of first year with emphasis on more complex structures. Continued use of tapes and laboratory facilities. (5 contact hrs)

GRMN-2370 - Intermediate German 2 - (4.00 Credit hours)
Prerequisite: GRMN-2360
(formerly GER 237) A continuation of GRMN-2360 with a broader emphasis on reading, writing, and speaking. Continued use of tapes and laboratory facilities. (5 contact hrs)

HHSC - HEALTH & HUMAN SERVICE-GENERAL

HHSC-1010 - Animal Health Careers - (1.00 Credit hours)
Prerequisite: None
(formerly ALH 101) This course will give the student information on the various career opportunities available in the animal health field. Careers to be discussed include: Veterinarian, Veterinary Technician, Zoo Work, Kennel Management and other canine careers, equine careers, governmental and research careers, and business opportunities. Additional topics include: licensing and registration, ethics, and jurisprudence. (1 contact hr) Center Campus.

HHSC-1020 - Physical Therapy Careers - (1.00 Credit hours)
Prerequisite: None
(formerly ALH 102) This course is designed to orient the student to the practice of physical therapy in various health care settings by providing a general overview of the health care system, history of physical therapy, physical therapy services, and roles/functions of health care professionals in the field of physical therapy, and language of physical therapy profession. Observational experience in physical therapy setting is included. (2 contact hrs per week for 8 wks) Center Campus.

HHSC-1030 - Orientation to Occupational Therapy - (1.00 Credit hours)
Prerequisite: None
(formerly ALH 103) This course is designed to orient the student to the practice of occupational therapy in various health care settings. Review of foundations, history, professional organizations, legal and ethical aspects of practice and philosophical base of the profession and its personnel. Includes observational experience. (1 contact hr) Center Campus.

HHSC-1700 - Medical Terminology - (3.00 Credit hours)
Prerequisite: None
(formerly MAST-1700) This course is designed for those individuals who have a need for working knowledge of medical terminology in a variety of medical, paramedical, and medical office positions. Stress will be placed on medical terminology as it occurs in the body's many anatomical systems encompassing the structure of each anatomical system, common disease, anomalies, and surgeries. (3 contact hrs) Center Campus.

HHSC-1800 - Pharmacology for Healthcare Professionals - (3.00 Credit hours)
Prerequisite: HHSC-1700
This course is designed for those individuals interested in gaining a working knowledge of pharmacology. Drugs will be explained through their effects on the body's anatomical structures and systems. Basic concepts in pharmacology will be taught. (3 contact hrs) Center Campus.

HIST - HISTORY

HIST-1260 - Women in European History to 1450 - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 126) A survey of the history of women and their roles (political, economic, social, religious) in European history from prehistory through the Middle Ages including accounts of selected exceptional women, notable and notorious alike, who left their mark on the past. (3 contact hrs)

HIST-1270 - Women in European History, 1450-1848 - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 127) A survey of the history of women and their roles (political, economic, social, religious, cultural) in European history from the Renaissance to the beginning of the women's movement in 1848 and including accounts of selected exceptional women, notable and notorious alike, who left their mark on the past. (3 contact hrs) Winter semester only.

HIST-1400 - History Goes to the Movies - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 140) Explores and evaluates historical fact, fancy and falsehood portrayed in feature films depicting an historical era or specific historical theme; examines historical problems raised by cinematic subjects. (3 contact hrs)

HIST-1500 - Western Civilization to 1648 - (4.00 Credit hours)
Prerequisite: None
(formerly HIST-1100) No credit after HIST-1100 or HIS-110. The evolution of Western Civilization and its development from ancient times through the reformation. (4 contact hrs)

HIST-1600 - Western Civilization Since 1648 - (4.00 Credit hours)
Prerequisite: None
(formerly HIST-1210) No credit after HIST-1210 or HIS-121. The people, ideas, and movements, both revolutionary and reactionary that shaped modern western history. (4 contact hrs)

HIST-1700 - The World Since 1945 - (3.00 Credit hours)
Prerequisite: None
This course focuses on the recovery from World War II, the Cold War, decolonization, the emergence of Asia, the break up of the Soviet Union, and globalization. (3 contact hrs)

HIST-2000 - History of Invention & Technology in America - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 200) A survey of inventions, their technological application and how they affected American economic, social, and political development. (3 contact hrs)

HIST-2100 - History of the United States to 1877 - (4.00 Credit hours)
Prerequisite: None
(formerly HIST-2300) No credit after HIST-2300 or HIS-230. Broad historical view of development of the United States before 1877. (4 contact hrs)

HIST-2200 - History of the United States Since 1877 - (4.00 Credit hours)
Prerequisite: None
(formerly HIST-2310) No credit after HIST-2310 or HIS-231. A broad historical survey of the emergence of the United States as an industrial nation and world power. (4 contact hrs)

HIST-2330 - History of American Movies 1896-1950 - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 233) Surveys the development of American Society by viewing movies as part of our popular culture. (3 contact hrs)

HIST-2340 - Cultural History: American Architecture 1630-2000 - (3.00 Credit hours)
Prerequisite: None
(formerly HIST-2911) The events and personalities that shaped the development of American architectural history from the colonial period to the present including an appreciation of the relationship between America's history and value system and its architectural traditions. (3 contact hrs)

HIST-2360 - The Changing of America, 1945 to the Present - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 236) Analysis of the forces that have shaped modern America: the Cold War, the Kennedy years, the Great Society, Vietnam, Watergate, the Energy Crisis, the Conservative Resurgence. (3 contact hrs)

HIST-2390 - The History of Michigan - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 239) A general survey of the historical development of Michigan from the primitive wilderness to the present. The growth of the cultural, economic, political, and social institutions which enhance understanding of Michigan will be studied. (3 contact hrs)

HIST-2420 - Latin America in the Modern World - (3.00 Credit hours)
Prerequisite: None
(formerly HIS 242) The study of changes in Latin American civilization in the 19th and 20th centuries. A survey of political, economic, and social problems of the many Latin American nations in the modern world. (3 contact hrs)

HIST-2520 - Asia in the Modern World - (4.00 Credit hours)
Prerequisite: None
(formerly HIS 252) The study of Asian nations and their problems in the 19th and 20th centuries. The western influence on Asian culture and history; the position of Asian nations in present international affairs. (4 contact hrs)

HIST-2650 - Middle East Since 1945 - (3.00 Credit hours)
Prerequisite: None
Corequisite: None
This course provides an introduction to the history and culture of the modern Middle East and the major events which have shaped its development since 1945. Events such as independence, Arab-Israeli conflict and the Cold War as well as their resulting legacies within the region will be highlighted. Particular reference will be given to not only key cultural and artistic contributions of the region but also to such ongoing regional challenges as poverty, income inequality, modernization/liberalization, and the relationship between Islam and the state. The effectiveness and potential future impact of such regional solutions as Pan-Arabism, Pan-Islam, and Islamic Fundamentalism will be explored. (3 contact hours)

HITT - HEALTH INFORMATION TECHNOLOGY

HITT-1102 - Introduction to Health Information Management & the Health Care Environment - (3.00 Credit hours)
Prerequisite: Consent of HITT Program Coordinator, and BIOL-2710 and HHSC-1700 with grade C or better.
Corequisite: HITT-1103
This course provides the student with an introduction to the organization of health care and to the health information management profession. Health record content, documentation requirements, and the accrediting and licensing agencies that govern health information will be reviewed. (3 contact hrs) Center Campus. Fall semester only.

HITT-1103 - Legal Aspects of Health Information Management - (3.00 Credit hours)
Prerequisite: Consent of HITT Program Coordinator, and BIOL-2710 and HHSC-1700 with grade C or better.
Corequisite: HITT-1102
This course covers legal and accreditation issues in health information management, including the Health Insurance Portability and Accountability Act (HIPAA); confidentiality and the right to privacy; the legislative process; the local, state and federal court system; legal vocabulary; retention directions; and ethical issues in health care and health information management. (3 contact hrs) Center Campus. Fall semester only.

HITT-1201 - Pathophysiology & Pharmacology Applications in Health Information - (3.00 Credit hours)
Prerequisite: HITT-1102 and HITT-1103 and ITCS-1010 with grade C or better.
Corequisite: HITT-1206, HITT-1207, HITT-1208
The course focus is on description of conditions and diseases of the organ systems, including etiology, signs and symptoms, and methods of diagnosis and treatment. Students will build on their knowledge of anatomy and physiology and medical terminology through a detailed study of common pathological conditions and the drugs used in their treatment. (3 contact hrs) Center Campus. Winter semester only.

HITT-1206 - Health Information Management Systems - (3.00 Credit hours)
Prerequisite: HITT-1102 and HITT-1103 and ITCS-1010 with grade C or better.
Corequisite: HITT-1201, HITT-1207, HITT-1208
(formerly HITT-1203) This course provides the students with an overview of various health information management systems. Students will gain knowledge of chart tracking, chart deficiency, processing release of information requests, master patient index and various registries. A hands-on lab will help the students gain proficiency in basic health information management functions. (4 contact hrs) Center Campus. Winter semester only.

HITT-1207 - International Classification of Disease (ICD) Coding - (3.00 Credit hours)
Prerequisite: HITT-1102 and HITT-1103 and ITCS-1010 with grade C or better.
Corequisite: HITT-1201, HITT-1206, HITT-1208
(formerly HITT-1204) This course concerns the use of the International Classification of Disease (ICD) and corresponding Diagnostic Related Group (DRG) classification systems as used in diagnostic and procedural coding, inpatient reimbursement clinical classification systems, and related areas of study such as data quality and correct usage of the Uniform Hospital Discharge Data Set (UHDDS). This course uses encoder and grouping software. (4 contact hrs) Center Campus. Winter semester only.

HITT-1208 - Computers in Healthcare - (2.00 Credit hours)
Prerequisite: HITT-1102 and HITT-1103 and ITCS-1010 with grade C or better.
Corequisite: HITT-1201, HITT-1206, HITT-1207
(formerly HITT-1205) This course, providing an overview of information technology in healthcare, reviews common software applications used in organizations (administrative, patient registration, ADT, clinical applications, point of care data capture, radiology, pharmacy, and other ancillary departments) and the role of the health information management professional in the applications. Students must be fluent with word processing, e-mail, Internet searching, Excel, PowerPoint, and basic database development and query. This course covers current information in the following areas: data and information, data integrity, document imaging, electronic health records and emerging technologies in healthcare information systems. (2 contact hrs) Center Campus. Winter semester only.

HITT-2101 - Professional Practice Experience 1 - (3.00 Credit hours)
Prerequisite: HITT-1201 and HITT-1206 and HITT-1207 and HITT-1208 with grade C or better.
Corequisite: HITT-2105, HITT-2106, HITT-2107
During this professional practice experience, students will apply to non-acute care settings knowledge from the courses they have had. Students will be expected to complete the professional practice experience manuals provided at the beginning of the semester. This is a non-paid, non-working clinical affiliation. Students may be asked to complete assignments given by the clinical site periodically, but may not be substituted for paid workers.
(8 contact hrs per week for 16 wks) Center Campus. Fall semester only.

HITT-2105 - Healthcare Reimbursement Systems - (3.00 Credit hours)
Prerequisite: HITT-1201 and HITT-1206 and HITT-1207 and HITT-1208 with grade C or better.
Corequisite: HITT-2101, HITT-2106, HITT-2107
(formerly HITT-2102) This course covers the complex financial systems in today's healthcare environment. The student will obtain insight into how reimbursement systems have made an impact on providers, payers, and consumers. Students will develop skills in coding compliance, revenue cycle management and case mix management. (3 contact hrs) Center Campus. Fall semester only.

HITT-2106 - CPT/HCPCS & Outpatient Coding - (3.00 Credit hours)
Prerequisite: HITT-1201 and HITT-1206 and HITT-1207 and HITT-1208 with grade C or better.
Corequisite: HITT-2101, HITT-2105, HITT-2107
(formerly HITT-2103) This course uses Current Procedural Terminology (CPT) to prepare the student to code various body systems, disease processes and treatments in the outpatient settings. Billing and insurance procedures as well as chargemaster description and maintenance will be addressed. This course uses encoder and grouping software. (4 contact hrs) Center Campus. Fall semester only.

HITT-2107 - Health Information Statistics - (4.00 Credit hours)
Prerequisite: HITT-1201 and HITT-1206 and HITT-1207 and HITT-1208 with grade C or better.
Corequisite: HITT-2101, HITT-2105, HITT-2106
(formerly HITT-2104) This course discusses the fundamental concepts of the most frequently used health statistics including vital and descriptive statistics, emphasizing the reliability and validity of data and database issues, such as data searching and access. (4 contact hrs) Center Campus. Fall semester only.

HITT-2201 - Professional Practice Experience 2 - (3.00 Credit hours)
Prerequisite: HITT-2101 and HITT-2105 and HITT-2106 and HITT-2107 with grade C or better.
Corequisite: HITT-2202, HITT-2203, HITT-2204
Student will demonstrate basic competencies of health information technology in an acute care setting. This supervised professional practice experience will provide the students with observation of and interaction with health information functions. (16 contact hrs per week for 16 wks) Center Campus. Winter semester only.

HITT-2202 - Organizational Performance for Health Information Management Professionals - (3.00 Credit hours)
Prerequisite: HITT-2101 and HITT-2105 and HITT-2106 and HITT-2107 with grade C or better.
Corequisite: HITT-2201, HITT-2203, HITT-2204
This course is an introduction to quality assessment and improvement techniques. Students will learn about data collection tools, data analysis, reporting methods, quality assessment plans, team development, utilization and resource management, case management, risk management, clinical and critical pathways, project management, and accreditation standards governing a variety of health care organizations. The instruction will cover the organizational structure of the medical staff and its composite members and will provide an overview of a Joint Commission on Accreditation of Health Care Organizations survey schedule. Other issues that may be addressed include practitioner credentialing, information management plans and how they interface with quality assessment efforts, standard performance measures, and practice guidelines. (3 contact hrs) Center Campus. Winter semester only.

HITT-2203 - Management for Health Information Management Professionals - (3.00 Credit hours)
Prerequisite: HITT-2101 and HITT-2105 and HITT-2106 and HITT-2107 with grade C or better.
Corequisite: HITT-2201, HITT-2202, HITT-2204
This course is an overview of management principles for first line managers in the Health Information Management (HIM) field. Topics covered in the course include motivational theory, leadership, supervisory skills, human resource management, budgeting, ergonomics, marketing HIM services, presentation skills and techniques, professional image and development, HIM departmental performance improvement and appropriate oral and communication skills. (3 contact hrs) Center Campus. Winter semester only.

HITT-2204 - Health Information Technology Seminar - (1.00 Credit hours)
Prerequisite: HITT-2101 and HITT-2105 and HITT-2106 and HITT-2107 with grade C or better.
Corequisite: HITT-2201, HITT-2202, HITT-2203
This course will assist the student to prepare for the national Registered Health Information Technician examination. The student will develop an individual or group study plan and complete a mock examination. In addition, the course will discuss skills for job searching and interviewing and review the importance of continuing education within the health information management profession. (1 contact hr) Center Campus. Winter semester only.

HTMT - HOSPITALITY MANAGEMENT

HTMT-1010 - Introduction to the Hospitality Industry - (4.00 Credit hours)
Prerequisite: None
This course will introduce the student to the topics which will begin to prepare them for managerial careers in these fields. This course will introduce the following areas: Industry Overview, Lodging, Commercial and Non-Commercial Food Service, Recreation and Leisure Organizations, The Business Meeting Coordinator, and a Career in Hospitality. (4 contact hrs)

HTMT-1020 - Lodging Management 1 - (3.00 Credit hours)
Prerequisite: None
This course presents a logical approach to front office procedures by detailing the guest's interaction with the lodging facility, from the reservation process to checkout and settlement. The student will be exposed to the various elements of effective front office management, considering planning and evaluation of front office operations and staff. The front office operation is placed within the context of the overall operation of a hotel. (3 contact hrs)

HTMT-1040 - Hospitality Sales & Marketing - (4.00 Credit hours)
Prerequisite: None
This course is designed to provide students with a solid background in hospitality sales, especially the principles and practices of marketing the services of the hospitality industry. Emphasizes the marketing concept with applications leading to customer satisfaction and reviews methods of external and internal stimulation of sales. The course may include practical sales/marketing exercises. (4 contact hrs)

HTMT-2010 - Lodging Management 2 - (3.00 Credit hours)
Prerequisite: HTMT-1020
This course presents an organized approach to managing housekeeping operations in the hospitality industry. The student will become familiar with the role of housekeeping in hospitality operations by focusing on the planning, organization, budgeting, and supervision of various housekeeping tasks. Managing inventories, controlling expenses, and monitoring safety and security functions will be discussed in consideration of developing and maintaining the quality standards demanded by today's guests. (3 contact hrs)

HUMN - HUMANITIES

HUMN-1210 - Introduction to the Arts - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 121) An introductory course in the Humanities, stressing an objective approach to the arts. It is designed to provide the student with the tools necessary to understanding various forms of artistic expression and to establish the understanding that form and content in art are products of fundamental cultural values. Painting, sculpture, architecture, and music are stressed. Related field trips are a part of the humanities program. (3 contact hrs)

HUMN-1250 - Human Values, Technology & the Automobile - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 125) An examination within the context of an introduction to the Humanities of the combined impact of the motor vehicle, the automotive industry, and the highway upon American culture. Emphasis upon lifestyles and values through expressions available in the visual arts, industrial design, architecture, music, and literature. (3 contact hrs)

HUMN-1270 - Rock Music: A Cultural Perspective - (4.00 Credit hours)
Prerequisite: None
This introductory course studies the development of rock music and its influence on society. The course includes basic music terminology as well as representative styles and artists that had major impacts on rock music and on society. (3 contact hours)

HUMN-1300 - Theater Arts - (4.00 Credit hours)
Prerequisite: None
This course is designed to increase understanding and appreciation of the theater. Discussions, writing, and performance activities will focus on theater history, dramatic writing, and production elements. Related field trips are a part of the course. (4 contact hrs)

HUMN-1460 - The Film As Art - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 146) Analysis and evaluation of a variety of films as art media. Aesthetic considerations in film techniques; production and editing. Important feature films as well as film shorts will be screened and provide the basis for discussion. (3 contact hrs)

HUMN-1472 - Selected Studies in Film: the Western - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 147C) A course to permit the student further development of specialized interest in film. This will be done through background readings, screening, and analytical writing concerning major motion pictures. Such topics as film history, the documentary, film production, or the study of a major film artist will be offered. (3 contact hrs)

HUMN-1473 - Selected Studies in Film: Gangsters - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 147E) A course to permit the student further development of specialized interest in film. This will be done through background readings, screening, and analytical writing concerning major motion pictures. Such topics as film history, the documentary, film production, or the study of a major film artist will be offered. (3 contact hrs)

HUMN-1474 - Selected Studies in Film: Vietnam on Film - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 147D) A course to permit the student further development of specialized interest in film. This will be done through background readings, screening, and analytical writing concerning major motion pictures. Such topics as film history, the documentary, film production, or the study of a major film artist will be offered. (3 contact hrs)

HUMN-1476 - Selected Studies in Film: Science Fiction - (3.00 Credit hours)
Prerequisite: None
(formerly HUM 147H) A course to permit the student further development of specialized interest in film. This will be done through background readings, screening, and analytical writing concerning major motion pictures. Such topics as film history, the documentary, film production, or the study of a major film artist will be offered. (3 contact hrs)

HUMN-1479 - Selected Studies in Film: Shakespeare Through Film - (3.00 Credit hours)

Prerequisite: None

(formerly HUM 147K) A course to permit the student further development of specialized interest in film. This will be done through background readings, screening, and analytical writing concerning major motion pictures. Such topics as film history, the documentary, film production, or the study of a major film artist will be offered. (3 contact hrs)

HUMN-1700 - Comparative Religions - (3.00 Credit hours)

Prerequisite: None

(formerly HUM 170) The course begins by exploring the dimensions and functions of religion in the lives of human beings. Then basic beliefs of a variety of eastern and western religions are surveyed and discussed, noting similarities and differences among these traditions. Field trips to a variety of religious services supplement classroom lecture and discussion. (3 contact hrs)

HUMN-1750 - Introduction to Mythology - (3.00 Credit hours)

Prerequisite: None

(formerly HUM 175) An introductory outline of myths and legends from ancient Greece, Rome, the Middle East and Northern Europe, together with more recent and non-European parallels. Recurring themes and structures will be examined. Students will be introduced in stages to the subject matter for its own sake while analyzing the human thought behind each myth, plus its influence on literature, art and film. (3 contact hrs)

HUMN-2000 - Introduction to Asian Religions & Culture - (3.00 Credit hours)

Prerequisite: None

(formerly HUM 200) The religious traditions of India, China and Japan form the backdrop for studying the impact of religion on community and culture. Special focus will be on the interaction of religion with community life and social change in the twentieth century. (3 contact hrs)

INTL - INTERNATIONAL STUDIES

INTL-2000 - Introduction to Latin America - (4.00 Credit hours)

Prerequisite: None

(Humanities credit) This multidisciplinary course will draw on the arts, humanities, social science, history, and geography to examine significant questions using Latin America as the basis. These questions relate to the encounter of cultures, of forging community, notions of rights, revolution, and dependence and change in a globalizing world. The course will also explore an understanding of the roots of Latin America civilization with its ethnic diversity, including a profile on the Latin Americans descendents in the United States and an analysis of the role of military and US policies toward Latin America, the impact of the external debt, free trade agreements and their effects on the environment. (4 contact hrs)

INTL-2010 - Introduction to Russia & Eastern Europe - (4.00 Credit hours)

Prerequisite: None

(formerly INTL-2913) (Social Science credit) This course introduces students to the geography, history, economics, politics, and arts of Russia and Eastern Europe. This interdisciplinary introduction will help students better understand the values and experiences of other peoples as the world becomes a global community. (4 contact hrs)

INTL-2300 - Introduction to Japan - (4.00 Credit hours)
Prerequisite: None
(formerly INTL-2911) (Humanities credit) This course draws on the arts, humanities, social science, history, and geography of Japan. This course discusses the encounter of cultures, centrality of family, veneration of nature, synthesis of foreign ideas, and Japan's role in the global community. (4 contact hrs)

INTL-2500 - Introduction to Chinese Civilization - (4.00 Credit hours)
Prerequisite: None
(formerly INTL-2912) (Social Science credit) This multidisciplinary course will draw on geography, history, the social sciences, literature, and art to examine the evolution of traditional Chinese civilization from its prehistoric beginnings until 1600. This course will survey the environmental, political, social, economic, scientific, intellectual, religious, and cultural factors that contributed to the development of traditional Chinese civilization and the subsequent impact of that civilization on the world. (4 contact hrs)

INTL-2700 - Introduction to Africa - (4.00 Credit hours)
Prerequisite: None
(Social Science credit) Drawing on the social sciences, this multidisciplinary course examines the forces that have shaped African civilization. The course explores Africa's cultural and historical legacy outside of the Eurocentric parameter. General themes include the continent's geography, anthropology, religion, and art. The impacts that the Atlantic slave trade, European colonization, industrialization, and independence movements had on the Africa's political, economic, and social growth are also examined. (4 contact hrs)

ITAL - ITALIAN LANGUAGE

ITAL-1260 - Elementary Italian 1 - (4.00 Credit hours)
Prerequisite: None
(formerly ITA 126) Emphasis on everyday conversational patterns to give the beginning student of Italian a useful working knowledge of the language, mainly through aural-oral practice, based upon a systematic study of practical grammar. Regular use of language laboratory. (5 contact hrs)

ITAL-1270 - Elementary Italian 2 - (4.00 Credit hours)
Prerequisite: ITAL-1260 or two or more years of high school Italian
(formerly ITA 127) A continuation of ITAL-1260. Regular use of language tapes and laboratory facilities. (5 contact hrs)

ITAL-2360 - Intermediate Italian 1 - (4.00 Credit hours)
Prerequisite: ITAL-1270
(formerly ITA 236) Review and elaboration of first year with emphasis on more complex structures. Continued use of tapes and laboratory facilities. (5 contact hrs)

ITAP - IT- APPLICATIONS PROFESSIONAL

ITAP-1500 - Advanced MS Word - (4.00 Credit hours)
Prerequisite: ITCS-1010
(formerly ITBS-1600 & ITBS-1610 together) Learn advanced word processing applications that encourage creativity and increase productivity. Make decisions, think critically, work collaboratively, and become proficient in creating professional-looking business documents that enhance decision-making abilities for you and your organization. This course prepares students for MOS certification using approved courseware. (4 contact hrs)

ITAP-1600 - Advanced MS Excel: A Problem Solving Approach - (4.00 Credit hours)
Prerequisite: ITCS-1400
(formerly ITBS-1620 & ITBS-1630 together) Students will use the advanced features and tools of Microsoft Excel to solve problems and support decisions by effectively analyzing alternatives (e.g., using What-If analyses, comparing financial options, constructing effective charts) based on quantitative data. Students will produce documents within a portfolio reflecting their ability to analyze and present documentation in a professional, business-like manner. Students will also learn how to manage large amounts of data using a variety of techniques including XML data formatting and information sharing to ensure effective transfer of information between software applications. The student will gain the skills and knowledge to prepare for the MOS certification exam at the Expert level. (4 contact hrs)

ITAP-1700 - Advanced MS Access: A Problem Solving Approach - (4.00 Credit hours)
Prerequisite: ITCS-1400
This course uses the advanced features and tools of Microsoft Access to solve problems and support decisions. Case problems and collaboration reinforce the student's critical thinking and problem solving skills. The student will gain the skills and knowledge to prepare for the MOS certification exam at the expert level. (4 contact hrs)

ITAP-2000 - Enterprise Content Management (ECM) Fundamentals - (3.00 Credit hours)
Prerequisite: None
This course provides an introduction to Enterprise Content Management (ECM) defining ECM components and technologies while reviewing typical content-related business challenges and trends. The student will gain a fundamental understanding of and appreciation for effective document management, workflow/business process management, compliance requirements and standards, and document lifecycles. (3 contact hrs)

ITAP-2010 - Fundamentals of Electronic Records Management (ERM) - (3.00 Credit hours)
Prerequisite: None
(formerly ITBS-1400) This course provides an introduction to Electronic Records Management (ERM). Organizations realize the need for focusing on the effective management of records. Topics include taxonomies, retention schedules, and legal and regulatory requirements. (3 contact hrs)

ITBS - BUSINESS INFORMATION SYSTEMS

ITBS-1000 - Computer Keyboarding - (2.00 Credit hours)
Prerequisite: None
(formerly BIS 100) Designed for students who want to keyboard efficiently on personal computers. Students will learn the touch method for keying alphabetic, numeric, punctuation, and selected symbol keys as well as how to operate related machine parts. (2 contact hrs)

ITBS-1020 - Keyboard Speed Development - (2.00 Credit hours)
Prerequisite: None
(formerly BIS 102) Keyboarding experience is recommended. Designed to improve keyboarding skills. Emphasis is on a combination of speed and accuracy. Includes diagnostic and motivational drills, speed and accuracy exercises for improvement, and timed material for assessment. (2 contact hrs)

ITBS-1240 - Creating a Web Page for Business - (2.00 Credit hours)
Prerequisite: None
(formerly BIS 124) Windows computer experience recommended. Using the latest technology makes it easy to develop professional-looking business web sites for the Internet or intranets without knowing or learning HTML. (2 contact hrs)

ITBS-1250 - Introduction to Multimedia for Business - (2.00 Credit hours)
Prerequisite: None
(formerly BIS 125) Windows computer experience recommended. Provides a project-based overview of multimedia interface design, production planning, text, graphics, video, sound, authoring software, interactivity, testing, packaging and promotion. (2 contact hrs)

ITBS-1260 - Multimedia Using Macromedia for Business - (2.00 Credit hours)
Prerequisite: ITBS-1250
(formerly BIS 126) Any multimedia experience can be substituted for the ITBS-1250 requirement. Technology is changing the way we learn, work, live, and play. Create and import multimedia files, lively animations, and transition effects; edit and play sounds; create film loops and video effects; add navigation systems for interactive presentations; and use scripting language to add interactivity. (2 contact hrs)

ITBS-1280 - Desktop Publishing for Windows - (2.00 Credit hours)
Prerequisite: None
(formerly BIS 128) Windows computer experience recommended. Provides a fundamental understanding of the terminology, skills, and tools of Desktop Publishing for Windows for the office environment. Text and graphics will be combined to produce high-quality documents such as a flyer, letterhead, newsletter, and a proposal. (2 contact hrs)

ITBS-1290 - Advanced Desktop Publishing - (2.00 Credit hours)
Prerequisite: ITBS-1280
(formerly BIS 129) Knowledge of Adobe PageMaker is recommended. Provides opportunities to create original publications using desktop publishing for Windows. Uses fundamental skills gained in ITBS-1280 or on the job. Covers threading of text, using multiple paste and power pasting, changing hyphenation, modifying with image control, using various flow methods, compressing scanned images, creating special effects, and preparing portable document format conversions. Will create publications such as a calendar, booklet, magazine article, and a catalog. (2 contact hrs)

ITBS-1310 - Using the Internet for Business - (1.00 Credit hours)
Prerequisite: None
(formerly BIS 131) Windows computer experience recommended. The Internet is a worldwide collection of computer networks that allow people to communicate with each other and learn how the WWW can be used within the office workplace. Every day millions of people use the Internet at work to research information, purchase goods and services, and speak to each other via electronic mail and chat rooms. (1 contact hr)

ITBS-1640 - Microsoft PowerPoint for Office Professionals - (1.00 Credit hours)
Prerequisite: None
(formerly BIS 164) Computer experience recommended. Develops competency in Microsoft PowerPoint. Introduces professional presentations for delivery using the computer, slides, or overhead transparencies. (1 contact hr)

ITBS-2150 - E-Commerce - (3.00 Credit hours)
Prerequisite: BUSN-1010 and ITBS-1240
(formerly BIS 215) Programming experience NOT necessary. Practical case-based and hands-on approach to planning and starting an e-business from the ground up. Decide on the business, create an organization, and make decisions that will bring your business to the Internet. Suited for nonprofit as well as profit making ventures. Applies management and marketing concepts in developing a presence on the Internet. (3 contact hrs)

ITCS - COMPUTER INFORMATION SYSTEMS

ITCS-1010 - Computer & Information Processing Principles - (4.00 Credit hours)
Prerequisite: None
(formerly CIS 101) Introduction to Information Technology concepts and methods that knowledge workers use to organize and manage information resources. Computer concept topic areas include up-to-date information about hardware, software, the Internet, telecommunications and network systems, databases, commerce and transaction processing, and information and decision support systems. Students will develop/enhance basic skills in using computer applications software (word processing, database management systems, spreadsheet, and presentation packages) to effectively communicate for the benefit of an organization. Methods of instruction include lecture, lab, and computer-support online training/testing site. (4 contact hrs)

ITCS-1130 - Introduction to Program Design & Development - (3.00 Credit hours)
Prerequisite: None
Corequisite: ITCS-1010
No credit after ITCS-1100 or ITCS-1120. This course is designed to provide the student with a fundamental understanding of the detailed program logic common to many programming languages. Topics of discussion include debugging techniques, trends in programming, various logic structures, editing and validation, and programming computers. Students will apply programming logic to develop, code, and debug structured computer programs that solve various problems. (3 contact hrs)

ITCS-1160 - Introduction to Oracle: SQL - (2.00 Credit hours)
Prerequisite: ITCS-1010
(formerly CIS 116) No credit after ITCS-2280. This course provides practical knowledge of Structured Query Language to define, query, and update data using Oracle as the relational database. (2 contact hrs)

ITCS-1180 - Database Design Concepts - (2.00 Credit hours)
Prerequisite: ITCS-1010
(formerly CIS 118) No credit after ITCS-2280. This course familiarizes the student with basic models, capabilities, and file structures that comprise the standard DataBase Management System (DBMS) package. Application requirements for Hierarchical, Inverted, and Relational models will be presented using data structures or logical schema. (2 contact hrs)

ITCS-1230 - Visual Basic Programming - (4.00 Credit hours)
Prerequisite: ITCS-1130
(formerly CIS 123) Visual Basic is an entry level course covering syntax, input/output layout, testing, debugging, documentation, and heavy emphasis on problem definition. Student programs will be entered using Microsoft's Visual Basic. (4 contact hrs)

ITCS-1400 - Micros in Business - (4.00 Credit hours)
Prerequisite: ITCS-1010
(formerly CIS 140) This course is an in-depth extension of work completed in ITCS-1010. Students will develop the further understanding needed for entry level positions in automated offices or for participation on teams involved in the use of advanced office systems.
(4 contact hrs)

ITCS-1950 - Introduction to Game Development - (4.00 Credit hours)
Prerequisite: ITCS-1130
(formerly ITCS-2913) This course introduces principles of game programming through hands-on creation of simple games with a current games-centeed programming language. Major topics include syntax, data structures for games, designing game worlds with objects (OOP), sprites, audio playback, player input, animation, collision detection, simple physics, basic AI (Artificial Intelligence) and game engines. Both text-based and graphics-based games will be examined. (4 contact hrs)

ITCS-2000 - Game Programming in Direct X with C++ - (4.00 Credit hours)
Prerequisite: ITCS-2530 and ITCS-1950
This course provides the student with higher order programming skills necessary to manipulate class level objects such as characters, sounds, background objects, and worlds used in the development of game programs. The student will code game solutions utilizing Direct X and C++. (4 contact hrs)

ITCS-2050 - Advanced Game Development - (4.00 Credit hours)
Prerequisite: ITCS-1950 and MACA-1040
Building on principles of game design presented in ITCS-1950, this course uses currently available game development software to create actual games. Students will develop a text-based adventure game, a 2D single and multi-player game, and a 3D single and multi-player game. (4 contact hrs)

ITCS-2165 - PL/SQL Programming - (3.00 Credit hours)
Prerequisite: ITCS-1160
This course teaches students PL/SQL programming from beginning to advanced topics. Students will learn to create SQL/PL blocks, use variables, control structures, procedures, functions, packages, triggers, and error handling. Dynamic SQL, object technology, and code tuning are also introduced. (3 contact hrs)

ITCS-2220 - Advanced Visual Basic - (3.00 Credit hours)
Prerequisite: ITCS-1230 or CIS-122
(formerly CIS 222) Visual Basic is an advanced course covering syntax, input/output layout, testing, debugging documentation, and heavy emphasizing on problem definitions. Student programs will be entered using Microsoft's Visual Basic. (3 contact hrs)

ITCS-2335 - Foundations of Business Information Technology - (4.00 Credit hours)
Prerequisite: Admitted into Walsh College Fast Track program
This course examines current and developing Business Information Technologies (BIT) and their potential for satisfying emerging business needs. Students explore the critical role of BIT in modern business. This class is specifically designed for students enrolled in the Fast Track Master program at MCC and Walsh. (4 contact hrs)

ITCS-2360 - Systems Development Methodology - (4.00 Credit hours)
Prerequisite: ACCT-1050 or ACCT-1070 or ACCT-1080
(formerly CIS 236) This course reviews a structured (life cycle) systems methodology. This systems cycle includes analysis, design and development. Emphasis is placed on the analysis phase, problem definition and detailed systems investigation; also, the design phase is reviewed from a manual and automated standpoint. Systems skills necessary to analyze and design, such as interviewing, flowcharting, developing decision tables, procedure writing, project planning and control are reviewed. The objective is to produce a problem definition and systems investigation report suggesting alternative solutions and a final management recommendation. (4 contact hrs)

ITCS-2370 - Computer Systems Design - (4.00 Credit hours)
Prerequisite: ITCS-2360
(formerly CIS 237) This course emphasizes the design and development phases of a systems methodology. Emphasis is placed on designing an interactive computerized system and developing complete systems specifications. These would include system flowcharts, screen layout, file formats, run flow diagrams/processes, report formats, cost and benefit analysis. The development phase is reviewed in a general nature. (4 contact hrs)

ITCS-2530 - C++ Programming 1 - (4.00 Credit hours)
Prerequisite: ITCS-1130
(formerly CIS 253) This course provides the student with a practical introduction to the C++ object-oriented programming language. The student will learn new concepts not available in traditional programming languages such as encapsulation, data hiding, and polymorphism. The student will code programs using basic constructions of decision, loops, structures, and simple functions inherent to both the C and C++ languages. Additional topics will involve objects, classes, data types and arrays. All programs and/or examples will be implemented by the student on microcomputers. (4 contact hrs)

ITCS-2550 - C++ Programming 2 - (3.00 Credit hours)
Prerequisite: ITCS-2530 or CIS-254
(formerly CIS 255) This course provides the student with a continuing study of C++ object-orientated programming language. The student will learn additional concepts of operator overloading, multiple public and private inheritance, C++ pointers, files and streams, virtual functions, and basic C++ CLASS libraries. Additional CLASS libraries will be used as required. Primary emphasis will be placed on object-orientated concepts and design. The student will code programs involving objects, classes, multiple inheritance, new data types, C++ pointers, and file I/O. All programs and/or examples will be implemented by the student on microcomputers. (3 contact hrs)

ITCS-2590 - Java 1 - (4.00 Credit hours)
Prerequisite: ITCS-1130
(formerly CIS 259) This course provides the student with a practical introduction to the Java programming language. The student will learn how concepts of encapsulation, constructors, inheritance, and polymorphism are implemented within the language. The student will code programs using primitive types, basic statements, and dynamic data structures. Additional topics will involve objects, classes, applets, and API. All programs and/or examples will be implemented by the student on a microcomputer network. (4 contact hrs)

ITCS-2620 - Java 2 - (3.00 Credit hours)
Prerequisite: ITCS-2590 or CIS-257
(formerly CIS 262) This course provides the student with a continuing study of the Java programming language. The student will learn additional concepts involved with building portable GUI applications/applets using JFC Swing components, JavaBeans, and JDBC. Additional topics of RMI and Servlets will be addressed. All programs and/or examples will be implemented by the student on a microcomputer network. (3 contact hrs)

ITCS-2790 - C# Programming 1 - (4.00 Credit hours)
Prerequisite: ITCS-1130
This course provides the student with a practical introduction to the C# programming language and its place in the Microsoft .Net framework. Specific areas of coverage include IDE usage, C# basics, control flow, basic I/O classes, and Object Oriented feature of the language such as Polymorphism, Properties, Exceptions, Events, and Collections. Both Console and Windows Forms applications are introduced. (4 contact hrs)

ITCS-2820 - C# Programming 2 - (3.00 Credit hours)
Prerequisite: ITCS-2790
This course provides the student with a continuing study of the C# programming language. Students will learn fundamental application development, GUI creation, database access, and inter-program communication. Complex GUIs will be covered using Forms and GDI+. Further Data Access techniques will be covered including Database ADO.NET (Active-X Data Objects), XML, and Web Pages using ASP (Active Server Pages). (3 contact hrs)

ITIA - IT - INFORMATION ASSURANCE

ITIA-1200 - Introduction to Information Systems Security - (3.00 Credit hours)
Prerequisite: ITCS-1500 or ITNT-1500 or ITNC-1000
(formerly ITCS-2180) This course introduces the student to the various elements of information systems security. Topics covered include information security planning, logical and physical security design, security plan implementation and administration, and legal and liability issues surrounding information systems. Students will explore various security threats and learn how to protect an organization against malicious attacks through processes that ensure confidentiality, availability, and data integrity. (3 contact hrs)

ITIA-1300 - Information Security Safeguards - (3.00 Credit hours)
Prerequisite: ITIA-1200
This course will focus on information security technologies and will provide hands-on lab exercises that will prepare students to effectively defend a network. Perimeter components such as firewalls, VPNs, and intrusion detection systems will be discussed and configured. Best practices of perimeter defense will be examined, along with solutions to real-world problems associated with information security technologies. Students will expand their knowledge of network security tools and techniques through various lab exercises. (3 contact hrs)

ITIA-1400 - Building an Information Protection Program - (3.00 Credit hours)
Prerequisite: ITIA-1200 with grade C or better
This course guides the student through the requirements necessary to establish and manage a successful Assets Protection Program in a global environment. Students will learn how to safeguard corporate assets in a flexible, cost-effective manner using a state-of-the-art asset protection program. Students will develop a comprehensive information systems security program that includes risk management, computer security incident handling, contingency planning, awareness and training, physical and environmental security, auditing, and corporate ethics. (3 contact hrs)

ITIA-2300 - Information Systems Threat Assessment - (3.00 Credit hours)
Prerequisite: ITIA-1200 with grade C or better
This course provides a process for the systematic review of risk, threats, hazards, and concerns to an organization's security posture. As a security professional, the student will learn cost-effective measures to lower risk to an acceptable level. Students will utilize various tools and methods for examining security weaknesses, creating an audit report, and recommending security improvements. (3 contact hrs)

ITIA-2600 - Principles of Cryptography - (3.00 Credit hours)
Prerequisite: ITIA-2300 with grade C or better
This course will introduce the student to the principles of cryptography, both in theory and practice. Topics covered include classical encryption techniques, abstract algebra, number theory, symmetric and asymmetric ciphers, public and private key cryptosytems, message authentication, and hash algorithms. While abstract algebra and number theory play a large role in contemporary cryptography, limited time will be spent on mathematics. The primary focus of this course is applied cryptography where the student will understand modern cryptographic systems, their strengths and weaknesses, and algorithms used. (3 contact hrs)

ITIA-2700 - Computer Forensics - (3.00 Credit hours)
Prerequisite: ITIA-2600 with grade C or better
This course is designed to give the student a solid foundation in computer forensics. It will guide the student toward becoming a skilled computer forensics investigator and help to pass appropriate certification exams. Various operating systems and computer hardware will be covered, along with several computer forensics software tools. The student will learn how to record a crime scene, how to properly secure the evidence, and how to evaluate and document a case. (3 contact hrs)

ITML - MICROCOMPUTER LITERACY

ITML-1000 - Microcomputer Literacy - (2.00 Credit hours)
Prerequisite: None
(formerly MCL 100) This course is designed to be an introduction to microcomputer use. The course is intended for students with little or no microcomputer knowledge. Students will be introduced to the uses of database, spreadsheet, graphics, word processing and telecommunication using microcomputers. (2 contact hrs)

ITNC - IT - NETWORKING - CISCO

ITNC-1000 - Cisco Networking 1 - (4.00 Credit hours)
Prerequisite: ITCS-1010
This course is the first of four courses to prepare students for the Cisco Certified Network Associate (CCNA) exam. The focus of this course is on networking terminology and protocols, local area networks (LANs), wide area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, IP addressing, and network standards. In accordance with the Cisco Quality Assurance Plan, in order to advance to the next course, student must pass the final exam with a score of 70% or greater and demonstrate proficiency in the skills-based assessment (graded as Pass or Fail). (4 contact hrs)

ITNC-1020 - Cisco Certified Entry Networking Technician (CCENT) 1 - (3.00 Credit hours)
Prerequisite: None
This course focuses on the skills needed to obtain entry-level home network installer jobs including home network technicians, computer technicians, cable installers, and help desk technicians. It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments. Network addressing, services, wireless technologies, ISP services, and basic network security will be addressed. This is one of two courses that prepare the student for the Cisco Certified Entry Networking Technician (CCENT) Certification Exam. (3 contact hrs)

ITNC-1030 - Cisco Certified Entry Networking Technician (CCENT) 2 - (3.00 Credit hours)

Prerequisite: ITNC-1020

This course focuses on the skills needed to obtain entry-level home network installer jobs including home network technicians, computer technicians, cable installers, and help desk technicians. It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments. Routing, WAN technologies, ISP services, and basic network security will be addressed. This is the second of two courses that prepare the student for the Cisco Certified Entry Networking Technician (CCENT) Certification Exam. (3 contact hrs)

ITNC-1100 - Cisco Networking 2 - (4.00 Credit hours)

Prerequisite: ITNC-1000

This is the second of four courses to prepare students for the Cisco Certified Network Associate (CCNA) exam. The focus of this course is on initial router configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, managing Cisco IOS software, configuring router protocols on routers, and set the access lists to control the access to routers. In accordance with the Cisco Quality Assurance Plan, in order to advance to the next course, student must pass the final exam with a score of 70% or greater and demonstrate proficiency in the skills-based assessment (graded as Pass or Fail). (4 contact hrs)

ITNC-2000 - Cisco Networking 3 - (4.00 Credit hours)

Prerequisite: ITNC-1100

This is the third of four courses to prepare students for the Cisco Certified Network Associate (CCNA) exam. The focus of this course is on advanced IP addressing techniques (Variable Length Subnet Masking), Intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). In accordance with the Cisco Quality Assurance Plan, in order to advance to the next course, student must pass the final exam with a score of 70% or greater and demonstrate proficiency in the skills-based assessment (graded as Pass or Fail). (4 contact hrs)

ITNC-2100 - Cisco Networking 4 - (4.00 Credit hours)

Prerequisite: ITNC-2000

This is the last of the four courses to prepare students for the Cisco Certified Network Associate (CCNA) exam. The focus of this course is on advanced IP addressing techniques (Network Address Translation, Port Address Translation, and DHCP), WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management, and introduction to optical networking. (4 contact hrs)

ITNT - IT - NETWORKING

ITNT-1500 - Principles of Networking - (4.00 Credit hours)

Prerequisite: None

(formerly ITCS-1500 & ITCS-1510 together) This course introduces the student to the basic principles and concepts of networking. It focuses on the terminology and technologies found in current networking environments. Topics include network classifications, OSI model, LAN and WAN protocols and networks, data transmission methods, network devices, network design, security, and management. (4 contact hrs)

ITNT-1600 - Introduction to Wireless Networks - (3.00 Credit hours)
Prerequisite: ITCS-1500 or ITNT-1500 or ITNC-1000
This course provides a complete foundation of knowledge for individuals entering into the wireless networking industry. Students will learn the protocols, transmission methods and IEEE 802.11 standards of wireless communications; the advantages, disadvantages, and implications of different wireless technologies; the important types of wireless networks; and various key technologies and applications that have been developed on top of wireless infrastructures. (3 contact hrs)

ITNT-1700 - Wireless Network Integration - (3.00 Credit hours)
Prerequisite: ITNT-1600
This course provides the student with a continuing study of wireless technology with a focus on hardware installation, configuration, and management; troubleshooting techniques; site surveying; and security. Students will gain a solid understanding of wireless network integration and management from hands-on lab exercises incorporated throughout the course. (3 contact hrs)

ITNT-2130 - Network Design 1 - (3.00 Credit hours)
Prerequisite: ITNC-1100 or ITCS-2160
(formerly ITCS-2130) This course focuses on the process of designing computer networks that meet specific business and technical goals. The student will learn how to design a network that meets requirements for functionality, capacity, performance, availability, scalability, affordability, security, and manageability. (3 contact hrs)

ITNT-2150 - Network Troubleshooting - (3.00 Credit hours)
Prerequisite: ITIA-1200 and ITCS-2130 and ITCS-2160 with grade C or better
This course covers testing issues and techniques that can be used by an enterprise network manager to keep Ethernet networks operating reliably and efficiently in a variety of environments, to isolate physical and data link layer problems with specialized measurements, and to diagnose problems based on decoded traffic and traffic statistics. Diagnostic test tools are described in relation to the seven-layer OSI model. Topics include strategic and tactical test systems, test instruments and their application, the service management concept, corporate guidelines for information systems, service level agreements, and network management tools. (3 contact hrs)

ITOS - IT - OPERATING SYSTEMS

ITOS-1300 - Implementing & Supporting Microsoft Windows XP Professional - (3.00 Credit hours)
Prerequisite: ITCS-1010
This course is designed to address the implementation and desktop support needs of individuals that are planning to deploy and support Microsoft Windows XP Professional in a variety of stand-alone and network operating system environments. Planning, implementation, management, and support of Windows XP Professional are covered in detail. This course prepares the student to sit for Microsoft Certification Exam 70-270. (3 contact hrs)

ITOS-1400 - Managing a Microsoft Windows Server Environment - (3.00 Credit hours)
Prerequisite: ITCS-1500 or ITNT-1500 or ITNC-1000
(formerly ITCS-1440) This course provides students with the knowledge and skills that are required to manage accounts and resources, maintain server resources, monitor server performance, and safeguard data in a Microsoft Windows Server 2003 environment. Topics covered include managing user, computer, and group accounts; managing access to network resources; managing printers; managing an organizational unit in a network based on Active Directory directory service; and implementing Group Policy to manage users and computers. This course prepares the student to sit for Microsoft Certification Exam 70-290. (3 contact hrs)

ITOS-1500 - Implementing Microsoft Windows Server Active Directory - (3.00 Credit hours)

Prerequisite: ITOS-1400

(formerly ITCS-2911) This course provides students with the knowledge and skills needed to successfully plan, implement, and troubleshoot a Microsoft Windows Server Active Directory directory service infrastructure. The course focuses on a Windows Server directory service environment, including forest and domain structure, Domain Name System (DNS), site topology and replication, organizational unit structure and delegation of administration, Group Policy, and user group and computer account strategies. This course prepares the student to sit for Microsoft Certification Exam 70-294. (3 contact hrs)

ITOS-1700 - Linux+ - (4.00 Credit Hrs)

Prerequisite: None

(formerly ITCS-2300 and ITCS-2310) This course focuses on the basic skills needed to perform administrative tasks on a Linux operating system, including Linux installation, directory and file management, working with the Linux shell and command line interface, understanding processes, jobs and runlevels. Network services operation and basic Linux security will be addressed. This course prepares the student for the CompTIA Linux+ Certification Exam. (4 contact hrs)

ITOS-2400 - Managing a Microsoft Windows Server Network - (3.00 Credit hours)

Prerequisite: ITOS-1400

This course is designed to introduce the student to the major areas of network and network service configuration on Windows Server. Topics covered include configuring protocols, name resolution, remote access, RADIUS, routing, security, and vital network services such as DNS, WINS, DHCP, and IPSec. This course prepares the student to sit for Microsoft Certification Exam 70-291. (3 contact hrs)

ITOS-2500 - Implementing & Managing Microsoft Exchange Server - (3.00 Credit hours)

Prerequisite: ITOS-2400

This course provides students with the knowledge and skills that are necessary to update and support a reliable, secure messaging infrastructure. The student will learn how to create, store, and share information within the infrastructure by properly configuring and managing Microsoft Exchange Server. This course prepares the student to sit for Microsoft Certification Exam 70-284. (3 contact hrs)

ITWP - IT - WEB PROGRAMMING

ITWP-1000 - Introduction to Web Programming - (3.00 Credit hours)

Prerequisite: ITCS-1010 or ITBS-1240

(formerly ITCS-1340) Introduction to Internet Programming using HTML, CGI, JavaScript and other Internet development tools. Primary emphasis will be placed on fundamental understanding of HTML for formatting of pages, establishing links and inclusion of CGI and JavaScript with images, graphics and sound. (3 contact hrs)

ITWP-1100 - Web Programming with JavaScript & Dynamic HTML - (3.00 Credit hours)
Prerequisite: ITWP-1000 or ITCS-1340
(formerly ITCS-1350) An extensive look at the use of JavaScript as a development tool for interactive WEB pages including client side processing. Students will explore how JavaScript supplements the use of Dynamic HTML. This course prepares the student to sit for the CIW JavaScript 1D0-437 Certification Exam. (3 contact hrs)

ITWP-1200 - Web Development with VBScript - (3.00 Credit hours)
Prerequisite: ITWP-1100 or ITCS-1350
(formerly ITCS-1370) This course is designed to extend the student's scripting skill set to include the creation of Web pages using both VBScript as well as special Web enhanced features of the Visual Basic Language. Taking ITWP-1200, ITWP-1300 and ITWP-2300 prepares the student to sit for the CIW Application Developer 1D0-430 Certification Exam.
(3 contact hrs)

ITWP-1300 - Web Database Programming with Classic ASP - (3.00 Credit hours)
Prerequisite: ITWP-1200 or ITCS-1370
(formerly ITCS-1360) This course explores the development and implementation of database driven Web sites. Active Server Page methods will be used to create, modify, and report dynamic information and to build up-to-the-minute, accurate and dynamic Web Pages. Taking ITWP-1200, ITWP-1300 and ITWP-2300 prepares the student to sit for the CIW Application Developer 1D0-430 Certification Exam. (3 contact hrs)

ITWP-1600 - Web Security - (3.00 Credit hours)
Prerequisite: ITWP-1000 and ITCS-2300
An extensive look at various threats that exist, how to defend your web server environment against those threats, and how to test your web server environment for threats. In addition, students will develop the necessary security policies and processes, secure web servers, networks, and those systems required to manage a web server based environment. This course prepares students to sit for the CIW Security Professional Exam. (3 contact hrs)

ITWP-2300 - Building Dynamic, Intelligent Web Based Solutions with ASP.NET - (3.00 Credit hours)
Prerequisite: ITCS-1360 or ITWP-1300, and ITCS-1120 or ITCS-1130
(formerly ITCS-2440) This advanced course is designed to allow the student to gain experience implementing a Web Site which supports CGI, ActiveX DLL, Server Side scripting, Client Side scripting, Graphics, Visual Basic, Scripts, Cookies, and Data Base interrogation and updates. (3 contact hrs)

ITWP-2600 - Web Commerce (E-Commerce) - (3.00 Credit hours)
Prerequisite: ITWP-2300 or ITCS-2440 or ITWP-2500
(formerly ITCS-2450) This course explores the activities required to correctly, efficiently, and securely implement an E-Commerce solution utilizing FrontPage or other development methodologies. Participants will build a secure web site from the ground up, including catalog display, database inventory control, funds transference and collections and other secure server activities necessary for a mechanically successful web presence. (3 contact hrs)

ITWP-2700 - Programming: Perl - (2.00 Credit hours)
Prerequisite: ITCS-1340 or ITWP-1000 and one of the following: ITCS-1230 or ITCS-1350 or ITWP-1100 or ITCS-1370 or ITWP-1200 or ITCS-2530 or ITCS-2590
(formerly ITCS-2320) This course explores the development and implementation of the scripting language Perl. This course prepares students to take the Web Languages Perl 1D0-435 CIW Certification Exam. (2 contact hrs)

ITWP-2750 - Web Programming: PHP - (3.00 Credit hours)
Prerequisite: ITCS-1340 or ITWP-1000, and ITCS-2300, and one of the following: ITCS-1230 or ITCS-1350 or ITWP-1100 or ITCS-1370 or ITWP-1200 or ITCS-2530 or ITCS-2590
This course explores the development and implementation of the Web Programming Language PHP. Topics include language control logic, language specific functions and processes, file upload, text file read and write, and database functionality including selects, inserts, and updates. (3 contact hrs)

ITWP-2800 - Web Site Administration - (4.00 Credit hours)
Prerequisite: ITWP-2600 or ITCS-2450
(formerly ITCS-2460) Students in this course will gain a functional understanding of Web Site Administration including custom ActiveX Controls, moving from test to production, architectural infrastructure, supporting graphical content, and the support of secure server pages. Upon completion of this capstone course, students will be prepared to sit for I-Net certification. (I-Net certification automatically earns CIW Associate Certificate.) (4 contact hrs)

ITWP-2850 - eBusiness for Small Business - (3.00 Credit hours)
Prerequisite: BUSN-1010 and MKTG-2000 and BUSN-2100 and ITBS-2150; and ITWP-1000 or ITBS-1240
This course is a capstone course designed to provide students the opportunity to apply the knowledge and skills learned in previous Business and IT coursework, to apply those concepts to a personal opportunity, and to create a web presence that will allow for fully functioning eBusiness operations. (3 contact hrs)

JOUR - JOURNALISM

JOUR-1100 - Writing News for Publication - (3.00 Credit hours)
Prerequisite: None
(formerly JOU 110) Focuses on the elements of news story writing and reporting. Student learns to write spot news and feature stories, interview newsmakers, and gather information. Student writing will be submitted to college student newspaper for publication. Journalistic style calls for typed assignments. (3 contact hrs)

LAWE - LAW ENFORCEMENT

LAWE-1100 - Criminal Justice - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 110) Philosophy and history of criminal justice; agencies and processes; evaluation of current criminal justice services and their social and constitutional aspects. (3 contact hrs) Center Campus.

LAWE-1120 - Introduction to Corrections - (3.00 Credit hours)
Prerequisite: None
This course introduces the philosophy and history of correctional agencies and processes, including incarceration, probation, and parole. (3 contact hrs) Center Campus.

LAWE-1280 - The Police Function - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 128) An overview of the police role in society and the way in which the police are organized to discharge that function in the United States. The organization of municipal policing is studied at both operational and administrative levels. This includes the patrol, investigative, specialized, and support functions as well as an examination of the selection and training requirements for police. (3 contact hrs) Center Campus.

LAWE-1290 - Current Issues in Policing - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 129) This course will select for study major issues affecting police. Examples are police-community relations; recruitment and selection; recognition and management of stress; the use of deadly force; new technology; and police productivity. The list will be updated to maintain currency. (3 contact hrs) Center Campus.

LAWE-1300 - Police Field Study - (3.00 Credit hours)
Prerequisite: 30 semester hours of credit and faculty approval
(formerly LAW 130) This course is designed to give the advanced student an opportunity to observe field practices of law enforcement agencies. Students will spend time in a law enforcement agency such as a police department, sheriff's department, or court to observe actual job related tasks. In addition, the student will have classroom lectures regarding specific law enforcement responsibilities. (3 contact hrs) Center Campus.

LAWE-1320 - Interviewing - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 132) Practical interviewing and related consideration in agreement with current legal stipulations. (3 contact hrs) Center Campus.

LAWE-1400 - Crime Causation - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 140) Relationships between crime and social, political, economic, and behavioral factors. Crime prevention programs. Emphasis on urban crime. (3 contact hrs) Center Campus.

LAWE-1410 - Delinquency Prevention & Control - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 141) Problems of juvenile courts, institutional treatment, community resources for prevention, probation, and police programs. (3 contact hrs) Center Campus.

LAWE-1500 - Analysis of Terrorism - (3.00 Credit hours)
Prerequisite: None
(formerly LAW 150) A detailed examination of the causes, phenomena, and significance of terrorism of all types, including those which are revolutionary in origin, as well as state, liberation, and criminal. The workshop, having provided a sound knowledge of the origins, leadership and policies of terrorism, will monitor its path and practices in the world of today as well as providing some assessment of the threat of tomorrow. By means of the workshop approach, each student will learn to track the activities of the various terrorist groups. (3 contact hrs)

LAWE-2350 - Criminal Investigation & Laboratory Techniques - (4.00 Credit hours)
Prerequisite: None
(formerly LAW 235) Coordinated lecture and laboratory experience in the fundamentals of investigation, techniques of crime scene recording and search, collection and preservation of evidence, modus operandi, follow up and case preparation. (4 contact hrs) Center Campus.

LAWE-2370 - Physical Criminalistics - (3.00 Credit hours)
Prerequisite: LAWE-2350
(formerly LAW 237) A general course in forensic laboratory operations and techniques. Firearms identification and concepts, glass examination and identification, physical impressions, document and ink studies, and the science of fingerprints as applied to crime investigations. (3 contact hrs) Center Campus.

LAWE-2380 - Chemical Criminalistics - (3.00 Credit hours)
Prerequisite: LAWE-2350
(formerly LAW 238) General forensic laboratory course covering techniques and operations considered more scientific in nature. Identification of drugs and narcotics, soil examination, forensic photography, hair and fiber studies, and serology applications. (3 contact hrs) Center Campus.

LAWE-2680 - Evidence & Criminal Procedures - (4.00 Credit hours)
Prerequisite: None
(formerly LAW 268) Principles, duties, and mechanics of criminal procedure as applied to important areas of arrest, force, and search and seizure. (4 contact hrs) Center Campus.

LAWE-2690 - Criminal Law - (4.00 Credit hours)
Prerequisite: None
(formerly LAW 269) Elements of substantive criminal law relevant to attaining the preservation and protection of life and property. The structure, definitions, and most applicable pertinent sections of the criminal statutes. (4 contact hrs) Center Campus.

LAWE-2700 - Advanced Court Procedures - (3.00 Credit hours)
Prerequisite: LAWE-1100 and either LAWE-1280 or LAWE-1290
(formerly LAW 270) This course provides practical experience in advanced court processes connected with law enforcement. The student will be presented with a factual scenario in which the student will be assigned a role. The student will then be faced with the consequences of police actions taken through civil, criminal, and department legal proceedings. (3 contact hrs) Center Campus.

LAWE-2800 - Police Academy - (12.00 Credit hours)
Prerequisite: Consent of Department. Students must meet the admissions standards as set by the Michigan Commission on Law Enforcement Standards (MCOLES). At a minimum, persons taking this course must be at least 18 years of age, have a valid Michigan driver's license, no felony convictions, and successfully pass the Michigan Commission on Law Enforcement Standards (MCOLES) reading and writing and physical fitness pre-employment tests.
This course prepares students in the proper techniques of patrol procedures, criminal investigation, and crime scene process. Emphasis will be placed on conflict resolution, report writing, and detention and prosecution of prisoners. The course also covers first aid, investigations, evidence collection, disaster control, civil disorders, and tactical operations. This course meets the state-mandated requirements for preparing students to take the exam for State certifications for entry-level police officers. (40 contact hrs) East Campus.

LEGA - LEGAL ASSISTANT

LEGA-2010 - Michigan Legal System & Ethics - (2.00 Credit hours)
Prerequisite: None
(formerly LAT 201) A general orientation to the Michigan Legal Systems: its courts, processes and procedures. The Federal Court system is also reviewed. In-depth study of the Michigan Rules of Professional Conduct and their application to attorneys and legal assistants; review of the Code of Judicial Conduct and its application to all Michigan judges; ethical responsibilities of legal assistants arising from the Rules and Judicial Canons. (2 contact hrs) South Campus.

LEGA-2080 - Legal Research - (4.00 Credit hours)
Prerequisite: BUSN-1090 and LEGA-2010
(formerly LAT 208) How to use a law library and conduct legal research including computer-assisted research. How to analyze facts to determine legal issues and apply the law to answer these issues. (4 contact hrs)

LEGA-2090 - Legal Procedure - (4.00 Credit hours)
Prerequisite: LEGA-2010 and LEGA-2080
(formerly LAT 209) Step-by-step process on how to assist the lawyer in a civil lawsuit. Introduce the student to investigating and planning the litigation; pre-trial litigation; settlement, trial and post-trial proceedings; utilizing federal and state court rules. (4 contact hrs)

LEGA-2100 - Mechanics of Real Estate Law - (3.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 210) A study of the law of real property. Emphasis upon the preparation of various real estate documents such as deeds, leases, closing statements, etc. (3 contact hrs)

LEGA-2110 - Principles of Family Law - (2.00 Credit hours)
Prerequisite: LEGA-2010 and LEGA-2080
(formerly LAT 211) A study of the marriage relationship; legal problems with children; dissolution of marriage; custody; legitimacy; adoption; change of name; guardianship; support; court procedures; separation agreements. (2 contact hrs)

LEGA-2120 - Administration of Estates - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 212) A presentation of information and procedures with respect to wills, trusts, estates, probate proceedings, conservatorships, administration of testate and intestate estates, analysis of the Estates and Protected Individuals Code (EPIC), will execution, life insurance, and estate planning. (2 contact hrs)

LEGA-2130 - Proceedings Under the Federal Bankruptcy Code & Debt Collection - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 213) The law of debt collection practice and procedure in Michigan and a study of the Federal Bankruptcy Code. Emphasis on the many forms and procedures used by attorneys in Michigan debt collection practice and Federal Bankruptcy practice. Students prepare a practice set of bankruptcy forms for a liquidation case. (2 contact hrs)

LEGA-2160 - Proceedings Under Administrative Agencies - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 216) Procedures for preparing cases for hearings before an administrative agency including researching appropriate regulations, preparing complaints and other phases of pleading, applying for execution of an order by the administrator, preparing claims for preliminary examination, providing data sought by administrative subpoena, taking depositions, and making discovery orders for preliminary examination. (2 contact hrs)

LEGA-2170 - Criminal Law & Procedures - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 217) A study of Michigan and Federal criminal law principles and procedures. An examination of the role and responsibilities of the Legal Assistant in aiding the attorney representing the criminally accused person in pre-trial, trial, and appellate proceedings. (2 contact hrs)

LEGA-2180 - Business Associations - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 218) A detailed study of the four major forms of doing business: sole proprietorship, partnership, corporation, and limited liability company, with an emphasis on the legal requirements to organize and operate each type, including a comparison of the liability involved. Various legal forms utilized in Michigan practice will be reviewed, together with the tax forms appropriate to each (state and federal). The Legal Assistant's role in assisting the attorney who represents clients in these various forms will be highlighted. (2 contact hrs)

LEGA-2190 - Legal Writing - (2.00 Credit hours)
Prerequisite: LEGA-2010
(formerly LAT 219) Preparation of various legal documents and products, such as: letters, memorandums of law, briefs of law, and other legal documents which legal assistants are called upon to produce by their attorney employers. Students taking this course must possess knowledge of basic law, legal terminology, legal research skills, word processing skills, and English composition competency. Emphasis will be placed on using Plain English in drafting legal written products and ethical issues in good legal writing. (2 contact hrs)

LEGA-2210 - Electronic Evidence & Discovery - (4.00 Credit hours)
Prerequisite: LEGA-2010 and LEGA-2080. Recommend students have LEGA-2090 before taking this course, or students may take this course in conjunction with LEGA-2090.
A general orientation of the Laws of Evidence as it pertains to the Michigan Legal System. An examination of the role and responsibility of the Legal Assistant in the identification and preservation of electronic evidence in pre- and post-trial settings. (4 contact hrs) Online only.

LIFE - LIFE CAREER DEVELOPMENT

LIFE-1000 - Career Exploration - (3.00 Credit hours)
Prerequisite: None
(formerly LCD 100) An experiential course in which career exploration is conducted based upon a person's interests, skills, values and personality type. This will be determined by appropriate interest, aptitude and personality type inventories and/or tests. Emphasis is placed on career research and setting realistic career goals. Academic tests and written assignments will be required. (3 contact hrs)

LIFE-1100 - Strategies for College Success - (3.00 Credit hours)
Prerequisite: None
(formerly LCD 110) An experiential course which enhances the understanding of techniques utilized by successful college students. Activities are designed to increase competency in those techniques. Topics include but are not limited to: expectations of college professors, characteristics of successful college students, time management, stress management, and the challenges of combining academic, career, and personal responsibilities. An analysis of personal learning style as suggested by personality type inventories will be conducted. Academic testing and written assignments will be required. (3 contact hrs)

LMGT - LABOR MANAGEMENT RELATIONS

LMGT-2890 - Seminar in Labor Management - Discipline & Discharge - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 299C) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2891 - Seminar in Labor Management - Women At Work - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 299E) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2892 - Seminar in Labor Management - Rights in the Workplace - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 299i) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2893 - Seminar in Labor Management - Conflict Resolution in the Workplace - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 299K) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2895 - Seminar in Labor Management - Negotiation Skills for Everyone - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 290G) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2896 - Seminar in Labor Management - Grievance & Arbitration Skills - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 290A) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

LMGT-2897 - Seminar in Labor Management - Current Trends & Problems in Labor - (3.00 Credit hours)

Prerequisite: None

(formerly LMR 299B) Study of selected labor-management relations topics. Areas of study and concentration will be combination of recurring and current labor relations problems. Course will utilize expert speakers in the field. (3 contact hrs)

MACA - MEDIA & COMMUNICATION ARTS

MACA-1010 - Introduction to Photography - (4.00 Credit hours)

Prerequisite: None

This course is an introduction to today's photography. Camera operations, exposure control, composition theory, image processing, and printing using current software applications are covered. Students must have a digital camera with manual exposure capabilities. (6 contact hrs) South Campus.

MACA-1020 - Fundamentals of Design - (4.00 Credit hours)
Prerequisite: None
(formerly MCA 102, GCA 102) (3 credit hrs prior to Fall 2005) Introduction to design concept. Problems in two-dimensional design using lines and planes in black and white and color. (6 contact hrs) South Campus.

MACA-1040 - Illustration Fundamentals - (4.00 Credit hours)
Prerequisite: None
(formerly MCA 104, GCA 104) (3 credit hrs prior to Fall 2005) Freehand and conceptual drawing dealing with perspective, composition, layout and rendering techniques used by the technical and commercial artist. (6 contact hrs)

MACA-1050 - Digital Layout - (4.00 Credit hours)
Prerequisite: None
(formerly MCA 105, PRT 145) (3 credit hrs prior to Fall 2005) Introduction to the Macintosh operating system and Digital Page Layout with QuarkXpress to create composite page layouts as B/W or color images. (6 contact hrs) South Campus.

MACA-1055 - Digital Layout: Adobe - (4.00 Credit hours)
Prerequisite: None
(3 credit hrs prior to Fall 2005) Design and layout problems using the software applications Adobe InDesign and Adobe Acrobat. Students will utilize contemporary design fundamentals to create a variety of single and multi-page publications in black and white, spot and process color. (6 contact hrs) South Campus.

MACA-1065 - Black & White Photography - (4.00 Credit hours)
Prerequisite: None
(formerly MACA-1060) This course is an introduction to black and white photography. Basic camera operations, exposure control, composition, film processing, and print enlargement will be covered. Students must have a 35mm single lens camera with manual controls. (6 contact hrs)

MACA-1070 - Rendering - (4.00 Credit hours)
Prerequisite: MACA-1040
(formerly MCA 107, GCA 107) (3 credit hrs prior to Fall 2005) Final art rendering techniques in black and white and some color. A variety of media and mixed media including markers, prisma pencils, and ink. Problems include analyzing the pattern of reflections, light and shade and the description of surface development on a variety of materials including chrome, sheetmetal, plastic and glass. (6 contact hrs) South Campus.

MACA-1090 - Figure Illustration 1 - (4.00 Credit hours)
Prerequisite: None
(formerly MCA 109, GCA 109) (3 credit hrs prior to Fall 2005) Introduction to drawing the human form from life, photographs, and imagination using a variety of media and techniques; a comprehensive study and application of draftsmanship as it relates to the surface anatomy, body movements and relationships, and their systematic application to commercial illustration. (6 contact hrs) South Campus.

MACA-1130 - Advertising Art - (4.00 Credit hours)
Prerequisite: MACA-1020, and MACA-1050 or MACA-1055
(formerly MCA 113, GCA 103) (3 credit hrs prior to Fall 2005) Advertising for newspaper, magazine, and other communication forms. Application of a variety of media to assigned problems. (6 contact hrs) South Campus.

MACA-1150 - Storyboarding - (4.00 Credit hours)
Prerequisite: MACA-1040
(formerly MCA 115, GCA 292Y) (3 credit hrs prior to Fall 2005) Student projects examine a variety of concept and storytelling processes through visual communication. From print to film to animation to interactive media, the class focuses on the creative aspects of storyboarding in the communicative arts. (6 contact hrs)

MACA-1200 - Digital Illustration - (4.00 Credit hours)
Prerequisite: MACA-1050 or MACA-1055
(formerly MCA 120, GCA 120) (3 credit hrs prior to Fall 2005) An introduction to vector based software applications Adobe Illustrator and Macromedia Freehand. Students create industry related illustrations including technical renderings, editorial and promotional illustrations. (6 contact hrs) South Campus.

MACA-1300 - Digital Color - (4.00 Credit hours)
Prerequisite: MACA-1050 or MACA-1055
(formerly MCA 130, PRT 236) (3 credit hrs prior to Fall 2005) This course covers color theory, scanning of full-colored originals, color correction, and color output. Images will be color corrected, blended, and merged to create seamless composite images. (6 contact hrs) South Campus.

MACA-1350 - Digital Scanning - (4.00 Credit hours)
Prerequisite: MACA-1050 or MACA-1055
(formerly MCA 135, PRT 165) (3 credit hrs prior to Fall 2005) Theory and creation of line & halftone images using flatbed scanners. Scanning of line-art, grayscale, & color originals; Adobe Photoshop (B&W and color); Densitometry (transmission and reflection); Calibration (techniques and procedures); and Proofing (B&W and Color) are topics covered in the course. (6 contact hrs) South Campus.

MACA-1400 - Introduction to Digital Video - (4.00 Credit hours)
Prerequisite: None
(formerly MCA 140, GCS 292X) (3 credit hrs prior to Fall 2005) A practical hands-on course introducing the use of digital video equipment for studio and location applications. Pre-production planning, camera operations, lighting, audio acquisition, and editing techniques are covered. Emphasizing teamwork, students will work in each position of a production crew. Students use college provided digital video equipment and non-linear editing suites to produce effective video programming. (6 contact hrs) South Campus.

MACA-1410 - Television/Video Studio Production - (4.00 Credit hours)
Prerequisite: None
Lecture and hands-on experience in live to tape studio programming for television and video productions. Technical principles of studio recording of audio and video programs will be emphasized. Students will perform duties of each position in a studio production team. (6 contact hrs) South Campus.

MACA-1720 - Web Page Design: Dreamweaver - (4.00 Credit hours)
Prerequisite: MACA-1300
(formerly MCA 172, GCA 172) (3 credit hrs prior to Fall 2005) (Effective Fall 2007: course description changed; course title changed from Macomedia to Dreamweaver) Dreamweaver, the industry standard for creating web sites, will be used in this web page design course. The student will learn the basic theory and practical experience of web design and web site development in the areas of creating and planning a web site project; designing graphics needed for a web page and site; applying industry standard software needed to create, breakdown, compress, preview, and export HTML pages; applying industry standard software used to organize, manage, maintain, link, test, and publish a completed web site; and applying industry standard software used to add complex web code and behaviors to create interactivity on the page. (6 contact hrs) South Campus.

MACA-2020 - Design for Advertising - (4.00 Credit hours)
Prerequisite: MACA-1020, and MACA-1050 or MACA-1055, and MACA-1200 or MACA-1300
(formerly MCA 202) (3 credit hrs prior to Fall 2005) Three-dimensional design concepts for various forms of communication using a variety of media, computer programs, materials, and techniques in black and white and color. May be taken twice for credit. (6 contact hrs) South Campus.

MACA-2110 - Photojournalism - (4.00 Credit hours)
Prerequisite: MACA-1010 and MACA-1065
This course introduces students to the practices and principles of photojournalism. Techniques used in documentary, event, and public relations photography will be covered. Students must have a digital camera with manual exposure controls. (6 contact hrs) South Campus.

MACA-2150 - Advanced Digital Layout - (4.00 Credit hours)
Prerequisite: MACA-1300 and MACA-1200, and MACA-1050 or MACA-1055
(formerly MCA 215, PRT 237) (3 credit hrs prior to Fall 2005) A continuation of MACA-1050 using the page layout software QuarkXpress to create composite page layouts as B/W or color images. Other page layout applications will be introduced including Adobe InDesign and Adobe Acrobat. Students will utilize contemporary design fundamentals to create a variety of single and multi-page publications in black and white, spot and process color. Electronic files will be output to a variety of B/W and color proofing devices. (6 contact hrs) South Campus.

MACA-2175 - Illustration for Advertising - (4.00 Credit hours)
Prerequisite: MACA-1070 and MACA-1040
(formerly MACA-2170 and MACA-2010) (3 credit hrs prior to Fall 2005) Advanced problems in full color using acrylic paint to produce portfolio samples. A variety of media and mixed media are used on different surfaces. Samples include architecture, automotive and product renderings along with illustrative compositions for advertising markets. Problems include setting a mood, telling a story, and being expressive in a traditional two-dimensional format. Design, concept, color harmony, and composition are discussed in group critiques. May be taken two times for credit with the approval of a Media & Communication Arts advisor. (6 contact hrs) South Campus.

MACA-2190 - Figure Illustration 2 - (4.00 Credit hours)
Prerequisite: MACA-1090
(formerly MCA 219, GCA 219) (3 credit hrs prior to Fall 2005) Advanced study of figure illustration as applied in book, magazine, advertising, and other commercial area; assigned problems using materials and techniques required by mass reproduction processes. May be taken two times for credit with the approval of a Media & Communication Arts advisor. (6 contact hrs) South Campus.

MACA-2200 - Digital Editing - (4.00 Credit hours)
Prerequisite: MACA-1200
(formerly MCA 220, GCA 235) (3 credit hrs prior to Fall 2005) A continuation of MACA-1200 with advanced Adobe Illustrator techniques. Introduction to multimedia applications including Adobe AfterEffects. Students create advanced portfolio projects in black and white, and color covering a variety of rendering styles, editorial and promotional illustrations. 3-D drawing applications on Macintosh computers will explore wireframe and surfacing techniques. Students will create a digital multimedia portfolio CD presentation. (6 contact hrs) South Campus.

MACA-2210 - Studio Photography - (4.00 Credit hours)
Prerequisite: MACA-1010 and MACA-1065
This course offers a comprehensive overview of studio photography. Equipment, techniques, and setups of a photographic studio will be covered. Students must have a film or digital camera with manual exposure controls. (6 contact hrs) South Campus.

MACA-2300 - Advanced Photoshop - (4.00 Credit hours)
Prerequisite: MACA-1300
(formerly MCA 230, GCA 230) (3 credit hrs prior to Fall 2005) This course explores image and art problems utilizing Adobe Photoshop advanced techniques. Students create portfolio projects ranging from single to composite images. Color theory, manipulation and correction of existing files will be covered. (6 contact hrs) South Campus.

MACA-2310 - Advanced Photographic Techniques - (4.00 Credit hours)
Prerequisite: MACA-1010 and MACA-1065 and MACA-2110 and MACA-2210
(formerly MACA-2260) This class covers theory and fundamental principles of capturing the color image. Lab techniques include color balance and contrast control with a variety of print enlargement materials. Students must demonstrate their expertise by submitting scheduled assignments in portraiture, display ad, landscape/cityscape, low light, and time exposures by building a portfolio of their work. Students must have access to a digital camera with manual exposure control and an electronic flash attachment. (6 contact hrs) South Campus.

MACA-2400 - Advanced Digital Video - (4.00 Credit hours)
Prerequisite: MACA-1400
(formerly MCA 240) (6 credit hrs prior to Fall 2005) Lecture and intensive hands-on experience in planning producing digital video projects. Detailed elements and advance techniques for producing and directing multi-camera studio and location programs. Post-production techniques and technologies will be emphasized. Creation of 2 and 3D digital video transitions and effects. Advance editing on NLE systems to produce multimedia video presentations to tape, CD, DVD, and the Web. (6 contact hrs) South Campus.

MACA-2500 - Introduction to 3D Animation - (4.00 Credit hours)
Prerequisite: MACA-1200
(formerly MCA 250, GCA 250) (3 credit hrs prior to Fall 2005) This course is an introduction to 3-D software for character animation and visual effects. Software includes a complete set of tools for keyframe and procedural animation. Students create flexible soft body objects with a variety of surfacing/skinning materials. Provides deep functionality for creating and animating digital characters. (6 contact hrs) South Campus.

MACA-2600 - Advanced 3D Animation - (8.00 Credit hours)
Prerequisite: MACA-2500
(formerly MCA 260, GCA 261) (6 credit hrs prior to Fall 2005) This course is a continuation of MACA-2500. Students continue to develop the skills necessary to build object and character animation effects. Integrated rendering tools allow students to render their 3-D digital effects into film quality with an arbitrary complex shader network that can be graphically linked to any object or scene parameter. (12 contact hrs) South Campus.

MACA-2650 - 3D Shorts & Animatics - (4.00 Credit hours)
Prerequisite: MACA-2600
(formerly MCA 265) (3 credit hrs prior to Fall 2005) This course utilizes techniques learned in the Introduction and Advanced 3D Animation courses to develop portfolio pieces such as commercials, animatics, animated logos, and short animations. Students will explore the use of color, lighting, animation, camera movement, as well as creating textures through a balanced combination of exercises and projects. (6 contact hrs) South Campus.

MACA-2730 - Multimedia Flash - (4.00 Credit hours)
Prerequisite: MACA-1300
(formerly MCA 273, GCA 273) (3 credit hrs prior to Fall 2005) (New course description effective Fall 2007) This course is designed for students seeking knowledge in Interactive Web Animation and Information Design. Flash, the industry standard for creating interactive CD and web sites, will be used in this course. The student will learn the basic theory and practical experience of Interactive Web Animation and Information Design in the following areas: creating and planning an Interactive project for CD or web; designing and animating graphics needed for an interactive project; applying industry standard software needed to create, breakdown, compress, preview, and export graphics needed for an interactive project; applying industry standard software used to organize, manage, maintain, link, test, and publish completed interactive projects; applying industry standard software to create interactivity for a project. (6 contact hrs) South Campus.

MACA-2750 - Multimedia Director - (4.00 Credit hours)
Prerequisite: MACA-1300
(formerly MCA 275) (3 credit hrs prior to Fall 2005) (New course description effective Fall 2007) This course is designed for students seeking knowledge in interactive web animation and information design. Director will be used in this course and is the industry standard for creating interactive CDs. The student will learn the basic theory and practical experience of interactive web animation and information design in the following areas: creating and planning an interactive project for CD or web; designing and animating graphics needed for an interactive project; applying industry standard software need to create, breakdown, compress, preview, and export graphics needed for an interactive project; applying industry standard software used to organize, manage, maintain, link, test, and publish a completed interactive project; and applying industry standard software used to add Lingo code and behaviors to create interactivity for a project. (6 contact hrs) South Campus.

MACA-2800 - Advanced Web Media - (4.00 Credit hours)
Prerequisite: MACA-2730 and MACA-2750
(New course description effective Fall 2007) This course is designed for students seeking advanced knowledge in Interactive Web Animation and Information Design. Dreamweaver, Director, Flash - the industry standards for creating interactive CDs and interactive web sites - will be used in this class. The student will apply this knowledge to building an interactive project or portfolio. The student will learn the theory and practical experience of Interactive Web Animation and Information Design in the following areas:creating and planning an Interactive project or portfolio for CD or web; designing and animating graphics needed for an Interactive project; applying industry standard software needed to create, breakdown, compress, preview, and export graphics needed for an interactive project; applying industry standard software used to organize, manage, maintain, link, test, and publish a completed interactive project. (6 contact hrs) South Campus.

MAST - MEDICAL ASSISTANT

MAST-1120 - Medical Assistant Clinical 1A - (2.00 Credit hours)
Prerequisite: None
Corequisite: MAST-1130
(formerly MAST-1020) (Note: All clinical courses need to be completed within two (2) years of graduation. Any course exceeding this two (2) year time requirement must be repeated). The purpose of the course is to introduce the student to the basic skills and theory necessary to assist the physician in the examination, diagnosis, and treatment of the patient. Physical and emotional preparation of the patient will be stressed. Preparation of the facilities and armamentarium will be presented. Medical and surgical specialties will be defined and explored. (2 contact hrs) Center Campus. Fall semester only.

MAST-1130 - Medical Assistant Clinical 1B - (2.00 Credit hours)
Prerequisite: None
Corequisite: MAST-1120
(formerly MAST-1030) (Note: All clinical courses need to be completed within two (2) years of graduation. Any course exceeding this two (2) year time requirement must be repeated.) The purpose of the course is to introduce the student to the basic medical assisting skills and techniques necessary to assist the physician in the examination, diagnosis, and treatment of the patient and the clinical armamentarium. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (2 contact hrs) Center Campus. Fall semester only.

MAST-1150 - Applied Math for Medical Assistants - (2.00 Credit hours)
Prerequisite: None
This course is designed to provide the medical assistant with the mathematical skills necessary to calculate, prepare, and administer drugs safely and confidently in an ambulatory medical setting. (2 contact hrs) Center Campus.

MAST-1160 - Medical Assistant Clinical 2A - (2.00 Credit hours)
Prerequisite: MAST-1150
Corequisite: MAST-1170
(formerly MAST-1060) (Note: All clinical courses need to be completed within two (2) years of graduation. Any course exceeding this two (2) year time requirement must be repeated.) The purpose of this course is to introduce the student to the theory of interpreting the orders of the physician. Preparation and administration of medications will be introduced. The medical assistant's responsibilities in physical therapy, radiology, and nutrition will be stressed. Emergency situations will be presented. Critical thinking in emergency situations will be stressed. (2 contact hrs) Center Campus. Winter semester only.

MAST-1170 - Medical Assistant Clinical 2B - (2.00 Credit hours)
Prerequisite: MAST-1150
Corequisite: MAST-1160
(formerly MAST-1070) (Note: All clinical courses need to be completed within two (2) years of graduation. Any course exceeding this two (2) year time requirement must be repeated.) This course will examine common physician orders given to the medical assistant. Students will practice skills in medication administration, radiological preparation, nutrition therapy and learn to recognize emergency situations. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (2 contact hrs) Center Campus. Winter semester only.

MAST-1180 - Medical Diagnostic Procedures - (2.00 Credit hours)
Prerequisite: HHSC-1700
This course will introduce the student to basic skills and theory necessary to assist the physician in the diagnosis and treatment of the patient. The student will gain experience preparing patients for diagnostic procedures. Clinical knowledge and practice will be provided. (2 contact hrs) Center Campus.

MAST-1300 - Medical Assistant Laboratory Techniques A - (2.00 Credit hours)
Prerequisite: HHSC-1700
Corequisite: MAST-1310
(formerly MOA 130) The purpose of this course is to provide the student with the knowledge of routine laboratory procedures used in the physician's office, out-patient clinics and HMOs. Urinalysis, hematology, microbiology, blood chemistries, and immunology will be studied. (2 contact hrs) Center Campus.

MAST-1310 - Medical Assistant Laboratory Techniques B - (2.00 Credit hours)
Prerequisite: HHSC-1700
Corequisite: MAST-1300
(formerly MOA 131) The purpose of this course is to provide the student with the practical applications of routine laboratory procedures used in the physician's office, out-patient clinics, and HMOs. Urinalysis, hematology, microbiology, blood chemistries, immunological studies and microscopic examinations of specimens will be practiced. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (2 contact hrs) Center Campus.

MAST-1360 - Medical Assistant Administration 1 - (3.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210, and HHSC-1700 and PSYC-1010
(formerly MOA 136) Procedures of medical and office administration, such as the reception of patients, telephone techniques, filing, medical records, communications, billing procedures, and medical law and ethics will be presented. (3 contact hrs) Center Campus. Fall semester only.

MAST-1390 - Medical Assistant Administration 2 - (2.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210, and HHSC-1700 and PSYC-1010
(formerly MAST-1380) This course is designed to give the student a short and intensive course in the essentials of accounting in the medical office setting. Students will learn to analyze financial transactions and prepare financial reports for a physician's office. (2 contact hrs) Center Campus.

MAST-1400 - Medical Assistant Insurance Forms - (3.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210, and HHSC-1700 and PSYC-1010
(formerly MOA 140) Procedures used in the completion of medical insurance forms: Blue Shield, Medicare, Medicaid, CHAMPUS, CHAMPVA, FEP, Workman's Compensation, and Health Insurance Council. (3 contact hrs) Center Campus.

MAST-1420 - Computer Applications for Medical Assistants - (3.00 Credit hours)
Prerequisite: ENGL-1180 or ENGL-1210, and HHSC-1700 and PSYC-1010. Previous computer knowledge is recommended.
(formerly MOA 142) This course is designed to be an introduction to the computer and its practical application in the medical office. (3 contact hrs) Center Campus.

MAST-1601 - Medical Assistant Phlebotomy - (3.00 Credit hours)
Prerequisite: HHSC-1700; MAST-1300; MAST-1310; and either MAST-1720 and MAST-1730, or BIOL-2710 and HHSC-1800.
The purpose of this course is to introduce the student to the basic skills of phlebotomy. Proper technique will be learned for physicians' offices and outpatient clinics. (3 contact hrs) Center Campus.

MAST-1720 - Body Systems 1 - (3.00 Credit hours)
Prerequisite: HHSC-1700
(formerly MOA 172) The purpose of this course is to introduce the student to basic anatomy and physiology, common pathology and pharmacology applied to the field of Medical Assisting. Topics covered include: anatomy and physiology of the integumentary, skeletal, muscular, endocrine, central, peripheral and autonomic nervous systems and the special senses. Modalities for diagnostic testing and treatment of patients in an ambulatory setting will also be covered. This course has been designed specifically for students in the Medical Assistant program. (3 contact hrs) Center Campus. Fall semester only.

MAST-1730 - Body Systems 2 - (3.00 Credit hours)
Prerequisite: HHSC-1700
(formerly MOA 173) The purpose of this course is to introduce the student to basic anatomy and physiology, common pathology and pharmacology applied to the field of Medical Assisting. Topics covered include: anatomy and physiology of the circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems. Modalities for diagnostic testing and treatment of patients in an ambulatory setting will also be covered. This course has been designed specifically for students in the Medical Assistant program. (3 contact hrs) Center Campus. Winter semester only.

MAST-2000 - Medical Assistant Clinical Skills - (6.00 Credit hours)
Prerequisite: BCOM-2050; ENGL-1180 or ENGL-1210; HHSC-1700; HHSC-1800; MAST-1150; MAST-1360; MAST-1390; MAST-1400; MAST-1420; MAST-1601; MAST-1720 and MAST-1730, or BIOL-2710; MAST-2300; MAST-2600; and PSYC-1010
This theory and laboratory clinical course focuses on skills needed to provide safe care for patients. Major emphasis is on psychomotor skills related to vital signs, asepsis, medication administration, and specialty office procedures. This course explores nutrition and medical diets and addresses recognizing and responding to emergency situations. (6 contact hours per week for 16 weeks) Center Campus.

MAST-2300 - Medical Assistant Administration Practicum - (1.00 Credit hours)
Prerequisite: BCOM-2050; ENGL-1180 or ENGL-1210; HHSC-1700; MAST-1360; MAST-1390; MAST-1400; MAST-1420; and PSYC-1010
The front office administration practicum is a supervised administrative front office experience in an affiliated medical office facility designed to provide the student with an opportunity to gain experience with skills in reception, administration of the office, insurance, and computer applications. This unpaid practicum is at various medical offices that set the hours and shifts. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (3 contact hours per week for 16 weeks) Center Campus.

MAST-2600 - Medical Assistant Phlebotomy Practicum - (1.00 Credit hours)
Prerequisite: HHSC-1700; MAST-1300; MAST-1310; MAST-1601; and either MAST-1720 and MAST-1730, or BIOL-2710 and HHSC-1800
The phlebotomy practicum is a supervised clinical experience in an affiliated medical office laboratory facility designed to provide the student with an opportunity to gain experience with practical phlebotomy skills. This unpaid practicum is at various laboratories that set the hours and shifts. A minimum of 100 successful venipunctures including specimen collection must be completed. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (3 contact hours per week for 16 weeks) Center Campus.

MAST-2800 - Medical Assistant Externship - (3.00 Credit hours)
Prerequisite: BCOM-2050; HHSC-1700; HHSC-1800; MAST-1150; MAST-1180; MAST-1360; MAST-1390; MAST-1400; MAST-1420; MAST-1601; MAST-1720 and MAST-1730, or BIOL-2710; MAST-2000; MAST-2300; MAST-2600; and PHED-2070
(formerly MAST-1600) Supervised clinical experience in an affiliated medical office facility designed to provide the student with an opportunity to gain experience with practical skills. This unpaid externship is at various medical offices with hours and shifts set by the facility. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (12 contact hours per week for 16 weeks) Center Campus.

MATH - MATHEMATICS

MATH-0050 - Fundamentals of Mathematics - (3.00 Credit hours)
Prerequisite: None
(formerly MTH 005) MATH-0050 is a refresher course in the concepts and skills of arithmetic and includes integers, fractions, decimals, percent, measurement, and an introduction to algebra. (3 contact hrs)

MATH-0070 - Beginning Algebra - (3.00 Credit hours)
Prerequisite: Grade C or better in MATH-0050 or an equivalent college or high school course, or an acceptable score on a placement or prerequisite exam
(formerly MTH 007) A course in beginning algebra dealing with an introduction to sets of real numbers. Addition, subtraction, multiplication, division, and factoring of polynomials. Integral exponents. Linear equations and inequalities in one variable. Linear equations and systems of linear equations in two variables. Roots and radicals, rational expressions and equations. (3 contact hrs)

MATH-1000 - Intermediate Algebra - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-0070 or an equivalent college or high school course, or an acceptable score on a placement exam or prerequisite exam
(formerly MTH 100) (3 credit hours prior to Fall 1990) MATH-1000 is an additional course in algebra and includes linear equations and inequalities in one and two variables; systems of linear equations in two and three variables; expressions and equations containing quadratic, rational, radical, exponential, and logarithmic terms; rational and quadratic inequalities; complex numbers; graphs of lines, parabolas and circles; and an introduction to functions and functional notation. A scientific calculator is required. (4 contact hrs)

MATH-1280 - Mathematics for Education 1 - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1000 or a college mathematics course comparable to MATH-1000 or an equivalent high school college prep course or an acceptable score on a placement exam
(formerly MATH-1260) No credit after MATH-1260. MATH-1280 is the first course in a two-course sequence for elementary education students and includes technology; sets; relations; functions; logic; mathematical systems; systems of numeration; natural numbers, integers, rational, and real numbers; prime numbers; and greatest common factor; and least common multiple. (4 contact hrs)

MATH-1290 - Mathematics for Education 2 - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1280 or an equivalent college course
(formerly MATH-1270) No credit after MATH-1270. MATH-1290 is the second of a two-course sequence for elementary education students and includes non-metric geometry, metric geometry, coordinate geometry, the metric system, probability, and statistics. (4 contact hrs)

MATH-1340 - Statistics - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1000 or equivalent college or high school course, or an acceptable score on a placement exam or prerequisite exam
(formerly MATH-1330) No credit after MATH-1330 or MTH-133. MATH-1340 is for students in those fields where statistical investigations are necessary and includes description of sample data, probability, frequency distributions, sampling, confidence intervals, estimation, testing hypothesis, correlation, chi-square distributions, and nonparametric tests. (4 contact hrs)

MATH-1360 - Finite Mathematics - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1000 or equivalent college or high school course, or an acceptable score on a placement exam or prerequisite exam
(formerly MTH 136) MATH-1360 is the first of two mathematics courses for students majoring in the areas of business, social science, or life science and includes applications of linear, quadratic, polynomial, exponential, and logarithmic functions; systems of linear equations and inequalities; algebra of matrices and linear programming; elements of probability theory; applications of probability. (4 contact hrs)

MATH-1370 - Calculus for Business & Social Sciences - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1360 or MATH-1420 or MATH-1450 or equivalent college or high school course, or an acceptable score on a placement or prerequisite exam
(formerly MTH 137) MATH-1370 is the second of two mathematic courses for students majoring in the areas of business, social science, or life science and includes differentiation techniques, optimization, applications of differentiation, the definite integral, finding areas using integration, and applications of integration. (4 contact hrs)

MATH-1410 - College Algebra - (4.00 Credit hours)
Prerequisite: MATH-1000 with grade C or better, or an equivalent college or high school course, or an acceptable score on a placement or prerequisite exam
(formerly MATH-1420) No credit after MATH-1420, MATH-1450, MATH-1460. MATH-1410 is one of two courses whose combined content parallels that of MATH-1460 and includes functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, and special topics. Calculators are used throughout the course. (4 contact hrs) NOTE: Winter 2009 is the first semester this course will be offered.

MATH-1420 - College Algebra - (3.00 Credit hours)
Prerequisite: Grade C or better in MATH-1000 or an equivalent college or high school course, or an acceptable score on a placement or prerequisite exam
(formerly MTH 142) No credit after MATH-1450. MATH-1420 is one of two courses whose combined content parallels that of MATH-1450 and includes functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, and special topics. Calculators are used throughout the course. (3 contact hrs) NOTE: Fall 2008 is the last semester this course will be offered.

MATH-1430 - College Trigonometry - (3.00 Credit hours)
Prerequisite: MATH-1410, MATH-1420 or a college mathematics course comparable to MATH-1410 with grade C or better, or an equivalent high school college prep course, or an acceptable score on a placement exam
(formerly MTH 143) No credit after MATH-1450 or MATH-1460. This course presents algebraic and geometric review of the essentials for trigonometry; triangle trigonometry, analytic trigonometry, trigonometric identities, trigonometric functions, inverse trigonometric functions, vectors, polar coordinates, polar graphs, complex numbers in rectangular and polar form, and DeMoivre's theorem. Calculators are used throughout the course. (3 contact hrs)

MATH-1450 - Algebra & Trigonometry - (4.00 Credit hours)s
Prerequisite: Grade C or better in MATH-1000 or an equivalent college or high school course, or an acceptable score on a placement or prerequisite exam
(formerly MTH 145) No credit after MATH-1420 and MATH-1430. MATH-1450 is a course with an analytical approach to the elementary mathematical functions and includes equations; inequalities; relations; function properties and graphs; polynomial, rational, exponential, logarithmic, and trigonometric functions; trigonometric identities; and theory of equations. Calculators are used throughout the course. (4 contact hrs) NOTE: Fall 2008 is the last semester this course will be offered.

MATH-1460 - Precalculus - (4.00 Credit hours)
Prerequisite: MATH-1000 with grade B or better, or the equivalent college or high school course, or an acceptable score on the placement exam
(formerly MATH-1450) No credit after MATH-1430. This course takes an analytical approach to the elementary mathematical functions and includes equations; inequalities; conic sections; relations; function properties and graphs; polynomials; rational, exponential, logarithmic, and trigonometric functions; trigonometric identities; and the theory of equations. Calculators are used throughout the course. (4 contact hrs) NOTE: Winter 2009 is the first semester this course will be offered.

MATH-1760 - Analytic Geometry & Calculus 1 - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1450 or equivalent college course or equivalent high school course, or an acceptable score on a placement or prerequisite exam
(formerly MTH 176) MATH-1760 is part of the sequence of courses required for most engineering, science, and mathematics majors and includes limits; continuity; differentiation of algebraic and transcendental functions including trigonometric, logarithmic and exponential base-e functions; mean-value theorem; applications of the derivative to curve sketching; optimization; related rates; conics; differentials; antidifferentiation of algebraic and trigonometric functions; the definite integral; the fundamental theorem of calculus; application of the definite integral to areas; and numerical integration. (4 contact hrs)

MATH-1770 - Analytic Geometry & Calculus 2 - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1760 or equivalent college course
(formerly MTH 177) MATH-1770 is part of the sequence of courses required for most engineering, science, and mathematics majors and includes volumes of solids of revolution; differentiation and integration of trigonometric, inverse trigonometric, logarithmic, exponential, and hyperbolic functions; integration techniques; L'Hopital's Rule, indeterminate forms and improper integrals; sequences and series; Taylor series; Maclaurin series; and differentiation and integration of power series. (4 contact hrs)

MATH-2000 - Introduction to Linear Algebra - (3.00 Credit hours)
Prerequisite: Grade C or better in MATH-1760 or equivalent college course, or by exam
(formerly MTH 200) Systems of linear equations. The algebra of matrices. Determinants and their applications. The theory of vector spaces, with emphasis on Euclidean n-space. Linear transformations and their matrix representations. Eigenvalues and eigenvectors. Similar matrices. Symmetric matrices, the spectral theorem and applications. (3 contact hrs)

MATH-2200 - Discrete Mathematics - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1450 or equivalent college course or equivalent high school course, or an acceptable score on placement exam or prerequisite exam
(formerly MTH 220) An introduction to logic; circuits; graphs; trees; matrices; algorithms; combinatorics and relations within the context of applications to computer science.
(4 contact hrs)

MATH-2760 - Analytic Geometry & Calculus 3 - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-1770 or equivalent college course
(formerly MTH 276) MATH-2760 is part of a sequence of courses required for most engineering, science, and mathematics majors and includes concepts and procedures from vector algebra, vector calculus, quadric surfaces, calculus of functions of two and three variables, multiple integrals, and line integrals. (4 contact hrs)

MATH-2770 - Differential Equations - (4.00 Credit hours)
Prerequisite: Grade C or better in MATH-2000 and MATH-2760 or equivalent college course
(formerly MTH 277) MATH-2770 is part of the sequence of courses required for most engineering, science, and mathematics majors and includes first order differential equations and their applications, higher order differential equations and their applications, differential operators, the Laplace Transform, systems of linear differential equations, series solutions of differential equations, and numerical methods for solving differential equations. (4 contact hrs)

MECT - AUTOMATED SYSTEMS - MECHATRONICS

MECT-1211 - Mechatronics - AC/DC Electrical Systems - (1 Credit hours)
Prerequisite: None
This course introduces electrical measurements, circuit analysis, inductance and capacitance, combination circuits, and transformers. Computers and computer simulation software will be used throughout the course. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (1.5 contact hrs) South Campus.

MECT-1212 - Mechatronics - Electrical Control Systems - (1 Credit hours)
Prerequisite: None
This course introduces control logic, sequencing control, timers, and advanced systems. Computers and computer simulation software will be used throughout the course. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (1 contact hr) South Campus.

MECT-1213 - Mechatronics Basics - Electronic Sensors - (1 Credit hours)
Prerequisite: None
This course introduces electronic sensors and electronic sensor applications, Computers and computer simulation software will be used throughout the course. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (1 contact hr) South Campus.

MECT-1214 - Mechatronics - Pneumatics - (1 Credit hours)
Prerequisite: None
This course introduces pneumatic power systems, basic pneumatic circuits, principles of pneumatic pressure and flow, and pneumatic speed control circuits. Computers and computer simulation software will be used throughout the course. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (1 contact hr) South Campus.

MECT-1215 - Mechatronics - Automated Material Handling (Robots) - (1 Credit hours)
Prerequisite: None
This course introduces basic robot operation, PC software programming, flexible manufacturing cells, and production control. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (2 contact hrs) South Campus.

MECT-1216 - Mechatronics - Mechanical Systems - (1.00 Credit hours)
Prerequisite: None
This course includes an introduction to mechanical drive systems, power transmission systems, v-belt and chain drives, multiple shaft drives, linear motion assembly, and auxiliary control functions. Computers and computer simulation software will be used throughout the course. Troubleshooting of mechanical problems, circuits, logic, and programs will be emphasized. Industrial technical terms and safety procedures will be taught. (1.5 contact hrs) South Campus.

MECT-2110 - Mechatronics Programming 1 - Siemens PLC - (3.00 Credit hours)
Prerequisite: MECT-1211 and MECT-1212 and MECT-1213 and MECT-1214 and MECT-1215, and MECT-1216 or ATEE-2640; or consent of program advisor
Corequisite: MECT-2112
This course will provide the student with the essential knowledge necessary to create and edit basic programmable logic controller (PLC) programs, understand input-output (I/O) interfacing and perform fundamental PLC troubleshooting procedures. (8 contact hours per week for 8 weeks) South Campus.

MECT-2112 - Mechatronics Programming 2 - Siemens PLC - (3.00 Credit hours)
Prerequisite: MECT-1211 and MECT-1212 and MECT-1213 and MECT-1214 and MECT-1215 and MECT-1216; or consent of program advisor
Corequisite: MECT-2110
This course is a continuation of MECT-2110 and provides the student with further knowledge required to create and edit basic programmable logic controller (PLC) programs, understand input-output (I/O) interfacing and perform fundamental PLC troubleshooting procedures. 8 contact hours per week for 8 weeks. South Campus.

MECT-2210 - Mechatronics System Operations 1 - Siemens PLC - (3 Credit hours)
Prerequisite: MECT-2112
Corequisite: MECT-2212
This is the first of two capstone courses in the Automated Systems Technology (Mechatronics) program. Students will gain valuable real world experience in the control, maintenance, and simulation of automated processes which utilize advanced manufacturing techniques. The physical system substations will include but are not limited to processes such as pick and place feeding, automatic gauging, part indexing, part sorting and queuing, robotic pick and place assembly, and part torquing. The software simulation of each substation also will be presented. (8 contact hours per week for 8 weeks) South Campus.

MECT-2212 - Mechatronics System Operations 2 - Siemens PLC - (3 credit hours)
Prerequisite: MECT-2112
Corequisite: MECT-2210
This second of two capstone courses in the Automated Systems Technology (Mechatronics) program furthers the investigation of the control, maintenance and simulation of automated processes which utilize advanced manufacturing techniques. The final course project will consist of the complete software and hardware integration of all subsystems into a fully functional automated part assembly system. (8 contact hours per week for 8 weeks) South Campus.

MGMT - MANAGEMENT

MGMT-1010 - Principles of Management - (3.00 Credit hours)
Prerequisite: None
(formerly MGT 101) An introductory course covering the traditional concepts of planning, organizing, staffing, leading, motivating, decision making and controlling, as well as more contemporary topics, including international management, entrepreneurship, cultural diversity, and managerial ethics. (3 contact hrs)

MGMT-1150 - Personnel & Human Resource Management - (3.00 Credit hours)
Prerequisite: None
(formerly MGT 115) Human resource/personnel management issues are presented reflecting the relationship between Human Resource departments and various managerial functions. Major topics include: employment law, job analysis, staffing, training and development, performance appraisals, compensation systems, health and safety, and labor-management relations. Designed for those who presently supervise workers or plan to do so in the future, as well as present human resource staff members. (3 contact hrs)

MGMT-1180 - Human Relations - (3.00 Credit hours)
Prerequisite: None
(formerly MGT 118) This course focuses on the forces influencing behavior at work and the factors that contribute to successful interpersonal relations in business. Topics include building a positive self-concept, understanding your communication and leadership style, the Jo-Hari model of self understanding, conflict management, the power of positive reinforcement, and stress management. (3 contact hrs)

MGMT-1210 - Entrepreneurship & Small Business Management - (3.00 Credit hours)
Prerequisite: None
(formerly MGT 121) Fundamental aspects of entrepreneurship are explored including creativity, initial funding, organizing, marketing, financially controlling and supervising a small business. Also covered are alternative methods of starting a business and legal forms. The concept of "intrapreneurship" (the ability to think like a small business while still employed at a larger company) will also be considered. Students will develop a business plan. (3 contact hrs)

MGMT-2000 - Business Management Software Applications - (3.00 Credit hours)
Prerequisite: MGMT-1010 and ITCS-1010
(formerly MGT 200) Designed to provide students with familiarity with several software programs that are specifically used by those in the field of management. The focus will be on areas where specialized computer software is used to increase the success of managers. Software for project management, human resource management and business plan development will be explored. (3 contact hrs)

MGMT-2100 - Effective Organizational Behavior & Team Development - (3.00 Credit hours)
Prerequisite: MGMT-1010
(formerly MGT 210) Topics include: the management of people in the work environment; relationship of individuals and organization; "team" development and organization development techniques; and functions, roles, and relationships of various levels of management. (3 contact hrs)

MGMT-2110 - Management Decision Making & Critical Analysis - (3.00 Credit hours)
Prerequisite: MGMT-1010
(formerly MGT 211) The study and application of theories and techniques of managerial decision making and problem solving via the case analysis process. Includes an examination of both the qualitative and quantitative mathematical models used in evaluating and selecting suitable alternatives. (3 contact hrs)

MGMT-2220 - Leadership Fundamentals - (2.00 Credit hours)
Prerequisite: None
(formerly MGT 222) Designed to provide students with a basic foundation of the concepts and principles of leadership. The course will explore leadership from each of three points of view: (1) self as leader; (2) another person as leader, and (3) the need for leadership in a particular situation. The interrelationship of leading and following will be examined to help students decide when it is appropriate to lead, and to assess when to follow. (2 contact hrs)

MGMT-2775 - Business Management Statistics - (3.00 Credit hours)
Prerequisite: MATH-1340 and Admitted into Walsh College Fast Track program
This course specializes in advanced business management statistics which examines the use of statistical inference tools, including probability distributions, sampling of populations, hypotheses formulation and testing, goodness of fit, analysis of variance, and linear regression analysis for decision making applications in business and industry. (3 contact hrs)

MKTG - MARKETING

MKTG-1010 - Principles of Marketing - (3.00 Credit hours)
Prerequisite: None
(formerly MKT 101) An overview of the full range of activities involved in marketing, including determining which consumers should be targeted, evaluating key competitors, and using information technology to effectively price, promote, distribute, and design quality products and services. (3 contact hrs)

MKTG-1020 - Dynamics of Retailing - (3.00 Credit hours)
Prerequisite: None
(formerly MKT 102) Study of elements of retailing. Retail structure, consumer analysis, store operations (organization, management, and control), personnel, merchandising, and sales promotion. (3 contact hrs)

MKTG-1210 - Small Business Marketing - (3.00 Credit hours)
Prerequisite: None
This course introduces key marketing concepts and then focuses on how entrepreneurs and small businesses with limited budgets can apply these concepts. Topics include taking a product/service from the idea stage through product testing, promotion, pricing, and finally commercialization. Student entrepreneurs will develop a practical marketing plan that includes budget-appropriate marketing strategies built on analysis of customer needs, business opportunities, competitors, and implementation requirements. (3 contact hrs)

MKTG-2000 - Customer Relationship & Database Marketing - (3.00 Credit hours)
Prerequisite: MKTG-1010 and ITCS-1010
(formerly MKT 200) This course covers the concepts, principles and techniques used to capture customer data, analyze it, and use data to develop financially sound retention, relationship and loyalty-building marketing programs. (3 contact hrs)

MKTG-2010 - Professional Selling - (3.00 Credit hours)
Prerequisite: None
(formerly MKT 201) Principles and techniques used by successful salespeople. Students learn to prepare well-organized, creative, professional sales presentations. Emphasis is placed on developing a consultative relationship with the customer. Students complete each step in the sales process: prospecting, sales call planning, making effective demonstrations, tailoring sales presentations to customer needs, and servicing accounts after the sale. (3 contact hrs)

MKTG-2020 - Advertising & Promotion Management - (3.00 Credit hours)
Prerequisite: None
(formerly MKT 202) MKTG-1010 is recommended. The development of the promotional blend of the marketing function is examined from the manager's viewpoint. Special emphasis will be placed on using information technology to develop a target market. Topics include advertising, sales promotion and public relations. (3 contact hrs)

MKTG-2060 - Consumer Behavior - (3.00 Credit hours)
Prerequisite: MKTG-1010
This class explores the process through which consumers make buying decisions. Students develop a deeper understanding of the factors influencing consumer behavior - from individual influences like personality, motivation, and perception - to broad socio-cultural considerations like economics, ethics, and multiculturalism. After exploring concepts of consumer behavior, the class focuses on practical marketing applications such as creating promotion strategies and retail environments that build loyal relationships with a defined target audience. (3 contact hrs)

MKTG-2100 - Global Marketing - (3.00 Credit hours)
Prerequisite: None
This course explores the many facets of marketing in an increasingly global society. Students will analyze the global environment and design a global marketing program focused on targeting consumers and identifying opportunities to develop business in an era of heightened multi-culturalism. (3 contact hrs)

MUSC - MUSIC

MUSC-1030 - Music Appreciation - (3.00 Credit hours)
Prerequisite: None
(formerly MUS 103) Humanities course for non-music majors wishing to increase their knowledge and discrimination of music. Various types and styles of music are presented and discussed with regard to the elements of music and how they function in each style. Concerts and outstanding programs are related to the course. (3 contact hrs)

MUSC-1050 - Music Fundamentals - (2.00 Credit hours)
Prerequisite: None
(formerly MUS 105) The study of beginning music fundamentals such as note names, clefs, scales, intervals, and chords, an analysis of simple melodic and rhythmic structures, and an introduction to the piano. Recommended for beginners and those needing preparation for Theory 1 and Ear Training 1. (2 contact hrs)

MUSC-1060 - Theory 1 - (2.00 Credit hours)
Prerequisite: Vocal or instrumental experience
Corequisite: MUSC-1160
(formerly MUS 106) Study of written harmonic, melodic, and rhythmic structures, including scale, triad construction, and inversion. Principal triads only. Includes correlated keyboard work. (2 contact hrs) Center Campus.

MUSC-1070 - Theory 2 - (2.00 Credit hours)
Prerequisite: MUSC-1060
Corequisite: MUSC-1170
(formerly MUS 107) Study of written harmonic, melodic, and rhythmic structures, including chord progressions involving triads and seventh chords, non-harmonic tones, and simple modulation. Includes correlated keyboard harmony. (2 contact hrs) Center Campus.

MUSC-1090 - Jazz Improvisation - (2.00 Credit hours)
Prerequisite: MUSC-1060 or basic knowledge of scales and key signatures
(formerly MUS 109) The principles and application of jazz theory giving the beginning improviser the necessary musical theoretical tools he will need as a performing musician. (2 contact hrs) Center Campus.

MUSC-1160 - Ear Training 1 - (2.00 Credit hours)
Prerequisite: None
Corequisite: MUSC-1060
(formerly MUS 116) Melodic dictation in one key, harmonic progressions involving principal triads, rhythmic dictation. Sight-singing diatonic exercises. (2 contact hrs) Center Campus.

MUSC-1170 - Ear Training 2 - (2.00 Credit hours)
Prerequisite: MUSC-1160
Corequisite: MUSC-1070
(formerly MUS 117) Melodic dictation involving chromatics, harmonic dictation involving all diatonic triads and seventh chords, and rhythmic dictation. Sight-singing diatonic and chromatic exercises. (2 contact hrs) Center Campus.

MUSC-1260 - Piano 1 - (2.00 Credit hours)
Prerequisite: None
(formerly MUS 126) Piano classes MUSC-1260 and 1270, each 2 contact hours, are recommended for beginners, elementary education majors, and music majors. (2 contact hrs) Center Campus.

MUSC-1270 - Piano 2 - (2.00 Credit hours)
Prerequisite: MUSC-1260
(formerly MUS 127) Piano classes MUSC-1260 and 1270, each 2 contact hours, are recommended for beginners, elementary education majors, and music majors. (2 contact hrs) Center Campus.

MUSC-1300 - Concert Choir - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 130) Performance outlet at college level. Repertoire representative of sacred and secular masterpieces in choral literature. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1351 - Jazz Lab Band - Alto Sax - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135A) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1352 - Jazz Lab Band - Tenor Sax - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135B) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1353 - Jazz Lab Band - Baritone Sax - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135C) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1354 - Jazz Lab Band - Trumpet - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135D) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1355 - Jazz Lab Band - Trombone - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135E) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1356 - Jazz Lab Band - Electric Bass - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135F) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1357 - Jazz Lab Band - Drums - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135G) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1358 - Jazz Lab Band - Guitar - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135H) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1359 - Jazz Lab Band - Piano - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 135I) A jazz ensemble of limited numbers designed for the student with previous instrumental performance experience. Arrangements performed represent various styles in the jazz idiom. May be taken 4 times for credit. A student can earn a maximum of 8 semester hours credit for any combination of MUSC-1300 and MUSC-1351 thru MUSC-1359. (3 contact hrs) Center Campus.

MUSC-1400 - Music for Teachers & Classroom Assistants - (3.00 Credit hours)
Prerequisite: None
This course addresses the cognitive and performance music skills essential for teachers and paraprofessionals working with children in early childhood, elementary, and special education settings. Successful teaching methods for singing and focused listening will be presented along with classroom performance on the piano and recorder. (3 contact hrs)

MUSC-1601 - Introduction to Applied Music - Voice - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160C) Private instruction providing the beginning student with the means of establishing proficiency in the vocal performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1602 - Introduction to Applied Music - Brasswinds - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160D) Private instruction providing the beginning student with the means of establishing proficiency in the instrumental performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1603 - Introduction to Applied Music - Woodwinds - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160E) Private instruction providing the beginning student with the means of establishing proficiency in the instrumental performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1604 - Introduction to Applied Music - Percussion - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160F) Private instruction providing the beginning student with the means of establishing proficiency in the instrumental performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1605 - Introduction to Applied Music - Strings - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160G) Private instruction providing the beginning student with the means of establishing proficiency in the instrumental performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1606 - Introduction to Applied Music - Guitar - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 160H) Private instruction providing the beginning student with the means of establishing proficiency in the instrumental performance area. Student will take private lessons on a beginning level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1801 - Applied Music - Piano - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180A) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1802 - Applied Music - Organ - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180B) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1803 - Applied Music - Voice - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180C) Private instruction providing the student with the means to increase proficiency in the major vocal performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1804 - Applied Music - Brasswinds - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180D) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1805 - Applied Music - Woodwinds - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180E) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1806 - Applied Music - Percussion - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180F) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1807 - Applied Music - Strings - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180G) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-1808 - Applied Music - Classical Guitar - (1.00 Credit hours)
Prerequisite: None
(formerly MUS 180H) Private instruction providing the student with the means to increase proficiency in the instrumental performance area. Student must be prepared to begin private lessons on an intermediate level. Contact Music Department at 586.286.2045 or 2046 to make arrangements for private instructor's name. Student pays for private instruction in addition to tuition payment. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2080 - Theory 3 - (2.00 Credit hours)
Prerequisite: MUSC-1070
Corequisite: MUSC-2180
(formerly MUS 208) Continuation of theory on the sophomore level. Includes instrumental writing and free voicing, and altered chords (borrowed chords, secondary dominant and leading tone chords, Neapolitan chords, and augmented sixth chords). (2 contact hrs) Center Campus.

MUSC-2180 - Ear Training 3 - (2.00 Credit hours)
Prerequisite: MUSC-1170
Corequisite: MUSC-2080
(formerly MUS 218) Further development of aural perception on the sophomore level. Study of melodic, harmonic, and rhythmic structures including altered chords, chromatic melodies, unusual meters, and divisions of the beat. (2 contact hrs) Center Campus.

MUSC-2710 - Music History & Literature to 1750 - (3.00 Credit hours)
Prerequisite: None
(formerly MUS 271) History and literature of music covering Medieval, Renaissance, and Baroque periods. (3 contact hrs) Center Campus.

MUSC-2720 - Music History & Literature Since 1750 - (3.00 Credit hours)
Prerequisite: None
(formerly MUS 272) History and literature of music covering Classical, Romantic, and 20th Century periods. (3 contact hrs) Center Campus.

MUSC-2801 - Advanced Applied Music - Piano - (1.00 Credit hours)
Prerequisite: MUSC-1801
(formerly MUS 280A) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2802 - Advanced Applied Music - Organ - (1.00 Credit hours)
Prerequisite: MUSC-1802
(formerly MUS 280B) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2803 - Advanced Applied Music - Voice - (1.00 Credit hours)
Prerequisite: MUSC-1803
(formerly MUS 280C) Private instruction at an advanced level allowing the student to study and be coached in vocal literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2804 - Advanced Applied Music - Brasswinds - (1.00 Credit hours)
Prerequisite: MUSC-1804
(formerly MUS 280D) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2805 - Advanced Applied Music - Woodwinds - (1.00 Credit hours)
Prerequisite: MUSC-1805
(formerly MUS 280E) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2806 - Advanced Applied Music - Percussion - (1.00 Credit hours)
Prerequisite: MUSC-1806
(formerly MUS 280F) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2807 - Advanced Applied Music - Strings - (1.00 Credit hours)
Prerequisite: MUSC-1807
(formerly MUS 280G) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

MUSC-2808 - Advanced Applied Music - Classical Guitar - (1.00 Credit hours)
Prerequisite: MUSC-1808
(formerly MUS 280H) Private instruction at an advanced level allowing the student to study and be coached in instrumental literature and prepare for concert or recital presentation. Participation in recital presentation required. May be taken 4 times for credit. (0.5 contact hr)

NATS - NATURAL SCIENCE

NATS-1200 - Natural Science - (4.00 Credit hours)
Prerequisite: None
(formerly NSC 120) Not to replace BIOL-1000. A general study of fundamental biological concepts. A lecture/laboratory course for the non-science major with emphasis on man's interrelationships with nature. (6 contact hrs)

NATS-1210 - Earth Science - (4.00 Credit hours)
Prerequisite: None
(formerly NSC 121) This is a lecture/laboratory course for non-science majors. It is a survey of the earth sciences intended to aid the student in understanding the interrelationships of the universe through the investigation of such topics as matter and energy, astronomy, geology, and meteorology. (4 contact hrs) Center Campus.

NATS-1310 - Environmental Science - (4.00 Credit hours)
Prerequisite: None
(formerly NSC 131) This is a lecture/laboratory/field course that introduces the student to the principles of environmental science. Coverage includes basic ecological concepts, energy and material flow, growth and regulation of populations, community interactions, and the relationships of these topics to the role of humans in protecting and preserving world ecosystems. (5 contact hrs)

NUMT- NUCLEAR MEDICINE TECHNOLOGY

NUMT-1100 - Nuclear Medicine Physics - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and BIOL-2710, CHEM-1050, ENGL-1180 or ENGL-1210, and HHSC-1700 with grade C or better; and MATH-1000 with grade C or better or a COMPASS score of 51 or higher in algebra.
Corequisite: NUMT-1120
This course is a detailed study of the science and mathematics used in the nuclear medicine field. The properties of nuclear physics, principles of radioactive decay, and radionuclide production will be emphasized. (3 contact hrs) Center Campus. Fall semester only.

NUMT-1120 - Radiation Safety in Nuclear Medicine – (2.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and BIOL-2710, CHEM-1050, ENGL-1180 or ENGL-1210, and HHSC-1700 with grade C or better; and MATH-1000 with grade C or better or a COMPASS score of 51 or higher in algebra.
Corequisite: NUMT-1100
This course provides a historical review of the developments in nuclear medicine. Safe methods of handling radioactive material, As Low As Reasonably Achievable (ALARA), personnel monitoring, exposure limits and terminology will be covered. Students will learn the basic principles of radiation biology. (2 contact hrs) Center Campus. Fall semester only.

NUMT-1200 - Nuclear Medicine Instrumentation – (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1100 and NUMT-1120 with grade C or better.
Corequisite: NUMT-1225 and NUMT-1250
This course concentrates on various types of detectors used in the practice of nuclear medicine. The operation principles of gas filled, scintillation, Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) detectors will be examined. Principles of Computerized Tomography (CT) will be overviewed as they correlate to nuclear medicine imaging. Included is a basic summary of computer components, application and processing techniques. (3 contact hrs) Center Campus. Winter semester only.

NUMT-1225 - Instrumentation Lab - (1.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1100 and NUMT-1120 with grade C or better.
Corequisite: NUMT-1200 and NUMT-1250
This course will provide practical experience performing quality control testing on various detectors and equipment used in nuclear medicine. Students will apply basic computer applications to nuclear medicine studies and review basic statistics. (2 contact hrs) Center Campus. Winter semester only.

NUMT-1250 - The Care of Patients in Nuclear Medicine - (2.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1100 and NUMT-1120 with grade C or better.
Corequisite: NUMT-1200 and NUMT-1225
This course provides the student with the skills necessary to care for the nuclear medicine patient. Topics include communicating with patients, ethics and confidentiality, body mechanics, positioning, infection control, standard precautions and venipuncture techniques. (3 contact hrs) Center Campus. Winter semester only.

NUMT-1300 - Methodology of Nuclear Medicine 1 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1200, NUMT-1225, and NUMT-1250 with grade C or better.
Corequisite: NUMT-1320 and NUMT-1355
This is the first in a series of courses to focus on the procedures performed in the clinical setting. Skeletal and respiratory system imaging will be covered. Students will present case studies. (3 contact hrs) Center Campus. Spring/Summer semester only.

NUMT-1320 - Radiopharmacy 1 - (1.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1200, NUMT-1225, and NUMT-1250 with grade C or better.
Corequisite: NUMT-1300 and NUMT-1355
This is the first in a series of courses to focus on the production and use of radiopharmaceuticals in nuclear medicine. This course covers the bioroutes, method of localization, and focuses on the specific radiopharmaceuticals used in bone, lung, and Positron Emission Tomography (PET) imaging. (1 contact hr) Center Campus. Spring/Summer semester only.

NUMT-1355 - Clinical Nuclear Medicine 1 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1200, NUMT-1225, and NUMT-1250 with grade C or better.
Corequisite: NUMT-1300 and NUMT-1320
This course provides training in the clinical setting where the students will observe, assist and perform imaging procedures with emphasis on professionalism, patient care and instrument quality control. Following specific objectives, the student will demonstrate competencies of clinical procedures and skills. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (32 contact hours for 8 weeks) Center Campus. Spring/Summer semester only.

NUMT-2100 - Methodology of Nuclear Medicine 2 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1300 and NUMT-1320 with grade C or better; and NUMT-1355 with grade Pass.
Corequisite: NUMT-2120, NUMT-2140, and NUMT-2155
This is the second in a series of courses to focus on the procedures performed in the clinical setting. Cardiac, gastrointestinal, central nervous and genitourinary systems imaging will be covered. Students will present case studies. (3 contact hrs) Center Campus. Fall semester only.

NUMT-2120 - Radiopharmacy 2 - (2.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1300 and NUMT-1320 with grade C or better; and NUMT-1355 with grade Pass.
Corequisite: NUMT-2100, NUMT-2140, and NUMT-2155
This is the second in a series of courses to focus on the production and use of radiopharmaceuticals in nuclear medicine. This course covers the properties and preparation of specific radiopharmaceuticals used in cardiac, gastrointestinal, central nervous and genitourinary imaging. (2 contact hrs) Center Campus. Fall semester only.

NUMT-2140 - Non-Imaging Nuclear Medicine Procedures - (2.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1300 and NUMT-1320 with grade C or better; and NUMT-1355 with grade Pass.
Corequisite: NUMT-2100, NUMT-2120, and NUMT-2155
This course concentrates on procedures and practices related to invivo/invitro lab and non-imaging nuclear medicine procedures. (2 contact hrs) Center Campus. Fall semester only.

NUMT-2155 - Clinical Nuclear Medicine 2 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-1300 and NUMT-1320 with grade C or better; and NUMT-1355 with grade Pass.
Corequisite: NUMT-2100, NUMT-2120, and NUMT-2140
This course continues training in the clinical setting where the students will observe, assist and perform imaging procedures with emphasis on professionalism, patient care and instrument quality control. Following specific objectives, the student will demonstrate competencies of clinical procedures and skills. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (32 contact hours for 16 weeks) Center Campus. Fall semester only.

NUMT-2200 - Methodology of Nuclear Medicine 3 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-2100, NUMT-2120, and NUMT-2140 with grade C or better; and NUMT-2155 with grade Pass.
Corequisite: NUMT-2220 and NUMT-2255
This is the last in a series of courses to focus on the procedures performed in the clinical setting. The endocrine system, therapeutic procedures, tumor and infection imaging will be covered. A review of NRC rules and regulations is included. Students will present case studies. (3 contact hrs) Center Campus. Winter semester only.

NUMT-2220 - Radiopharmacy 3 - (2.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-2100, NUMT-2120, and NUMT-2140 with grade C or better; and NUMT-2155 with grade Pass.
Corequisite: NUMT-2200 and NUMT-2255
This is the last in a series of courses to focus on the production and use of radiopharmaceuticals in nuclear medicine. This course covers the properties and preparation of specific radiopharmaceuticals used in endocrine, tumor, infection imaging, and therapeutic procedures. (2 contact hrs) Center Campus. Winter semester only.

NUMT-2255 - Clinical Nuclear Medicine 3 - (3.00 Credit hours)
Prerequisite: Admission into the Nuclear Medicine Technology program; and NUMT-2100, NUMT-2120 and NUMT-2140 with grade C or better; and NUMT-2155 with grade Pass.
Corequisite: NUMT-2200 and NUMT-2220
This course continues training in the clinical setting where the students will observe, assist and perform imaging procedures with emphasis on professionalism, patient care and instrument quality control. Following specific objectives, the student will demonstrate competencies of clinical procedures and skills. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (32 contact hours for 16 weeks) Center Campus. Winter semester only.

NURS - NURSING

NURS-1510 - Fundamentals of Nursing Theory - (1.00 Credit hours)
Prerequisite: Admission into the Nursing program, and ENGL-1210 or ENGL-1180, and BIOL-2710 and BIOL-1400
Corequisite: NURS-1520, NURS-1530
(formerly NUR 151) This theory course focuses on the development of critical thinking skills in planning, managing, and providing safe, competent nursing care for culturally diverse adults who are experiencing problems related to their activity, sleep, rest, comfort, safety, and sensory perceptions. In addition, the course covers the legal aspects of nursing practices and presents a process for documentation. (2 contact hrs per week for 8 wks) Center Campus.

NURS-1520 - Health Assessment in Nursing 1 - (1.00 Credit hours)
Prerequisite: Admission into the Nursing program, and ENGL-1210 or ENGL-1180, and BIOL-2710 and BIOL-1400
Corequisite: NURS-1510, NURS-1530
(formerly NUR 152) This theory course presents a general overview of the health assessment process in nursing. It introduces the procedures for data collection and for the interview process, as well as communication techniques and assessment skills needed to implement the nursing process for adults. (2 contact hrs per week for 8 wks) Center Campus.

NURS-1530 - Basic Nursing Skills - (1.00 Credit hours)
Prerequisite: Admission into the Nursing program, and ENGL-1210 or ENGL-1180, and BIOL-2710 and BIOL-1400
Corequisite: NURS-1510, NURS-1520
(formerly NUR 153) This laboratory course focuses on skills needed to provide and manage nursing care of adult patients. The student will practice critical thinking and communication skills in order to safely care for adults of various ages. Major emphasis will be on developing psychomotor skills related to vital signs, personal hygiene, asepsis, transfer and ambulation, hydration, comfort measures, administration of medications. The course also introduces documentation of procedures and nursing care. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (6 contact hrs per week for 8 wks) Center Campus.

NURS-1610 - Fundamentals of Nursing 2 - (1.00 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1510, NURS-1520, NURS-1530, and PSYC-1010
Corequisite: NURS-1620, NURS-1630
(formerly NUR 161) This theory course focuses on planning safe, competent nursing care to adult patients who are experiencing problems related to wounds, fluid and electrolyte balance, pain, elimination, respiratory function and diabetes mellitus. Emphasis is placed on developing critical thinking skills, using the nursing process in caring for culturally diverse patients and their families. (2 contact hrs per week for 8 wks) Center Campus.

NURS-1620 - Health Assessment in Nursing 2 - (1.00 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1510, NURS-1520, NURS-1530, and PSYC-1010
Corequisite: NURS-1610, NURS-1630
(formerly NUR 162) This theory course presents techniques of physical assessment. It focuses on normal human responses with an introduction to common abnormalities. Life-span and cultural variations are addressed. Assessment is presented as a method of collecting and analyzing data as a basis for making nursing diagnoses. (2 contact hrs per week for 8 wks) Center Campus.

NURS-1630 - Fundamentals of Nursing Clinical - (2.00 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1510, NURS-1520, NURS-1530, and PSYC-1010
Corequisite: NURS-1610, NURS-1620
(formerly NUR 163) In this clinical course the student uses the nursing process as a framework for learning to provide and manage safe, competent care to culturally diverse adult patients. The student will use critical thinking and effective communication skills while assuming responsibility for adult patients with problems related to the inflammatory process, oxygenation, pain, elimination of body waste, spirituality, sexuality, grieving and death. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (12 contact hrs per week for 8 wks) Center Campus.

NURS-1710 - Medical-Surgical Nursing 1A - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program; and NURS-1610 and NURS-1620 and NURS-1630, and BIOL-2400 or BIOL-2730, with grade C or better
Corequisite: NURS-1720, NURS-1730
(formerly NUR 171) This theory course focuses on planning, managing, and providing safe, competent nursing care for adult patients experiencing problems related to surgical experience, acid-base balance, and the respiratory system. The course emphasizes the development of critical thinking skills, the use of effective communication skills, and the use of the nursing process while providing care for culturally diverse adult patients across the life span. (6 contact hrs per week for 4 wks) Center Campus.

NURS-1720 - Medical-Surgical Nursing 1B - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program and NURS-1710
Corequisite: NURS-1710, NURS-1730
(formerly NUR 172) This theory course focuses on planning safe competent nursing care for adult patients experiencing gastrointestinal, vision and hearing problems. Growth and development of middle adulthood will also be discussed. Emphasis is placed on the development of critical thinking skills, communication techniques and use of the nursing process in caring for culturally diverse patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-1730 - Medical-Surgical Nursing 1 Clinical - (2.50 Credit hours)
Prerequisite: Admission into the Nursing program; and NURS-1610 and NURS-1620 and NURS-1630, and BIOL-2400 or BIOL-2730, with grade C or better
Corequisite: NURS-1710, NURS-1720
(formerly NUR 173) This clinical course provides experiences for the student to develop skills in the provision and management of nursing care for adult patients experiencing problems related to surgery, acid-base balance, respiratory management, and gastrointestinal, vision and hearing difficulties. The course emphasizes the development of critical thinking skills, the use of effective communication skills, and the use of the nursing process while providing care for culturally diverse adult patients across the life span. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (15 contact hrs per week for 8 wks) Center Campus.

NURS-1810 - Mental Health Nursing A - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1720, and NURS-1730
Corequisite: NURS-1820, NURS-1830
(formerly NUR 181) This theory course focuses on planning, managing and providing safe, competent nursing care for adolescent, young adult, adult and older adult patients experiencing health problems related to anxiety, alterations in affect and alterations in cognition. Emphasis is placed on the development of critical thinking skills, communication techniques and the use of the nursing process in caring for culturally diverse patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-1820 - Mental Health Nursing B - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program and NURS-1810
Corequisite: NURS-1810, NURS-1830
(formerly NUR 182) This theory course focuses on planning, managing and providing safe, competent nursing care for adolescent, young adult, adult and older adult patients experiencing health problems related to chemical dependency, personality disorders, and organic mental disorders. Emphasis is placed on the refinement of critical thinking skills, communication techniques and the use of the nursing process in caring for culturally diverse patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-1830 - Mental Health Nursing Clinical - (2.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1720, and NURS-1730
Corequisite: NURS-1810, NURS-1820
(formerly NUR 183) This clinical course assists the student to develop skills in providing and managing the nursing care of adolescent, young adult, adult, and older adult patients while functioning within the discipline of nursing. Utilizing the framework of the nursing process, the student will practice critical thinking, communication skills and responsibility while safely caring for patients with life-span changes. Major emphasis will be on the nursing care of patients with anxiety disorders, affective disorders, and thinking disorders. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (15 contact hrs per week for 8 wks) Center Campus.

NURS-2510 - Medical-Surgical Nursing 2A - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1820, and NURS-1830
Corequisite: NURS-2520, NURS-2530
(formerly NUR 251) This theory course has a focus on planning, managing and providing safe, competent care for adult patients who experience problems regarding the cardiovascular system. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2520 - Medical-Surgical Nursing 2B - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program and NURS-2510
Corequisite: NURS-2510, NURS-2530
(formerly NUR 252) This theory course focuses on planning, managing and providing safe, competent care for adult patients experiencing problems involving the endocrine and renal systems. The development of critical thinking, communication skills and use of the nursing process are emphasized while planning care for culturally diverse patients across the life span. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2530 - Medical-Surgical Nursing 2 Clinical - (2.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-1820, and NURS-1830
Corequisite: NURS-2510, NURS-2520
(formerly NUR 253) This clinical course affords opportunities for the student to develop skills in the provision and management of nursing care for a variety of adult patients. Using the framework of the nursing process, the student will practice critical thinking, communication skills and responsibility while safely caring for patients with life-span changes. The focus will be on the nursing care of patients with endocrine, cardiovascular, peripheral vascular and renal system problems. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (15 contact hrs per week for 8 wks) Center Campus.

NURS-2610 - Maternity Nursing A - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2520, and NURS-2530
Corequisite: NURS-2620, NURS-2630
(formerly NURS 2150) This theory course focuses on planning, managing, and providing safe, competent nursing care for the mother and the newborn experiencing life adjustments related to the normal maternity cycle. Growth and development of the human from conception to 12 months will also be explored. Utilizing nursing theory, emphasis will be placed on the development of critical thinking skills, communication techniques and the use of the nursing process in caring for culturally diverse maternity patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2620 - Maternity Nursing B - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program and NURS-2610
Corequisite: NURS-2610, NURS-2630
(formerly NURS 2160) This theory course focuses on planning, managing, and providing safe, competent nursing care for female patients experiencing health problems related to the childbearing process and/or reproductive cycle. Focus is also given to the care needed for the high-risk neonate. Emphasis is placed on the development of critical thinking skills, communication techniques and the use of the nursing process in caring for culturally diverse patients and their families. Additionally, gynecological problems of the older adult female and reproductive tract malignancies are addressed. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2630 - Maternity Nursing Clinical - (2.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2520, and NURS-2530
Corequisite: NURS-2610, NURS-2620
(formerly NURS 2170) This clinical course assists the student in developing skills to provide and manage the nursing care of diverse maternity patients and their newborns. Utilizing the framework of the nursing process, the student will demonstrate critical thinking, communication skills and responsibility while safely caring for maternity patients and their newborns. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (15 contact hrs per week for 8 wks) Center Campus.

NURS-2710 - Pediatric Nursing A - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2620, and NURS-2630
Corequisite: NURS-2720, NURS-2730
(formerly NURS 2350) This theory course focuses on assessing, planning and prioritizing safe, competent nursing care for pediatric patients experiencing health deviations. The health deviations are fluid and electrolyte imbalances, respiratory alterations, integumentary alterations, impaired immune responses, and deficit/excesses in nutrition and elimination. Nursing strategies for the promotion of health and development of the toddler, preschool, and school-age child will be taught. Emphasis is placed on the development of critical thinking skills, communication techniques, and the use of the nursing process in caring for culturally diverse patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2720 - Pediatric Nursing B - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program and NURS-2710
Corequisite: NURS-2710, NURS-2730
(formerly NURS 2360) This theory course focuses on assessing, planning, and prioritizing safe, competent nursing care for pediatric patients experiencing health deviations. The health deviations included are the child with neurological dysfunction, cancer, hematological dysfunction, alterations in physical mobility, cardiovascular dysfunction, insulin dependent diabetes and obesity. Emphasis is placed on the development of critical thinking skills, communication techniques and the use of the nursing process in caring for culturally diverse patients and their families. (6 contact hrs per week for 4 wks) Center Campus.

NURS-2730 - Pediatric Nursing Clinical - (2.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2620, and NURS-2630
Corequisite: NURS-2710, NURS-2720
(formerly NURS 2370) This clinical course assists the student to develop skills in providing and managing the nursing care of diverse pediatric patients and their families while functioning within the discipline of nursing. Using the framework of the nursing process, the student will practice critical thinking, communication skills and responsibility while safely caring for pediatric patients of various ages. Major emphasis will be the nursing care of pediatric patients with selected health deviations well known in pediatric populations. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (15 contact hrs per week for 8 wks) Center Campus.

NURS-2810 - Leadership & Management in Nursing - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2720, and NURS-2730; and HUMN-1700 or PHIL-2100
Corequisite: NURS-2820, NURS-2830
(formerly NURS 2450) This theory course encompasses the roles of an associate degree nurse as the manager of care to a group of patients and as a member within the profession of nursing. Concepts of nursing management and leadership are provided. The transition from student to registered nurse is emphasized. Ethical, legal and professional aspects of accountability are discussed. (3 contact hrs per week for 8 wks) Center Campus.

NURS-2820 - Medical-Surgical Nursing 3 - (1.50 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2720, and NURS-2730; and HUMN-1700 or PHIL-2100
Corequisite: NURS-2810, NURS-2830
(formerly NURS 2460) This theory course focuses on planning, managing and providing safe, competent nursing care for multicultural adult patients of various ages who are experiencing health problems related to oncology, neurological and musculoskeletal disorders. Emphasis is placed on the development of critical thinking skills and the use of the nursing process in caring for the patients and their significant others. (3 contact hrs per week for 8 wks) Center Campus.

NURS-2830 - Clinical Nursing Management - (3.00 Credit hours)
Prerequisite: Admission into the Nursing program, NURS-2720, and NURS-2730; and HUMN-1700 or PHIL-2100
Corequisite: NURS-2810, NURS-2820
(formerly NURS 2470) This clinical course assists the student to develop skills in providing and managing the nursing care of diverse adult patients. Utilizing the framework of the nursing process, the student will practice critical thinking, communication skills and responsibility while safely caring for patients with life-span changes. Major emphasis will be on the management and delegation of nursing care to a group of patients with neurological, musculoskeletal, and oncology problems. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (18 contact hrs per week for 8 wks) Center Campus.

OTAS - OCCUPATIONAL THERAPY ASSISTANT

OTAS-1010 - Activity Media & Task Analysis - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program
Corequisite: OTAS-1020, OTAS-1110, OTAS-1210, OTAS-1220, OTAS-1310
(formerly OTA 101) This course is designed as an introduction to media analysis. Various crafts, leisure activities, and daily tasks are utilized for beginning therapeutic application. The course includes emphasis on grading and adaptating various media and introduces the Occupational Therapy Practice Framework. Age appropriateness, disability, and appreciation of multicultural factors are emphasized. (3 contact hrs) Center Campus.

OTAS-1020 - Medical Language - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program
Corequisite: OTAS-1330
(formerly OTA 102) This course provides an introduction to medical terminology, including psychiatric terminology commonly used in occupational therapy practice settings. Emphasis placed on knowledge of word parts, prefixes, suffixes, medical abbreviations, and ability to read medical notes. Utilization of an independent study method of computer-assisted learning disks included in course. (2 contact hrs) Center Campus.

OTAS-1110 - Mental Health Conditions - (3.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and PSYC-1010
(formerly OTA 111) This course provides an overview of the most common psychiatric disorders referred to occupational therapy. Reviews definition, etiology, incidence, pathology, goal setting and team members. (3 contact hrs) Center Campus.

OTAS-1150 - Mental Health Techniques & Treatment - (2.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1110 and PSYC-1010
Corequisite: OTAS-1160, OTAS-1380, OTAS-1410
(formerly OTA 115) This course provides an overview of the occupational therapy treatment process including evaluation and treatment techniques utilized in mental health settings. Emphasis placed on intervention techniques appropriate for the Certified Occupational Therapy Assistant (COTA). Reviews occupational therapy theories, therapeutic use of self, activities of daily living (ADL), cognitive and sensorimotor activities. (2 contact hrs) Center Campus.

OTAS-1160 - Mental Health Techniques & Treatment Lab - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1110 and PSYC-1010
Corequisite: OTAS-1150, OTAS-1380, OTAS-1410
(formerly OTA 116) This course is designed to teach various techniques and skills used in treatment for persons referred to a mental health occupational therapy clinic. Emphasis is placed on application of the occupational therapy treatment process. Administration of standardized and non-standardized tests and evaluations appropriate to the role of the Certified Occupational Therapy Assistant (COTA) are reviewed. Students present a patient group activity. (3 contact hrs) Center Campus.

OTAS-1210 - Clinical Kinesiology - (3.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and BIOL-2710
Corequisite: OTAS-1220
(formerly OTA 121) This course studies functional human musculoskeletal movement and its interrelationship to the neuromuscular system as a foundation to the basic understanding of normal and abnormal movements. In addition, the course includes an analysis of basic principles of biomechanics in functional activity and an introduction to gross manual muscle testing. (3 contact hrs) Center Campus.

OTAS-1220 - Kinesiology - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and BIOL-2710
Corequisite: OTAS-1210
(formerly OTA 122) Offering correlated laboratory practice in kinesiology, this course covers basic biomechanics, range of motion (ROM) techniques, transfers, activities of daily living (ADL) motion analysis, barrier-free design and assessment, wheelchair sensitivity exercise, and universal precautions for infection control. (3 contact hrs) Center Campus.

OTAS-1290 - Rehabilitation Conditions - (4.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1010, OTAS-1020, OTAS-1210, OTAS-1220, OTAS-1310, and BIOL-2710
(replaces OTAS-1240, OTAS-1250, OTAS-1260, OTAS-1270, and OTAS-1280) This course provides an overview of the most common conditions referred to occupational therapy and reviews definition, etiology, incidence, pathology, and team members with an emphasis on clinical reasoning skills. (4 contact hrs) Center Campus.

OTAS-1310 - Life Span Development - (2.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program
(formerly OTA 131) This course provides an overview of the biological, cognitive, socioemotional and sensorimotor processes throughout the life span. Students are exposed to theories and research findings regarding development. (2 contact hrs) Center Campus.

OTAS-1330 - Patient Interactive Communication Skills - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program
Corequisite: OTAS-1020
(formerly OTA 133) This course is designed to review the techniques used to facilitate communication among team members. Covers management styles, interviewing patients, developing therapeutic relationships, conflict management, problem-solving, stress management and the teaching learning process. (2 contact hrs) Center Campus.

OTAS-1350 - Pediatrics - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1310
Corequisite: OTAS-1360
(formerly OTA 135) This course is designed to review the role and function of occupational therapy in pediatrics. School system and other community based settings are covered and intervention strategies which are used for assessment and treatment. Diseases/disabilities most commonly referred to pediatric occupational therapy are reviewed. (1 contact hr) Center Campus.

OTAS-1360 - Pediatrics Laboratory - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1310
Corequisite: OTAS-1350
(formerly OTA 136) This course is designed to teach various techniques and skills used in treatment for persons referred to a pediatric occupational therapy clinic. Role of school based therapist is also included. Emphasis is placed on assessment and treatment techniques which cover the cognitive, psychomotor and affective domains. (2 contact hrs) Center Campus.

OTAS-1380 - Documentation Skills 1 - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1110 and PSYC-1010
Corequisite: OTAS-1150, OTAS-1160, OTAS-1450
(formerly OTA 138) This course introduces the student to basic concepts of documentation and beginning note writing skills for the occupational therapy assistant. The course will explore various documentation formats, computer-aided documentation, third-part reimbursement guidelines and regulations, and issues of confidentiality and the Health Insurance Portability and Accountability Act (HIPAA). A patient case study will be used to understand OT evaluations, intervention plans, long- and short-term goals/objectives, progress notes, and discontinuation summaries. Problem Oriented Medical Record (POMR) will be introduced and progress note formats will be presented utilizing the OT practice framework terminology. (2 contact hrs) Center Campus.

OTAS-1450 - Level 1 Fieldwork - First Placement - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1110 and PSYC-1010
Corequisite: OTAS-1150, OTAS-1160, OTAS-1380
(formerly OTAS-1410) By providing supervised clinical experience, this course gives the beginning level-1 student experience in basic occupational therapy interventions and the opportunity to apply therapeutic concepts under the supervision of a qualified clinician. (8 contact hrs per week for 8 wks) Center Campus.

OTAS-2210 - Physical Dysfunction Techniques & Treatment - Lecture - (2.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1210, OTAS-1220, and OTAS-1290
Corequisite: OTAS-2220, OTAS-2380, OTAS-2450
(formerly OTA 221) This course provides an overview of the occupational therapy treatment process including evaluation and treatment techniques utilized in physical dysfunction settings. Emphasis placed on treatment application and intervention techniques appropriate for the Certified Occupational Therapy Assistant (COTA). Reviews occupational therapy frame of reference, treatment approaches, activities of daily living (ADL), cognition, perception, work simplification, energy conservation, sensorimotor, neuromuscular and selected orthotic activities. (2 contact hrs) Center Campus.

OTAS-2220 - Physical Dysfunction Techniques & Treatment - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1210, OTAS-1220, and OTAS-1290
Corequisite: OTAS-2210, OTAS-2380, OTAS-2450
(formerly OTA 222) This course is designed to teach various techniques and skills used in treatment for persons referred to a physical dysfunction occupational therapy setting. Emphasis is placed on application of the occupational therapy treatment process. Administration of standardized and non-standardized tests and evaluations appropriate to the role of the Certified Occupational Therapy Assistant (COTA) are reviewed. Students fabricate small activities of daily living (ADL) assistive and orthotic devices. (3 contact hrs) Center Campus.

OTAS-2310 - Gerontics Lecture - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1310
Corequisite: OTAS-2320
(formerly OTA 231) This course is designed to review the role and function of occupational therapy in geriatrics and the cognitive and physiological changes which occur in the body as a result of the normal aging process. The course will give an overview of the aging process, theories, activity planning, and barrier-free design. (1 contact hr) Center Campus.

OTAS-2320 - Gerontics Laboratory - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1310
Corequisite: OTAS-2310
(formerly OTA 232) This course is designed to teach various techniques and skills used in treatment for persons referred to a geriatric occupational therapy setting. Group techniques, activity planning, assistive devices for activities of daily living (ADL), diversity training, universal precautions are covered. Course allows students to generate creative ideas for practical use in treatment settings. (2 contact hrs) Center Campus.

OTAS-2340 - Program Support - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1150 and OTAS-2210
(formerly OTA 234) This course is designed to review organization and management concerns as it relates to the Certified Occupational Therapy Assistant (COTA). Team collaboration between Occupational Therapist Registered (OTR)/Certified Occupational Therapy Assistant (COTA) is discussed. Professional standards and ethics, research, marketing, state/federal regulatory laws, budgeting, third party reimbursement, program and space planning are covered. (1 contact hr) Center Campus.

OTAS-2360 - Fieldwork Prep: From Classroom to Clinic - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1410
Corequisite: OTAS-2450
(formerly OTA 236) This course is designed to prepare the student for the realities of occupational therapy clinical practice. The course reviews what skills are needed to make the transition from classroom to the clinic. Covers competency standards expected on Level 2 fieldwork in cognitive, psychomotor and affective domains. (1 contact hr) Center Campus.

OTAS-2380 - Documentation Skills 2 - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1290 and OTAS-1380
Corequisite: OTAS-2210, OTAS-2220, OTAS-2450
(formerly OTA 238) Building upon the skills presented in OTAS-1380, Documentation Skills 1, this course teachers third-party reimbursement guidelines/regulations and appeals, teaches standards for confidentiality and the Health Insurance Portability and Accountability Act (HIPAA), and teaches the documentation of intervention plans, long- and short-term goals/objectives, progress notes, and discontinuation summaries utilizing actual client intervention sessions. (2 contact hrs) Center Campus.

OTAS-2390 - Assistive Technology - (1.50 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1210, OTAS-1220, OTAS-1350, and OTAS-1360
(formerly OTA 239) This course is designed to provide an overview on how technology is being used to enhance patient treatment in a variety of work settings. Covers seating and mobility aids, drivers training aids, assistive technology devices, computer adaptations, switch activated toys, and other high and low tech devices. (3 contact hrs) Center Campus.

OTAS-2450 - Level 1 Fieldwork - Second Placement - (1.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1450
Corequisite: OTAS-2210, OTAS-2220, OTAS-2380
(formerly OTAS-2420) This course provides supervised clinical experience to give the beginning level 1 student an opportunity for continued practice of basic occupational therapy interventions under the supervision of a qualified clinician. (8 contact hrs per week for 8 wks) Center Campus.

OTAS-2580 - Level 2 Fieldwork - First Placement - (4.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1450 and OTAS-2450
Corequisite: OTAS-2590
(formerly OTAS-2480) This course provides supervised clinical experience for the advanced student who will apply therapeutic techniques and practice competent entry-level clinical applications under the supervision of a qualified clinician. (40 contact hrs per week for 8 wks) Center Campus.

OTAS-2590 - Level 2 Fieldwork - Second Placement - (4.00 Credit hours)
Prerequisite: Admission into Occupational Therapy Assistant program and OTAS-1450 and OTAS-2450
Corequisite: OTAS-2580
(formerly OTAS-2490) This course provides supervised clinical experience for the advanced student to continue to apply therapeutic techniques and practice competent entry-level clinical applications under the supervision of a qualified clinician. (40 contact hrs per week for 8 wks) Center Campus.

PHED - PHYSICAL & HEALTH EDUCATION

PHED-1040 - Archery - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 104) Techniques of indoor archery; includes target shooting, proper use of equipment. (2 contact hrs)

PHED-1070 - Golf - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 107) Provides the student with knowledge concerning the golf swing, rules, course design, and etiquette. Students develop basic skills in the grip, chipping, full swing, and putting. (2 contact hrs)

PHED-1110 - Bowling - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 111) Provides an introduction to the student (by discussion, demonstration, and use of written material) using the fundamental skills which include: starting position, approach, release, follow-through, and scoring. (2 contact hrs)

PHED-1500 - Basketball - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 150) Provides the student with knowledge of basic skills; philosophy of team play, style of play, and on-court experience practicing and using skills in game situations. (2 contact hrs) South Campus.

PHED-1510 - Self Defense - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 151) Coeducational course designed to provide basic rules and practice for personal and home safety. (2 contact hrs)

PHED-1540 - Power Volleyball - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 154) Provides students with fundamental tactics and strategy of winning volleyball. Emphasis on the serve, pass, set, spike, block, and individual defensive techniques. (2 contact hrs) South Campus.

PHED-1570 - Soccer - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 157) Soccer techniques, skills and tactics are taught through game related experiences. Physical conditioning is also emphasized throughout the course. (2 contact hrs) South Campus.

PHED-1660 - Beginning Tennis - (2.00 Credit hours)
Prerequisite: None
(formerly PEDA 166) Provides students with knowledge of scoring, rules and terms used in the game. Instruction in forehand, backhand, and serve. (2 contact hrs)

PHED-1670 - Intermediate Tennis - (2.00 Credit hours)
Prerequisite: Knowledge of rules, competent forehand, backhand, and serve
(formerly PEDA 167) Provides the student with knowledge in basic strategy used in singles and doubles. Review forehand, backhand, and serve. Introduction of the overhand smash, lob volley, and half volley. (2 contact hrs)

PHED-1960 - Beginning Scuba Diving - (2.00 Credit hours)
Prerequisite: Swim 4 lengths of pool
(formerly PEDA 196) Sixteen hours in lecture covering basic skills, physics of diving, medical aspects, marine environment, scuba equipment, cardiopulmonary resuscitation, etc. and sixteen hours in the pool in swimming, snorkeling, and practicing the skills of scuba diving. National certification (NAUI or PADI) is available to qualified students as an option after the class by completing the open water requirements (by arrangement). Students provide their own mask, snorkel, and fins. Extra fees for rental of any scuba equipment and open water is responsibility of student. (2 contact hrs) South Campus.

PHED-2000 - Wellness - Focus Fitness - (2.00 Credit hours)
Prerequisite: None
(formerly PED 200) Course focus is on fitness, fitness assessment, and fitness program development. Also explores topics of nutrition, stress management, weight management and the role of activity and exercise as part of a total wellness plan. (2 contact hrs)

PHED-2010 - Wellness - Focus Nutrition - (2.00 Credit hours)
Prerequisite: None
(formerly PED 201) Course focus is on nutrition, diet, diet analysis, and development of a diet to meet the student's needs. Also explores topics of physical activity, exercise, weight management, stress management, and nutrition as part of a total wellness plan. (2 contact hrs)

PHED-2020 - Wellness - Focus Lifestyle Choices - (2.00 Credit hours)
Prerequisite: None
(formerly PED 202) Course focus is on relationship between lifestyle choice and personal health. Various assessment techniques will be utilized to determine personal risk. Also explores topics of nutrition, fitness, weight management, physical activity, exercise, and stress management as part of a total wellness program. (2 contact hrs)

PHED-2025 - Healthy Lifestyle Choices for Future Health Care Providers - (2.00 Credit hours)

Prerequisite: None

This course introduces future health care providers to current health practices and theory. Using dimensions of wellness and the perspective of a health care practitioner as a framework, students assess their own lifestyle choices and assess how those choices may influence work situations including interactions with patients. Using knowledge gained from self-assessments and lecture, students evaluate their physical and emotional capabilities as they relate to skill sets needed for a Respiratory Therapist, Medical Assistant, Surgical Technologist, Occupational Therapy Assistant, Physical Therapy Assistant, and Registered Nurse. Health and assessment topics include body composition, cardiovascular, back injury and pain, infectious disease, chronic stress, cancer, weight management and nutrition, physical activity, and the dimensions of wellness. (2 contact hours)

PHED-2030 - Wellness - Focus Aerobics - (2.00 Credit hours)

Prerequisite: None

(formerly PED 203) Course focus is on exploration of various aerobic activities and development of personal aerobic exercise program. Also explores topics of nutrition, weight management, fitness, physical activity, exercise, and stress management as part of a total wellness program. (2 contact hrs)

PHED-2035 - Wellness - Focus Kickboxing - (2.00 Credit hours)

Prerequisite: None

Course focus is on exploration of various muscular strength and endurance activities in relationship to kickboxing, along with the development of personal fitness profile. Also explores topics of nutrition, weight management, fitness, physical activity, exercise, and stress management as part of a total wellness program. (2 contact hrs)

PHED-2040 - Wellness - Focus Body Building & Conditioning - (2.00 Credit hours)

Prerequisite: None

(formerly PED 204) Course focus is on assessment and enhancement of muscle strength and endurance and development of an appropriate personal exercise program. Also explores topics of nutrition, weight management, fitness, exercise, activity, and stress management as part of a total wellness program. (2 contact hrs)

PHED-2070 - Wellness - Focus Prevention, Intervention, Treatment of Disease, Illness & Injury - (3.00 Credit hours)

Prerequisite: None

(formerly PED 207) Course focus is on prevention/intervention/treatment of cardiovascular disease, a variety of sudden illnesses and medical emergencies, including injuries and accidents. Additional topics will include transmission of diseases, legal aspects of emergency care, body systems, medical emergencies, drug and alcohol abuse, nutrition, stress management, weight management and exercise as they relate to wellness. American Red Cross certifications: RTE, AED, and CPR for Adult, Child and Infant awarded upon successful completion of specific components of course. Assembly of a first aid kit is required. (3 contact hrs)

PHED-2080 - Wellness - Focus Introduction to Exercise Science - (2.00 Credit hours)
Prerequisite: None
Course explores career options available to those interested in sports medicine, health sciences and physical education. Focus is on the basic concepts of exercise science including motor learning, exercise physiology, biomechanics and the six dimensions of total wellness. (2 contact hrs)

PHED-2085 - Wellness - Focus Stress Management - (2.00 Credit hours)
Prerequisite: None
Course focus is on current stress management practice and theory. Topics include defining stressors, physiological and mental responses to those stressors, and the relationship of stress to individual health. Activities include practicing a variety of stress management and coping techniques, progressive muscular relaxation, cognitive strategies, meditation, visualization, guided imagery, and breathing techniques. As part of a total wellness program, these techniques and strategies can help students more effectively manage stress associated with college and life. (2 contact hrs)

PHED-2090 - Wellness - Focus Pilates - (2.00 Credit hours)
Prerequisite: None
Course focus is on utilizing the 5 principles of Pilates and Yoga via various floor and mat exercises in the development of a personal exercise program. Also explores the topics of nutrition, weight management, physical activity, stress management, and other health topics as part of a total wellness program. (2 contact hrs)

PHIL - PHILOSOPHY

PHIL-2010 - Introduction to Philosophy - (3.00 Credit hours)
Prerequisite: None
(formerly PHI 201) Designed to show the relevance of philosophical problems to the student himself. The student is challenged to develop a consistent response to such problems as: free will versus determinism, the limits of knowledge, the basis of good and evil, personal conscience versus legal obligation, etc. Traditional and modern philosophers are read for discussion and critical evaluation. (3 contact hrs)

PHIL-2100 - Introduction to Ethics - (3.00 Credit hours)
Prerequisite: None
(formerly PHI 210) A critical examination of the foundation of various ethical systems. Specific ethical problems are posed especially those which relate to the student's situation and possible solutions are discussed. Students will be challenged to define and defend their ethical position against alternative systems. (3 contact hrs)

PHIL-2200 - Introduction to Logic - (3.00 Credit hours)
Prerequisite: None
(formerly PHI 220) An introduction to methods of distinguishing good reasoning from bad reasoning. Modern deductive logic is used to test the validity of arguments and to construct formal proofs. Some time may be devoted to classical Aristotelian logic and informal fallacies. (3 contact hrs)

PHIL-2400 - Philosophy of Religion - (3.00 Credit hours)
Prerequisite: None
(formerly PHIL-2911, PHI 292A) This course surveys a number of philosophical perspectives in regard to the relationship between faith and reason. Topics include the various proofs for God's existence and objections to them, the origin of religious beliefs, the tenets of atheism, mysticism, the notion of evil, the concept of free will, the role of religion in society, and the relationship between faith and meaning. (3 contact hrs)

PHSA - PHYSICAL SCIENCE

PHSA-1050 - Physical Science - (4.00 Credit hours)
Prerequisite: None
(formerly PHS 105A) No credit after NSC-118 or PHS-101. An overview of the physical sciences, to illustrate the underlying physical concepts of modern technological society. These concepts are investigated through selected laboratory experiences and classroom work designed to improve a general understanding of the physical sciences. (4 contact hrs)

PHYS - PHYSICS

PHYS-1180 - College Physics 1 - (4.00 Credit hours)
Prerequisite: MATH-1000 with grade C or better, or higher level math course, or math placement score
(formerly PHYS-1160) The first of a two-semester sequence of algebra-based courses designed to present the fundamental principles of physics including mechanics and fluids. The student will also perform integrated experiments dealing with the physics of mechanics and fluids. (6 contact hrs)

PHYS-1190 - College Physics 2 - (4.00 Credit hours)
Prerequisite: PHYS-1180 with grade C or better
(formerly PHYS-1170) The second of a two-semester sequence of algebra-based courses designed to present the fundamental principles of physics including thermodynamics, electricity, waves, and optics. The student will also perform integrated experiments dealing with the physics of thermodynamics, electricity, waves, and optics. (6 contact hrs)

PHYS-2220 - Analytical Physics 1 - (5.00 Credit hours)
Prerequisite: PHYS-1180 with grade C or better, or passing score on the Physics Area Placement Test and MATH-1760 with grade C or better
(formerly PHYS-2190) The first in a two-semester sequence of calculus-based physics courses for physical science and engineering students covering calculus-based mechanics, thermodynamics, vibrations, and wave motion. The student will also perform integrated experiments dealing with the physics of mechanics, thermodynamics, vibrations, and wave motion. (7 contact hrs)

PHYS-2230 - Analytical Physics 2 - (5.00 Credit hours)
Prerequisite: PHYS-2220 with grade C or better and MATH-1760 with grade C or better
(formerly PHYS-2180) The second in a two-semester sequence of calculus-based physics courses for physical science and engineering students covering calculus-based electromagnetism, electromagnetic waves, and physical and geometrical optics. The student will also perform integrated experiments dealing with the physics of electromagnetism, electromagnetic waves, and physical and geometrical optics. (7 contact hrs)

PHYS-2400 - Statics - (3.00 Credit hours)
Prerequisite: PHYS-2220 with grade C or better and MATH-1760 with grade C or better
A study of mechanics involving the analysis of forces in two and three dimensions; rigid body equilibrium; resultants of force systems; internal forces; structural analysis; friction; center of gravity, mass and centroid; virtual work; and moments of inertia. (3 contact hrs)

POLS - POLITICAL SCIENCE

POLS-1000 - Introduction to American Politics - (4.00 Credit hours)
Prerequisite: None
(formerly PSC 100) Survey course dealing with the major aspects of American politics: its policy making process and structure at all levels of government. (4 contact hrs)

POLS-1101 - Politics in Film, Music & Art - Contemporary Political Issues - (3.00 Credit hours)
Prerequisite: None
(formerly PSC 110D) This course explores the power of images and sounds to deliver political messages and affect the way we think about political issues. It will focus on controversial topics presented in films and documentaries. (3 contact hrs)

POLS-1104 - The Media & American Politics - Contemporary Political Issues - (3.00 Credit hours)
Prerequisite: None
(formerly PSC 110K) This course examines the influence of the mass media in shaping public opinion and the policy agenda. It will examine relevant topics such as media concentration and information control and the resultant effects on U.S. democracy. (3 contact hrs)

POLS-1200 - Local & State Government - (3.00 Credit hours)
Prerequisite: None
Survey course dealing with the major aspects of state and local government: the structures of government, their policymaking process, and major trends in metropolitan and suburban politics. (3 contact hrs)

POLS-1600 - International Politics - (3.00 Credit hours)
Prerequisite: POLS-1000
(formerly PSC 160) Introductory study of international relations, designed to acquaint students with basic factors motivating behavior of nations as illustrated by present world affairs. (3 contact hrs)

POLS-1900 - Comparative Systems: USA - (3.00 Credit hours)
Prerequisite: None
Survey course comparing the American, Canadian, and German political systems, emphasizing similarities and differences concerning the role of state and local governments in the formulation of public policy. (3 contact hrs) Center Campus.

POLS-1950 - Comparative Systems: Germany - (3.00 Credit hours)
Prerequisite: POLS-1900
Seminar course conducted at the Tree University of Berlin comparing the American and German political systems. Emphasizing the similarities and differences in the role of local, state, and federal governments in the formation of public policy. (3 contact hrs) Center Campus.

PRDE - PRODUCT DEVELOPMENT

PRDE-1000 - Fundamentals of Design - (4.00 Credit hours)
Prerequisite: None
(formerly DRST-1250 and DRVD-1510 and DRVD-2140) No credit after DRST-1250 and DRVD-1510 and DRVD-2140. This course provides students with basic theoretical design skills. Topics include descriptive geometry, orthographic projection, assembly and detail drawings, basic surface development, and simple mechanisms. (6 contact hrs) South Campus.

PRDE-1001 - CATIA V5 for Engineers & Designers Level 1 - (2.00 Credit hours)
Prerequisite: Must be a current DaimlerChrysler employee and must have department consent
(formerly DRCG-2920) The participant will understand the fundamentals and basic philosophy of the CATIA V5 Computer Aided Design software with major concentration on the Sketcher and Part Design Workbenches. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (2.5 contact hrs) South Campus.

PRDE-1002 - CATIA V5 for Engineers & Designers Level 2 - (2.00 Credit hours)
Prerequisite: PRDE-1001 and must be a current DaimlerChrysler employee and must have department consent
(formerly DRCG-2921) The participant will build upon the skills learned in the Level 1 course. The participant will understand advanced modeling techniques; the creation, manipulation and management of assembly files; as well as the Drafting Workbench. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (2.5 contact hrs) South Campus.

PRDE-1003 - CATIA V5 Basics - (2.00 Credit hours)
Prerequisite: Must be a current DaimlerChrysler employee and must have department consent
(formerly DRCG-2922) The participant will gain an overview of the software interface as well as fundamental skills on the Sketcher, Part Design, Assembly Design, and Drafting Workbenches. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (2.5 contact hrs) South Campus.

PRDE-1100 - Design Communications - (4.00 Credit hours)
Prerequisite: None
This course exposes students to a variety of technical communication skills. Topics include computer skills, presentation skills, technical report and memo writing. (4 contact hrs) South Campus.

PRDE-1200 - Theory of Sheet Metal Fabrication - (3.00 Credit hours)
Prerequisite: None
(formerly DRTF-1210 and DRVD-1300) No credit after DRTF-1210 or DRVD-1300. This course introduces the student to the theory of press working operations used in the fabrication of sheet metal components. Topics include blanking, piercing, trimming, forming, and drawing operations in addition to the types of presses, fixtures, and mechanical handling devices required. (3 contact hrs) South Campus.

PRDE-1250 - Basic Blueprint Reading - (2.00 Credit hours)
Prerequisite: None
(formerly DRBP-1500) No credit after DRBP-1500. The purpose of this modularized blueprint reading course is to develop the learner's skill to read and interpret engineering drawings at the entry level. Topics include drawing terminology; title block; revision column; notes; dimensions and tolerances applications; types of lines; basic symbols; conventions; symmetry of assembly; detail working drawings; and isometric/3D, orthographic, auxiliary, and section views. (4 contact hrs) South Campus.

PRDE-1300 - Industrial & Materials Processes - (4.00 Credit hours)
Prerequisite: None
(formerly DRST-1160) No credit after DRST-1160. A study of the industrial processes and the selection of ferrous and non-ferrous materials as they apply to the design of machine details and assembly tool components. (4 contact hrs) South Campus.

PRDE-1400 - Introduction to SolidWorks & 3D Parametric Solid Modeling - (3.00 Credit hours)
Prerequisite: PRDE-1250 or DRBP-1500
(formerly DRCG-1150) No credit after DRCG-1150. This course introduces the student to entry-level applications of SolidWorks solid modeling software and provides hands-on experience to build parametric models of basic parts and assemblies with dynamic operation of components. (4 contact hrs) South Campus.

PRDE-1410 - SolidWorks: Components & Assemblies - (3.00 Credit hours)
Prerequisite: PRDE-1400 or DRCG-1150
Industrial drawing practices with emphasis on the development of 3D parametric modeling and orthographic projection, and basic subsystem (subassembly) and single component (detail) drawing including dimensioning, auxiliary, and section views. (4 contact hrs) South Campus.

PRDE-1450 - AutoCAD: Detailing & Assemblies - (3.00 Credit hours)
Prerequisite: DRCG-1140
(formerly DRCG-1110) No credit after DRCG-1110. Industrial drawing practices with emphasis on development of 3D parametric modeling and orthographic projection and basic subsystem (subassembly) and single component (detail) drawing including dimensioning, auxiliary, and section views. (4 contact hrs) South Campus.

PRDE-1500 - Unigraphics: Introduction to Solid Modeling - (3.00 Credit hours)
Prerequisite: None
(formerly DRCG-1400) No credit after DRCG-1400. This course provides an introduction to Unigraphics software. The student will be exposed to modeling techniques that are used in industry today. Full parametric models will be created using various applications. These techniques are used in vehicle components and the aerospace industry as well as consumer goods such as vacuum cleaners and children's toys. (4 contact hrs) South Campus.

PRDE-1510 - Unigraphics: Assemblies & Drafting - (3.00 Credit hours)
Prerequisite: PRDE-1500 or DRCG-1400
(formerly DRCG-1500) No credit after DRCG-1500. This course introduces the principles of constructing parametric models using the sketcher tools, assemblies, and detail drawings in Unigraphics. The student will be exposed to techniques that are used in industry today. These techniques are used in vehicle components and the aerospace industry as well as consumer goods such as vacuum cleaners and children's toys. (4 contact hrs) South Campus.

PRDE-1600 - CATIA V5: Introduction & Solid Modeling - (3.00 Credit hours)
Prerequisite: None
(formerly DRCG-1700) No credit after DRCG-1700. CATIA V5 Computer Aided Design software as applied to solid part modeling. Emphasis is on the Sketcher and Part Design Workbenches. Topics include file management, sketching and constraining, part modeling and modification techniques, and specification tree diagnosis. (4 contact hrs) South Campus.

PRDE-1610 - CATIA V5: Assemblies & Drafting - (3.00 Credit hours)
Prerequisite: PRDE-1600 or DRCG-1700
(formerly DRCG-1800) No credit after DRCG-1800. This course introduces the basic principles of constructing assemblies and creating drawings on CATIA V5 software Assembly Design and Drafting Workbenches. Topics include adding components and setting constraints within an assembly, analyzing constraints, drafting workbench essentials, and detailing fundamentals such as view creation, layout, and dimensioning. (4 contact hrs) South Campus.

PRDE-1700 - Teamcenter Engineering - (3.00 Credit hours)
Prerequisite: PRDE-1400 or PRDE-1500 or PRDE-1600 or DRCG-1150 or DRCG-1400 or DRCG-1700
Teamcenter Engineering Product Data Management addresses the creation and organization of product data using Teamcenter Engineering. Various methods of creating, revising, finding, viewing, and managing product data and product data structures are taught. How to move engineering products and product structures through the product life cycle process is also taught. (3 contact hrs) South Campus.

PRDE-2000 - Product Development Process - (3.00 Credit hours)
Prerequisite: None
This course provides students with an overall understanding of the Product Development Process used in a variety of industries. Emphasis is on planning, specifications, development processes, and economics. (3 contact hrs) South Campus.

PRDE-2100 - Design Intent & Analysis - (3.00 Credit hours)
Prerequisite: None
This course exposes students to various methods of product analysis and redesign. Topics include design for manufacturing, design for assembly and failure modes, and effects analysis. (3 contact hrs) South Campus.

PRDE-2200 - Jig & Fixture Detailing & Design - (3.00 Credit hours)
Prerequisite: PRDE-1410 or PRDE-1450 or PRDE-1510 or PRDE-1610 or DRCG-1110 or DRCG-1500 or DRCG-1800 or consent of advisor; and PRDE-1300 or DRST-1160
(formerly DRTF-1170) No credit after DRTF-1170. Detail and design methods and procedures for jigs and fixtures used in the metal removal industry. Includes drilling and reaming jigs and milling fixtures. (6 contact hrs) South Campus.

PRDE-2210 - Body Fixture Design - (3.00 Credit hours)
Prerequisite: PRDE-2200
(formerly DRTF-2360) No credit after DRTF-2360. The student will learn about detail and design methods and procedures for automobile body assembly tooling, both high and low production, including major assembly, subassembly, and how to apply various fixtures. (6 contact hrs) South Campus.

PRDE-2300 - Die Design 1 - (3.00 Credit hours)
Prerequisite: PRDE-1410 or PRDE-1450 or PRDE-1510 or PRDE-1610
(formerly DRTF-2280) No credit after DRTF-2280. Die design methods, standards, and solutions to basic die design problems in cutting and forming dies are covered. The student is introduced to standard die components such as die sets, punches, buttons, retainers, and gages. (6 contact hrs) South Campus.

PRDE-2310 - Die Design 2 - (3.00 Credit hours)
Prerequisite: PRDE-2300
(formerly DRTF-2290) No credit after DRTF-2290. The student is introduced to the types of dies used to produce body panels. Course material includes the design of forming dies, draw dies, and bending dies. (6 contact hrs) South Campus.

PRDE-2400 - Plastics Design & Manufacturing - (3.00 Credit hours)
Prerequisite: None
This course introduces students to proper design principles and techniques insuring a robust and manufacturable plastic molded part. (3 contact hrs) South Campus.

PRDE-2410 - Vehicle Systems Overview - (3.00 Credit hours)
Prerequisite: PRDE-2400
This course provides the design student with a thorough overview of the major systems that are found in a vehicle. The designer must consider requirements for assembly considerations and die requirements as well as service accessibility to the various components. Students will understand how to conform to federal regulations for safety and human factors of comfort in packaging components into the design. (3 contact hrs) South Campus.

PRDE-2420 - Capstone Project - (4.00 Credit hours)
Prerequisite: PRDE-2210 or PRDE-2310 or PRDE-2410 or DRTF-2360 or DRTF-2290
Integration of multiple design disciplines with emphasis on problem solving, time and team management, and process changes. (6 contact hrs) South Campus.

PRDE-2500 - Unigraphics: Hybrid Modeling - (3.00 Credit hours)
Prerequisite: PRDE-1510 or DRCG-1500
(formerly DRCG-2100) No credit after DRCG-2100. This course reviews feature applications such as datum construction, blends, and hollow in creating solid models in Unigraphics. The student will learn to add flanges, ribs, and bends to sheet metal parts. The student will be exposed to techniques that are used in industry today. These techniques are used in vehicle components and the aerospace industry, as well as consumer goods. (4 contact hrs) South Campus.

PRDE-2510 - Unigraphics: Freeform Modeling - (3.00 Credit hours)
Prerequisite: PRDE-1510 or DRCG-1500
(formerly DRCG-2150) No credit after DRCG-2150. This course provides practical application of Free Form Modeling techniques in Unigraphics. The student will be exposed to creation and editing of surface features. These methods are used in plastic or sheet metal products. (4 contact hrs) South Campus.

PRDE-2600 - CATIA V5: Introduction to Generative Shape Design - (3.00 Credit hours)
Prerequisite: PRDE-1610 or DRCG-1800
(formerly DRCG-2700) No credit after DRCG-2700. This course introduces the student to the Generative Shape Design (GSD) Workbench of CATIA V5 software. Students will model simple and complex parts utilizing wireframe and surface features. Emphasis is on part creation and modification methods utilizing associative design techniques. (4 contact hrs) South Campus.

PRDE-2610 - CATIA V5: Introduction to Surfacing - (3.00 Credit hours)
Prerequisite: PRDE-2600 or DRCG-2700
(formerly DRCG-2800) No credit after DRCG-2800. This course introduces the student to the Freestyle Workbench of CATIA V5 software. Students will generate simple and complex surfaces using a variety of workbench tools. Emphasis is on part creation and modification methods utilizing associative design techniques. (4 contact hrs) South Campus.

PSYC - PSYCHOLOGY

PSYC-1010 - Introductory Psychology - (4.00 Credit hours)
Prerequisite: None
(formerly PSY 101) Nature, scope, and methods of psychology as behavioral science, emphasizing development, biological foundation of behavior, sensation, and perception, learning, emotion, motivation, and personality. (4 contact hrs)

PSYC-2160 - Psychological Statistics - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 216) No credit after MATH-1330. General nature of statistical methods relating to research in human behavior covering frequency distributions, graphing, central tendency, variability, correlation, and tests of significance. Recommended for prepsychology majors. (3 contact hrs)

PSYC-2210 - Child Growth & Development - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 221) Sequential development from conception to adolescence covering physical, intellectual, emotional, and social patterns of growth. (3 contact hrs)

PSYC-2220 - Psychology of Adolescence - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 222) Physical, intellectual, emotional, and social development of the adolescent, including processes in personality stabilization. (3 contact hrs)

PSYC-2300 - Psychology of Adjustment - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 230) The process of personal adjustment including ways of coping with stress and learning constructive patterns of behavior. (3 contact hrs)

PSYC-2310 - Educational Psychology - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 231) A course designed to integrate psychological principles with teaching and learning. This course is intended for psychology majors and teachers-in-training. NOTE: Education transfer students should contact their transfer destination to ensure transfer credit will be awarded for this course. Most transfer schools will accept this course for psychology elective credit. (3 contact hrs)

PSYC-2400 - Industrial-Organizational Psychology - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 240) The purpose of this course is to apply psychological research and theory to issues in the workplace to provide a basis for understanding individual and group behavior at work. Topics include the psychological underpinnings of employee selection and training, performance appraisal, motivation and job satisfaction, group processes, and power and leadership in organizations. (3 contact hrs)

PSYC-2450 - Lifespan Development - (3.00 Credit hours)
Prerequisite: PSYC-1010
A developmental psychology course designed to address the scientific study of age-related changes in behavior, thinking, emotion, and personality. This course is intended for psychology majors and nursing or physical therapy and allied health related educational and training programs. The focus is on a systematic exploration of the recognized psychological theories of human development from prenatal development to death. (3 contact hrs)

PSYC-2500 - Human Sexuality - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 250, PSY 150) No credit after PSY 250, PSY 150. Sexuality of the total personality concerned with the biological, psychological, and social factors that affect personality and interpersonal relationships. (3 contact hrs)

PSYC-2600 - Social Psychology - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 260) Individual behavior within groups, including the role of conformity, mass communications, propaganda, persuasion, aggression, prejudice, and attraction. (3 contact hrs)

PSYC-2700 - Psychology of Health: Mind & Body Interaction - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 270) A detailed overview of the psychological factors influencing health, illness, and the healing process including current scientific research, the impact of stress and coping, personality and health, the psychology of complimentary medicine, living with chronic conditions, and closure, death and dying. (3 contact hrs)

PSYC-2750 - Brain & Behavior - (4.00 Credit hours)
Prerequisite: PSYC-1010
This course explores the neural mechanisms that underlie people's thoughts, feelings, and actions. Topics include the biological bases of sensation and perception, movement, brain plasticity, memory and amnesia, eating, sex, sleep, addiction, emotion, stress, language, and psychological disorders. (4 contact hours) Online only.

PSYC-2800 - Abnormal Psychology - (3.00 Credit hours)
Prerequisite: PSYC-1010
(formerly PSY 280) Abnormal Psychology is designed to give the student an in-depth understanding of mental illness and the forces that contribute to the development of psychopathology. PSYC-2800 will include the study of various psychological disorders found in our society; and it will address and examine probable causes. Current treatment strategies will also be discussed. (3 contact hrs)

PTAS - PHYSICAL THERAPIST ASSISTANT

PTAS-1020 - Physical Therapy Procedures 1 - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and BIOL-2710
Corequisite: HHSC-1020, PTAS-1030
(formerly PTA 102) The basic fundamentals of patient care as applied to physical therapy are the focus of this course, which covers the principles of patient management and the formation of a strong foundation for clinical decision making skills based on physiological principles. These principles and skills are related to the use of selected modalities, gait training, transfers, and body mechanics. (2 contact hrs) Center Campus. Fall Semester only.

PTAS-1030 - Physical Therapy Procedures 1 - Laboratory - (3.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and BIOL-2710
Corequisite: HHSC-1020, PTAS-1070
(formerly PTA 103) This course provides the PTA student with practical experiences in the fundamentals of patient care and selected modalities. The focus is on the development of psychomotor and decision making skills associated with the application of basic physical therapy skills and techniques. (6 contact hrs) Center Campus. Fall semester only.

PTAS-1070 - Joint Structure & Function - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and BIOL-2710
Corequisite: HHSC-1020, PTAS-1080
(formerly PTA 107) This course provides the academic framework for the understanding of functional anatomy as related to PTA techniques and skills. Subjects include a study of the major muscle groups, innervations, skeletal anatomy, joint structure, and the relationship of these structures to exercise and functional activity. In addition, the course presents measurement techniques of goniometry and anthropometrics. (2 contact hrs) Center Campus. Fall semester only.

PTAS-1080 - Joint Structure & Function - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and BIOL-2710
Corequisite: HHSC-1020, PTAS-1090
(formerly PTA 108) The purpose of the course is to correlate basic knowledge in functional anatomy with development of PTA techniques and skills. This course offers practical laboratory experience in functional anatomy as related to these techniques and skills in goniometric and anthropometric measurements. (2 contact hrs) Center Campus. Fall semester only.

PTAS-1090 - Medical Issues for the Physical Therapist Assistant - (1.50 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and BIOL-2710
Corequisite: HHSC-1020, PTAS-1020
(formerly PTA 109) This course introduces selected medical issues to the physical therapist assistant student. Topics include a discussion of etiology and clinical course medical management of pathologies commonly treated by physical therapy. (3 contact hrs per week for 8 wks) Center Campus. Fall semester only.

PTAS-1140 - Life Span Development for PTA - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and HHSC-1020, PTAS-1020, PTAS-1030, PTAS-1070, PTAS-1080, and PTAS-1090
Corequisite: PTAS-1150
(formerly PTA 114) This course provides basic knowledge of normal human development of movement and function from birth to death. Included are the physical, social, emotional and cognitive changes that occur with normal maturation throughout the life span. Also presented is an orientation to techniques of positive interaction skills for the physical therapist assistant student. Observational experiences in selected settings are provided. (2 contact hrs) Winter semester only.

PTAS-1150 - Kinesiology - Lecture - (3.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and HHSC-1020, PTAS-1020, PTAS-1030, PTAS-1070, PTAS-1080, and PTAS-1090
Corequisite: PTAS-1160
(formerly PTA 115) This course provides the study of functional human musculoskeletal movement and its interrelationship to the neuromuscular system as a foundation to the basic understanding of normal and abnormal movements. Analysis of basic principles and biomechanics in functional activity is included. (3 contact hrs) Center Campus. Winter semester only.

PTAS-1160 - Kinesiology - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and HHSC-1020, PTAS-1020, PTAS-1030, PTAS-1070, PTAS-1080, and PTAS-1090
Corequisite: PTAS-1170
(formerly PTA 116) Correlated laboratory practice in kinesiology, basic biomechanics and gait for the development of related physical therapist assistant techniques and skills. Functional movement analysis and the development of function specific activity are included. (3 contact hrs) Center Campus. Winter semester only.

PTAS-1170 - Physical Therapy Procedures 2 - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and HHSC-1020, PTAS-1020, PTAS-1030, PTAS-1070, PTAS-1080, and PTAS-1090
Corequisite: PTAS-1180
(formerly PTA 117) This course presents the kinesthetic and mechanical principles of therapeutic exercise. Also included is the use of mechanical traction. Emphasis will be on advancing patient management skills including communication and documentation using various practical conditions as models for patient management. (2 contact hrs) Center Campus. Winter semester only.

PTAS-1180 - Physical Therapy Procedures 2 - Laboratory - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and HHSC-1020, PTAS-1020, PTAS-1030, PTAS-1070, PTAS-1080, PTAS-1090
Corequisite: PTAS-1140
(formerly PTA 118) Correlated practical experiences that will provide an opportunity for the student to acquire manual skills that utilize and relate to the theories and principles of basic exercise, functional activities, and the use of appropriate equipment in a therapeutic exercise program. The practical application of mechanical cervical and lumbar traction will be included. (4 contact hrs) Center Campus. Winter semester only.

PTAS-2110 - Neuromuscular Physical Therapy - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2120
(formerly PTA 211) This course is designed to provide a theoretical basis for the utilization of various neuromuscular approaches to therapeutic exercise. Discussion includes advanced management techniques for the neurologically impaired patient. (2 contact hrs) Fall semester only.

PTAS-2120 - Neuromuscular Physical Therapy - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2130
(formerly PTA 212) This course is designed to correlate the principles of neuromuscular approaches with clinical application of neuromuscular techniques. Emphasis will be placed on "hands on" practical experiences with more complex exercise techniques and procedures for neurological conditions. (3 contact hrs) Fall semester only.

PTAS-2130 - Musculoskeletal Physical Therapy - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2140
(formerly PTA 213) This course is designed to provide the theoretical foundation for the advanced management of musculoskeletal conditions. Discussion includes injury prevention and specialized approaches to physical therapy treatment of the spine and extremities. (2 contact hrs) Fall semester only.

PTAS-2140 - Musculoskeletal Physical Therapy - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2190
(formerly PTA 214) Correlated laboratory practice designed to provide experience in the physical therapy management of musculoskeletal conditions. The focus will be on advanced therapeutic exercise and specialized techniques for musculoskeletal conditions. (3 contact hrs) Fall semester only.

PTAS-2190 - Physical Therapy Procedures 3 - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2200
(formerly PTA 219) This course provides the opportunity for the physical therapist assistant student to develop knowledge related to the principles of electricity and electrotherapy for selected treatment modalities. Discussion of EMG and biofeedback is included. (2 contact hrs per week for 8 wks) Center Campus. Fall semester only.

PTAS-2200 - Physical Therapy Procedures 3 - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2340
(formerly PTA 220) This course will provide the physical therapist assistant student with the opportunity to apply the principles of electrotherapy to practical management in physical therapy. Procedures for advanced modality treatment for selected pathologies will be included. (3 contact hrs per week for 8 wks) Center Campus. Fall semester only.

PTAS-2340 - Clinical Internship 1 - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-1140, PTAS-1150, PTAS-1160, PTAS-1170, and PTAS-1180
Corequisite: PTAS-2350
(formerly PTA 234) Supervised clinical experience designed to provide the beginning level student with an opportunity to gain experience in various basic therapeutic practical skills and techniques. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (24 contact hrs per week for the first 8 wks) Center Campus. Fall semester only.

PTAS-2350 - Clinical Internship 2 - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program and PTAS-2340
Corequisite: PTAS-2110
(formerly PTA 235) Supervised clinical experience designed to provide the beginning level student with an opportunity for continued practice of various basic therapeutic techniques and skills. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (24 contact hrs per week for the second 8 wks) Center Campus. Fall semester only.

PTAS-2390 - Clinical Internship 3 - (4.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2440, PTAS-2450, PTAS-2460, PTAS-2470, and PTAS-2500
(formerly PTA 239) Supervised clinical experience designed to provide the advanced student with an opportunity for continued practice of basic therapeutic techniques and practice of various complex therapeutic techniques, exercises, and procedures for competent clinical application. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hrs per week for the second 8 wks) Center Campus. Winter semester only.

PTAS-2440 - Rehabilitation Techniques - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2110, PTAS-2120, PTAS-2130, PTAS-2140, PTAS-2190, PTAS-2200, and PTAS-2350
Corequisite: PTAS-2450
(formerly PTA 244) This course is designed to provide the theoretical foundation to the treatment of adult patients with physical disabilities. Advanced treatment techniques for the management of patients with amputations, gait abnormalities, spinal cord injuries, burns and cancer are included. (4 contact hrs per week for 8 wks) Center Campus. Winter semester only.

PTAS-2450 - Rehabilitation Techniques - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2110, PTAS-2120, PTAS-2130, PTAS-2140, PTAS-2190, PTAS-2200, and PTAS-2350
Corequisite: PTAS-2460
(formerly PTA 245) This course is designed to correlate the principles of rehabilitation procedures in the clinical setting with the lecture topics in PTAS-2440. Emphasis will be placed on practical experiences with site visits scheduled to augment didactic components of learning. (6 contact hrs per week for 8 wks) Center Campus. Winter semester only.

PTAS-2460 - Pediatrics - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2110, PTAS-2120, PTAS-2130, PTAS-2140, PTAS-2190, PTAS-2200, and PTAS-2350
Corequisite: PTAS-2470
(formerly PTA 246) This course is designed to provide the student with an opportunity to gain knowledge of clinical pediatric problems and management of the pediatric patient. Selected neuromuscular, orthopedic and systemic pediatric conditions are present. Application of neurophysiological and orthopedic approaches to therapeutic exercise are introduced. (4 contact hrs per week for 8 wks) Center Campus. Winter semester only.

PTAS-2470 - Cardiopulmonary Rehabilitation - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2110, PTAS-2120, PTAS-2130, PTAS-2140, PTAS-2190, PTAS-2200, and PTAS-2350
Corequisite: PTAS-2500
(formerly PTA 247) This course provides an overview of the physical therapy management of cardiopulmonary conditions. Also included is the role of physical therapy in fitness and wellness programming. (4 contact hrs per week for 8 wks) Center Campus. Winter semester only.

PTAS-2500 - Seminar for Physical Therapist Assistants - (2.00 Credit hours)
Prerequisite: Admission into the Physical Therapist Assistant program, and PTAS-2110, PTAS-2120, PTAS-2130, PTAS-2140, PTAS-2190, PTAS-2200, and PTAS-2350
Corequisite: PTAS-2440
(formerly PTA 250) This course is designed to integrate and correlate the principles and concepts of academic learning with the clinical experience. The course provides a forum for discussion of transitional school to work issues for the advanced PTA student. (4 contact hrs per week for 8 wks) Center Campus. Winter semester only.

QUAL - QUALITY SYSTEMS TECHNOLOGY

QUAL-1011 - Quality Fundamentals - (3.00 Credit hours)
Prerequisite: None
(formerly QUAL-1010) No credit after QUAL-1010. This course is an introductory class for the quality professional. The course covers instruments, scales, calipers, micrometers, miscellaneous hand tools, and gauge blocks, in inch and metric scales, as well as blueprint reading skills sufficient to apply the tools and techniques. The course covers principles, ethics, nomenclature, instruments, interpretation of engineering drawings, and measurement methods in a format that is approximately 50% hands-on, although hands-on skills alone are not enough to satisfy course requirements. We recommend math skills, but a math course is not required. This course is good preparation for an entry level job position and provides an excellent knowledge base, as part of the Skill Specific Certificate, to prepare the student for the American Society for Quality (ASQ) Certified Mechanical Inspector test. (4 contact hrs) South Campus.

QUAL-1021 - Inspection Techniques - (3.00 Credit hours)
Prerequisite: None
(formerly QUAL-1020) No credit after QUAL-1020. This course is an introductory class to the quality profession, although it assumes that the student has the QUAL-1011 knowledge base and math skills. The course covers nomenclature, instruments, documentation, calibration, and methods in a format that is approximately 50% hands-on, emphasizing developing skills and techniques with comparison measurements using height gage setups, sine plate verification, surface texture, and optical comparator technology. This course offers preparation for a midlevel job when combined with QUAL-1011. The student will have an excellent knowledge base at the completion of the Skill Specific Certificate (5 courses) for the American Society for Quality (ASQ) Certified Mechanical Inspector test. (4 contact hrs) South Campus.

QUAL-1030 - Statistical Quality Control - (4.00 Credit hours)
Prerequisite: None
(formerly QST 103) Basic statistical methods as applied to quality control including distribution analysis, (histograms, etc), brainstorming, process control charts (X-R, C, P, NP), measurement systems analysis (MSA), gauge repeatability and reliability (GR&R), and basic elements of probability and statistics. Statistical software is also introduced. (4 contact hrs) South Campus.

QUAL-1051 - Standards - AIAG, ANSI/ASQC, ASME, ISO - (3.00 Credit hours)
Prerequisite: None
(formerly QUAL-1050) No credit after QUAL-1050. This course covers the most commonly used standards, guidelines, and procedures used in automotive manufacturing. These standards are also applicable to most other manufacturing processes. FMEA is emphasized. Other topics include APQP, PPAP, MSA, MMOG, ANSI/ASQC Z1.4 Sampling Plans, ASME B89, problem solving using 8D methods, and related ISO standards requirements overview. Classwork addresses the intent and application of the standards. This course is partial preparation for several certifications issued through the American Society for Quality (ASQ). (3 contact hrs) South Campus.

QUAL-1101 - Layout Methods & CMM Introduction - (4.00 Credit hours)
Prerequisite: QUAL-1011 or QUAL-1010, and QUAL-1021 or QUAL-1020, and QUAL-1201 or QUAL-1200, or consent of advisor
(formerly QUAL-1100) No credit after QUAL-1100. This course prepares the student for 100% part inspection to the blueprint specifications (as in PPAP). Students first learn the proper methods to measure parts on a surface plate using height gages, angle plates, and indicators, as well as the Optical Comparator and other necessary measurement tools. The course stresses the tool selection, sequence, and documentation to develop the independent work skills needed in a manufacturing job. The course covers Coordinate Measuring Machine (CMM) configuration, probing systems, part coordinate system, alignments, tolerancing, editing, and report generation and interpretation. Students then will measure the same parts using a joystick Coordinate Measure Machine (CMM). This course duplicates job requirements and methods for a surface plate layout inspector or entry level CMM operator. (4 contact hrs) South Campus.

QUAL-1151 - CMM Programming - (3.00 Credit hours)
Prerequisite: QUAL-1011 or QUAL-1010, and QUAL-1021 or QUAL-1020, and QUAL-1201 or QUAL-1200, and QUAL-1101 or QUAL-1100; or consent of advisor
(formerly QUAL-1150) No credit after QUAL-1150. This course begins where QUAL-1101 ended. The student needs knowledge of CMM joystick programming. Intended for the student who needs thorough knowledge of the CMM, this course covers the necessary layout skills, programming software, and CNC commands used in measuring on the CMM. The student will write CMM part programs and use these to measure part dimensions. Calibration of the CMM/probe system is an integral part of the course. (4 contact hrs) South Campus.

QUAL-1201 - Geometric Dimensioning & Tolerancing With Applications Lab - (3.00 Credit hours)
Prerequisite: None
(formerly QUAL-1200) No credit after QUAL-1200. Students should have competent blueprint reading skills prior to taking this course. This course interprets the ASME Y-14.5M, 1994 standard fundamentals and covers interpretation of the GD&T symbols (i.e., position, profile, flatness, etc.), feature control frames, rules, and inferences. In addition, the student will study all other symbols, including datums, datum targets, basic dimension, MMC, form, orientation, and tolerance stacks. The lab will use parts and prints from local manufacturers. Duplication of work environment, issues, and results will prepare the student to function successfully in their related work. (4 contact hrs) South Campus.

QUAL-1610 - Introduction to Lean Six Sigma - (4.00 Credit hours)
Prerequisite: QUAL-1030
(formerly QUAL-1510) Lean Six Sigma is a strategy for a manufacturing process that will eliminate waste while using less time, money, and inventory. Students will implement the Six Sigma tools, DMAIC, in a semester project. Methodology includes Kanban (pull), Muda, Kaizen, 5S, Value Stream, and others. Students must have all of the SPC skills. This course can be used as preparation for both the ASQ Black Belt certification exam and the Quality Process Analyst certification exam. (4 contact hrs) South Campus.

QUAL-1801 - Quality Auditing for ISO TS16949 - (2.00 Credit hours)
Prerequisite: QUAL-1051 or QUAL-1050, or consent of advisor
(formerly QUAL-1800) No credit after QUAL-1800. This class will include the effectiveness of compliance to the TS 16949 standard and the formal audit by a third party for certification. It will address the elements of the audit and the after-audit procedures. The course emphasizes audit findings, corrective action, close-out, and documentation. This course is partial preparation for Certified Quality Auditor (CQA) and Certified Quality Manager (CQMGR) certification by the American Society for Quality (ASQ). (2 contact hrs) South Campus.

QUAL-2111 - Advanced Metrology Laboratory - (3.00 Credit hours)
Prerequisite: QUAL-1011 or QUAL-1010, and QUAL-1021 or QUAL-1020; or consent of advisor
(formerly QUAL-2110) No credit after QUAL-2110. This course uses the Clean Room lab. The student will become familiar with and use roundness machines, surface texture instruments, hardness, color measurements, high amplification comparators, optical flats and more. Lab exercises on assigned instruments include calibration, part setup, measurements, results interpretations, and APA documentation. This full lab class gives the student hands-on skills in advanced gauging and inspection techniques currently required in industry. (4 contact hrs) South Campus.

QUAL-2211 - Calibration, ISO 17025, & Uncertainty - (3.00 Credit hours)
Prerequisite: QUAL-1011 or QUAL-1010, and QUAL-1021 or QUAL-1020; or consent of advisor
(formerly QUAL-2210) No credit after QUAL-2210. This course includes the calibration requirements and procedures per ISO/IEC 17025:2005. The course addresses measurement units (inch and SI), conversions, traceability, standards, methods, characteristics, capabilities; calibration procedures, methods, and environment; and ANSI and ASME specifications. The course teaches calibration procedures, systems, and records for IM and TE, and includes uncertainty definition, management, and reporting using NIST Technical Note 1297 and the GUM. Students use some mathematics and statistics. The course will prepare students for the American Society for Quality (ASQ) Certified Calibration Technician testing. (4 contact hrs) South Campus.

QUAL-2301 - Quality Management Systems (QMS), Leadership, & Teams - (3.00 Credit hours)
Prerequisite: QUAL-1051 or QUAL-1050, or consent of advisor
Quality Management systems as described in ISO 9001 and used by automotive suppliers is the reference for this class. The course addresses most areas of the standard including, but not limited to, the management system, the quality manual, customer focus, policy, planning and analysis, resource management, documentation, measurement analysis and improvement, non-conforming product, and audits. The course also will cover the styles and skills of both leaders and teams and will include the completion of a team project. Contents can be applied to any type of business. This course is partial preparation for the Certified Quality Manager (CQMgr) and Certified Quality Process Analyst (CQPA) from the American Society for Quality (ASQ). (4 contact hrs) South Campus.

QUAL-2330 - Quality Costs, Process Mapping, & the Supply Chain - (3.00 Credit hours)
Prerequisite: QUAL-1030 or consent of advisor
This course is an introduction to managing and controlling quality costs and discusses the current methodology used in industry for controlling those costs. Process mapping is a method of examining the course processes using systems thinking rather than just the tasks performed within the processes. This mapping improves efficiency, reduces costs, lead time, and waste. The course addresses flow charts, core process maps, SIPOC, value added/ non-value added activities, gap analysis, value stream, 5S, takt time, leveling, SWOT, and JIT. This course is part of the preparation for both the Certified Quality Engineer (CQE) and the Certified Quality Process Analyst (CQPA) from the American Society for Quality (ASQ). (3 contact hrs) South Campus.

QUAL-2400 - Project Management - (3.00 Credit hours)
Prerequisite: None
(formerly QST 240) This course is an introduction to the Project Management Institute (PMI) methodology that is widely used and accepted in many corporations, The course will cover all twelve areas of the Project Management Body of Knowledge (PMBOK). Applied concepts and theories will be covered. In addition, Critical Path Methodology for Planning will be discussed. This topic will cover the visual systematic method of planning and scheduling activities, including the identification of critical activities, diagramming techniques along with time and cost considerations. (3 contact hrs) South Campus.

QUAL-2451 - Applied Problem Solving & Design of Experiments - (2.00 Credit hours)
Prerequisite: QUAL-1030 or consent of advisor
(formerly QUAL-2450) No credit after QUAL-2450. To be successful in this course, it is strongly recommended that the student have some knowledge of math. With an emphasis on application rather than theory, this course uses mathematics, probability, and statistics. The course explores the foundations of Design Of Experiments (DOE), including factorial and fraction designed experiments and data analysis, and applies them to problem solving techniques for both manufacturing and service industries. The course covers planning/ development the experiment, test errors, the ANOVA table, regression modeling, and variance reductions and explores Taguchi Orthogonal Arrays and Methods. (2 contact hrs) South Campus.

QUAL-2550 - Continuous Improvement - (3.00 Credit hours)
Prerequisite: QUAL-1030, and QUAL-1051 or QUAL-1050; or consent of advisor
(formerly ISUM-2210) No credit after ISUM-2210. This course addresses the integration of continuous improvement of quality in other areas of a company. The course covers strategic planning, customer service, operation, Quality Function Deployment (QFD), information systems, sales, corporate quality culture, designing for quality, reliability, data analysis, and sampling plans using quality tools including Kaizan and TRIZ to implement improvement in the process. This course is part of the preparation needed for the Certified Quality Manager (CQM) and Certified Quality Process Analyst (CQPA) through the American Society for Quality (ASQ). (4 contact hrs) South Campus.

QUAL-2600 - Environment & Safety Standards - (3.00 Credit hours)
Prerequisite: QUAL-1051 or QUAL-1050
This course studies the requirements of ISO 14000, environmental management systems, ISO 9001 and 16949; and OHSAS 18001 and OSHA VVP. The scope includes implementation, maintenance, improvement, and EMS certification of a company environment. OHSAS 18001 is the Occupational Health and Safety Assessment Standard (BSI), which is a management system required by many automotive OEMs. OSHA VPP (Voluntary Protection Program) has minimum requirements to meet government regulations. This course is partial preparation for several certifications from the American Society for Quality (ASQ). (3 contact hrs) South Campus.

READ - READING

READ-0950 - Reading & Study Skills - (3.00 Credit hours)
Prerequisite: Placement
(formerly RDG 095) This course is designed to improve vocabulary and reading comprehension while maintaining or increasing reading rate. It will also enhance the student's study skills. (3 contact hrs)

READ-1100 - College Reading & Study Skills - (4.00 Credit hours)
Prerequisite: Placement
(formerly RDG 110) This course is designed to develop college level vocabulary, comprehension skills and flexible reading rates. Study skills will prepare students for success in other college courses. (4 contact hrs)

ROBO - ROBOTICS

ROBO-2400 - Robotic Mechanical Devices - (3.00 Credit hours)
Prerequisite: None
(formerly ROB 240) This course is an introduction to mechanical devices used in robotics, automated equipment and machinery. Students will study and analyze the structures, mechanisms, machines, and other devices commonly found in modern automation systems. This course will include using a computer to solve mathematical problems. (4 contact hrs) South Campus.

ROBO-2700 - Robotics & Flexible Automation - (3.00 Credit hours)
Prerequisite: ROBO-2400
(formerly ROB 270) This is an advanced laboratory course in flexible automation that is a logical continuation of ROBO- 2400. Topics for the course include mechanisms, sensors, computer interfacing, and control system design. (4 contact hrs) South Campus.

RSPT - RESPIRATORY THERAPY

RSPT-1050 - Clinical Cardiorespiratory Physiologic Anatomy - (4.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and BIOL-2710
Corequisite: RSPT-1060, RSPT-1080, RSPT-1090
(formerly RSP 105) This course is designed to teach the student anatomy and physiology of the respiratory and cardiac systems with a focus on clinical application. Topics covered include anatomy and physiology, ventilation, pulmonary function measurements, gas diffusion, oxygen and carbon dioxide equilibration and transport, acid-base regulation and ventilation/ perfusion relationships. (4 contact hrs) Center Campus. Fall semester only.

RSPT-1060 - Physiochemical Basis of Respiratory Therapy - (3.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and BIOL-2710
Corequisite: RSPT-1050, RSPT-1080, RSPT-1090
(formerly RSP 106) This course is designed to teach the student basic mathematics, physics and chemistry as it applies to respiratory therapy. Topics covered include measurement systems, mechanics, energy and matter, properties of fluids, gas laws, gas movement, solutions and drug calculations, elements and compounds, acid-base and fluid balance, and nutrition and metabolism. (3 contact hrs) Center Campus. Fall semester only.

RSPT-1080 - Respiratory Therapy Procedures 1 - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and BIOL-2710
Corequisite: RSPT-1050, RSPT-1060, RSPT-1090
This course is an introduction to the patient care process. Topics discussed will include patient assessment, cardiopulmonary diagnostics and monitoring techniques, infection control and safety, protocols and documentation used in the practice of respiratory therapy. (2 contact hrs) Center Campus. Fall semester only.

RSPT-1090 - Respiratory Therapy Procedures 1 - Laboratory - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and BIOL-2710
Corequisite: RSPT-1050, RSPT-1060, RSPT-1080
The student will develop psychomotor skills in respiratory therapy procedures. Topics covered include patient assessment, diagnostic testing and monitoring, infection control, and documentation. (3 contact hrs) Center Campus. Fall Semester only.

RSPT-1111 - Respiratory Therapy Procedures 2 - Lecture - (3.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1050 and RSPT-1060 and RSPT-1080 and RSPT-1090, with grade C or better
Corequisite: RSPT-1120, RSPT-1140, RSPT-1200, RSPT-1210
(replaces but does not equate to RSPT-1110) This course is an orientation to the procedures, techniques, and equipment used in the practice of respiratory therapy. Topics covered include use of protocols, oxygen therapy, airway dilation therapy, volume expansion therapy, pulmonary hygiene therapy, airway management, resuscitation and documentation. (3 contact hrs) Center Campus. Winter semester only.

RSPT-1120 - Respiratory Therapy Procedures 2 - Laboratory - (4.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1050 and RSPT-1060 and RSPT-1080 and RSPT-1090, with grade C or better
Corequisite: RSPT-1111, RSPT-1140, RSPT-1200, RSPT-1210
(formerly RSP 112) The student will develop psychomotor skills in respiratory therapy procedures. Topics covered include use of protocols, oxygen therapy, airway dilation therapy, pulmonary hygiene therapy, volume expansion therapy, airway management, resuscitation, and documentation. (6 contact hrs) Center Campus. Winter semester only.

RSPT-1140 - Cardiopulmonary Pathology - (3.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1050 and RSPT-1060 and RSPT-1080 and RSPT-1090, with grade C or better
Corequisite: RSPT-1111, RSPT-1120, RSPT-1200, RSPT-1210
(formerly RSP 114) This course is a detailed study of disease affecting the cardiovascular and pulmonary systems. The student will study the assessment process and the role of the Respiratory Care Practitioner in developing and implementing therapist-driven protocols. The anatomic alterations, etiology, clinical manifestations, and patient care plan will be reviewed for each disease process. (3 contact hrs) Center Campus. Winter semester only.

RSPT-1200 - Cardiopulmonary Pharmacology - (1.50 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1050 and RSPT-1060 and RSPT-1080 and RSPT-1090, with grade C or better
Corequisite: RSPT-1111, RSPT-1120, RSPT-1140, RSPT-1210
(formerly RSP 120) This course is designed to teach aerosol delivery of respiratory medications that are specifically delivered by respiratory care practitioners. An in-depth study of the autonomic nervous system will be covered to explain mechanism of drug actions. The student will learn indications, modes of delivery, dosages, and adverse reactions of respiratory medications. The student also will be introduced to critical care pharmacology. (3 contact hrs per week for the first 8 wks) Center Campus. Winter semester only.

RSPT-1210 - Pediatric/Neonatal Respiratory Care - (1.50 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1050 and RSPT-1060 and RSPT-1080 and RSPT-1090 and RSPT-1200, with grade C or better
Corequisite: RSPT-1111, RSPT-1120, RSPT-1140, RSPT-1200
(formerly RSP 121) This course will introduce the student to neonatal and pediatric respiratory care. The course covers fetal lung development, anatomy and physiology, neonatal development, pathology, CPR, acid-base monitoring, and introduction to mechanical ventilation of the newborn. (3 contact hrs per week for the second 8 wks) Center Campus. Winter Semester only.

RSPT-1260 - Clinical Internship 1 - (4.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program; and RSPT-1111 and RSPT-1120 and RSPT-1140 and RSPT-1200 and RSPT-1210, with grade C or better
(formerly RSP 126) This course introduces the student to clinical practice by providing 32 hours/week of clinical training in a hospital setting. Students perform basic respiratory therapy procedures learned in the procedures laboratory (RSPT-1090 and RSPT-1120). The laboratory portion of the course includes an eight-hour/week workshop held at the college. The lab is designed to introduce the student to the concepts and psychomotor skills necessary to care for patients on mechanical ventilators. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (40 contact hrs per week for 8 wks) Center Campus. Spring/Summer semester only.

RSPT-2250 - Clinical Internship 2 - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and RSPT-1260
Corequisite: RSPT-2260, RSPT-2330, RSPT-2341, RSPT-2350
(formerly RSP 225) This course provides clinical experience for the respiratory therapy student. The student must complete 160 hours of clinical training. Objectives focus on pulmonary function testing, critical care pharmacology, arterial blood gases, and an introduction to mechanical ventilation. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (20 contact hrs per week for the first 8 wks) Center Campus. Fall semester only.

RSPT-2260 - Clinical Internship 3 - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and RSPT-2250
Corequisite: RSPT-2250, RSPT-2330, RSPT-2341, RSPT-2350
(formerly RSP 226) This course provides additional clinical experience for the respiratory therapy student. The student must complete 160 hours of clinical training in an affiliated hospital. Objectives focus on pulmonary function testing, critical care pharmacology, arterial blood gases, and mechanical ventilation. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (20 contact hrs per week for the second 8 wks) Center Campus. Fall semester only.

RSPT-2330 - Mechanical Ventilation - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and RSPT-1260
Corequisite: RSPT-2250, RSPT-2260, RSPT-2341, RSPT-2350
(formerly RSP 233) Course content reviews cardiopulmonary physiology and the effects of mechanical ventilation on the infant, pediatric, and adult patient. Topics covered include the different types of mechanical ventilators and their features, indications, initiation, assessment, maintenance, monitoring, adjustments, complications, protocols, discontinuation, and documentation. (2 contact hrs) Center Campus. Fall semester only.

RSPT-2341 - Mechanical Ventilation - Lab - (2.00 Credit hours)
Prerequisite: Admission into the Respiratory Therapy program and RSPT-1260
Corequisite: RSPT-2250, RSPT-2260, RSPT-2330, RSPT-2350
(formerly RSP 234) This course focuses on developing cognitive and psychomotor skills necessary for initiating, assessing, maintaining, monitoring, adjusting, applying protocols, discontinuing and documenting mechanical ventilation on infant, pediatric, and adult patients. The course will evaluate the capabilities and limitations of the most commonly used mechanical ventilators. (3 contact hrs) Center Campus. Fall semester only.

RSPT-2350 - Acid-Base & Electrolyte Balance & Advanced Diagnostics - (3.00 Credit hours)

Prerequisite: Admission into the Respiratory Therapy program and RSPT-1260
Corequisite: RSPT-2250, RSPT-2260, RSPT-2330, RSPT-2341

(formerly RSP 235) This theory course is designed to teach the student how to draw, analyze, interpret, and evaluate arterial/venous blood gas and electrolyte data, and make appropriate recommendations for treatment. Students also will learn how to use data obtained from non-invasive monitoring to aid in the diagnosis and treatment of pulmonary disease. (3 contact hrs) Center Campus. Fall semester only.

RSPT-2360 - Clinical Internship 4 - (2.00 Credit hours)

Prerequisite: Admission into the Respiratory Therapy program, and RSPT-2260; and RSPT-2330, RSPT-2341, and RSPT-2350 with grade C or better
Corequisite: RSPT-2370, RSPT-2420, RSPT-2430

(formerly RSP 236) This course provides additional clinical experience for the respiratory therapy student. The student must complete 160 hours of clinical training in an affiliated hospital. Objectives focus on acid-base balance, mechanical ventilation, pulmonary function testing, electrocardiography, and hemodynamic monitoring. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (20 contact hrs per week for the first 8 wks) Center Campus. Winter Semester only.

RSPT-2370 - Clinical Internship 5 - (2.00 Credit hours)

Prerequisite: Admission into the Respiratory Therapy program and RSPT-2360
Corequisite: RSPT-2420, RSPT-2430

(formerly RSP 237) This course provides additional clinical experience for the respiratory therapy student. The student must complete 160 hours of clinical training in an area hospital. Objectives focus on pulmonary function testing, acid-base balance, mechanical ventilation, electrocardiology, and hemodynamic monitoring. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (20 contact hrs per week for the second 8 wks) Center Campus. Winter semester only.

RSPT-2420 - Advanced Concepts in Respiratory Care - (3.00 Credit hours)

Prerequisite: Admission into the Respiratory Therapy program; and RSPT-2260; and RSPT-2330, RSPT-2341, and RSPT-2350 with grade C or better
Corequisite: RSPT-2360, RSPT-2370, RSPT-2430

(formerly RSP 242) A forum for discussion of new and advanced applications in clinical practice. Topics covered include pulmonary function testing, EKGs, myocardial infarction, chest tube drainage systems, and hemodynamic monitoring. Each student will give an oral presentation on a topic of interest in Respiratory Care. (3 contact hrs) Center Campus. Winter semester only.

RSPT-2430 - Certification & Registry Review - (2.00 Credit hours)

Prerequisite: Admission into the Respiratory Therapy program; and RSPT-2260; and RSPT-2330, RSPT-2341, and RSPT-2350 with grade C or better
Corequisite: RSPT-2360, RSPT-2370, RSPT-2420

(formerly RSP 243) This course is a comprehensive review to prepare students for the NBRC Certification and Registry Examinations. Students will become familiar with clinical simulation testing through use of computer simulations and latent imaging. NBRC Self-Assessment Examinations will be administered during this course. A program exit exam will be given at the end of the semester. (2 contact hrs) Center Campus. Winter semester only.

SECR - SECURITY ADMINISTRATION

SECR-1000 - Introduction to Security - (3.00 Credit hours)

Prerequisite: None

(formerly SEC 100) An introduction to security administration including an historical, philosophical, and legal framework for security operations, as well as detailed presentations of specific security processes and programs currently and historically utilized in providing security. An overview of the personnel, physical information process, and specialized programs for plants, retail stores, transportation systems, and security education. The total environmental, political, financial, legal ramifications of the individual in society. (3 contact hrs) Center Campus.

SECR-1120 - Principles of Loss Prevention - (3.00 Credit hours)

Prerequisite: None

(formerly SEC 112) An overview of the functional operations of various specialized areas of security such as theft and risk control, security surveys, and loss prevention management in proprietary and governmental institutions. (3 contact hrs) Center Campus.

SIGN - SIGN LANGUAGE

SIGN-1010 - American Sign Language 1 - (3.00 Credit hours)

Prerequisite: None

(formerly SGN 101) Designed for students who have no previous American Sign Language (ASL) training. Students achieve a basic level of expressive and receptive sign communication skills in American Sign Language, and will understand the role of ASL in deaf persons' lives. This course focuses on vocabulary, grammar, language functions, and other deafness-related issues. (3 contact hrs) Center Campus.

SIGN-1020 - American Sign Language 2 - (3.00 Credit hours)

Prerequisite: SIGN-1010 or pass competency exam

(formerly SGN 102) This course will strengthen and expand on the skills mastered in SIGN-1010. Expressive and receptive sign vocabulary will be expanded upon. Topics include new language functions to help students expand their conversational range from talking about themselves to talking about other people and activities, to giving directions, and making requests. (3 contact hrs) Center Campus.

SIGN-1030 - American Sign Language 3 - (3.00 Credit hours)

Prerequisite: SIGN-1010, SIGN-1020, or pass competency exam

(formerly SGN 103) This level will strengthen and master the skills obtained in SIGN-1010 and SIGN-1020. The expressive and receptive skills and vocabulary will be increased. Emphasis will be on locating and describing objects, solutions to everyday problems, life events, weekend activities, and correcting and confirming information. Appropriate cultural behaviors and strategies for controlling conversations will be discussed as well. (3 contact hrs) Center Campus.

SIGN-1040 - Fingerspelling - (2.00 Credit hours)

Prerequisite: SIGN-1010

(formerly SGN 104) Manual alphabet designed for students who have experience in fingerspelling or dactylology. Students will achieve a minimum level which would include signing the alphabet and a basic understanding of the role fingerspelling has in American Sign Language communication. Course functions primarily with the American manual alphabet and highlights phonetical fingerspelling, syllabication and other deafness-related issues. (2 contact hrs) Center Campus.

SIGN-2010 - American Sign Language 4 - (3.00 Credit hours)
Prerequisite: SIGN-1030 or pass competency exam
(formerly SGN 201) This level will strengthen and master the skills obtained in SIGN-1010, 1020, and 1030 towards mastering ASL at an intermediate level. Expressive and receptive skills and vocabulary will be increased. This course is structured into logical grammatical units such as sentence types, pronominalization, classifiers, etc. Highlighted topics to include sociological aspects of deafness, hearing loss, medical and audiological perspectives, and ASL compared to English. (3 contact hrs) Center Campus.

SIGN-2030 - American Deaf Culture - (3.00 Credit hours)
Prerequisite: None
(formerly SGN 203) The course enables the student to recognize and explain the external ramifications of hearing loss. The course deals with the characteristics of sociological subculture among the hearing impaired (both deaf and hard of hearing) individuals as it relates to cultural aspects of deafness. (3 contact hrs) Center Campus.

SIGN-2500 - Receptive American Sign Language - (2.00 Credit hours)
Prerequisite: SIGN-1030
(formerly SGN 250) The purpose of this course is to focus on American Sign Language reading skills and receiving information through the sign-only mode. Emphasis will be placed on student's individual needs and skills. A highly interactive course, allowing students to identify and respond to their strengths and weaknesses in ASL comprehension. (2 contact hrs) Center Campus.

SOCY - SOCIOLOGY

SOCY-1010 - Principles of Sociology - (4.00 Credit hours)
Prerequisite: None
(formerly SOC 101) The study of the origin, development, organization and function of human societies. Emphasis will be on culture, socialization, group behavior, social stratification, and social change. (4 contact hrs)

SOCY-1100 - Modern Social Problems - (3.00 Credit hours)
Prerequisite: None
(formerly SOC 110) A sociological analysis of some of the major social problems confronting American society. Emphasis is placed on the relationship between social problems and value conflicts, social deviation, and social change. (3 contact hrs)

SOCY-2000 - Sociology of Health & Human Behavior - (4.00 Credit hours)
Prerequisite: None
(formerly SOC 200) A survey of the field of health and human behavior from a sociological perspective. The course will explore the relationship between health and human development, the structure and function of health institutions, public health, and health education, the variety of roles of health practitioners, and the patterns of health care in American society. (4 contact hrs)

SOCY-2450 - Marriage & the Family - (3.00 Credit hours)
Prerequisite: None
(formerly SOC 245) A sociological analysis of the institutional aspects of marriage and family living, including: a comparative and historical treatment of the family; an investigation of the changes in the contemporary American family structure, functions, and roles, a discussion of contemporary family problems. (3 contact hrs)

SOSC - SOCIAL SCIENCE

SOSC-1010 - Introduction to the Social Sciences - (4.00 Credit hours)
Prerequisite: None
(formerly SSC 101) This course is designed to introduce the social sciences and their methodology. In addition, the course incorporates a rather significant amount of material pertaining to the world of work within the context of the social sciences. The relationship between work, leisure and society receives primary emphasis. (4 contact hrs)

SOSC-2010 - Introduction to International Studies - (4.00 Credit hours)
Prerequisite: None
(formerly SSC 201) Course focus is on an interdisciplinary introduction to the study of diverse cultures to help students better understand the values and experiences of other peoples, as the world becomes a global community. (4 contact hrs)

SPAN - SPANISH LANGUAGE

SPAN-1260 - Elementary Spanish 1 - (4.00 Credit hours)
Prerequisite: None
(formerly SPN 126) Emphasis on everyday conversational patterns to give the beginning student of Spanish a useful working knowledge of the language, mainly through aural-oral practice, based upon a systematic study of practical grammar. Regular use of language laboratory. (5 contact hrs)

SPAN-1270 - Elementary Spanish 2 - (4.00 Credit hours)
Prerequisite: SPAN-1260, or two or more years of high school Spanish
(formerly SPN 127) A continuation of SPAN-1260. Regular use of language tapes and laboratory facilities. (5 contact hrs)

SPAN-2360 - Intermediate Spanish 1 - (4.00 Credit hours)
Prerequisite: SPAN-1270
(formerly SPN 236) Review and elaboration of first year with emphasis on more complex structures. Continued use of tapes and laboratory facilities. (5 contact hrs)

SPAN-2370 - Intermediate Spanish 2 - (4.00 Credit hours)
Prerequisite: SPAN-2360
(formerly SPN 237) A continuation of SPAN-2360 with a broader emphasis on reading, writing, and speaking. Continued use of tapes and laboratory facilities. (5 contact hrs)

SPCH - SPEECH

SPCH-1060 - Speech Communication - (3.00 Credit hours)
Prerequisite: None
(formerly SPH 106) Basic skills of effective oral communication through varied speech experiences. Emphasis is on gathering and organizing materials; language, style, delivery, and voice improvement; gaining confidence in working with audiences. (3 contact hrs)

SPCH-1100 - Interpersonal Communication - (3.00 Credit hours)
Prerequisite: None
(formerly SPH 110) One-to-one communication combined with experiences in verbal and non-verbal interaction. Message preparation, theories of interaction, the role of body language, and other non-verbal communication in effective speech. (3 contact hrs)

SPCH-1200 - Group Discussion & Leadership - (3.00 Credit hours)
Prerequisite: None
(formerly SPH 120) Discussion and leadership in business and industry. Conference and meeting formats: panel, forum, symposium, group dynamics, role playing, brainstorming, and problem solving exercises. (3 contact hrs)

SPCH-1300 - Voice & Speech Improvement Communication - (3.00 Credit hours)
Prerequisite: None
Individual instruction and drill in voice dynamics and articulation for basic improvement leading to more effective conversation patterns: pitch, rate, volume, and intonation. Emphasis is on American English based on the Kenyon and Knott Pronouncing Dictionary (IPA). Programmed and self-paced labs accommodate the Communication Arts majors and the College Community at large. While advanced English as Second Language students are accepted, this course is NOT designed as a substitute for speech therapy. May be repeated once for a maximum of six credit hours. (3 contact hrs)

SPCH-1400 - Mass Media Communication in a Global Culture - (3.00 Credit hours)
Prerequisite: None
Theories and practices of media content and form focusing on news, radio, television, film, and the Internet. Students will learn the whole process of creating the diversified forms of programming for the media. Audience analysis research will be conducted followed by critical review of programming and media production. (3 contact hrs) South Campus.

SPCH-1460 - Introduction to Broadcasting - (3.00 Credit hours)
Prerequisite: None
(formerly SPH 146) Explores the development of broadcasting. Familiarizes and gives practical experience in the use of broadcasting and recording equipment through the production process. Portfolio development projects included. (3 contact hrs) South Campus.

SPCH-1480 - Broadcast Announcing - (3.00 Credit hours)
Prerequisite: SPCH-1460
(formerly SPH 148) Theory and practice in applying principles of performance to broadcast media such as announcements in record, news, sports, talk, and interview programs. Discuss federal government rules regulating broadcasters. Perform on a closed circuit radio station. (3 contact hrs) South Campus.

SPCH-1490 - Broadcast Radio - (2.00 Credit hours)
Prerequisite: SPCH-1460
(formerly SPH 149) Practical experience in workshop projects. Developing and producing various programs for use on the AM/FM and Web radio. Portfolio development projects included. (2 contact hrs) South Campus.

SPCH-1700 - Broadcast Television - (4.00 Credit hours)
Prerequisite: SPCH-1460
Learning theory and systems principles of live television broadcasting using multi-camera production, camera composition and operation, studio roles and functions, and audio acquisitions presenting a basic adaptation of the script rundown to produce a live-to-tape television program. This course will also examine audience analysis, response, and evaluation. Portfolio Development Projects included. (4 contact hrs)

SPCH-1800 - Broadcast Video - (4.00 Credit hours)
Prerequisite: SPCH-1460
Learning theory and systems principles of field production using film-style techniques, scriptwriting, performance, and editing to produce narratives and documentaries. This course will also examine audience analysis, response, and evaluation. Portfolio Development Projects included. (4 contact hrs)

SPCH-2110 - Persuasion - (3.00 Credit hours)
Prerequisite: SPCH-1060
(formerly SPH 211) Analysis of persuasion in society. Ethical use of persuasion emphasized in preparation of persuasive talks for securing attention, minimizing hostility, and securing support for positions. (3 contact hrs)

SPCH-2300 - Intercultural Communication - (4.00 Credit hours)
Prerequisite: None
Intercultural communication is a course intended for those whose private or professional life includes encounters with people from cultures and co-cultures in the United States different from their own. Major theories and concepts are discussed and skills are practiced to sharpen real sensitivity and improved personal effectiveness when people of different cultures come together to share ideas, feelings, and information. Portfolio Development Projects included. (4 contact hrs)

SPCH-2500 - Argumentation & Debate - (3.00 Credit hours)
Prerequisite: SPCH-1060
(formerly SPH 250) Principles and practices of argumentation, techniques and briefing, evaluation of reasoning, argument, and evidence. Participation in various forms of debate. (3 contact hrs)

SPCH-2600 - Public Relations Communication - (4.00 Credit hours)
Prerequisite: SPCH-1060 or BCOM-2050
(formerly SPH 260) Communication practices and principles of public relations. Relate with various publics using surveys, media, writing, and creating events. Establish good relations with employees and community using tried methods. Principles of avoiding and responding to emergencies. (4 contact hrs)

SPCH-2700 - Change, Conflict, & Crisis Communication - (4.00 Credit hours)
Prerequisite: None
Designed for professionals in leadership whose responsibilities include dealing with diversity, change, conflict, and crises. This course centers on the change process and agents, intercultural competition and issues, and diffusion campaigns. Students participate in crisis communication planning and conflict resolution strategies, tactics, and exercises. (For employer-employee labor issues see the Labor-Management offerings.) (4 contact hrs)

SPCH-2800 - Interpretative Performance Communication - (4.00 Credit hours)
Prerequisite: None
Interpretative reading of prose, poetry, and drama: single and multiple readings, chamber and reader's theater, storytelling. Children's literature, old masters, traditional and contemporary works read from manuscript to achieve interaction of the reader, listener, and material. Develops proficiency in oral reading per individual need (i.e., presentations, announcing, acting, etc.). Portfolio Development Projects included. (4 contact hrs)

SPCH-2850 - Speech Communication Capstone Course - (1.00 Credit hours)
Prerequisite: Registered Speech Communication major with 35 hours in SPCH courses and consent of Program Advisor
Taken during the last semester of the major or the certificate program, the course will assist the student in preparing the professional portfolio and will give the student information and assistance in developing a resume/interview. In addition, the course will give students assistance as they prepare to transfer. At the last session, the instructor will invite potential local employers. (1 contact hr)

SURG - SURGICAL TECHNOLOGY

SURG-1050 - Introduction to Surgical Technology - (2.00 Credit hours)
Prerequisite: BIOL-2400 or BIOL-2730, and HHSC-1700
Corequisite: SURG-1060, SURG-1070
This course, an introduction to the allied health profession of surgical technology, examines the history of surgical technologists, the physical and mental requirements, the job description, possible career opportunities and explores the role and responsibilities of the circulating scrub technologists as well as other surgical team members. The course examines legal and ethical issues and identifies special needs of the patient, including general safety and care. In addition, this course will introduce students to the professional association of surgical technologists and the liaison council for certification of surgical technologists. Course discussion includes types of hospitals and departmental organization, strategies for success, for managing pressure, for time management, and for achieving excellence. (2 contact hrs) Center Campus.

SURG-1051 - Introduction to Surgical Patient Care Techniques - (2.00 Credit hours)
Prerequisite: Admission into the Surgical Technology program, and ENGL-1180 or ENGL-1210, and BIOL-2710, BIOL-2400, HHSC-1700, PHED-2070, SURG-1050, SURG-1060, and SURG-1070
Corequisite: SURG-1200, SURG-1250, SURG-1260
This course introduces the student to the environment of the operating room with an emphasis on patient safety and on the standards of care required for the surgical patient. The course instruction includes pre-surgical testing, diagnostic and laboratory studies performed to determine patient diagnosis, positioning of the surgical patient, routine skin preparation, types of surgical incisions that provide optimum exposure for surgical procedures, types of wound closure techniques, types of sutures, needles, and stapling devices, and factors influencing wound healing. (2 contact hrs) Center Campus.

SURG-1060 - Orientation to Central Processing Distribution Technician - (4.00 Credit hours)

Prerequisite: BIOL-2400 or BIOL-2730, and HHSC-1700
Corequisite: SURG-1050, SURG-1070
This course teaches the fundamentals of central processing, supply, and distribution (CSD) and gives instruction and practice in aseptic technique, patient centered concept theories, and practices of central service departments. (4 contact hrs) Center Campus.

SURG-1070 - Central Processing Distribution Technician Clinical - (8.00 Credit hours)

Prerequisite: BIOL-2400 or BIOL-2730, and HHSC-1700
Corequisite: SURG-1050, SURG-1060
In the clinical setting, students will be exposed to all areas of the central service department and will actively participate as a member of the central service department. The student will practice skills in cleaning, decontaminating, processing (inspecting, assembling, and packaging), sterilizing, and distributing reusable patient care supplies and equipment to the units that use them. In the first two weeks of class, student will have twenty-four hours of clinical lab time in the Surgical Technology laboratory. In the final fourteen weeks of clinical, students will be assigned to three eight-hour days of practice each week in a CSD facility. Students must provide their own transportation. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (24 contact hrs per week for 16 wks) Center Campus.

SURG-1200 - Surgical Clinical 1 - (8.00 Credit hours)

Prerequisite: Admission to the Surgical Technology program, ENGL-1180 or ENGL-1210, BIOL-2710, BIOL-2400 or BIOL-2730, HHSC-1700, PHED-2070, SURG-1050, SURG-1060, and SURG-1070
Corequisite: SURG-1051, SURG-1250, SURG-1260
(formerly SRG 120) In this supervised clinical course the student demonstrates scrubbing, gowning, gloving, and aseptic technique in the laboratory setting. Upon attaining pre-clinical competencies, the student is assigned in the hospital setting three days a week to acquire objectives. Students perform in the role of scrub person, second assistant, and assistant to the circulator on various surgical procedures. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (24 contact hrs per week for 16 wks) Center Campus.

SURG-1250 - Surgical Specialties 1 - (4.00 Credit hours)

Prerequisite: Admission to the Surgical Technology program, ENGL-1180 or ENGL-1210, BIOL-2710, BIOL-2400 or BIOL-2730, HHSC-1700, PHED-2070, SURG-1050, SURG-1060, and SURG-1070
Corequisite: SURG-1051, SURG-1200, SURG-1260
(formerly SRG 125) This course is designed to focus on the perioperative care of surgical patients during endoscopic, general, obstetric and gynecologic, genitourinary, ophthalmic, ENT, and plastic and reconstructive procedures. Students will become familiar with the diagnostic, procedural considerations, operative procedures and instrumentation for these specialties. (4 contact hrs) Center Campus.

SURG-1260 - Surgical Pharmacology - (3.00 Credit hours)

Prerequisite: Admission into the Surgical Technology program, and ENGL-1180 or ENGL-1210, BIOL-2710, BIOL-2400 or BIOL-2730, HHSC-1700, PHED-2070, SURG-1050,

SURG-1060, and SURG-1070
Corequisite: SURG-1051, SURG-1200, SURG-1250
(formerly SRG 126) This course introduces students to medications used in the operating room. An emphasis is placed on classification, administration, forms, methods, interactions, and desired effects of perioperative medications. This course also describes the surgical technologists' legal responsibilities. (3 contact hrs) Center Campus.

SURG-1300 - Surgical Clinical 2 - (8.00 Credit hours)
Prerequisite: Admission into the Surgical Technology program, and SURG-1051, SURG-1200, SURG-1250, and SURG-1260
Corequisite: SURG-1350, SURG-1360
(formerly SRG 130) This course further develops clinical skills of students to anticipate the surgeons' needs during the schemes of various surgical procedures. Students perfect their roles as a scrub person, second assistant, and assistant to the circulating person on various surgical procedures. This clinical meets three days per week. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. Students are required to pass this course in order to progress in the program. (24 contact hrs per week for 16 wks) Center Campus.

SURG-1350 - Surgical Specialties 2 - (4.00 Credit hours)
Prerequisite: Admission into the Surgical Technology program, and SURG-1051, SURG-1200, SURG-1250, and SURG-1260
Corequisite: SURG-1300, SURG-1360
(formerly SRG 135) This course is designed to focus on the perioperative care of surgical patients during orthopedic, cardiothoracic, peripheral vascular, neurosurgery, pediatric, geriatric, and emergency surgery. Students will become familiar with the diagnostic, procedural considerations, operative procedures, and instrumentation for these specialties. (4 contact hrs) Center Campus.

SURG-1360 - Surgical Seminar - (3.00 Credit hours)
Prerequisite: Admission into the Surgical Technology program, and SURG-1051, SURG-1200, SURG-1250, and SURG-1260
Corequisite: SURG-1300, SURG-1350
(formerly SRG 136) This course includes preparation of the student for professional employment. Students will successfully complete a resume and develop skills in interviewing techniques. Students will develop test-taking skills to take the National Certification Examination utilizing techniques and exercises in successful writing of a standardized exam. (3 contact hrs) Center Campus.

SURG-2000 - Surgical Anatomy for the Surgical First Assistant - (6.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program
Corequisite: SURG-2110
This course reviews anatomy and physiology related to disease process, surgical treatment, and outcomes for the various human body systems. An emphasis will be placed on the role of the Surgical First Assistant regarding surgical treatment and tissue handling. (6 contact hrs) Center Campus.

SURG-2110 - Ethical & Legal Responsibilities for the Surgical First Assistant - (3.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program
Corequisite: SURG-2000
This course will identify ethical and legal responsibilities as they relate to Surgical First Assistants and their relationship with other surgical team members and their care of patients. (3 contact hrs) Center Campus.

SURG-2120 - Role of the Surgical First Assistant - (3.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program and SURG-2000 and SURG-2110
Corequisite: SURG-2130, SURG-2140
This course will identify the fundamental skills Surgical First Assistant students will need to recognize and develop. These skills include monitoring devices, bladder catheterization, pneumatic tourniquets, skin preparation, surgical draping, instrument selection, responses to bleeding source, suctioning, wound coverings, drainage systems, and specific requirements for endoscopic surgery. Students will learn basic skills and techniques and their applications in the Surgical Technology Lab. (3 contact hrs) Center Campus.

SURG-2130 - Anesthesia & Pharmacology for the Surgical First Assistant - (2.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program and SURG-2000 and SURG-2110
Corequisite: SURG-2120, SURG-2140
This course will help the Surgical Assistant student understand several major principles of anesthesia as they relate to the surgical patient. This course covers principles of anesthesia assessment, preparation of patients prior to surgery, and awareness of the relationship between anesthesia techniques and methods and the surgical procedure being performed. (2 contact hrs) Center Campus.

SURG-2140 - Fundamental Skills for the Surgical First Assistant - (3.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program and SURG-2000 and SURG-2110
Corequisite: SURG-2120, SURG-2130
This course will discuss, identify, and address the principles of asepsis and the microbial environment related to the surgical patient. In addition, the Surgical First Assistant student will discuss and address the handling of surgical specimens, thermoregulatory devices, and events that establish the integrity of surgical wounds. (3 contact hrs) Center Campus.

SURG-2150 - Surgical First Assistant Clinical 1 - (2.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program and SURG-2000, SURG-2110, SURG-2120, SURG-2130, and SURG-2140
In the clinical setting, students will be exposed to a specific number of minor surgical procedures in general, orthopedic, peripheral vascular, and two elective surgical areas. The surgical assistant student will be under the supervision of a qualified preceptor surgeon or his or her designee. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (12 contact hrs per week for the first 8 wks) Center Campus.

SURG-2160 - Surgical First Assistant Clinical 2 - (2.00 Credit hours)
Prerequisite: Admission into the Surgical First Assistant program and SURG-2000, SURG-2110, SURG-2120, SURG-2130, SURG-2140, and SURG-2150
A continuation of the clinical experience begun in Surgical First Assistant Clinical 1. In the clinical setting, students will be exposed to a specific number of major surgical procedures in general, orthopedic, peripheral vascular, and two elective surgical areas. The Surgical First Assistant student will be under the supervision of a qualified preceptor surgeon or his or her designee. This course is graded on a pass/fail basis. Pass/fail grades are not included in GPA calculations. (12 contact hrs per week for the second 8 wks) Center Campus.

SURV - LAND SURVEYING TECHNOLOGY

SURV-1100 - Elementary Surveying - (3.00 Credit hours)
Prerequisite: None
(formerly SUR 110) Use of transit and level; reading verniers and angles, linear measurement; extending straight lines, differential and profile leveling; simple traverse survey, computation and keeping notes. (5 contact hrs) South Campus.

SURV-1110 - Field Procedures - (2.00 Credit hours)
Prerequisite: MATH-1450, or MATH-1420 and MATH-1430, and SURV-1100
(formerly SUR 111) This course introduces the study of surveying field procedure including measurements, first aid, safety, care and use of instruments, notes and calculations needed to perform these tasks. (4 contact hrs) South Campus.

SURV-1200 - Route Surveying - (3.00 Credit hours)
Prerequisite: SURV-1100
(formerly SUR 120) This course introduces the student to the basic principles of route surveying, preliminary and final location procedures, profiles, grades, cross sections, slope stakes, areas, volumes, parabolic and circular curves, and spiral transitionals. (5 contact hrs) South Campus.

SURV-2220 - Civil & Survey Drafting - (3.00 Credit hours)
Prerequisite: SURV-1100, DRAD-1110, and DRCG-1140
No credit after SURV-2200 or DRCG-2200. This course introduces the student to the basic principles of civil and survey drafting. Maps, types of surveys, techniques, contours, descriptions, subdivisions, profiles, highway layout, and earthwork will be discussed, drawn, and reproduced. Using field or supplied data, the student will use the latest computer software to generate the appropriate drawings. Microcomputer configuration, scale relationship, symbols, data entry, use of blocks, file maintenance, and plotting will be covered. (6 contact hrs) South Campus.

SURV-2300 - Boundary Surveying - (3.00 Credit hours)
Prerequisite: SURV-1100
(formerly SUR 230) This course introduces the student to the study of public and land surveys, which includes the breakdown of sections, government lots, meander lines, corners, coordinate calculation areas, missing legs, metes and bounds descriptions, lot and block proportionment, and state plane coordinates. (5 contact hrs) South Campus.

SURV-2400 - Topographic Surveying - (3.00 Credit hours)
Prerequisite: SURV-1100
(formerly SUR 240) This course introduces the student to the different types of topographic surveys, which includes strip, grid, radial and trigonometric. Stadia transit tape, plane table, cross sections, profiles, contours, research, map reading, flood plains, wetlands and photogrammetry control will be discussed and used by the student. (5 contact hrs) South Campus.

SURV-2500 - Introduction to Control Surveys - (3.00 Credit hours)
Prerequisite: SURV-1200 or SURV-2300
(formerly SUR 250) This course provides the student with a view of the interrelationship of photogrammetry, control surveys, astronomy, state plane coordinates, calculating coordinates and corrections to positional tolerances. (5 contact hrs) South Campus.

SURV-2600 - Advanced Construction Layout Surveying 2 - (3.00 Credit hours)
Prerequisite: ATBC-1510 and SURV-1200
(formerly SUR 260) This course continues to expand the principles of construction layout surveying related to buildings, sitework, utilities and roadways. Students will learn to use state-of-the-art electronic surveying equipment. (5 contact hrs) South Campus.

SURV-2700 - Advanced Survey Instrumentation - (3.00 Credit hours)
Prerequisite: SURV-1110
(formerly SUR 270) This course instructs the student in the proper care, adjustments and maintenance of various survey equipment. Students will perform testing and adjustments on levels, transits, and EDMs. (5 contact hrs) South Campus.

THEA - THEATER ARTS

THEA-1100 - Introduction to the Theater - (3.00 Credit hours)
Prerequisite: None
(formerly THA 110) A course designed to increase the understanding of and appreciation for theater as a recreational, cultural and aesthetic force. It meets the requirements of those who plan to become Theater majors as well as providing insight to those who wish to be members of an audience. Both script and production elements are the focus of class discussions and activities. Several theatrical productions will be attended during class hours. (3 contact hrs) Center Campus.

THEA-1150 - Acting 1 - (3.00 Credit hours)
Prerequisite: None
(formerly THA 115) Basic work in the principles of acting common to all media. Emphasis is upon those skills essential to the creation and presentation of a character using both verbal and non-verbal communication techniques. May be repeated once for credit. (3 contact hrs)

THEA-1250 - Training the Voice & Body - (3.00 Credit hours)
Prerequisite: None
(formerly THA 125) The purpose of this class is to provide the students with the basic tools for developing the voice and body as means of expressive communication. The focus is on the mechanical aspects of actor training. (3 contact hrs) Center Campus. Fall semester only.

THEA-1260 - Theatrical Makeup - (3.00 Credit hours)
Prerequisite: None
(formerly THA 126) Study and practice of the basic principles and techniques of makeup for the performer. Course is offered at night in even numbered years, during the day in odd numbered years. (3 contact hrs) Center Campus. Winter semester only.

THEA-1350 - Acting 2 - (3.00 Credit hours)
Prerequisite: THEA-1150, or written consent of instructor, or by special audition.
(formerly THA 135) A continuation of THEA-1150 with emphasis upon characterization and scene work. May be repeated twice for credit. (3 contact hrs) Center Campus.

THEA-2501 - Theater Practicum - (1.00 Credit hours)
Prerequisite: Audition or consent of instructor.
(formerly THA 250A) Practical experience in technical theater as a crew member in costumes, makeup, scenery, lighting, or properties through preparation, rehearsal, and performance or actual college productions. May be repeated to a maximum or 8 credit hours. (1 contact hr)

THEA-2502 - Theater Practicum - (2.00 Credit hours)
Prerequisite: Audition or consent of instructor.
(formerly THA 250B) Practical experience in technical theater as a crew member in costumes, makeup, scenery, lighting, or properties through preparation, rehearsal, and performance or actual college productions. May be repeated to a maximum of 8 credit hours. (2 contact hrs)

THEA-2503 - Theater Practicum - (3.00 Credit hours)
Prerequisite: Audition or consent of instructor.
(formerly THA 250C) Practical experience in technical theater as a crew member in costumes, makeup, scenery, lighting, or properties through preparation, rehearsal, and performance or actual college productions. May be repeated to a maximum of 8 credit hours. (3 contact hrs)

TMTH - TECHNICAL MATH

TMTH-1060 - Technical Mathematics 1 - (4.00 Credit hours)
Prerequisite: None
(formerly TMT 106) Arithmetic operations, scientific notation, algebraic fundamentals, formulation and solution of linear equations, graphing equations, area and volume, metric conversions, and right triangle trigonometry. (4 contact hrs) South Campus.

TMTH-1150 - RCL Analysis - (4.00 Credit hours)
Prerequisite: None
(formerly TMT 115) Basic algebra, formula transposition, scientific notation (powers of 10), trigonometry, special products and factoring. Application of algebra and formulas to solving network simplification. Simultaneous equations. Resistive D.C. circuits and reactive A.C. circuits (inductive and captive), calculations to support EETE-1160 and 1170. (4 contact hrs) South Campus.

VETT - VETERINARY TECHNICIAN

VETT-1020 - Applied Anatomy & Physiology - Lecture - (4.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program
Corequisite: VETT-1030, HHSC-1010, ITCS-1010
(formerly VET 102) This course is designed to teach basic anatomy and physiology of small and large animals as related to veterinary technician training. Emphasis is on formation of a strong foundation for further study of veterinary technical skills. (4 contact hrs) Center Campus.

VETT-1030 - Applied Anatomy & Physiology - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program
Corequisite: VETT-1080, HHSC-1010, ITCS-1010
(formerly VET 103) A laboratory class in which dissection of an animal cadaver is performed. Concepts are related to the live animal. (2 contact hrs) Center Campus.

VETT-1080 - Small Animal Techniques - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program
Corequisite: VETT-1090, HHSC-1010, ITCS-1010
(formerly VET 108) The majority of this course will emphasize many of the basic techniques expected of the veterinary technician in a small animal veterinary practice. The following skills will be discussed: animal handling and restraint, grooming, physical examination, auscultation (use of a stethoscope), medication administration, placement of intravenous (I.V.) catheters, emergency first aid, and the obtaining and handling of blood, urine, and fecal samples.
(1 contact hr) Center Campus.

VETT-1090 - Small Animal Techniques - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program
Corequisite: VETT-1720, HHSC-1010, ITCS-1010
(formerly VET 109) Implementation of animal handling and restraint, grooming, physical examination, auscultation, medication administration, placement of intravenous catheters and the obtaining and handling of blood, urine, and fecal samples. (2 contact hrs) Center Campus.

VETT-1220 - Veterinary Anesthesia - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1230
(formerly VET 122) This course is designed to provide the veterinary technician student with the principles of anesthesiology and instruction in proper usage of anesthetics for large, small, and exotic animals. Anesthetic monitoring, emergency procedures, and post-anesthetic care are discussed. (2 contact hrs) Center Campus.

VETT-1230 - Veterinary Anesthesia - Laboratory - (1.50 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1300
(formerly VET 123) Implementation of common anesthetic agents for dogs and cats. Practical application of anesthesia induction, monitoring, recovery and post-anesthetic care. (3 contact hrs) Center Campus.

VETT-1300 - Assisting in Veterinary Surgery - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1230, VETT-1310
(formerly VET 130) This course is designed to instruct the student in aseptic technique, surgical assisting, care of the surgical patient and equipment. (1 contact hr) Center Campus.

VETT-1310 - Assisting in Veterinary Surgery - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1230, VETT-1300, VETT-1440
(formerly VET 131) This course is designed for the student to practice procedures related to the surgical aspect of veterinary practice. (2 contact hrs) Center Campus.

VETT-1440 - Clinical Pathology 1 - Lecture - (2.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1230, VETT-1300, VETT-1310, VETT-1450
(formerly VET 144) Basic techniques and background information in hematology, urinalysis, and parasitology are presented. Emphasis is placed on the purpose of tests, their clinical significance, and factors necessary for quality control in performing the tests on common small and large animals. (2 contact hrs) Center Campus.

VETT-1450 - Clinical Pathology 1 - Laboratory - (3.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1230, VETT-1300, VETT-1310, VETT-1440, VETT-1700
(formerly VET 145) This course teaches veterinary technician students how to perform commonly requested laboratory tests. (6 contact hrs) Center Campus.

VETT-1580 - Veterinary Technician Internship 1 - (4.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1220, VETT-1230, VETT-1300, VETT-1310, VETT-1440, VETT-1450, and VETT-1700
(formerly VET 158) Supervised clinical experience in an affiliated animal facility, designed to provide the student with an opportunity to gain experience with practical skills. (25 contact hrs per week for 8 wks) Center Campus. Spring/Summer semester only.

VETT-1700 - Pharmacology for Veterinary Technicians - (2.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-1020, VETT-1030, VETT-1080, VETT-1090, VETT-1720, HHSC-1010, and ITCS-1010
Corequisite: VETT-1220, VETT-1230, VETT-1300, VETT-1310, VETT-1440, VETT-1450
(formerly VET 170) A study of drugs and medical substances of veterinary importance including characteristics, classification and usage. Mathematics affecting dosage and formulation are also covered. (2 contact hrs) Center Campus.

VETT-1720 - Veterinary Office Procedures & Hospital Management - (2.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program
Corequisite: VETT-1020, VETT-1030, VETT-1080, VETT-1090, HHSC-1010, ITCS-1010
(formerly VET 172) This course is designed to prepare the veterinary technician in office procedures associated with clinical practice. The student will develop skills in routine office practices, including telephone procedures, appointment scheduling, client contact, record keeping, financial transactions, inventory control, and veterinary hospital management. (2 contact hrs) Center Campus.

VETT-2050 - Large Animal Techniques - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2060
(formerly VET 205) This course is designed to prepare veterinary technology students in the handling of equine and food animal species. Specimen collection, injection routes, anesthesia, surgery, and mastitis control are covered. (1 contact hr) Center Campus.

VETT-2060 - Large Animal Techniques - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2220
(formerly VET 206) Practice of the following techniques in equine and food animal species: specimen collection, injections, physical examination, and other laboratory procedures relevant to the species. (2 contact hrs) Center Campus.

VETT-2100 - Large Animal Diseases - (3.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2620, and VETT-2630
Corequisite: VETT-2480, VETT-2490, VETT-2580
(formerly VET 210) This course is designed to provide the student with basic information on diseases, vaccination procedures, husbandry procedures, and nutrition of horses, cattle, sheep, goats, swine, and fowl. Preventative health measures and client education are stressed. (3 contact hrs) Center Campus.

VETT-2220 - Small Animal Diseases - (3.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2060, VETT-2300
(formerly VET 222) This course is designed to provide the student with basic information on diseases, vaccination procedures, nutrition, reproduction, and public health concerns for the dog and cat species. Preventative health measures and client education are stressed. (3 contact hrs) Center Campus.

VETT-2300 - Laboratory Animal Procedures - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2060, VETT-2220, VETT-2310
(formerly VET 230) This course includes exposure to common species of laboratory animals, their diseases, and common procedures. Included are equipment, germ-free techniques, and vivarium management. Species include primates, rabbits, reptiles, hamsters, guinea pigs, rats, mice and gerbils. Euthanasia techniques and necropsy of all species are also covered. (1 contact hr) Center Campus.

VETT-2310 - Laboratory Animal Procedures - Laboratory 1 - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2620
(formerly VET 231) This course includes hands-on laboratory practice with laboratory animals. (2 contact hrs) Center Campus.

VETT-2480 - Clinical Pathology 2 - Lecture - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2310, VETT-2620, and VETT-2630
Corequisite: VETT-2100, VETT-2490, VETT-2580
(formerly VET 248) Techniques commonly used in veterinary medicine, clinical chemistry, bacteriology, cytology, and immunology are discussed. The performance, purpose, and clinical significance of the tests are correlated with the factors necessary for quality control. Emphasis is on common companion animals. (1 contact hr) Center Campus. Winter semester only.

VETT-2490 - Clinical Pathology 2 - Laboratory - (2.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2310, VETT-2620, and VETT-2630
Corequisite: VETT-2100, VETT-2480, VETT-2580
(formerly VET 249) The following techniques are presented: handling specimens; preparing and straining smears for microbes and cytology; sensitivity testing, blood typing, and antibody detection; blood chemistries and instrumentation. Urinary sediment and blood cell differentials are continued. (4 contact hrs) Center Campus. Winter semester only.

VETT-2580 - Veterinary Technician Internship 2 - (4.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program, and VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2310, VETT-2620, and VETT-2630
Corequisite: VETT-2100, VETT-2480, VETT-2490
(formerly VET 258) Supervised clinical experience in an affiliated veterinary facility designed to provide the student a chance to continue practice of necessary skills. (20 contact hrs per week for 16 wks) Center Campus.

VETT-2620 - Radiology for Veterinary Technicians - Lecture - (1.50 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2310, VETT-2630
(formerly VET 262) The student is introduced to the fundamentals of taking and developing excellent quality x-rays, while following safe radiographic procedures. (1.5 contact hrs) Center Campus.

VETT-2630 - Radiology for Veterinary Technicians - Laboratory - (1.00 Credit hours)
Prerequisite: Admission into the Veterinary Technician program and VETT-1580
Corequisite: VETT-2050, VETT-2060, VETT-2220, VETT-2300, VETT-2310, VETT-2620
(formerly VET 263) The student is given supervised practice in the taking and developing of excellent quality x-rays, while following safe radiographic procedures. (2 contact hrs) Center Campus.

WKBL - WORK BASED LEARNING

WKBL-2420 - Work Based Learning - (2.00 Credit hours)

Prerequisite: Approval of Work-Based Learning coordinator with written recommendation from a teacher in the student's primary field of study.

Work Based Learning provides a student with supervised on-the-job training and a job-related seminar that is commensurate with student's career objective. May be taken nine times for credit to coordinate with employer's three-year training agreement. (2 contact hrs)

WKBL-2510 - Work Based Learning - Student Directed Job Shadow Experience - (1.00 Credit hours)

Prerequisite: Approval of Work-Based Learning coordinator with written recommendation by teacher in the area.

The student researches and conducts interviews with employers in desired field of study. The student gains insight into current trends and qualifications in chosen career field. May be taken two times for credit. (1 contact hr)

WKBL-2520 - Work Based Learning - College Directed Job Shadow Experience - (2.00 Credit hours)

Prerequisite: Approval of Work-Based Learning coordinator with written recommendation by teacher in the area.

The job shadow week will provide student(s) four hours a day with selected mentors from different companies for an entire week. May be taken one time for credit. (2 contact hrs)

WKBL-2532 - Work Based Learning - (3.00 Credit hours)

Prerequisite: Approval of Work-Based Learning coordinator with written recommendation from a teacher in the student's primary field of study.

Work Based Learning provides a student with a job related seminar experience and supervised on-the-job training in a position that is commensurate with the student's career objective, skills, and education. Three semester hours are awarded for a part-time work experience (minimum 15 contact hours per week). May be taken four times for credit. (1 contact hr)

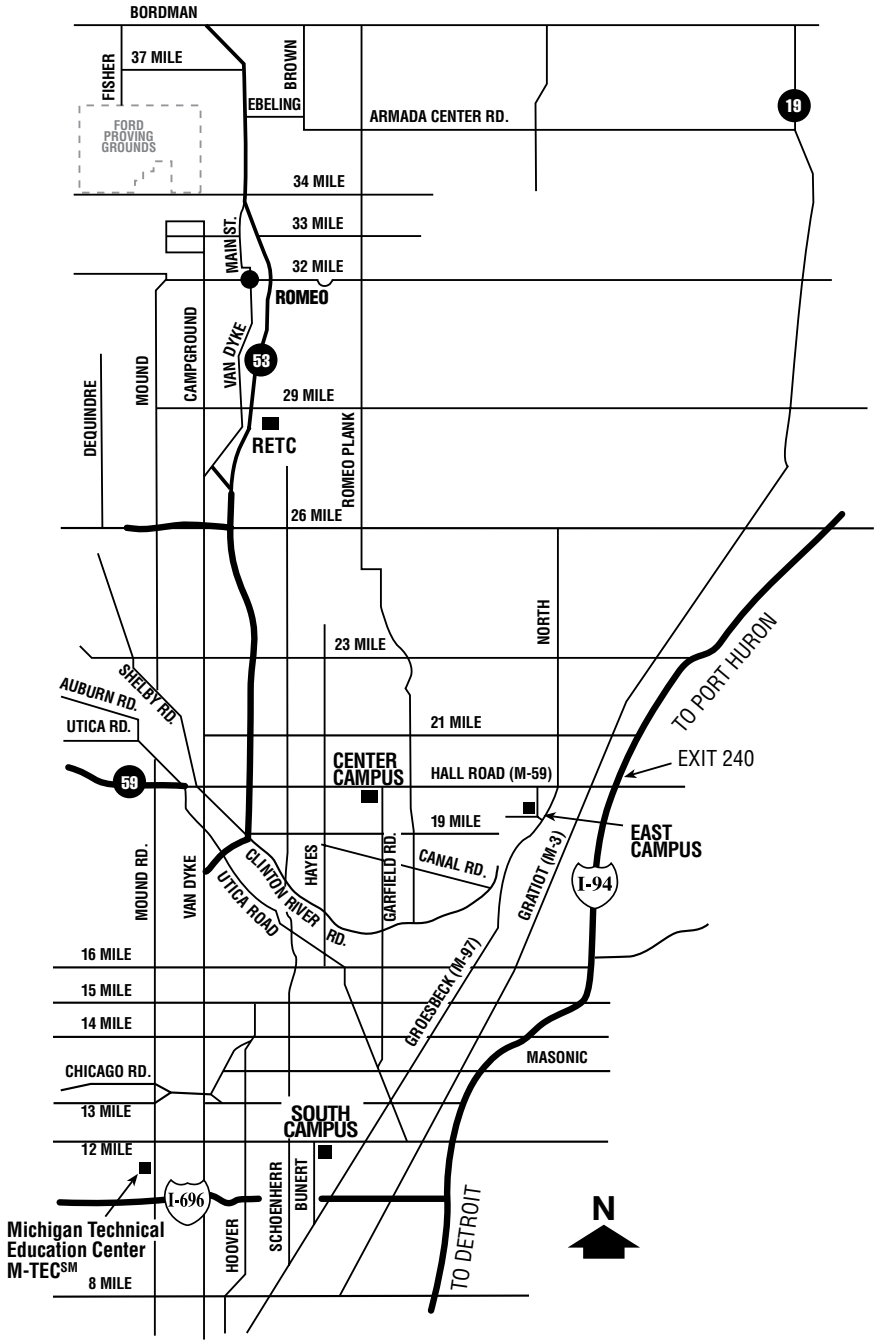
WKBL-2542 - Work Based Learning - (4.00 Credit hours)

Prerequisite: Approval of Work-Based Learning coordinator with written recommendation from a teacher in the student's primary field of study.

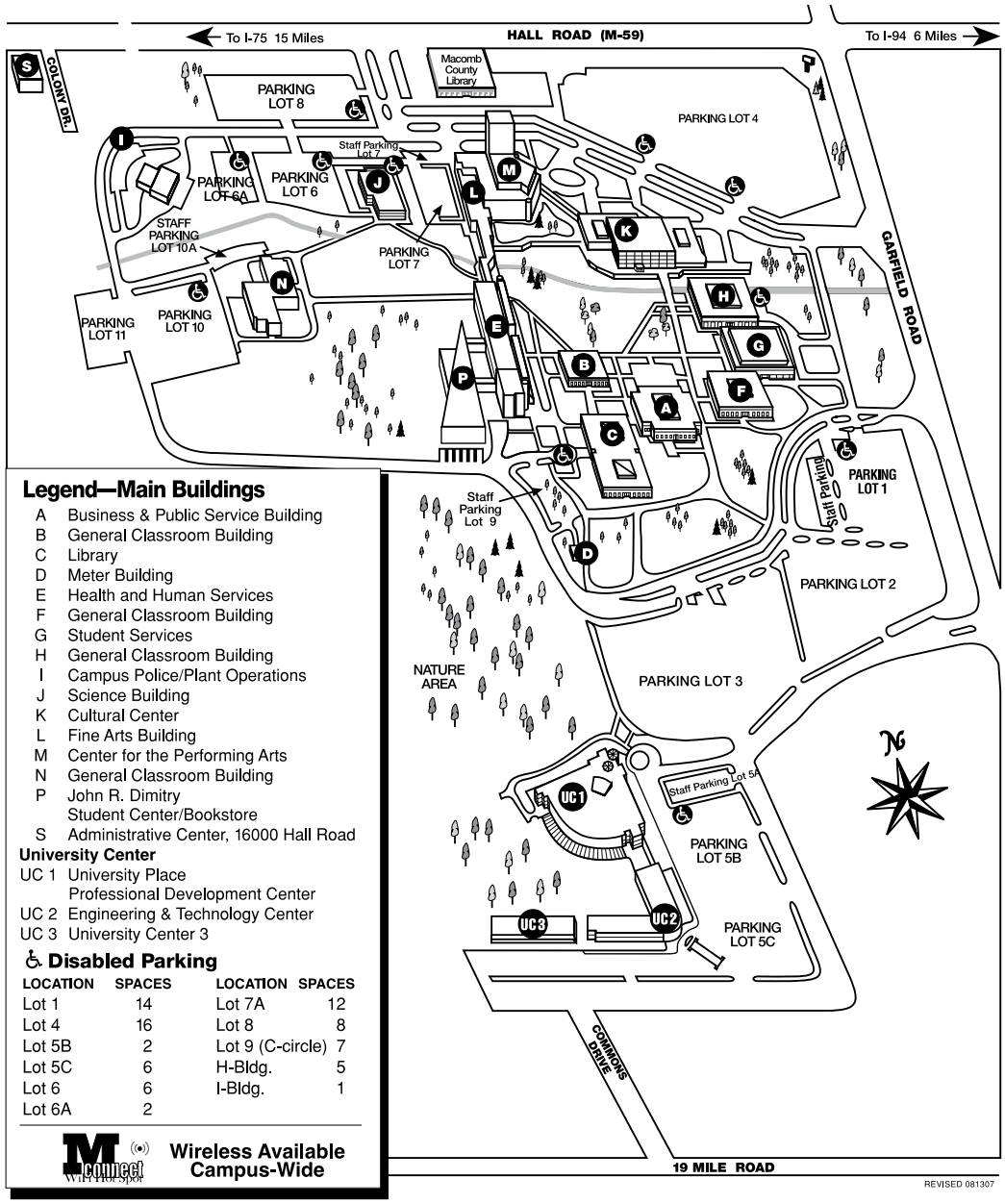
Work Based Learning provides a student with a job-related seminar experience and supervised on-the-job training in a position that is commensurate with the student's career objective, skills, and education. Four semester hours are awarded for a full-time work experience (minimum 35 contact hours per week). May be taken three times for credit. (1 contact hr)

The Maps of

Macomb Community College



Center Campus



Legend—Main Buildings

- A Business & Public Service Building
- B General Classroom Building
- C Library
- D Meter Building
- E Health and Human Services
- F General Classroom Building
- G Student Services
- H General Classroom Building
- I Campus Police/Plant Operations
- J Science Building
- K Cultural Center
- L Fine Arts Building
- M Center for the Performing Arts
- N General Classroom Building
- P John R. Dimitry Student Center/Bookstore
- S Administrative Center, 16000 Hall Road

University Center

- UC 1 University Place Professional Development Center
- UC 2 Engineering & Technology Center
- UC 3 University Center 3

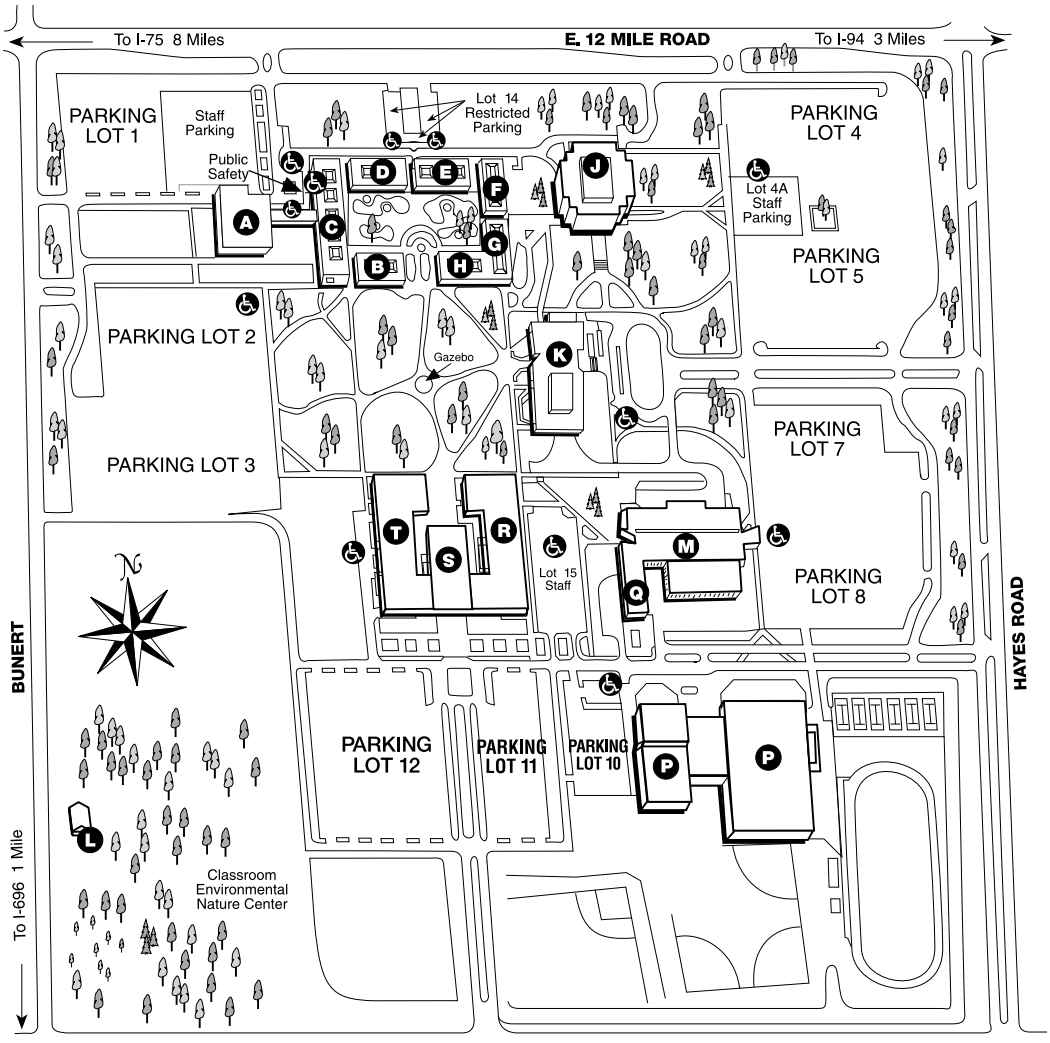
Disabled Parking

LOCATION	SPACES	LOCATION	SPACES
Lot 1	14	Lot 7A	12
Lot 4	16	Lot 8	8
Lot 5B	2	Lot 9 (C-circle)	7
Lot 5C	6	H-Bldg.	5
Lot 6	6	I-Bldg.	1
Lot 6A	2		

Wireless Available Campus-Wide

MAPS

South Campus



LEGEND—MAIN BUILDINGS

- **A** Boiler House
- **B** Science Building
- **C** Classroom Building Public Safety Dept.
- **D** Administration Building
- **E** Classroom Building
- **F** Classroom Building
- **G** Classroom, Student Services & Information Center
- **H** Classroom Counseling Building
- **J** Max Thompson Learning Media Center
- **K** John Lewis Student Community Center/Bookstore
- **L** Bunert Conference Center
- **M** Transportation and Energy Technology Building
- **N** College Park Annex
  - Institutional Research
  - Publications
  - Purchasing
  - Recruitment
- **P** Sports & Expo Center
- **Q** Boiler House

Robert E. Turner Complex

- **R** Graphic Technical Building
- **S** Walter E. Bradley Auditorium
- **T** Mechanical Technical Building

Wireless Available Campus-Wide

Disabled Parking

Location	Spaces	Location	Spaces
Lot 1A Staff	3	Lot 15 Staff	4
Lot 2	3	C-Bldg	20
Lot 4	8	K-Bldg	6
Lot 7	4	P-Bldg	2
Lot 10	18	T-Bldg	2
Lot 14	1	N-Bldg	6

General Index

A

ACT Center℠ 62
Admissions/Registration 12
Areas of Study 1
Assistance Directory 2
Associate of Applied Science (AAS) Degree 5, 9
Associate of Arts (AA) Degree 5, 7
Associate of Baccalaureate Studies (ABS) Degree 5, 10
Associate of Business Administration (ABA) Degree 5, 11
Associate of General Studies Degree. 5
Associate of Science (AS) Degree 5, 8
Athletics 19

B

Bookstore 19

C

Career Services 20
Center for Continuing Education 29
Certificate in Applied Technology & Apprenticeship 6
Certificate in General Studies 6
Certificates in Career Programs 6
Community Services 21
Computing Resources for Learning 21
Conference & Event Services 22
Confidentiality of Student Records 22
Counseling & Academic Advising Services . . 30
Course Descriptions 230-396
Course Name Index. 228-229
Criminal Justice Training Center/ Police Training 44
Cultural Center, Lorenzo 32

D

Degree Outcomes 4
Degrees & Certificates 3
Directed Study. 227

E

English for Speakers of Other Languages 33
Equal Opportunity/Affirmative Action. 18

F

Faculty and Staff Credentials 33
Financial Aid & Scholarships 33
Financial Services 34
Fire & Emergency Services Training Center 44
Food Service & Catering 35
Former Macomb Students 15

G

General Information. 12
General Requirements for Degrees 6
Grading 35
Graduation/Commencement 39
Guest Students 16

H

Health & Safety Training 45
High School Early Admissions 15, 46
Housing 39

I

International Students. 17

L

Learning Center Computer Labs 21
Learning Outreach. 40
Libraries 41
Lorenzo Cultural Center 32

M

Macomb Center for the Performing Arts 42
Macomb Programs 64-67
Macombers 42
Maps 397-399
Michigan Technical Education Center℠ (M-TEC℠) 61
Military Service–Early Release 17
MIOSHA Training Institute. 62
Mission Statement. v

N

Nature Education Area 42
New Macomb Students. 12

O

Orientation 14

P

Placement Procedures 13
Police/Public Safety, College 43
Procurement Technical Assistance Center (PTAC) 43
Program Completion–Two-Year/Seven-Year Rule. 6
Program Descriptions 68-226
Program Selection. 43
Public Service Institute 44

R

Records & Transcripts. 45
Registration 12, 15

S

Second Associate's Degree 6
Selective Admission Applicants 17
Senior Citizens' Programs, Services 46
Skill Specific Certificates 46
Speakers' Bureau 47
Special Services Program. 31
Specialty Certificate 6
Sports & Expo Center 47
Student Activities 48
Student Community Centers 48
Student Hold Policy. 48
Student Success Services 50
Students' Rights & Responsibilities 49

T

Transfer Information 52
Trustees iv
Tuition & Fees 54

U

University Center at Macomb 56

V

Veterans Affairs Educational Benefits 60

W

WebAdvisor 60
Website 61
Workeys® 62
Workforce Development Institute. 61

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