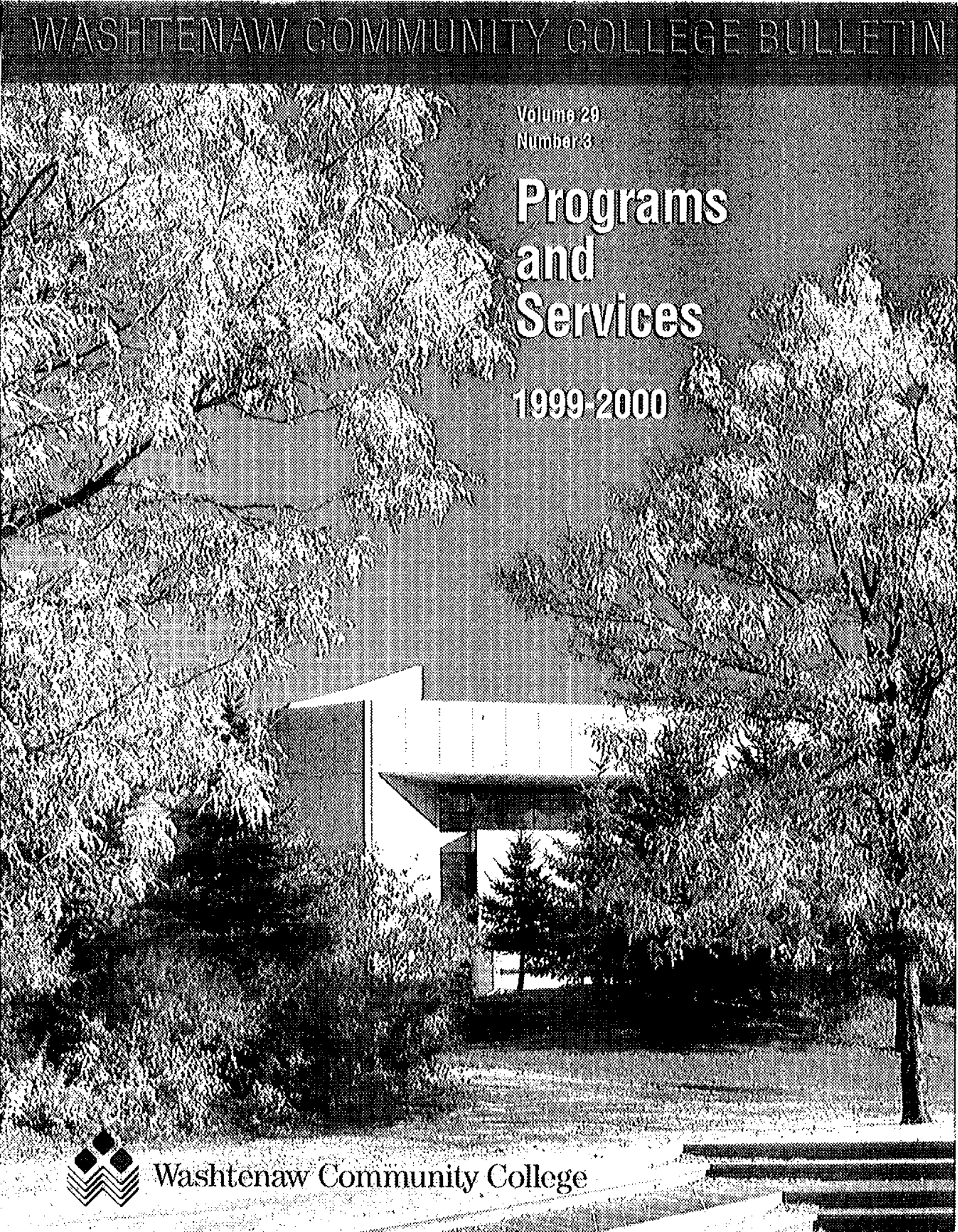
WASHTENAW COMMUNITY COLLEGE BULLETIN

Volume 29
Number 3

Programs and Services

1999-2000



Washtenaw Community College

Campus Telephone/ Office Directory

all area codes are 734 unless otherwise noted

Academic Skills Center	LA 109	973-3301
Admissions	SC 221	973-3543
Adult Transitions	LA 140	677-5006
Alumni Association	SC 207	973-3492
Apprenticeship and Trade Related Programs	OE 170	973-3533
Articulation Services	SC 234	973-3706
Bookstore	SC 142	973-3594
Campus Safety/Security	PO	973-3411
Cashier	SC 2nd floor	973-3485
Children's Center	FE	973-3538
Community and Business Relations	SC 207	973-3306
Continuing Education Services	ML 104	677-5027
Counseling, Career Planning & Placement	SC 227	973-3464/677-5124
Curriculum	SC 234	973-3706
Dean of Business	BE 100	973-3724
Dean of Alternative Education	SC 207	677-5003
Dean of Health/Public Services	OE 102	973-3474
Dean of Humanities/Social Science	LA 136	973-3356
Dean of Learning Resources	SC 325	973-3379
Dean of Math/Natural Sciences	LA 148	973-3722
Dean of Technology	TI 214	973-3441
Dental Clinic	OE 110	973-3337
Extension Services and Distance Learning	LA 200	677-5030
Financial Aid	SC 223	973-3523
Information Center	SC 225	973-3622
Institute for Workforce Development	ML 104	677-5016
Learning Resource Center	SC 3rd floor	973-3429
Lost and Found	PO	973-3502
Math Center	LA 255	973-3392
Northern Extension Center	7878 Brighton Road, Brighton	(810) 229-1419
Placement/Transfer Center	SC 227	677-5155
Public Service Training Program	ML 106	677-5024
Registration	SC 221	973-3548
Southern Extension Center, 200 N. Ann Arbor St., Saline		429-8153
Student Activities	SC 227	973-3528
Student Resource and Women's Center	SC 227	973-3528
Student Records	SC 221	973-3548
Switchboard (General Information)	SC 225	973-3300
Telecourse Hotline		677-5056
Testing Center	LA 101	973-3634
Veteran Certification	SC 221	973-3545
Vice President for Instruction and Student Services	SC 235	973-3488
Western Extension Center, 500 E Washington St, Chelsea		475-5935
Workplace Learning	SC 108	973-3421
Writing Center	LA 355	973-3647

Building Abbreviations

BE — Business Education Building
FE — Family Education Building
LA — Liberal Arts/Sciences Building
ML — Morris Lawrence Building
OE — Occupational Education Building
PO — Plant Operations
SC — Student Center Building
TI — Technical and Industrial Building

1999-2000 Academic Calendar

Fall Semester 1999

September 7	Classes Begin
November 25-28	Thanksgiving Recess (no classes)
December 21	Fall Classes End

Winter Semester 2000

January 12	Classes Begin
January 17	Martin Luther King Holiday (no classes)
March 1-5	Winter Recess (no classes)
May 2	Winter Classes End

Spring/Summer Semester 2000

May 8	Classes Begin
May 29	Memorial Day (no classes)
June 26	7½ Week Spring Classes End
July 4	Independence Day Holiday (no classes)
July 18	10 Week Spring Classes End
August 22	15 Week Semester Classes End

Summer Session 2000

June 27	7½ Week Summer Classes Begin
July 4	Independence Day Holiday (no classes)
August 22	7½ Week Summer Classes End

The Washtenaw Community College Bulletin is issued four times a year in February, July, August and October by: WASHTENAW COMMUNITY COLLEGE 4800 E. HURON RIVER DRIVE, P.O. BOX D-1 ANN ARBOR, MI 48106-1610.

Periodicals postage is pending at Ann Arbor, Michigan. POSTMASTER: Send address changes to: WASHTENAW COMMUNITY COLLEGE P.O. BOX D-1 ANN ARBOR, MI 48106-1610

World Wide Web Site Address

See this location for the College Catalog and the Academic Class Schedule information:

http://www.wccnet.org

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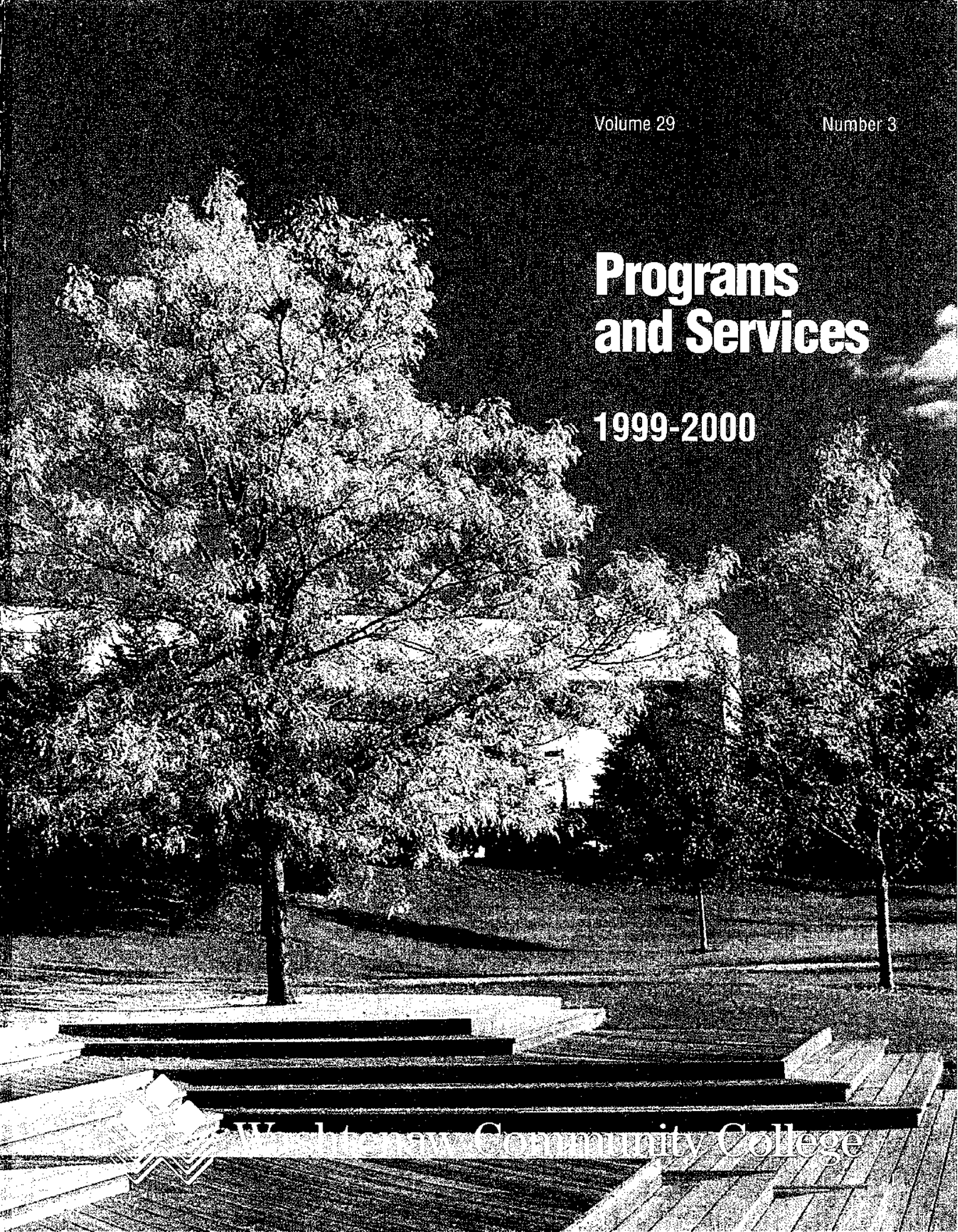
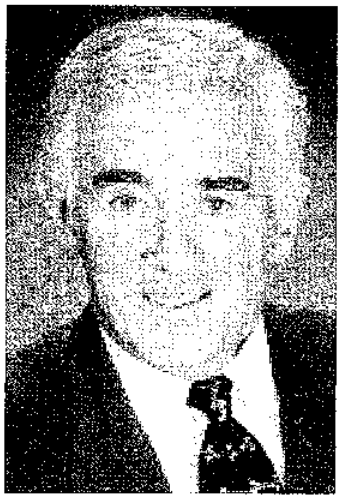


Washtenaw Community College

Greetings From President Larry L. Whitworth



On behalf of the faculty, staff and administration, I wish to welcome you to Washtenaw Community College. If you are currently a student, let me congratulate you on your decision to actively take charge of your future by continuing your education. If you are not currently a student, let me encourage you to make the decision to continue your education and to recommend that you consider Washtenaw Community College, one of the finest community colleges in the country. Washtenaw County has been a generous supporter of the college and the County's commitment to higher education allows us to offer you an educational experience of exceptional quality.

Washtenaw Community College has a comprehensive mission that includes broad-based transfer programs, occupational programs, vocational/technical programs, non-credit programs, and academic preparation classes. Our programs come in various lengths and levels of complexity. Our associate's degree programs are designed to be completed in two years for students who are attending full-time. However, it's not uncommon for our part-time students to take four or five years to complete their program. Our certificate programs are designed essentially as one-year programs, and our apprenticeship programs can last from three to five years depending on the trade.

Our transfer programs enable individuals to complete the first half of a baccalaureate program in fields as diverse as accounting, biology, humanities, natural sciences and social sciences. The College offers a large number of high demand occupational programs, such as Computer Systems Technology, Electronics, Heating and Air Conditioning, and Respiratory Therapy. Our vocational/technical programs such as Automotive Service Technology, Electronics Technology, and Welding Technology are designed to prepare people for immediate assimilation into the workplace.

The programs mentioned here are only a few examples of the nearly 100 programs of study available at Washtenaw Community College. Please take some time and review the catalog. You will certainly find a program that will expand your future opportunities.

The College also offers many additional services, such as financial aid, personal and professional counseling, academic skills brush-up, and tutorial services. Our financial aid advisors work with students of different income levels to assist in identifying appropriate financial aid vehicles from the variety of Federal, State, and College financial aid programs, along with available WCC Foundation scholarships. Whatever your particular need is, whether it is financial, academic refresher, or career counseling, you will find the staff at WCC dedicated to helping you prepare for the future.

The College is proud of its academic developmental studies program. The evidence suggests that most adults who have been away from school for a number of years require academic brush-up in at least one of the following areas: mathematics, English composition, and reading comprehension. The staff and faculty at WCC can assist in strengthening skills in these areas.

All of the current evidence suggests that the future will belong to the "knowledged workers." Only through continuous education, can you prepare yourself to be a "knowledged worker." But, it is important to recognize that not only is your economic viability enhanced by continuing your education, the quality of many aspects of your life can be greatly enriched. Exposure to the arts and humanities can expand your understanding of the beauty of the world around you; exposure to the social sciences can help to build the intellectual foundations to enable your appreciation of the richness of human diversity; and exposure to the sciences can develop your skills of analysis and problem solving. Your future and the future of the people who depend upon you will be greatly affected by your decision to continue your education. Let me encourage you to decide today to become a dedicated life-long learner.

Statement of Mission and Values

Mission of the College

Our college strives to make a positive difference in people's lives through accessible and excellent educational programs and services.

- We provide a caring, open-door teaching and learning environment.
- We provide excellent teaching, counseling, and support services.
- We reach out to people who have limited income or other barriers to success.
- We enable people to progress in their academic and career pursuits.
- We work in partnership with the communities we serve.

We fulfill our mission by offering the following programs and services:

Occupational and Career Education: We offer certificate and associate's degree programs, seminars, workshops, and courses which enable people to pursue employment or advance in a career. We develop and deliver job skills and occupational education programs in partnership with business, industry, government and labor groups.

General and Transfer Education: We offer individual courses and associate's degree programs in academic disciplines which transfer to four-year colleges and universities, complement career programs, and enhance personal growth.

Continuing Education and Community Services: We offer credit and non-credit courses and programs at regional centers, at local business and community sites, and via television and the internet. We develop and offer programs which respond to the educational needs of specific groups in the community.

Developmental Education: We offer basic courses which strengthen reading, writing, mathematical, computer and study skills. We also offer instruction and services to people who wish to learn English as a second language.

Student Services: We offer orientation, academic skills assessment, assistance with program and course selection, financial aid, university transfer assistance, personal and career counseling, job placement, tutoring, child care, special needs services, computer and self-paced instructional laboratories, and library services.

Community Leadership: We cooperate with other community organizations in seeking solutions to local economic and social problems. As a primary educational resource in the community, we work to improve the quality of life in the communities we serve.

Values of the College

Teaching and Learning: We embrace teaching and learning as our central purpose.

Support: We make every effort to help learners achieve success.

Diversity: We respect differences in people and in ideas.

Partnerships: We plan and work together with respect, trust, and honesty within the college and with the communities we serve.

Innovation: We seek the best possible ways to conduct our work.

WCC 2000 Vision Statement

WCC is a learner-centered, open-door college dedicated to student, community, and staff success. We offer a wide spectrum of community college services with an emphasis on premier technical and career education programs. The College staff continuously learns to improve learning.

Student Success: Our students come first. We are committed to their learning, success, and satisfaction. We strive to serve every student in an effective, caring, and supportive way. In order to enhance student learning outcomes, we engage in continuous improvement of teaching, programs, processes, and structures. We increase our accessibility by reaching learners where, when, and how they need instruction through the use of learning technologies, workplace learning experiences, and flexible scheduling of classes.

Community Success: We are committed to community learning, success, and satisfaction. WCC's primary contribution to community success is the development of a highly-skilled workforce. A strong partnership with area employers emphasizes customized employee training and rapid adaptation of WCC programs to changing job training needs. Through strategic alliances with business, government, labor, and other educational institutions, WCC increases its emphasis on applied technology education, joint technical education programs with the public schools, and basic job training services to underserved and at-risk groups.

Staff Success: We are committed to staff learning, success, and satisfaction. As a staff, we emphasize teamwork within college units and between the units. We support our colleagues and help them to be successful. We learn to improve learning; that is, we continuously increase our capacity to meet the educational requirements of the students, employers, and communities we serve. Through staff learning, we continuously improve services at each stage of the flow of students through WCC. All staff members align their work to contribute to improved teaching and increased student and community learning.

Accreditations/Approvals

Institutional accreditation:

Accredited Member of the North Central Association of Colleges and Secondary Schools
159 N. Dearborn
Chicago, Illinois 60661
(312) 263-0456; (800) 621-7440
www.ncacihe.org
info@ncacihe.org

Program Accreditations:

Business Programs Accredited by The Association of Collegiate Business Schools and Programs

Correctional Science Program Certified by Michigan Correctional Officers' Training Council

Dental Assisting Program Approved by American Dental Association

Law Enforcement Basic/ Preservice Program Approved by Michigan Law Enforcement Officers Training Council

Nursing Associate's Degree Accredited by National League for Nursing
Program Approved by Michigan Board of Nursing

Pharmacy Technology Program Accredited by American Society of Health System Pharmacists

Radiography Program Accredited by Joint Review Committee on Education in Radiologic Technology

Respiratory Therapy Program Accredited by Joint Review Committee for Respiratory Therapy Education

Surgical Technology Program Accredited by Commission on Accreditation of Allied Health Education Programs

Approvals:

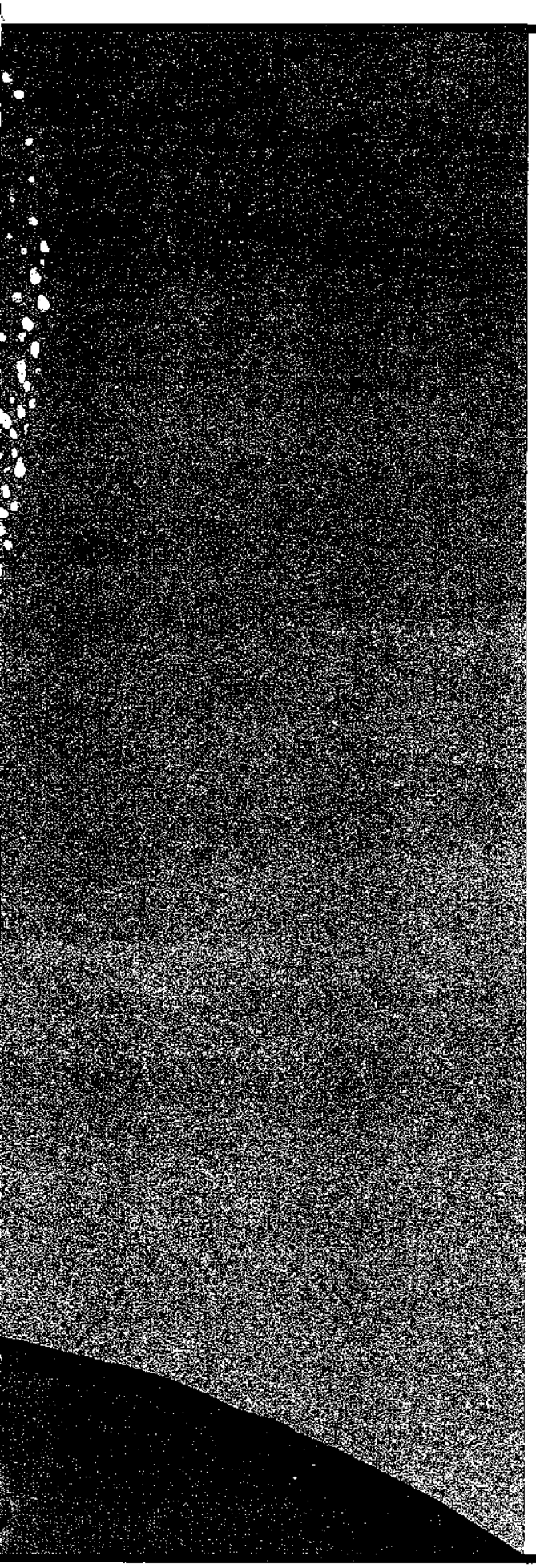
Approved by the State Department of Education, State of Michigan

An Affirmative Action/Equal Opportunity Institution

Inquiries concerning college or program accreditation should be directed to the Office of the Vice President for Instruction and Student Services, Student Center Building, Room SC 235.

Table of Contents

This document is for informational purposes only and is not to be construed as a binding offer or contract between WCC and the student. This document was prepared on July 26, 1999 and is subject to change without notice.



General Information

General Information

History of Washtenaw Community College

Washtenaw Community College (WCC) was created on January 15, 1965, when the citizens of Washtenaw County voted financial support for its establishment. A board of trustees was elected and a nationwide search for administrators and faculty was initiated while a study to look for a permanent campus was begun.

During construction of the main campus, which began in September, 1966, the college held classes in temporary facilities in the Willow Run area of Ypsilanti Township. On September 12, 1966, 1,200 students were enrolled in 30 different programs. The first classes were held in Willow Run in an old elementary school, a fire station, and a bowling alley. Students in automotive programs took courses in a former dairy distribution plant, while those in health programs were taught in the basement of a church in downtown Ann Arbor. In 1969, the permanent 235-acre campus opened with completion of the Technical and Industrial Buildings and the Liberal Arts and Sciences Building. Today, more than 16,000 students are enrolled annually in credit courses and an additional 6,600 are enrolled in non-credit offerings each year.

Profile of Washtenaw Community College

WCC schedules courses on a semester calendar, and enrolled 10,596 students for the Fall 1998 semester. The college employs approximately 170 full-time faculty and more than 450 part-time faculty throughout the academic year. College credit programs of study cover over 73 areas in business, health and public services, humanities and social sciences, math and natural sciences, and technology. More than 50 percent of the students enrolled at WCC pursue a degree while others take courses for personal interest or to obtain or upgrade job skills. Each year, college certificates and associate degrees are awarded to more than 700 students.

College Governance

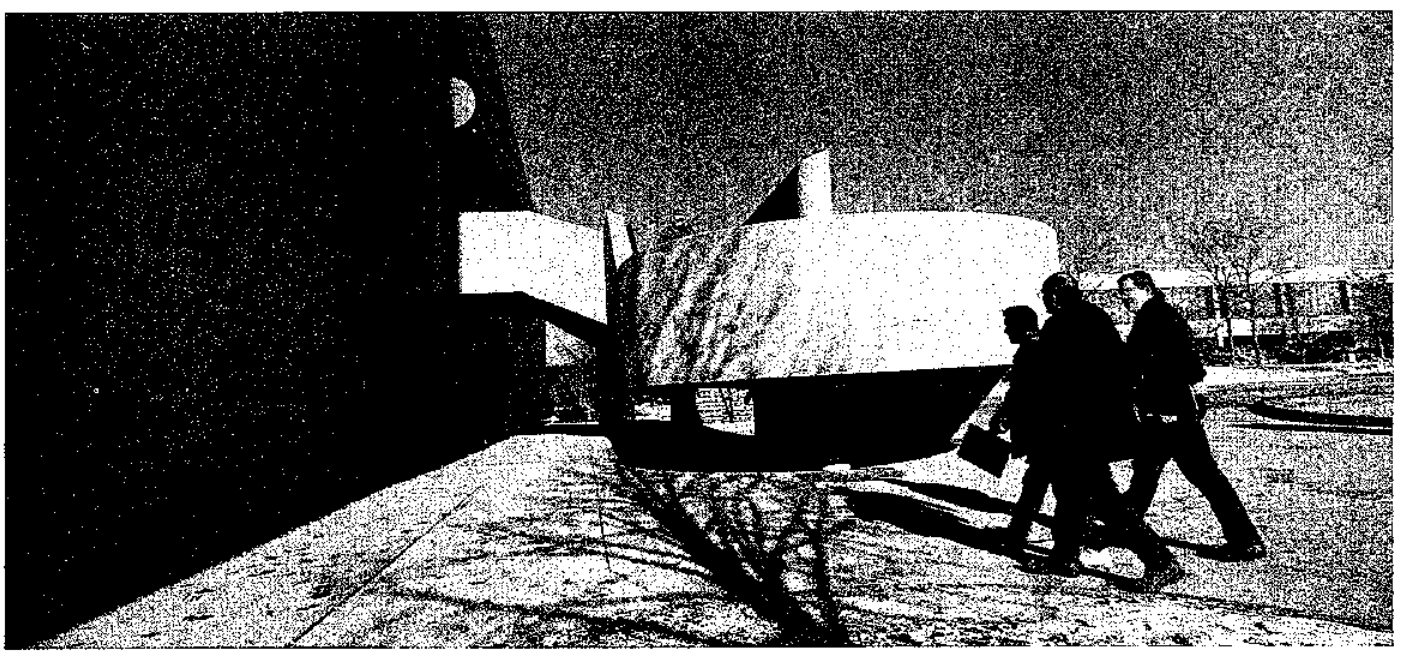
Washtenaw Community College strives to do its work so that all programs, services, systems, policies, and staff talents are aligned toward the vision of achieving student, community, and staff success. The design of WCC's work helps to shape a college culture of trust, caring, empowerment, good relationships, high achievement and pride.

WCC also strives continually to learn how to improve learning. Each staff member has unique perspectives and valuable talents to bring to this goal. The college governance structure is designed and updated frequently to achieve this goal. A major component of the structure is the use of cross-functional teams that include community, student, and staff groups. These groups are involved in setting institutional priorities and general college governance. They promote the building of positive relationships among staff groups and create an environment which uses individual talents to improve college programs and services. The structure strives to build teamwork among and between these groups and empower teams to solve problems and improve systems.

The Student Assembly is also an important part of campus governance. Through this structure students engage in self governance and also interface with other college governance bodies.

Extension Sites

Extension Centers provide a continuing and consistent WCC presence in each community. This outreach initiative is in response to population growth trends, economic change, technological development, and a stronger demand for post-secondary education in the communities served by the college. A consistent college presence is established at four of the regional centers – Chelsea, Saline and Brighton. These centers have been actively involved in course offerings, student counseling, registration, and student recruitment. Classes are also offered at facilities in various school districts.



Current Facilities

Today, the WCC main campus includes four buildings dedicated to instructional activities: the Liberal Arts and Sciences Building, the Occupational Education Building, the Technical and Industrial Building, and the Business Education Building. The Student Center Building houses the Learning Resource Center, extensive student support services, a student cafeteria and dining room, college bookstore, and administrative offices. The college also has a child care facility for children of WCC students and staff, which is called the Family Education Building.

The Morris Lawrence Building includes classrooms; an auditorium; exhibition space; and instructional space for art, drama, music, speech, the police academy and public service training and the Institute for Workforce Development.

Part-time Faculty Commons

The Part-time Faculty Commons is a one-stop resource center designed to promote student-to-instructor interaction and provide instructional support for part-time faculty. It is conveniently located on the first floor of the Liberal Arts and Sciences Building (LA 178-180). Within the Commons, part-time instructors consult with students, prepare for class at computerized workstations, and access copying and word processing services. It also serves as a communications hub with message services and campus mailboxes. The Commons provides an inviting atmosphere and gathering place for part-time faculty to consult with colleagues on instructional matters, as well as access to resources on effective teaching and learning practices. It offers extended day, evening, and weekend hours. For more information, contact Teaching and Learning Support Services.

Types of Study

There are many educational goals that may be obtained by attending WCC. These goals are realized by taking credit as well as non-credit courses and programs. Some students choose to attend classes for personal interest or to obtain or upgrade job skills. Other students choose to complete college certificates or associate's degrees for transfer to four-year institutions.

WCC also offers a variety of special courses and programs to meet the diverse needs of area citizens. Through the Institute for Workforce Development, programs including employee training and skills upgrading classes are tailored for specific businesses and industries. The Job Skills Academy, as part of the Adult Transitions Program, offers training for the unemployed — from counseling and skill assessment through actual training and job placement. The Technical Training Office offers coursework to fulfill apprenticeship requirements. In addition, the Devision of Alternative Education offers off-campus credit courses, preproduced televised classes, and on-line instruction.

Programs of Study

Associate's degree and Certificate programs.

See the Academic Policies section of this catalog for an explanation of the various types of degree and certificates.

Associate in Applied Science

Accounting

Administrative Assistant Technology

Business Computer Programming

Business Management

Child Care

Construction Management

Criminal Justice – Law Enforcement Certification (Police Academy)

Culinary Arts

Electrical Engineering Technology

First Line Management

Hotel-Restaurant Management

Human Services

Internet Professional

Mechanical/Manufacturing Engineering Technology

Medical Administrative Assistant Technology

Microcomputer System Support

Radiography

Registered Nursing Preparation

Respiratory Therapy

Scientific and Technical Communication

Associate in Arts

Correctional Science

Criminal Justice

Humanities and Social Sciences

Human Services – Transfer

Associate in Science

Business

Computer Information Systems – Transfer

Math and Science

Nursing – Transfer

Pre-Engineering Science – Transfer

Pre-Engineering Science – Chemical and Materials Engineering Option

Associate in Technical Studies

Architectural Drafting

Automotive Body Service

Automotive Service Technology

Computer Aided Drafting – Electronic

Computer Aided Drafting – Mechanical

Electronics Technology

Fluid Power Technology

Graphic Design Technology – Design

Graphic Design Technology – Illustration

Journeyperson Industrial

Machine Tool Technology

Numerical Control Technology

Photographic Technology

Photographic Technology – Marketing Option

Quality Control Technology – Electronics Option

Quality Control Technology– Management Option

Quality Control Technology – Science and Engineering Option

Quality Control Technology – Specialty Option

Robotic Technology

Welding Technology

Associate in General Studies

Business Concentrations

Health/Public Services Concentrations

Humanities/Social Sciences Concentrations

Math/Natural Sciences Concentrations

Technology Concentrations

The Associate in General Studies Degree is awarded with an emphasis in one of the five instructional divisions listed above. The emphasis is determined by the following: The student's credits in each of the five divisions are totaled. The division with the greatest concentration of credits is the area of emphasis. In cases where students have 30 or more credits in more than one division, or have two or more areas that are tied for the greatest concentration of credits, they may apply for their desired area of emphasis. Any additional division requirements for an area of emphasis must also be met. The diploma will read "Associate in General Studies," without a divisional area listed. Student transcripts will specify the divisional area.

Mastery Certificate Programs

Administrative Assistant Technology

Architectural Drafting Detailing

Automotive Body Repair

Automotive Mechanics

Automotive Spray Painting

Baking and Pastry

Business Sales

Computer Systems Technology

Computerized Accounting

Correctional Science

Dental Assisting

Digital Prepress

Drafting Detailing

Electronics Technology

First Line Management

Food Production Specialty

Hydraulic Assembly

Internet Professional

Machine Tool Operation

Medical Administrative Assistant Technology

Numerical Control Machine Operation

Pharmacy Technology

Photographic Assisting

Surgical Technology

Welding Maintenance Mechanics

Achievement Certificate Programs

Automotive Technology

Automotive Spray Painting

Child Development

Computer Software Speciality

Heating, Ventilating & Air Conditioning

Human Resource Management

Machine Operation

Medical Transcription

Professional Office Systems

Residential Construction Technology

Small Business and Entrepreneurship

Sterile Processing and Distribution

Welding

Advanced Certificate Programs

Computer Networking Technology I

Computer Networking Technology II

Machine Tool Technology

Mechanical Design

Numerical Control Programming

Certificate of Completion

Skill Building Program

Public Service Training and Police Academy

The WCC Public Service Training Program provides in-service training courses for employees of public service agencies such as law enforcement, corrections, security, and fire protection. Courses are developed to meet the specific needs of the agencies. They may range from one-day seminars to full-semester programs. Approval by the appropriate professional certification group is sought for all courses offered.

Students who complete Police Academy training receive Law Enforcement Certification. Students who complete Criminal Justice program requirements in addition to the Academy are eligible for an Associate in Applied Science degree in Criminal Justice — Law Enforcement Certification.

Technical Education/ Construction Institute

WCC representatives are available to assist in the development of apprenticeship and other employee training programs. Trade-related instruction can be provided for most apprenticeable trades with a college representative working directly with the employer and employee to meet the requirements. Assistance is also provided, when requested, to coordinate activities with registering agencies such as the Department of Labor—Bureau of Apprenticeship and Training (BAT). The Trade-Related Instruction program is approved by both the Bureau of Apprenticeship and Training and the Michigan State Department of Education.

Current apprenticeship programs include:

Building Maintenance

Dairy Plant Maintenance Mechanic

Die Maker

Die Sinker

Die Tryout/Punch Finisher

Drafting Design

Equipment Repair Mechanics

Gage Design

Industrial Electrician

Industrial Hydraulics/Pneumatics

Industrial Plumber/Pipefitter

Industrial Service

Machine Builder/Repair

Machine Design

Machine Repair/Machinist

Machinist All Around

Mechanical Equipment

Metal Model Maker

Millwright

Mold Maker/Die Cast

Office Machine Repair

Packaging Mechanic

Plaster/Plastic

Powerhouse Repair

Precision Mill Operator/Boring Mill

Product Design

Prototype

Quality Control

Sewing Machine Repair

Sheet Metal Worker

Tool Design

Tool & Die Design

Tool & Die Maker

Tool Maker

Tool Maker/Gage

Tool Maker/Grinder

Tool Maker/Machinist

Welder/Fabricator

Wood Model Maker/Patternmaker

Employees-in-Training (E.I.T.)

Electrical

Inspector, Standard Tools

Instrument Repair/Electrical

Instrument Repair/Mechanical

Machine Operator

Machine Repair

Millwright

Painter/Glazier

Pipefitter

Pyrometer

Welder/Fabricator

Courses are also available for:

Management Personnel

Supervisor Certificate

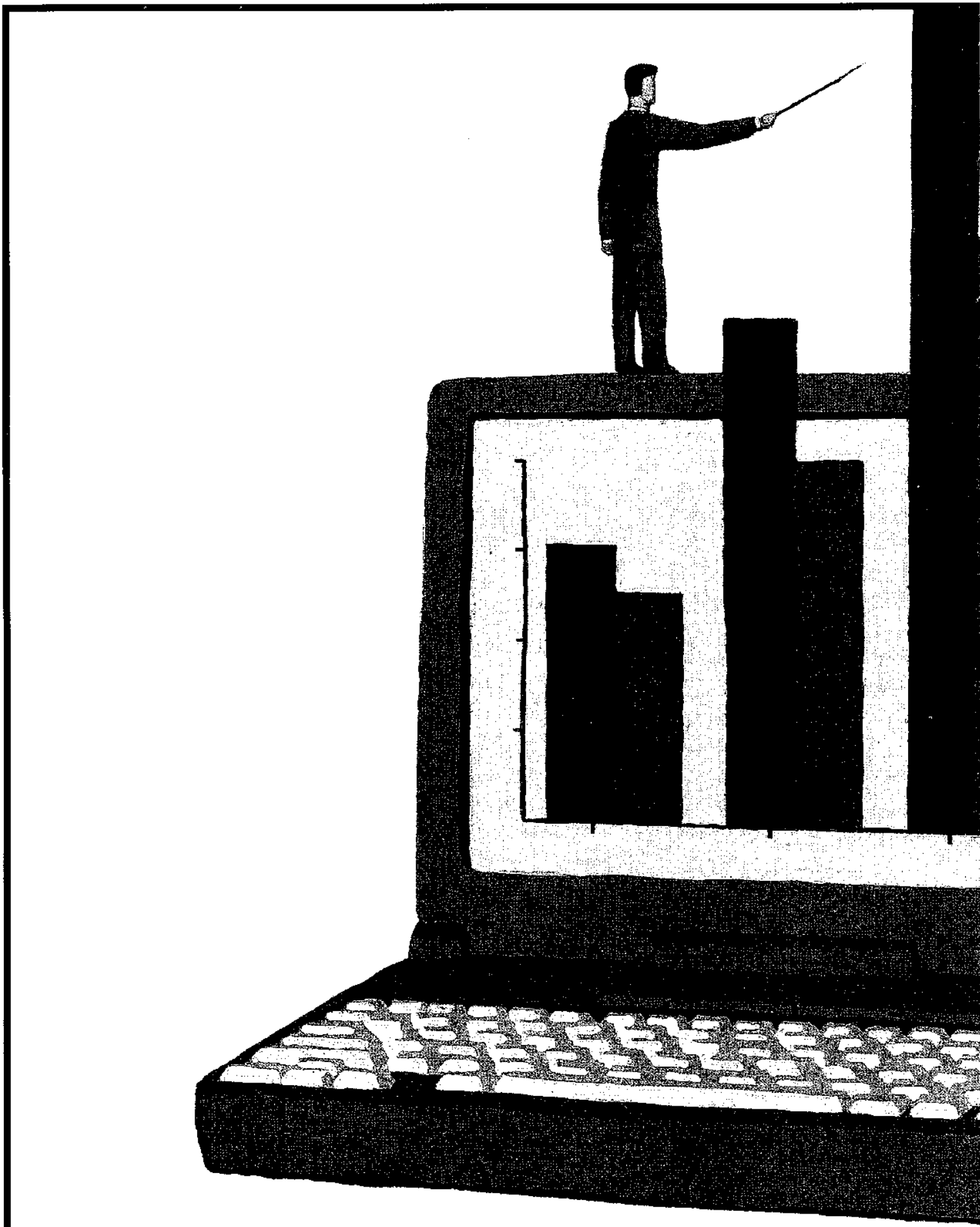
Journeymen

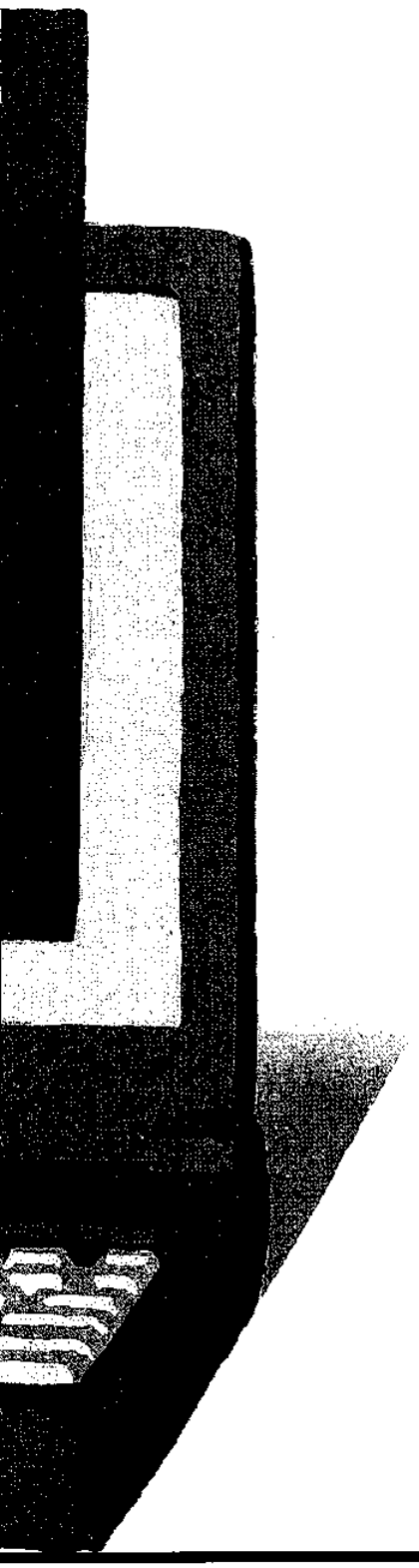
Tradesperson (without Certificate)

Trainees and Journeyman Upgraders

Pre-Apprentices

Other employees seeking advancement





Admissions

Admission

WCC is open to all individuals who can benefit from its educational and service programs. These focus on the individual's growth and development toward academic, career, and personal goals. The college seeks to create an admission process which assists applicants in learning about WCC programs as they relate to the individual's academic, career, and personal goals, thereby facilitating the best match of student and program.

General Admission Policy

WCC serves a wide and diverse population through its "open-door" admission policy. Any person who has graduated from high school, passed the GED examination, or is 18 years of age or older, and can benefit from the college's programs may be admitted. All new students are required to complete an assessment and, depending on the results, may be required to take preparatory courses while they are taking courses in the regular curriculum. Under certain conditions, students may qualify for an exemption from the assessment (these exemptions are described on page 13). This policy has been developed in accordance with Federal Ability-to-Benefit Regulations, which require that the college demonstrate that each student it admits has the ability to benefit from their chosen educational program. Students under 18 years of age may be admitted with the written recommendation of their high school principal or counselor and the approval of a parent or guardian unless they possess emancipated legal status, giving them full adult legal rights and responsibilities.

Admission to the college does not guarantee admission to programs which have specific program entry requirements.

Students should not regard enrollment out of reach because of financial need. It is the policy of the college to assist with meeting college expenses to the fullest possible extent consistent with federal, state, and college financial assistance regulations.

Programs with Admission Criteria

Some Washtenaw Community College programs have prerequisite coursework that must be completed prior to program enrollment. Prerequisites are determined by faculty and outside accrediting agencies based on program curriculum. In most instances, these programs require a second admission process. WCC's Office of Admissions is responsible for informing, monitoring, and processing students who are interested in enrolling in these programs.

Admission to High-Demand Programs

When a program is identified by the administration as a high-demand program (more applicants than openings for an entering class), a staff committee will be formed by the vice president for instruction and student services to select members of the class based on published criteria, including completion of prerequisites and readiness for program success. All potential students, regardless of residency, may apply to the college. Admission to WCC does not guarantee admission to high-demand programs. These may include programs leading to certification or licensure, as well as other WCC certificate and degree programs. In cases where enrollment in a particular program is in high demand, the following additional priorities will apply to those meeting individual program entry requirements:

Priority 1: Legal residents of the Washtenaw Community College district.

Priority 2: Legal residents of counties adjacent to the college district.

Priority 3: Legal residents of all other counties in the State of Michigan.

Priority 4: Persons whose legal residence is outside the State of Michigan, but within the United States.

Priority 5: Persons whose official residence is a foreign country.

Admission Procedures

New Students

All new students are required to complete an admission application and pay the one-time, nonrefundable application fee. New students, regardless of experience or educational background, are urged to meet with a counselor or advisor to learn about opportunities the college offers. Individual assessment in English, Math and Reading is required for appropriate program planning and course selection.

Re-admission of Former Students

Former students who have not registered for classes at the college for two full years must reactivate their files at the Office of Student Records by completing an updated application form. Former students of WCC who have paid the application fee previously, will not be assessed another fee. Students reactivating their files are encouraged to see a counselor or advisor prior to registering for classes. Individual assessment also may be recommended.

Dual Enrollment of High School Students

High school students may enroll in classes for college credit or for units to be counted toward the high school diploma for a maximum of six credit hours per semester. Application for admission must be supported by the signature of the high school principal or counselor as well as the signature of a parent or legal guardian. Students under 18 years of age who have emancipated legal status do not need the signature of a parent.

Guest Students From Other Colleges

Students enrolled at other colleges and universities may attend WCC as guest students. This status is secured through completion of a Michigan Uniform Undergraduate Guest Application and payment of the application fee. This application can be obtained from the home institution and should be sent to the WCC Office of Admissions. A new guest application must be submitted each semester.

Transfer Students
Students transferring from other colleges follow the same procedure as new students. Those wishing to transfer credit from an accredited college or university may do so by requesting that an official transcript be sent to the Office of Student Records for evaluation. The coursework may be evaluated, at the student's request, after the student has completed at least one credit at WCC. At the time coursework is evaluated, the student is notified of the transfer credit that will be accepted toward program requirements at WCC.

International Students (F-1 visa only)
International F-1 visa students may be admitted to Washtenaw Community College. Admission will be based on meeting the following requirements:

1. A completed WCC application for admission and a $15 check or money order made payable to Washtenaw Community College to cover the **nonrefundable** application fee.

2. An original bank statement reflecting the student's ability to meet all tuition, fees, and living expenses while attending WCC. To find out the required amount in U.S. dollars, contact the international student admissions representative either by phone (734-973-3315) or by e-mail (f1@wccnet.org).

3. A notarized letter from the financial supporter must also be sent with the original bank statement, stating the money in the bank will be used for the student's tuition, books, living expenses, medical expenses, and all other expenses incurred by the student while studying at Washtenaw Community College. This letter must state the name of the person providing the support for the student, the relationship of the sponsor to the student, and the student's full legal name as it appears on the student's passport.

4. Original certified transcripts, in English, of all previous secondary and post-secondary schools attended by the student.

5. Proof of English language proficiency:
   A. For direct admission into college level courses: *a minimum* score of 500 on the paper Test of English as a Foreign Language (TOEFL), OR 173 on the computer Test of English as a Foreign Language (TOEFL), OR 75% or better on the Michigan English Language Assessment Battery)MELAB. Original test scores must be sent to WCC by the testing agency. (NOTE: WCC's TOEFL Identification Number is 1935.)

   B. For admission to the **English as a Second Language (ESL) classes**, (Fall and winter semesters only!): a *minimum* score of 415 on the paper Test of English as a Foreigh Language (TOEFL), OR 105 on the computer Test of English as a Foreign Language TOEFL, OR 58% or better on the Michigan English Language Assessment Battery (MELAB).

6. After arrival and before registering for classes, the student must purchase medical insurance with a repatriation clause. Failure to do so, or cancellation of the policy, will result in the student not being able to register for future semesters at WCC.

7. Upon arrival, the student must schedule an interview with the international student admissions representative.

8. Upon arrival, the student must verify visa status, provide a copy of the I-94 card from the student's passport, and provide a copy of the applicant information from the inside of the passport.

9. A WCC orientation and assessment will be scheduled after arrival and prior to class registration.

For answers to specific questions about enrollment, contact the international student admissions representative either by phone at (734) 973-3315 or by e-mail (f1@wccnet.org).

Students on an F-1 visa must enroll full-time (at least 12 credit hours per semester) at WCC.

In order to be eligible for re-enrollment in the following semester, the student must earn a passing grade of A, B, C, D, or S in 12 credit hours.

International Students (all visa classifications except F-1)
International students range from permanent resident aliens to a visitor on any visa from an A visa to an R visa, including refugees and people with asylum. Certain restrictions may apply depending on which status you may hold in the United States.

Permanent resident aliens (green-card holders) who wish to attend WCC are unrestricted in the number of credit hours for which they may register. Admission procedures for permanent resident aliens are as follows:

Submit a completed application with a copy of your green card (front and back), and also include a copy of your drivers' license or State of Michigan Identification.

International students who possess refugee status or political asylum in the United States who wish to attend WCC are unrestricted in the number of credit hours for which they may register. Admission procedures for refugees and political asylum are as follows:

Submit a completed application for admission with a copy of your passport (if applicable), appropriate documentation showing your status, and a driver's license or state identification to show where you currently reside.

Admission requirements for visa holders are as follows:

Submit a completed application for admission with a copy of your passport, I-94 card, and a copy of the visa that you currently hold.

There are two orientation programs offered for new international students:

1. International students who have taken the TOEFL and scored a minimum of 500, or have taken the MELAB and scored 75 percent or more, must be scheduled for an orientation which includes an ASSET/COMPASS assessment that must be completed before registering for classes.

2. International students other than F-1 visa holders who have not taken the TOEFL or MELAB test, or who have taken the test and scored below the minimum, must schedule an appointment for the International Student Orientation that consists of the English Placement Test before registering for classes.

Emeritus Students
Individuals who are 65 years of age or older prior to the semester of enrollment and who reside within Washtenaw County may participate in the educational and cultural programs without tuition costs. However, these students must follow the general admission criteria of the college and pay the registration fee each semester.

Health Occupation Students — Special Admission Requirements
Applicants to the health occupations (e.g. Nursing, Dental Assisting, Pharmacy Technology, Radiography, Respiratory Therapy, and Surgical Technology) must meet specific admission requirements. Generally these are:

1. Compliance with the published application deadline for each program.

2. Graduation from high school or completion of the GED.

3. Completion of specific high school and/or college-level courses required for acceptance. Courses must be completed with a grade of "C" or better.

4. Qualification on certain diagnostic reading, comprehensive and/or computational tests as required for each program.

5. Completion of the program-specific application materials.

6. Submission of a high school transcript and college transcripts with the WCC application.

7. Any other program-specific admission requirements.

Residency

Aspects of Residency

1. Students are required to provide verification of legal residency by submitting photocopies of one of the following documents to the Office of Admissions with their application: voter registration card, Secretary of State personal identification card, valid driver's license, valid vehicle registration, residencial property tax receipt, or valid and current lease agreement.

2. The residency of minors (under 18) shall follow that of their parents or legal guardian. Exception: Students under 18 may qualify as in-district residents regardless of their parents' residence if they can provide sufficient evidence that they are independently supporting themselves and reside in the Washtenaw Community College district.

3. The residency of any person, other than a parent or legal guardian, who may furnish funds for payment of college fees, shall in no way affect the residency of the student.

4. Students who are not residents of the district and are currently employed full-time by an in-district company may pay in-district tuition rates at the time of registration by providing appropriate documentation of their employment from their company at the beginning of each semester before the eighth day of the semester. Such documentation should substantiate that the student is currently employed full-time and has been employed full-time for at least 30 days prior to the semester of enrollment. Spouse and dependents do not qualify for in-district rates. If such students attend the college without documentation from their company or industry, tuition rates are determined by their legal residency status.

5. Those students who are transferred to the county by the military must present appropriate documentation to qualify for immediate in-district residency.

6. Veterans whose induction address was within the college district who return to the college within six months after discharge will be classified as in-district students.

7. The student may petition the Office of Student Records to officially change residency status by supplying proof of residency within the cCollege district for 30 days for out-district students (or six months for out-state students). Any residency change after the eighth day of the semester will be effective the next semester in attendance.

Residency Classifications

In-District Students:

- Independent applicants who have resided in the WCC district for 30 days immediately prior to the semester of enrollment if previous residency was within Michigan.

- Applicants who live with a spouse who has resided in the WCC district for 30 days immediately prior to the semester of enrollment if previous residency was within Michigan.

- Applicants who live with and are a dependent of the parent or/ legal guardian who has resided in the WCC district for a minimum of 30 days immediately prior to the semester of enrollment if previous residency was within Michigan.

- Applicants who have resided in the WCC district for six months immediately prior to the semester of enrollment if previous residency was outside of Michigan.

Out-District Students are applicants who do not meet the requirements of an in-district student, but who have been legal residents of the State of Michigan for at least six months.

Out-State Students are applicants who do not meet the requirements for an in-district or an out-district student and are U.S. citizens or have permanent resident status through the Immigration and Naturalization Service (INS).

Out-of-Country Students are applicants who are on a visa or whose permanent address is out of the country. Students on visas pay out-state/country tuition except those who may qualify for in-district tuition through their employers. In this case, the student must have full-time employment in the WCC district (see #4 under *Aspects of Residency* above).

Required Student Orientation and Program Planning
Orientation/assessment sessions, scheduled prior to each semester, are required for new students. During these sessions, students complete an entry assessment which measures their English, math, and reading skills. Counselors and advisors then assist students in selecting and scheduling courses. Orientation sessions are scheduled at a variety of times to accommodate the busy schedules of prospective students.

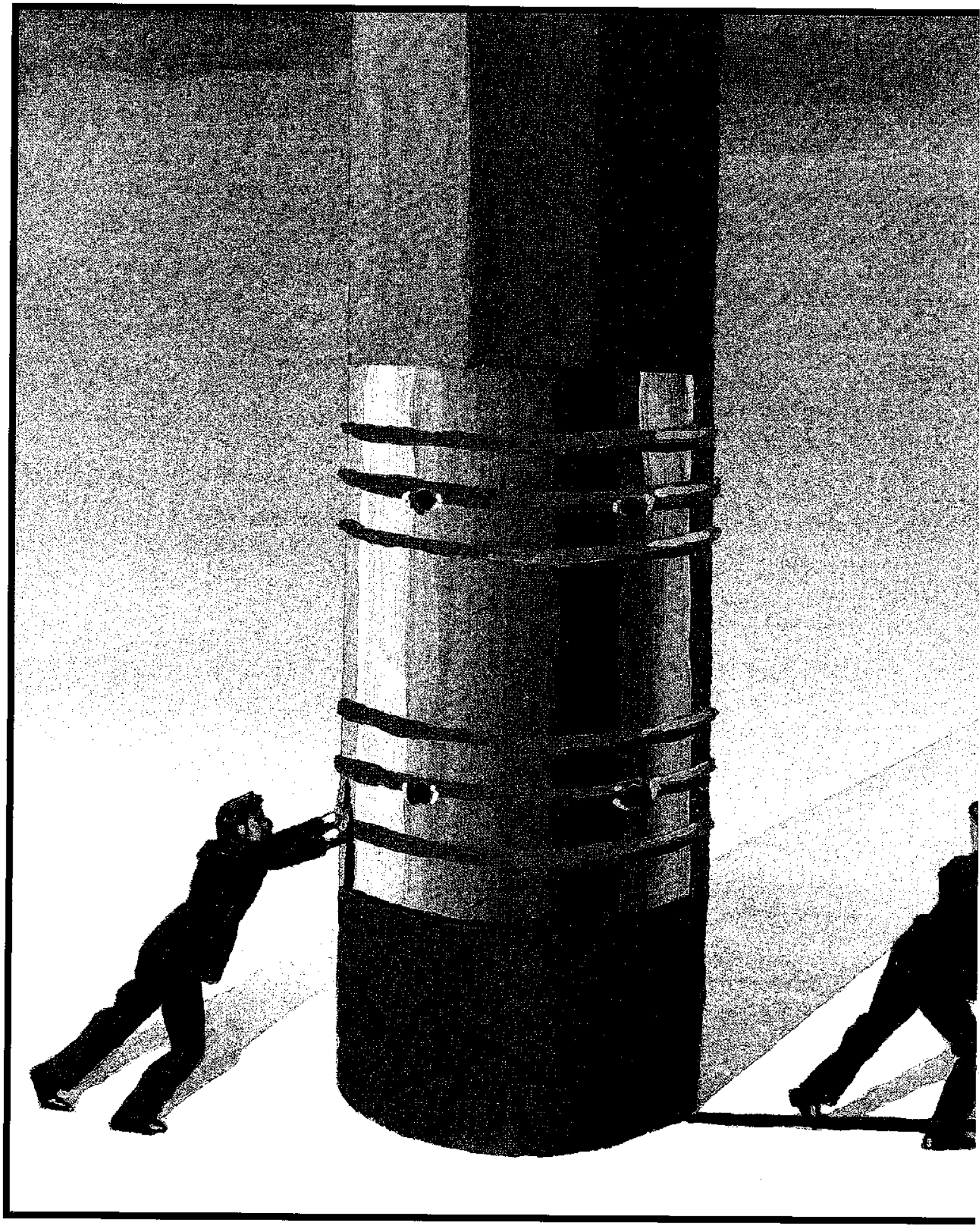
Exemptions from orientation are granted under the following circumstances only:

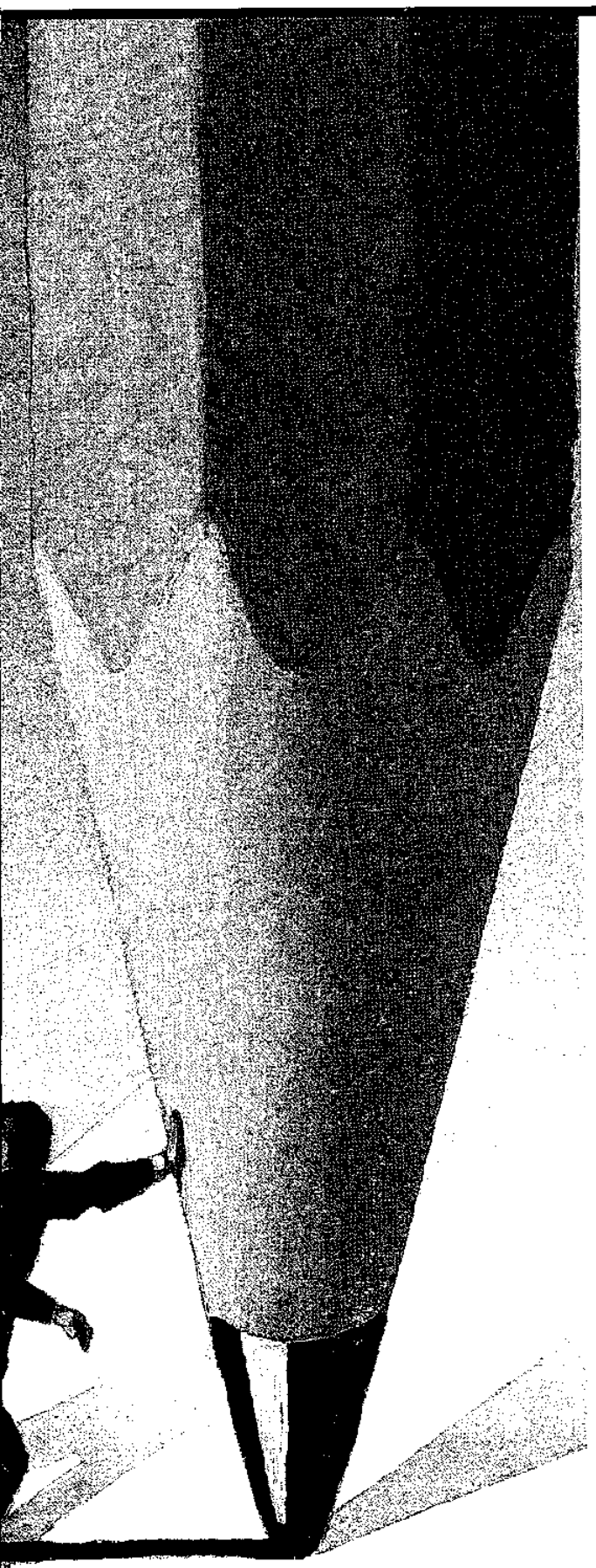
- Student has verified completion of a degree (an associate's degree or higher) from an English-speaking college or university (60 semester credits that are fully applicable toward a bachelor's degree will qualify).
- Student has both verified graduation from an English-speaking high school or achieved a GED and documented the completion of 20 or more semester credit hours (30 or more quarter hours) of college academic course work with a cumulative GPA of at least 2.0 (C) .
- Student has completed the entry assessment at a prior orientation and can produce a copy of the results.
- Student is enrolling only in non-credit courses or is auditing courses.
- Student has completed a guest student application approved by college personnel at their home institution, and verified graduation from an English-speaking high school or achievement of a GED, and is in good standing with and eligible to return to the home institution.
- Student is enrolling only in a distance learning course and has met the prerequisites for taking distance learning courses and any specific prerequisites for the given course.

NOTE: Some occupational programs have an additional screening process.

NOTE: Physically handicapped students who need readers or writers to help them take the ASSET/COMPASS assessment should contact Learning Support Services for assistance (734-973-3342).

NOTE: International students who have not already taken and passed the TOEFL or MELAB test may be required to attend a special International Student Orientation, which includes an English placement test, instead of or prior to attending the College Orientation. This option is not available for F-1 student visa holders.





Student Records

Student Records

Registration

Each semester the college publishes a class schedule which includes detailed information on the courses available, registration procedures and dates, add/drop periods, and the refund schedule. Students are expected to pay all tuition and fees before attending class.

No person is allowed to attend a class unless he/she has registered and paid for that class. Students are withheld from registering if they have failed to meet their financial responsibilities to the college or in certain situations as a result of disciplinary action. Any student registration restriction ("hold") must be cleared with the office issuing it before registration may be completed. Students having difficulty meeting their financial obligations should contact the Office of Financial Aid.

All students are encouraged to see a counselor or faculty advisor before registering for classes. Students registering for 18 or more credits must have the signature of a counselor or faculty advisor. Students on an academic (Grade Point Average hold and/or Ability to Benefit hold) or foreign student (ESL) hold must have their schedule approved by a counselor or advisor before registering for courses.

Adding and Dropping Courses

During the official add/drop period, a student may add or drop a class or change a section without an instructor's approval. An added course is accepted on a space-available basis during the official drop and add period. After the official add/drop period, students must have an instructor's signature for adding classes or changing sections. Students may not add a course after the add deadline specified in the semester class schedule. Students are encouraged to discuss changes, drops and adds with their instructors or counselors. Students should retain copies of any transactions until final grades or refunds are received.

Students are responsible for paying all appropriate tuition and fees for added courses. Students adding courses must present a copy of their class schedule to the instructor as evidence of registration.

Students are responsible for officially dropping courses they are no longer attending. If the drop occurs after the refund deadline for the course, the student is responsible for paying full tuition for the course. Courses dropped after the refund deadline will be listed on the student's transcript with a grade of "W". Students may drop from courses without instructor approval during the first forty percent of the course - approximately six weeks for a fifteen week course. After this deadline, students must consult with their instructor, indicated by the istructor's signature on the drop card, before submitting the card to the Office of Student Records. Drop cards for a semester must be submitted to the Office of Student Records before the deadline published in the schedule of courses for that semester. After the deadline, students must petition for instructor approval to withdraw from the course.

Changing Sections

Students changing from one section to another of the same course must complete the process in the Office of Student Records. Students are added on a space available basis and instructor approval is required after the add/drop period.

Repeating a Course

Whenever a course is repeated on a credit basis, the last grade and credits earned replace the previous grade and credits earned in computing the grade-point average. However, all entries remain a part of the permanent academic record.

Auditing a Course

Students who wish to audit a course must register and pay for that course following the established registration procedures. Students do not receive credit for the course; however, the course is included on the transcript with an "AU." Students may change from credit to audit status or vice versa through the first quarter of a course (four weeks for a 15-week course).

Withdrawing from College

Students who withdraw from the college during the semester must initiate the withdrawal procedure in Office of Student Records.

In case of official voluntary withdrawal from the college, "W" grades are assigned to all courses if the withdrawal occurs after the 100 percent refund deadline. Semester tuition and fees are subject to the refund policy shown in the Financial Information section of this catalog.

Students who leave the college without obtaining an official withdrawal may be reported as having failed all courses. The withdrawal procedure does not take place automatically for students who leave the campus due to personal or family illness but must be initiated by writing the Office of Student Records. Students who leave the college without withdrawing properly or who withdraw after the refund period forfeit any tuition or deposits paid to the college and are liable for any deferred tuition payments.

Transcripts/Final Grades

A permanent record of all courses, credits and grades earned by each student is kept in the Office of Student Records. Copies of transcripts are available to students upon their written request. Associate degrees and/or college certificates earned at WCC are posted on transcripts. At the end of each semester final grades are issued to all students enrolled for that semester. Final grade reports are mailed to a student's mailing address unless the student has a financial obligation to the college.

Veteran Certification

All veterans receiving educational benefits must see the Veteran Services Technician before registering. Any drops or changes made by veteran students are to be reported to the Veteran Services Technician in the Office of Student Records immediately. Failure to do so may result in the delay of educational benefits.

New Students

Veterans and other eligible dependents receiving educational benefits under Chapters 30, 32, 34, 35 and 106, Title 38 U.S.C. who have never used their V.A. educational benefits and would like to make application for benefits should report to the Veteran Services Technician in the Office of Student Records prior to registering for classes. Students should bring certified copies of their DD-214, marriage license, and birth certificates of dependent children, if applicable. Students who have prior educational training must provide official transcripts with their application for benefits.

Transfer Students

Students who have previously received V.A. educational benefits at another school must complete V.A. Form 1995 (Change of Place of Training) and submit it to the Veteran Services Technician in the Student Records Office. The DD-214 and transcripts from colleges or universities where the student has completed previous training must accompany the application.

Previously Enrolled Veterans

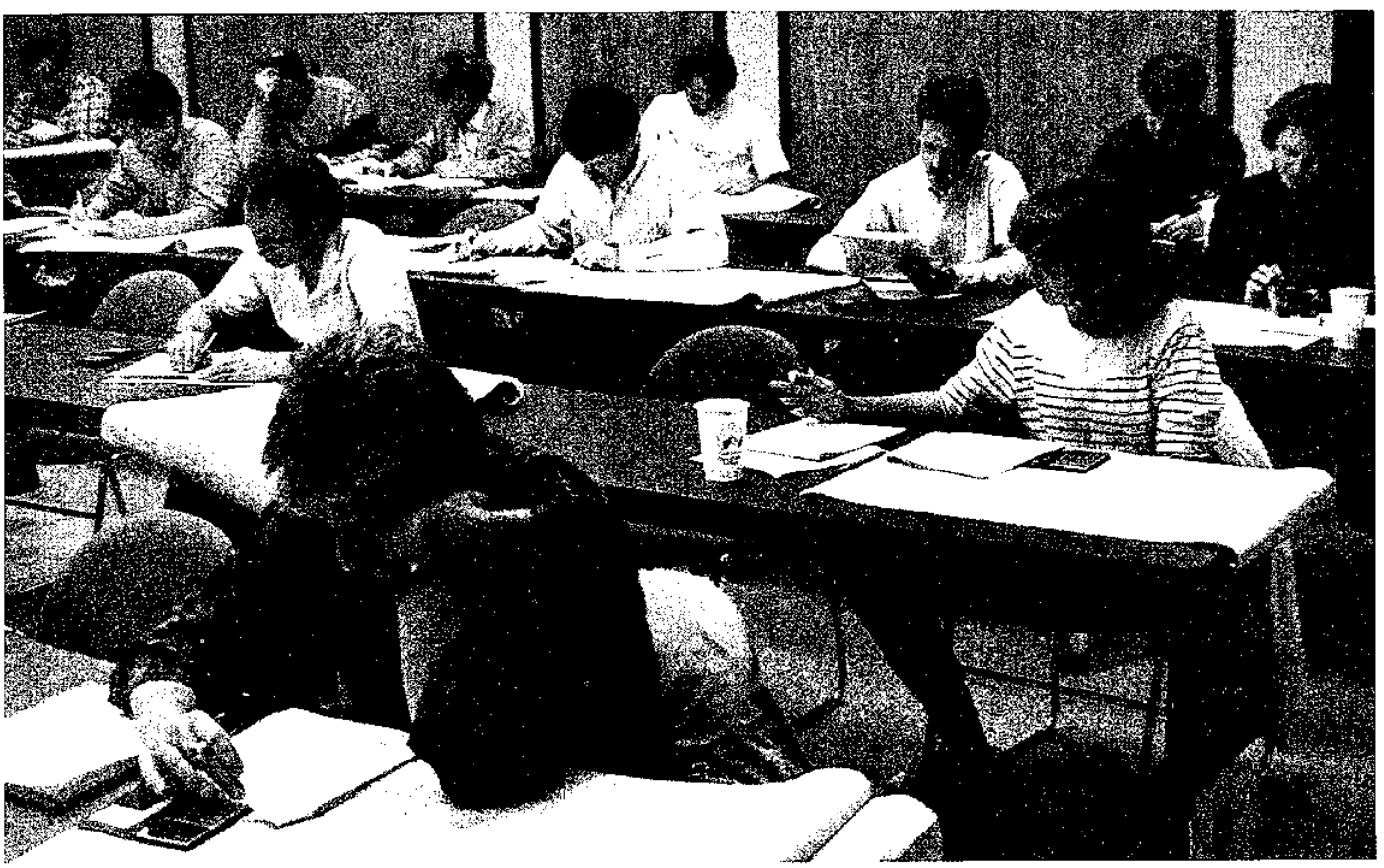
All previously enrolled veterans should report to the Veteran Services Technician prior to registering to ensure proper credit. Students must turn in a completed certification form after registering for classes every semester to ensure the continuance of their benefits.

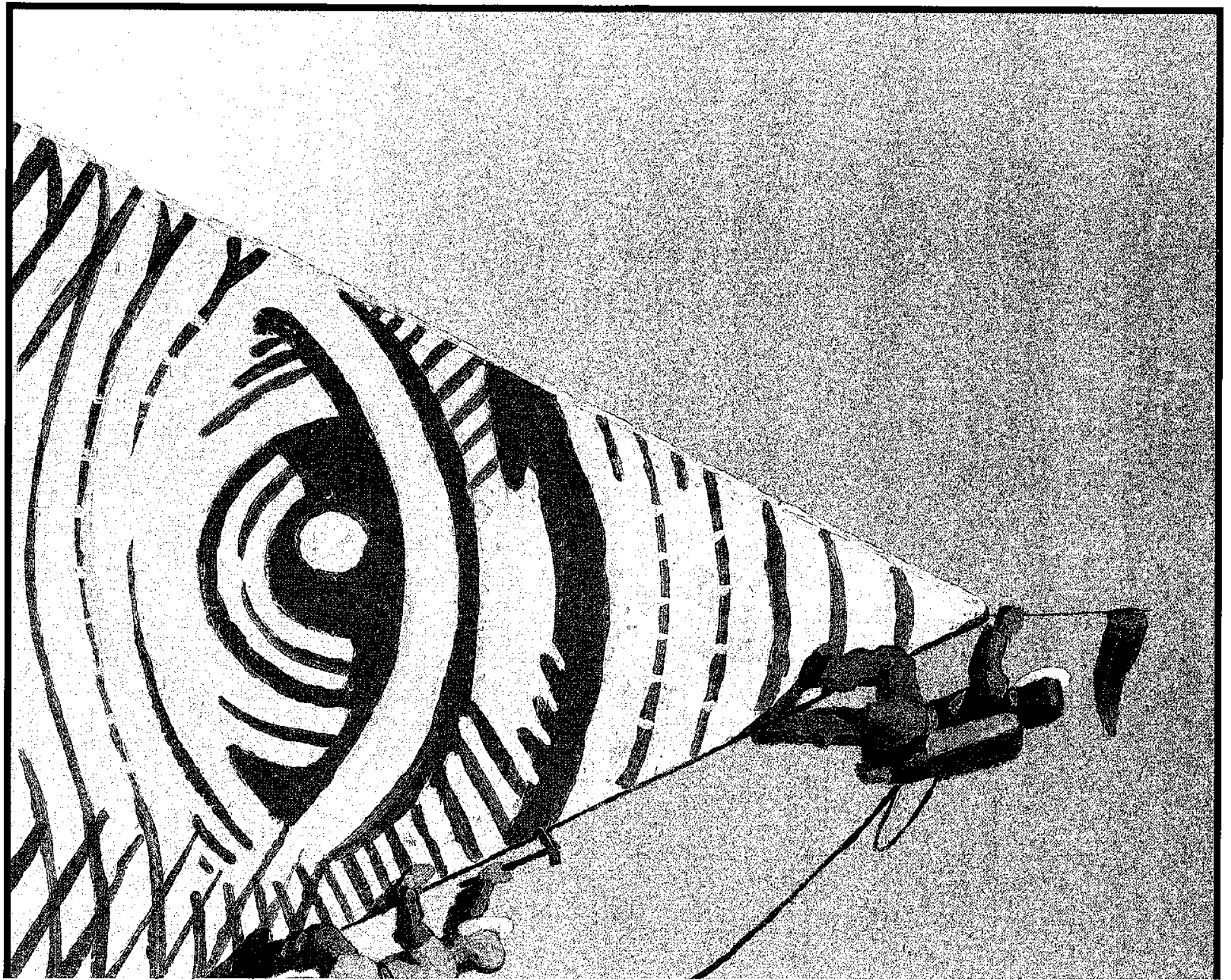
Credit for Formal Service School Experience

Credit is granted for formal service school training as recommended by the American Council on Education, through its Commission on Accreditation of Service School Experiences. For complete information contact the Veteran Services Technician in the Office of Student Records.

Standards for Receiving Educational Benefits

In compliance with the Department of Veteran Benefits, Circular 22-80-38, the college has developed standards of progress. Each veteran student must conform to these standards to be eligible for V.A. Educational Benefit Certification. Each veteran student must read, sign, and return the original copy of these standards to the Veteran Services Technician at each enrollment.





Financial Information

Financial Information

Tuition*

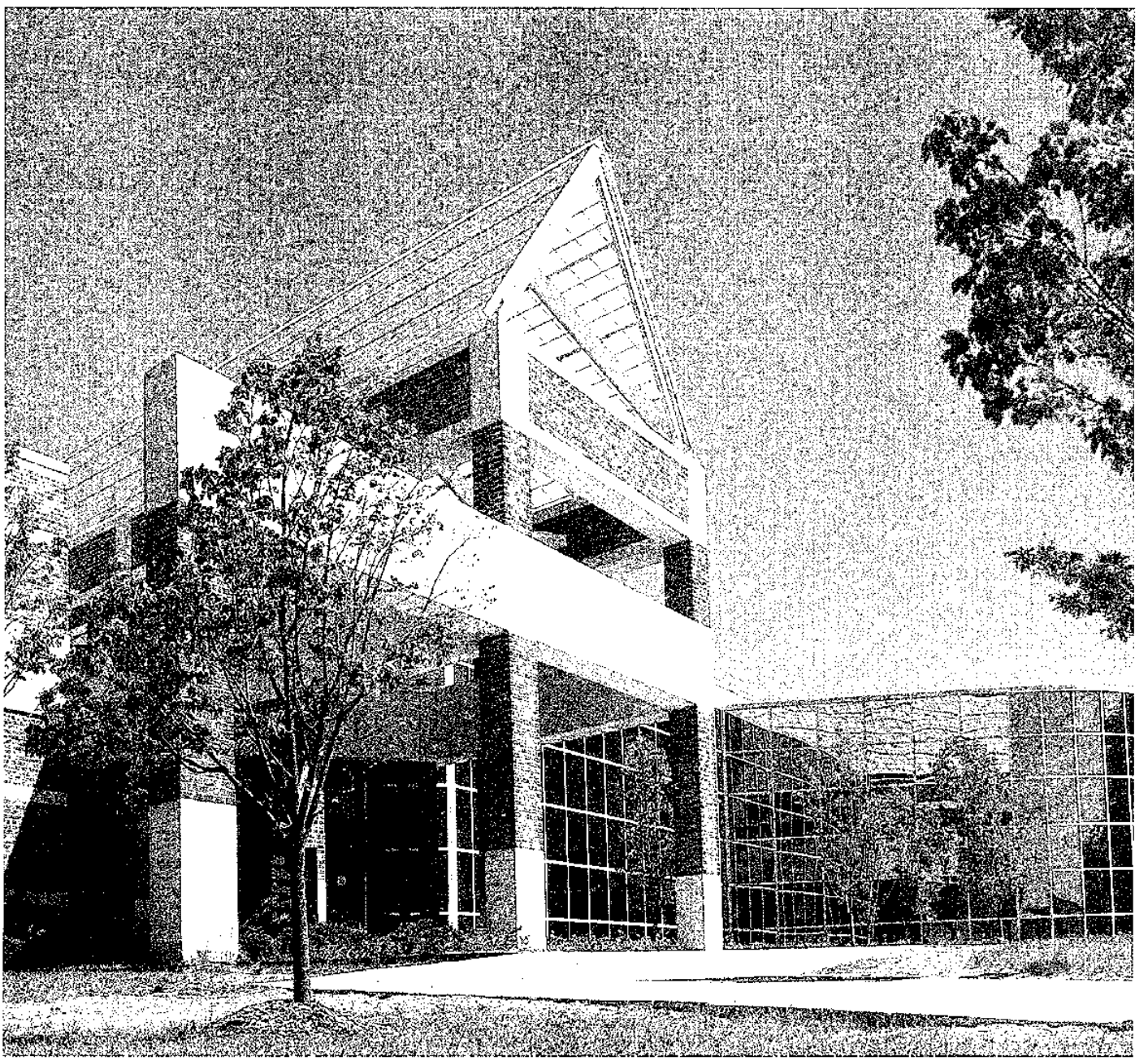
Residents of the College District	$ 52.00	per credit hour
Non-Resident/In-State	$ 77.00	per credit hour
Non-Resident/Out-State	$ 98.00	per credit hour

Fees*

Application Fee (one-time only)	$ 15.00
Registration Fee (each semester)	$ 23.00
Late Registration Fee	$ 22.00
Instructional Technology Fee (per credit hour)	$ 4.00
Credit by Exam Fee (per credit hour)	$10.00
Deferred Tuition Loan Fee (processing fee)	$25.00
Books and Supplies	**

** The college reserves the right to change tuition and fees without advance notice.*

*** Students may be required to purchase certain supplies and materials. These are available at the bookstore on the first floor of the college's Student Center Building. Books and supplies average $125 per semester for full-time students, but may be as high as $300 or more depending on course selections.*



Refunds

Refunds are only processed after a student has officially dropped a course(s). If a course is officially dropped, a student is eligible for a refund of tuition as follows:

1. The refund deadline for courses scheduled for parts-of-term of two or more weeks will be one calendar day for each week the course is scheduled to meet, e.g., fifteen days for fifteen week courses, ten days for ten week courses, etc.

2. The refund deadline for courses scheduled to meet in parts-of-term of less than two weeks in length will be before the first class meeting.

3. If the refund deadline falls on a non-business day of the college, the refund deadline will be set as the next official business day.

4. The refund deadline does not apply to course section changes or to instructor approved course level changes processed within a part-of-term.

5. Students dropping and adding courses after the official refund deadline are not eligible for a refund and must pay the tuition for the added classes.

6. A full refund of tuition may be administratively granted upon official withdrawal of the student for the following extenuating circumstances during the first two thirds part-of-term/semester:

   a. Induction of a student into the U.S. or foreign Armed Services

   b. Death of a spouse, child, parent, or legal guardian of a student.

   c. Death of a student.

   d. Verifiable error on the part of the college.

   e. Verifiable incapacity, illness, or injury which prevents the student from returning to school for at least four (4) weeks of the semester.

No refund is made if withdrawal occurs after two-thirds of the part-of-term has transpired, regardless of circumstances.

7. All application/registration fees pare non-refundable.

Financial Aid

WCC provides financial assistance to students in the form of scholarships, work-study employment, and loans. Several programs also have been developed to provide financial support to honors students and are awarded on the basis of student achievement or merit. For additional information about specific program requirements, contact the Office of Financial Aid, second floor, Student Center Building or call (734) 973-3523.

Types

There are four major types of aid available:

- *Scholarships* awarded on the basis of achievement and do not need to be repaid.

- *Grants* awarded on the basis of need and do not need to be repaid.

- *Employment* requires work for paid wages. Includes the need based College Work Study Program. Student employment opportunities exist in many offices and areas on campus.

- *Loans* awarded on the basis of need and must be repaid once students leave college or do not continue in college on at least a half-time basis.

Sources of financial aid include Washtenaw Community College, the WCC Foundation, the State of Michigan, and the United States federal government.

By federal regulation (ability to benefit), new and re-admit students who have not graduated from high school or earned a GED must achieve minimal passing scores on the ASSET/COMPASS assessment (administered during new student orientation) in order to be awarded federal (Title IV) financial aid.

Assessment of Need

Once students' financial aid files are complete, the Financial Aid Office reviews the information in light of individual circumstances. After determining the "expected family contribution," the staff then subtracts that amount from the "cost to attend Washtenaw Community College." The difference is the student's financial aid need.

Application

Because the financial aid process can take several months to complete, the earlier you begin, the more likely it is that your application will be approved in time for registration. Obtain the following forms from the Office of Financial Aid as early as possible:

1. The Free Application for Federal Student Aid (FAFSA) must be completed and mailed in the envelope provided. When you receive your Student Aid Report from the processing center, bring it to the Office of Financial Aid for evaluation of your financial aid eligibility.

2. If you have attended other colleges and are transferring to WCC at mid-year, a financial aid transcript may be required. Contact the Office of Financial Aid, (734) 973-3523, for details.

3. Additional documentation of student and/or family resources may be required for evaluation of your application. Such documentation may include federal income tax returns.

After the federal processing center evaluates your financial status and sends the information electronically to the college, the Office of Financial Aid will review the information and notify

you in writing of your eligibility for aid. Awards are made in June and July prior to the beginning of the fall semester. Stuedents who wish maximum comsideration for financial aid should have all applications in the Office of Financial Aid by the following dates:

Fall Semester.....June 1

Winter Semester.....November 1

Spring-Summer Semester .....February 1

Applications received after the above deadline dates are processed only as funding allows.

Academic Progress Criteria for Financial Aid

The academic progress criteria of the Office of Financial Aid requires that all students receiving aid maintain at least a 2.0 grade point average and complete 75 percent of their semester credits. Students failing to meet this minimum requirement are placed on probation and allowed one additional semester to meet this requirement. Students who do not complete 75 percent of their courses with a 2.0 GPA again are terminated from financial aid. Students who have had financial aid terminated may still continue to register and attend classes using their own funds for payment. Students may re-apply for financial aid when their grades improve.

Academic Progress Policy for William D. Ford Federal Direct Stafford Loan recipients:

In order to continue to receive Stafford loans students:

1. Must have a cumulative grade point average of 2.00 and,
2. Must have maintained satisfactory academic progress at WCC and not be on financial aid probation and,
3. Must have completed the two terms prior to the beginning of the loan period with a minimum of 2.00 G.P.A. for each term and,
4. Must have completed at least 75 percent of the courses taken in the two terms mentioned in item three.

Financial Aid Refund Policy

Students who receive any Title IV funding as a first time student are entitled to a pro-rate refund if they withdraw prior to completing 60 percent of the semester. By federal regulations, pro-rata refunds must be returned in the following order:

1. Federal SLS Loan
2. Unsubsidized Federal Stafford Loan
3. Subsidized Federal Stafford Loan
4. Federal Plus Loan
5. Federal Direct Stafford Loan
6. Federal Direct Loan
7. Federal Perkins Loan
8. Federal Pell Grant
9. Federal SEOG
10. Other Title IV funds
11. Other federal sources
12. State, private, or College aid
13. Student

For students receiving aid for additional semesters, refunds will be issued according to the refund policy established by North Central Accreditation Agency and Washtenaw Community College.

Distribution

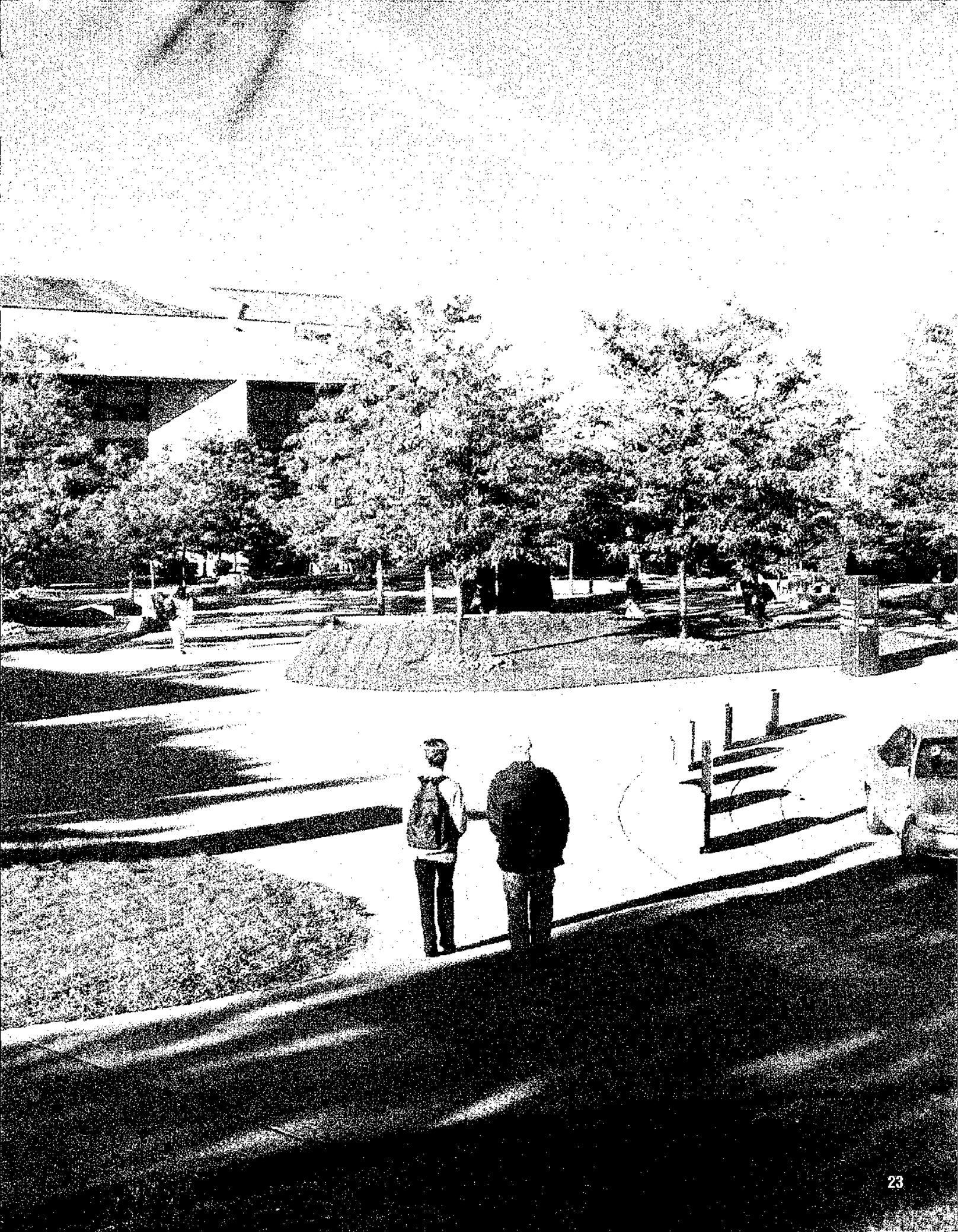
Most students who have been awarded and approved for financial aid prior to the start of a semester have their tuition paid at the time they register and receive a check for books on the first day of class. The book check is for the remainder of their financial aid. Students who are approved after the start of a semester have their account credited and receive a check for the balance of their award within two weeks. The following funds are disbursed in this manner:

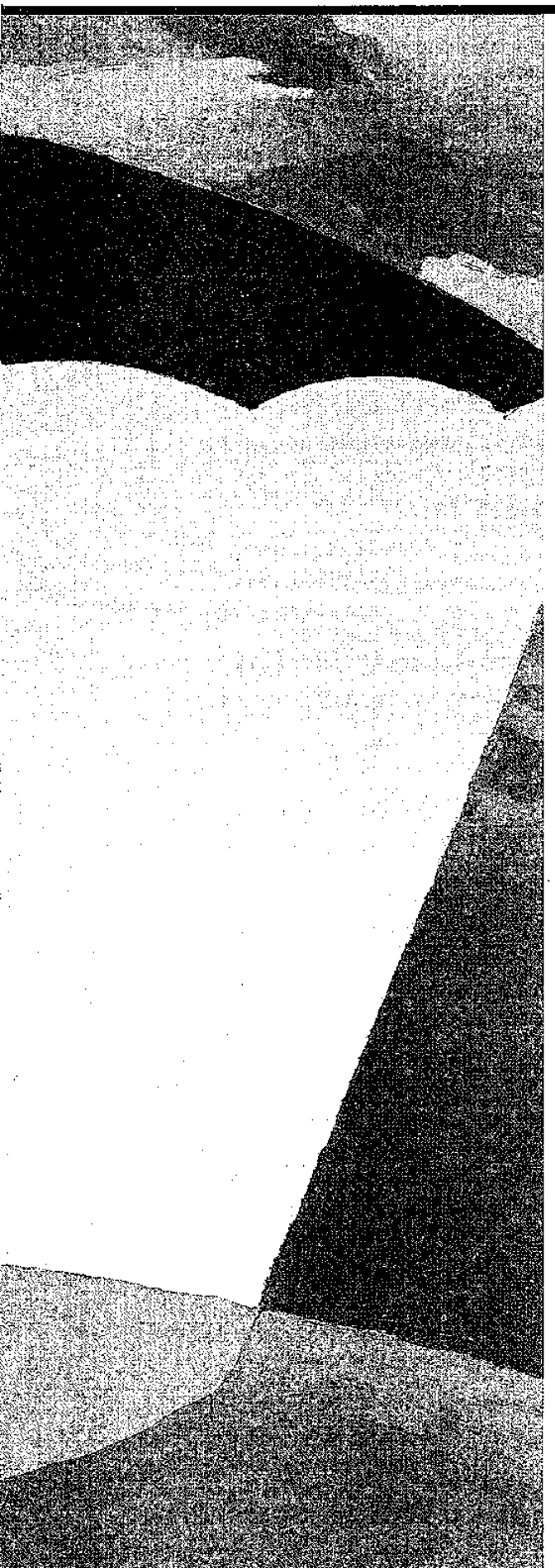
1. Federal Direct Stafford Loan
2. Federal Direct Unsubsidized Stafford Loan
3. Federal Plus Loan
4. Federal Pell Grant
5. Federal SEOG Grant
6. Scholarships
7. Student

Stafford Loans and PLUS Loans are distributed to students as they are received from the lending institution. Students will be notified when funds have been applied to their account and when they can pick up their balance.

Student Employment on Campus

In addition to the various student financial aid programs previously mentioned, there are a variety of campus employment opportunities for students who would like to gain meaningful work experience while receiving a competitive wage rate. These opportunities can be realized through the College Work Study program and other employment available to students on campus. Contact the Office of Financial Aid for further details.





Student Support

Student Support Services

Alumni Association

The college stays in contact with former students through the Alumni Association. All former students are eligible to join. The office is located in SC 207; the phone number is (734) 973-3492.

Bookstore

Book Ends, the WCC bookstore is located on the lower level of the Student Center Building and is open during the following hours during the Fall and Winter semesters:

M-Th.....8:30 a.m. – 6:30 p.m.
F.....8:30 a.m. – 3:00 p.m.
S.....9:30 a.m. – 1:00 p.m.

Hours during the Spring/Summer semester vary.

Bookrush Hours

During registration and the start of each semester, the bookstore has extended evening and weekend hours which are posted at the bookstore and campus information.

Book Buyback

Students can sell back books any time during the semester.

Shopping at the Bookstore

Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. Also available are WCC insignia clothing and gifts, computer software (at education prices), postage stamps, and AATA bus tokens. Special orders are welcome. The WCC Bookstore accepts Visa, Mastercard, Discover, American Express, and personal checks with proper identification.

Receipts must accompany returned merchandise; policies regarding returns are posted in the bookstore.

Children's Center/Day Care Facility

WCC provides a licensed child care facility in the Family Education Building for children of WCC students, staff, and faculty. The center offers a comprehensive child development program which emphasizes the child's identity and feelings of self-worth. Children are supported in strengthening learning in key areas through active learning, discovery, and problem solving.

The staff is fully trained in early childhood education and development. Additional care is also offered by work study students and foster grandparents. Practicum students in the Child Care Worker program provide additional new experiences for children. Check with the Children's Center for details on age limitations, enrollment, attendance requirements, fees, hours of operation, meals, and other information. Visitors are always welcome; no appointment is needed.

Counseling/Advising

Counseling services are located on the second floor of the Student Center Building. Hours of operation for each semester are posted on the Counseling Center bulletin board.

Academic Advising

Counselors are available to facilitate the development of academic plans. Counselors assist students with planning schedules, meeting program requirements, placement in the appropriate level of courses, and transferring to four-year colleges and universities, as well as referrals to other support services.

Faculty members serving as advisors to students are located in the Counseling Center and other offices; they also can assist you with course selections, program and transfer requirements, and other related information.

Faculty members who are your classroom instructors can provide advice and assistance regarding courses within their field of expertise. They can also assume the role of academic advisor for certain certificate and degree programs. Consult faculty offices for more specific information.

Students intending to transfer to a four-year college or university should contact the Counseling Office or the Placement and Transfer Center located on the second floor of the Student Center Building for information regarding current transfer agreements between WCC and other area institutions (e.g., Eastern Michigan University, Cleary College). Students transferring to four-year institutions within Michigan should contact a WCC counselor regarding WCC's participation in the Michigan Association of Collegiate Registrars and Admission Officers (MACRAO) Agreement.

Career Counseling

Counselors are available to help students make career changes and career decisions. Counselors may suggest career testing and/or use of information in the Placement and Transfer Center.

Personal Counseling

The counseling and social work staff also work with students experiencing personal or emotional problems, or problems associated with drug or alcohol abuse. The staff provides referrals to the appropriate agency or service in the community for specialized assistance as necessary.

Learning Disability Services

The college employs a learning disability specialist who assesses and identifies educational needs, instructs students in learning strategies, and helps all students develop the confidence to reach their potential. Referrals are taken from instructors and staff, outside agencies, self-referrals, and Early Academic Alerts. Cognitive and achievement testing, ADD/ADHD referrals, self-advocacy training, vocational recommendations based on testing, learning strategies, and directing students to appropriate campus services or community agencies are some of the services offered. The office is located on the second floor of the Student Center Building. The phone number is (734) 973-3493.

Learning Support Services

The college provides services to differently abled, economically disadvantaged and limited-English-speaking students. These services include tutors, interpreters for the deaf, readers for the blind, and other assistance to help students successfully com-

plete their programs. In order to provide timely services, requests should be made three (3) weeks in advance. For additional information on eligibility for services, contact Learning Support Services (formerly Special Populations), located on the first floor of the Liberal Arts Building, Room 104. Hours of service are 9 a.m. – 7 p.m.. Monday – Thursday and 9 a.m. – 3 p.m. on Friday. Tutoring is also available on Saturday and Sunday from 10 a.m. – 3 p.m., contingent upon tutor availability Call (734) 973-3342. If you are hearing-impaired, call the TTY number: (734) 973-3635.

Placement and Transfer Center

The college offers comprehensive services to assist students in career advising, career preparation, job placement and transfer at the Placement and Transfer Center located on the second floor of the Student Center Building.

The Counseling, Career Planning, and Placement Department has a career resources library with numerous publications on career related topics, videotapes and handouts. Other resources available for individual student use are the Michigan Occupational Information System (MOIS), and interactive computerized career guidance programs.

The center maintains listings of job openings, including full and part-time jobs, on-campus opportunities, off-campus postings and placement for graduates. Staff work with students and academic departments to identify appropriate job opportunities. Workshops on resumé preparation, interviewing, job search techniques, and other related topics are offered throughout each semester.

Current transfer agreements with other area colleges and universities are maintained in the transfer area, including program transfer guides and course transfer information. Current catalogs from two and four-year colleges are available as well as computer stations with internet access to other colleges' websites.

The EMU Transfer Office is located in the Placement and Transfer Center. Eastern Michigan University staff are available during scheduled hours to provide information and answer questions. The Creative Linkage for Increased Minority Baccalaureates (CLIMB) program for students transferring to EMU is located here also.

Student Activities

Many groups and clubs are active on campus. Students participate in these organizations to meet other students with similar interests, to develop leadership skills, and to have fun. Currently active groups and clubs include:

African-American Student Association
Advisor: Iota Frye, 973-3565 (SC 227)
Meets to unite African, African-American, and other students to help members succeed in academic and other endeavors.

Art Club
Advisor: Frederick Horowitz, 973-3347 (LA 300)
A support group for those interested in art.

Association of Information Technology Professionals
Advisor: Usha Jindal, 973-3603 (BE 206)
Builds awareness of professional opportunities for computer students.

Business Professionals of America
Advisor: Dosye Thompson, 677-5111 (BE 237)
Prepares students for the business world through advancing leadership, citizenship, academic and technological skills.

Criminal Justice Club
Advisor: Hank Townsend, 973-3671 (ML 106)
A peer support group for those indiviuals interested in the criminal justice field.

Dance Club
Advisor: Noonie Anderson, 973-3378 (LA 300)
Offers students a venue for experiencing dance in all its forms.

Drama Club
Advisor: Tracy Komarmy, 677-5101 (LA 130)
Creates a community where students can experience the theater and grow as actors in a relaxed, academically challenging and supportive atmosphere.

French Club
Advisor: Juan Redono 677-5068 (LA 130)
For language students and those interested in the French culture.

Gay, Lesbian, Bi-Sexual & Transgendered Student Support Group
Advisor: Betty Reisman 973-3558 (SC 227)
The GLBT is open to all WCC students and staff who are gay, lesbian, bisexual or transgendered or friends and family who want to offer support and educate themselves.

Hispanic Student Association
Advisor: Cecilia Canstano Paas, 677-5128 (SC 227)
Supports activities and interaction among students from a Spanish heritage.

Japanese Animation Club
Advisors: Arnette Chisholm, 973-3484 (Counseling)
Provides discussion and sharing of techniques in animation.

International Student Association
Advisor: Cecilia Canstano Paas, 677-5128 (SC 227)
Supports activities and interaction among international students.

Living in God's Holy Truth
Advisor: Lester Jordan, 973-3740 (Auto Lab)
A Bible studey croup.

Musical Thearter Society
Advisor: Ron Fracker, 677-5032 (ML 105)
Members enjoy the opportunity to participate in support musical theater productions.

Muslim Student Club
Advisor: Cole Jordan, 973-5232 (Counseling)
Share information about the Muslim religion with other students at the College.

Native American Student Association
Advisor: Cecilia Canstano Paas, 677-5128 (SC 227)
Supports activities and interaction among students of Native American heritage.

Phi Theta Kappa Honors Society
Advisor: Gregg Heidebrink, 973-3367 (BE 235)
An academic honorary fraternity, with the goal of promoting scholarship, leadership, service, and fellowship for WCC students.

Radiography
Advisor: Jerry Baker, 973-3336 (OE 102)
The Radiography Club offers support for radiography students and prepares them for participation in state and regional contests.

Respiratory Therapy Club
Advisor: Mimi Norwood, 973-3331 (OE 102)
The club promotes community awareness of the profession and, in conjunction with the American Lung Association, educates the public on prevention and management of various pulmonary diseases.

Students in Free Enterprise
Advisor: Maurice Stovall, 677-5431 (BE 220)
A national competitive group that emphasizes business marketing strategies and procedures.

WCC Jazz Club
Advisors: Cole Jordan 973-5232 (Counseling)
Michael Naylor, 677-5039 (ML 150)
Offers members the opportunity to play jazz music and explore the history of jazz.

Women in Math, Science and Computers
Advisors: Cathy Gilgenbach, 973-3653 (Women's Center)
Kathleen Strnad, 677-5067 (LA 230)
A club for women students interested in careers in the sciences.

Students also have the opportunity to contribute to or be involved in the production of two major campus publications: *Northern Spies* is a yearly publication that includes poetry, short stories, essays, plays, and journal selections written by former and current WCC students through the English/Writing program; and *Time Out,* which is designed specifically for students and includes dedicated space for news items and stories written by students.

Student Assembly

The Student Assembly consists of student members who represent the various constituencies of WCC students. Membership is voluntary and coordinates student involvement in the following areas: 1) Student Activities: the planning and implementation of events such as dances, food drives, and concerts; 2) Communication: the generation of all internal and external assembly communications and public relations activities; and 3) Budget: maintenance of assembly budget records, advisement of the assembly steering committee on budget requests, and recommendation to the college administration of annual budget needs for student activities. The Director of Student Development/Activities is the staff advisor for the assembly.

Student Resource and Women's Center

This special center offers support to adults entering or re-entering school; making course, program and career decisions; or desiring personal advising or counseling. The staff is especially sensitive to the concerns and needs of female, minority, and single-parent students. Through the center, the Department of Education offers tuition monies for students who meet certain qualifications such as re-entry into the labor market for homemakers required to work because of dissolution of marriage, upgrading of skills for the current labor market, and/or entry of women into careers traditionally held by men or by men into careers traditionally held by women.

The Student Resource and Women's Center has information on qualifications for financial assistance. Assistance also may be available for books, tools, transportation, child care and other educational financial needs.

The Center is located on the second floor of the Student Center Building.

Student Rights and Responsibilities

The College maintains a policy on student rights and responsibilities. It addresses student rights and responsibilities as well as student complaint and disciplinary procedures. Copies of the policy may be secured from the Office of Student Services.

Student Complaint Procedure
Students having complaints against faculty, staff, or administrative offices should first confer with the instructor, staff member, or administrator in an effort to resolve the issue informally. Issues that are unresolved at the informal stage are referred by the student, in writing, to the respective division dean or the Vice President of Instruction and Student Services who will attempt to mediate a resolution to the problem. Issues unresolved by the dean also may be referred to the Associate Vice President of Student Services, who will continue to mediate a resolution. If the problem is still unresolved, the student may initiate a final appeal to the Vice President of Instruction and Student Services for complaints regarding academic matters. For complaints regarding non-academic matters, students should contact the Associate Vice President of Student Services for a written copy of several procedural options that are available to students. A full description of the college policy on stu-

dent rights and responsibilities, which includes the student complaint procedure as well as the student disciplinary procedure, can be obtained from the Office of Student Services. (Also see Student Rights and Responsibilities above.)

Substance Abuse

Alcohol and Drug Policy

The College has adopted the following position, consistent with requirements of the new federal drug-free campus regulation and with federal, state and local law, with respect to drug use on campus. All students, employees, and visitors are specifically forbidden to use, possess, or distribute alcoholic beverages or illegal drugs, or to be under the influence of same while on college property. An exception will be made at those functions for which permission to serve alcohol has been obtained through the proper channels and then only for those who are of legal drinking age. Offenders will be subject to legal and/or disciplinary action by the College. Sanctions will be consistent with local, state, and federal law and will range from a disciplinary reprimand or a requirement to complete a rehabilitation program up to suspension, expulsion, or referral for prosecution.

Drug and Substance Abuse Prevention

Washtenaw Community College offers special services to increase student awareness of the effects of alcohol and other drugs. The Divison of Student Services has organized ADAPT (Alcohol and other Drug Awareness and Prevention Training) to provide information regarding the consequences to health, safety, family, finances, school, and employment that can result from alcohol and other drug use. Information is available through printed literature, video tapes, counseling, crisis intervention, referral for treatment, prevention education, support groups and services, and peer educators. For more information on this or other prevention programs, call (734) 677-5243.

Student Assistance Services

Washtenaw Community College is committed to providing short-term help and referral services for students with drug problems. If students feel the need to discuss their situation, they are encouraged to call (734) 677-52439 during office hours (8 a.m. to 5 p.m.) to make an appointment. Of course, all telephone and in-person transactions will be conducted with confidentiality.

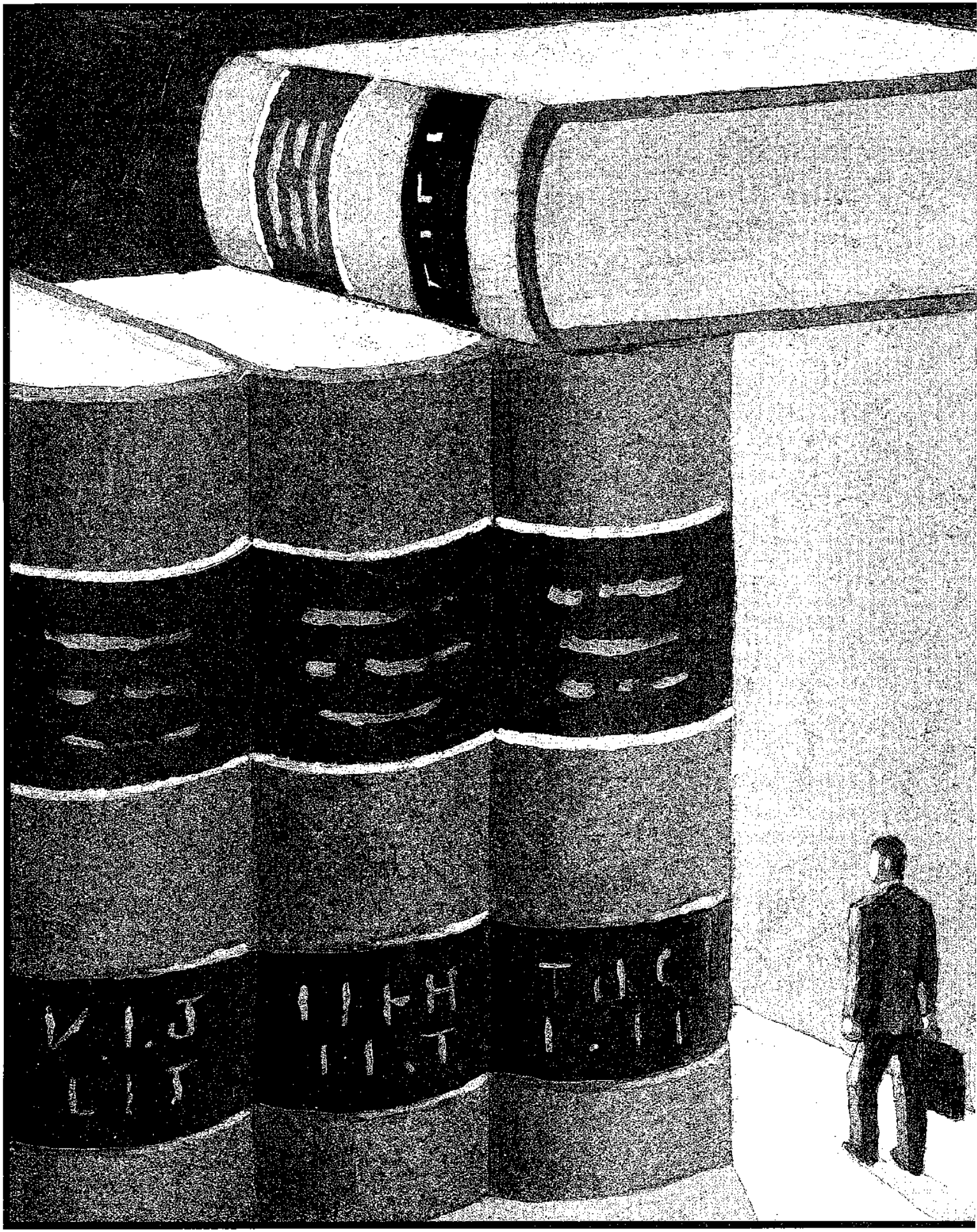
Tutorial Program

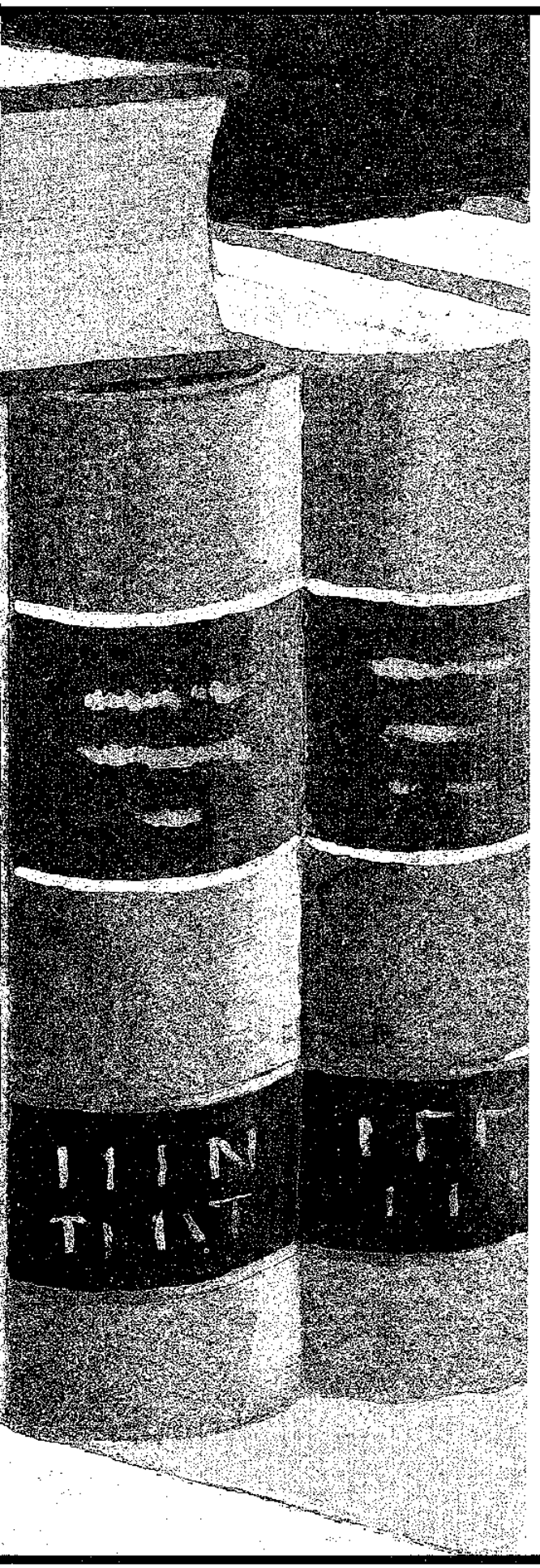
The college offers an extensive free tutoring program. Students in need of a tutor may complete the required form in the Learning Support Services Office (LA 104). Tutorial hours are 9 a.m. to 7 p.m. Monday–Thursday and 9 a.m. to 3 p.m. on Friday

The Workplace Learning Center

The Workplace Learning Center offers students an integrated format of classroom-style learning and career-related work experience through cooperative education (co-op) and academic service learning placements. Staff work with students, academic departments, and employers to identify appropriate co-op and academic service learning assignments. For a description of co-op courses see page.

Workshops on résumé preparation, interviewing, job-search techniques, co-op orientations, and other related topics are offered by the staff each semester.





Learning Support Resource

Learning Support Resources

Learning Resource Center

The Learning Resource Center (LRC) is located on the third floor of the Student Center Building. The LRC is an integral part of the total WCC learning environment and offers library, audio-visual and computing services to students, faculty, and staff.

The LRC is an active participant in the instructional and research programs of the college. It seeks to instruct students in the effective and efficient use of the library, and also encourages students to develop the habit of self-education so that books and other library materials may contribute to their intellectual development in future years.

To this end, the LRC provides the use of more than 66,000 books, 600 hard copy and over 1000 electronic magazines, and 20 newspapers. Micro-publications, career materials, corporate annual reports, and pamphlet collections also are available. A collection of media software such as audio and video tapes, films, music CDs, slides, and microcomputer programs is used on equipment in the LRC or in college classrooms.

Librarians and faculty members select the best of retrospective and current materials to respond to students' curricular needs and provide accurate, up-to-date information and varying viewpoints on subjects and issues. To help students use the LRC, the librarians provide group instruction and assist in independent study activities. Students may request to join a library instruction class if their instructor has not scheduled a session.

Librarians provide faculty a full range of reference services, including electronic delivery of information from many off-site informational databases. The LRC actively participates in OCLC and other inter-library loan programs to provide other libraries' resources to faculty and students.

The LRC facility includes small group study rooms, traditional study tables, informal lounge seating, and carrels specially equipped for the use of video tapes and other audiovisual materials. The college archives, documents, and records of WCC history are also located in the LRC.

Library cards are available to all currently enrolled students, WCC faculty and staff, former WCC students, and residents of Washtenaw County who are 18 years of age or older. An automated circulation system and online catalog provide efficient, accurate information on all library materials. Photocopy services and equipment for printing microforms are available.

The LRC is open during weekday, evening, and weekend hours as posted each semester.

Learning Technology

The Learning Technologies Department (LTD) of the Learning Resource Center maintains instructional hardware and software for classroom use on campus and at regional sites. In addition, the LTD provides a variety of production techniques to accommodate college requests for transparencies, slides, audio tapes and

video programs. The LTD prepares non-broadcast, educational videotapes that support classroom instruction and also provides off-air taping and teleconferencing services to faculty and staff.

The Multimedia Development Office in the LRC provides technical assistance to faculty who wish to incorporate electronic presentations into their course plans. Staff assist instructors with instructional design, online tutorials, video instruction, presentation and authoring software, and analog-to-digital conversions. Additionally, multimedia design, technical consultations, staff training, maintenance, and support are provided to all instructional divisions which utilize multimedia-classroom hardware and software.

The LRC provides a range of sound, light, and media services to community groups and other users of WCC auditoriums, lecture halls, and conference environments.

Web Services

The Web Services Department of the LRC is responsible for development of the college's website and maintaining current college publications on the website. The Web Services Department also assists faculty and others who are engaged in online, web-based instruction.

Computer Commons

Two computer commons housing many microcomputers for use by students and staff are located in the Learning Resource Center, on the third floor of the Student Center Building and in TI 108. Staff provides assistance to users in the operation of hardware and software in both computer commons. The two commons are open for operation during daytime and evening hours all year and on weekends during fall and winter semesters. (Check postings for exact hours.) Productivity software such as word processing, spreadsheets and databases, as well as access to the Internet and the college network are offered in both locations. Specialized software supporting specific instructional programs is also available in the LRC commons.

Specialized Computer Labs

There are specialized computer labs for use by particular units in several locations on campus. At the present time these include:

BE 174, 176	Computer Network
BE 272	Computer Instruction
BE 274	Accounting
BE 276, 280, 282	Business Office Systems
OE 108, 152 (Mac)	Graphic Design Technology
OE 122	Photography
OE 150	Health Careers
OE 166	Architectural Drafting
LA 355	English/Writing
TI 102, 104 (Mac)	Graphic Design Technology
TI 110, 112, 114	Computer Instruction
TI 127A	Numerical Control
TI 139	Robotics
TI 209	Industrial Electricity
TI 223, 227, 229	Industrial Drafting

English as a Second Language (ESL)

The College offers courses (from beginning through advanced) for students who want to learn English as a second language (ESL). These courses prepare students to enter College academic and vocational programs and to participate in the broader English speaking community. For specific information, contact the English Department at (734) 973-3647.

Math Center

The Math Center provides services to improve students' mathematical skills. Many of the self-paced mathematics classes meet in this location (MTH 039, 062, 090, 097A, 097B, 151, 152, 163, 165, 169A, 169B and 177). Placement tests designed to guide students into the proper level course for their needs and abilities are administered and evaluated. Information regarding courses, procedures, schedules, and program requirements is readily available. For specific information call (734) 973-3392.

Academic Skills Center

The Academic Skills Center provides help for students who desire to improve their reading and study skills and realize academic success. Diagnostic tests designed to guide students into the proper level courses for their needs are administered and evaluated. Students enrolled in Academic and Study Skills (ACS) classes are encouraged to use the facility regularly during the semester. Questions related to reading skills may be directed to the Academic Skills Center.

Testing Center

The Testing Center (LA 103) is a facility for the convenience of students, to provide flexibility and reduce the stress of test-taking. Tests for TV courses, make-up tests, tests for self-paced instruction and other specialized types of tests are given in the Testing Center at the request of faculty and Student Services. The Testing Center is open Monday through Saturday throughout the academic year.

Writing Center

Writing Center staff help students enrolled in English 040, 050, 051, 091, 100, and 111 with assigned written exercises. Writing Center personnel also assist students in completing writing assignments for any course at the college. A student can work with staff on selected problems of any aspect of a writing project, from narrowing a topic, developing a thesis, and organizational patterns to reviewing a rough draft or proofreading a final copy. Usually, work with an individual student is limited to 20 minutes. Macintosh computers are available so students may word process their papers. Check a copy of *Writing Center News*, available in the Center, for more information.

Writing Center Hours (These times may change. Check the schedule outside LA 355.)

Fall/Winter

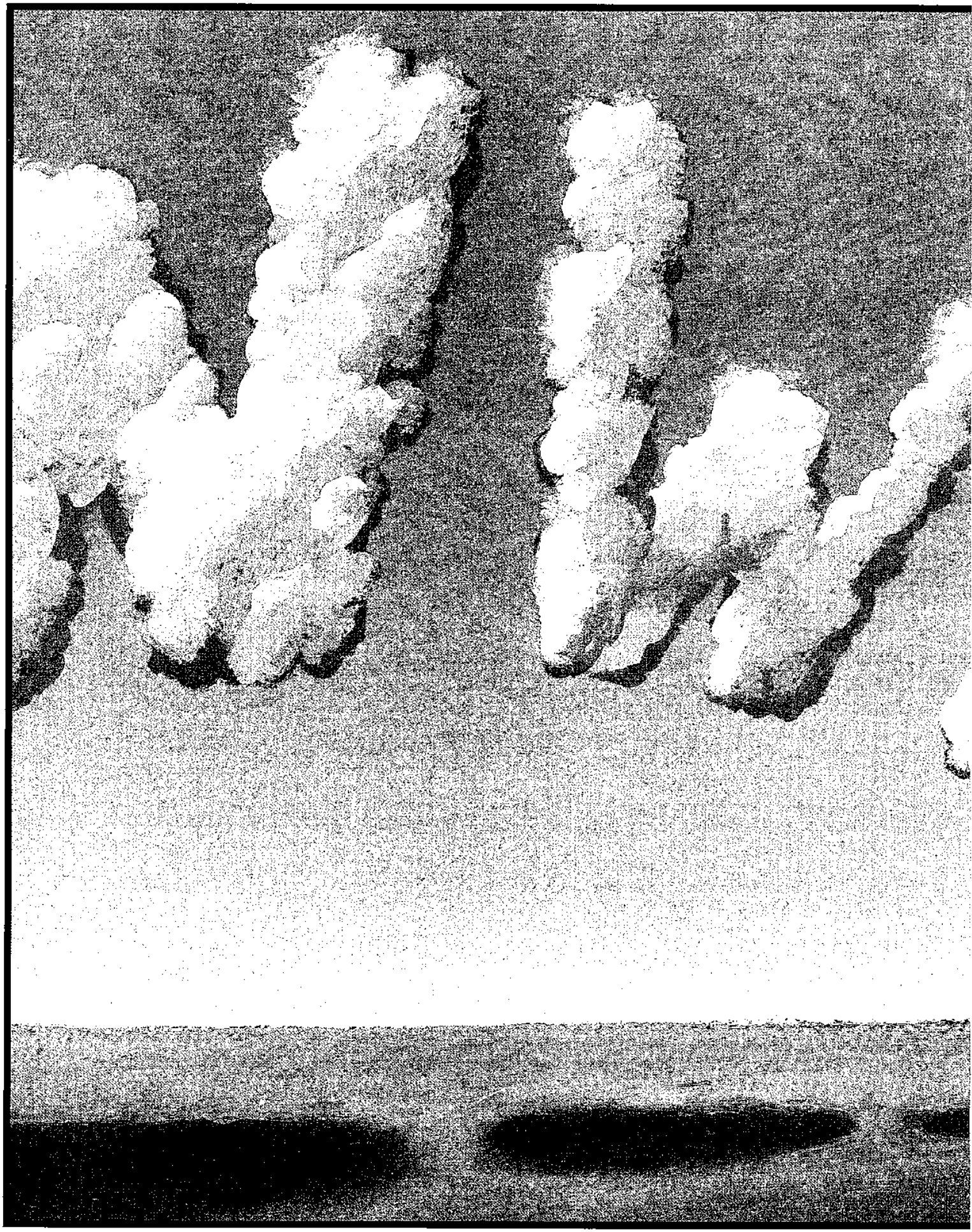
Monday	9 a.m.–9 p.m.
Tuesday	9 a.m.–9 p.m.
Wednesday	9 a.m.–9 p.m.
Thursday	9 a.m.–3 p.m. (Closed 3–6 p.m.)
	6 p.m.–9 p.m.
Friday	9 a.m.–5 p.m.
Saturday	8 a.m.–12 p.m.
Sunday	Closed

Spring

Monday	8 a.m.–7 p.m.
Tuesday	9 a.m.–8 p.m.
Wednesday	8 a.m.–7 p.m.
Thursday	9 a.m.–8 p.m.
Friday	9 a.m.–1 p.m.
Saturday	Closed
Sunday	Closed

Summer

Monday	9 a.m.–8 p.m.
Tuesday	9 a.m.–8 p.m.
Wednesday	9 a.m.–8 p.m.
Thursday	9 a.m.–8 p.m.
Friday	9 a.m.–1 p.m.
Saturday	Closed
Sunday	Closed



Programs that provide Alternative Education

Programs that provide educational alternatives

A variety of alternative education opportunities and other educational services are offered by the College. These opportunities and services extend the resources, facilities and services of the college to on-campus students and the community through many innovative practices and programs. The Office of Evening and Extension Services, the Adult Transitions program and the Business and Community Services offices offer courses at off-campus locations in Washtenaw, Lenawee and Livingston counties. Distance learning opportunities include televised instruction, on-line courses and participation in programs established by the Workplace Learning Center in which students gain skills from a working experience or academic service-learning in a compensated business-related position. WCC also offers articulated programs in conjunction with 18 local public school districts and 11 colleges and universities. The Institute for Workforce Development offers customized training programs for Washtenaw County employers.

Lifelong educational opportunities are made readily available to the general public through a wide variety of workshops and short courses offered each semester. These activities allow individuals or groups to explore options ranging from new career ideas to the development of personal skills for their professional or community activities along with other life experience credit options. Continuing Education Units (CEUs) are offered for some non-credit programs, courses, or workshops as a measurement of completion.

Continuing Education Units (CEUs)

The Continuing Education Unit (CEU) is a measure of the amount of organized study a person has completed, and provides an orderly format for the recognition and quantification of noncredit learning experiences. A CEU is officially defined as ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. CEUs are a nationally recognized recording device for substantive noncredit learning experiences and are an appropriate measure of in-service education and training. Normally, courses for which CEUs are awarded are not eligible for college credit.

Evening and Weekend Degree Programs

The evening and weekend degree program is designed to serve students pursuing education on a part-time basis with a special slate of courses offered Monday through Thursday evenings and Saturday morning. The Accounting and Business Management degree programs are available in this flexible format, which may lead to an associate's degree within three years.

This accelerated degree program is designed to serve students who need to complete a degree in less than the usual allotted time. They accomplish this by following a more concentrated course of study over a shorter period of time.

Teaching and Learning Support Services

Teaching and Learning Support Services provides a comprehensive program of teaching and learning services which ensures that students have adequate support to achieve their learning goals and that faculty have adequate support to pursue their plans for curriculum development and teaching enhancement. Learning Support Services and Learning Disability Services comprise part of the department responsibilities.

Telecourses and Online Courses

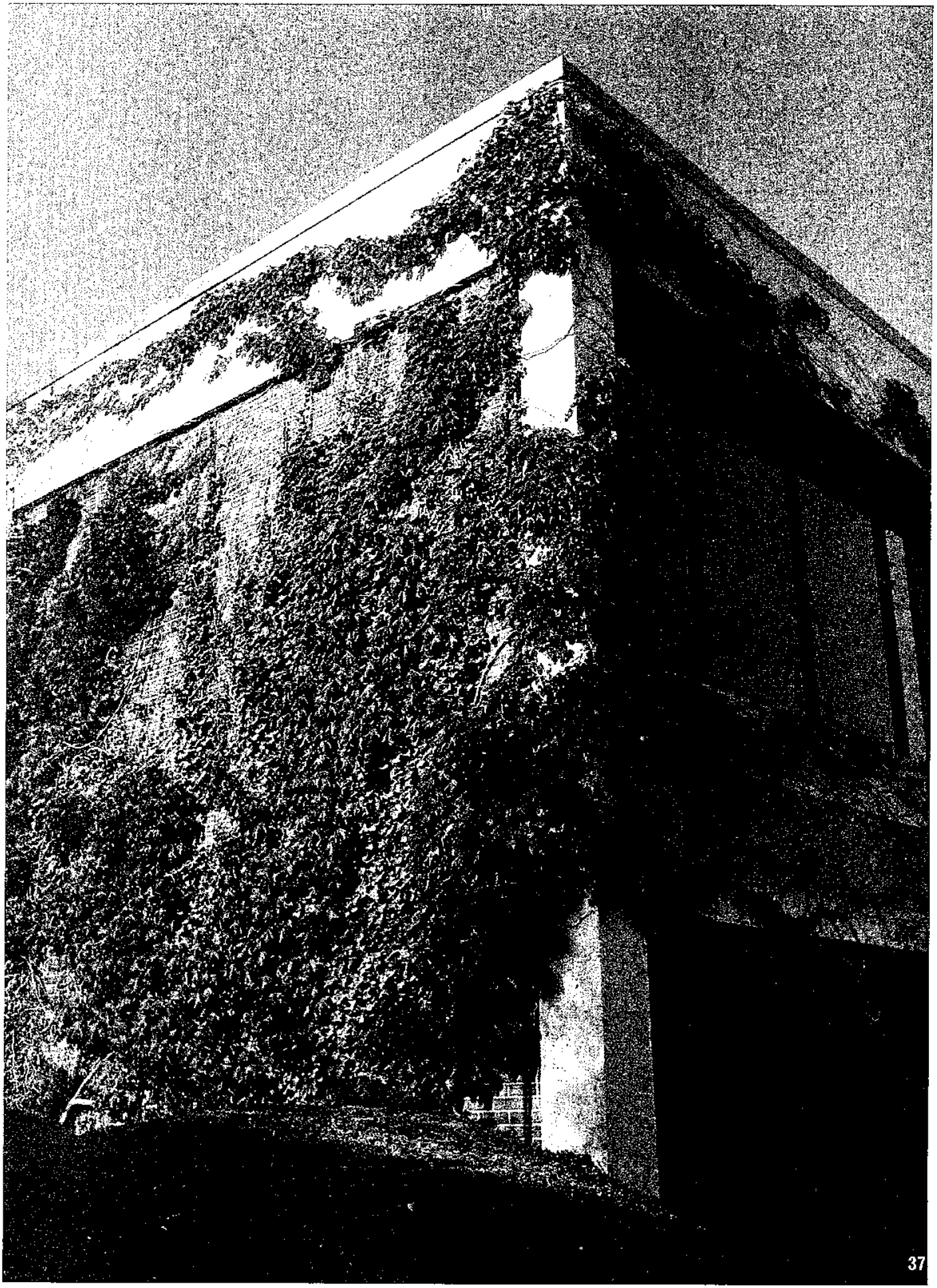
Telecourses are college classes broadcast over local stations or available for viewing in the Learning Resource Center on campus. Students view videotaped lectures and supplement them with outside readings, papers and other assignments. Each course begins with a required orientation/first class meeting with the instructor and may be followed with additional sessions during the semester. Examinations are given periodically. Students earn college credit, which may be applied to appropriate programs of study.

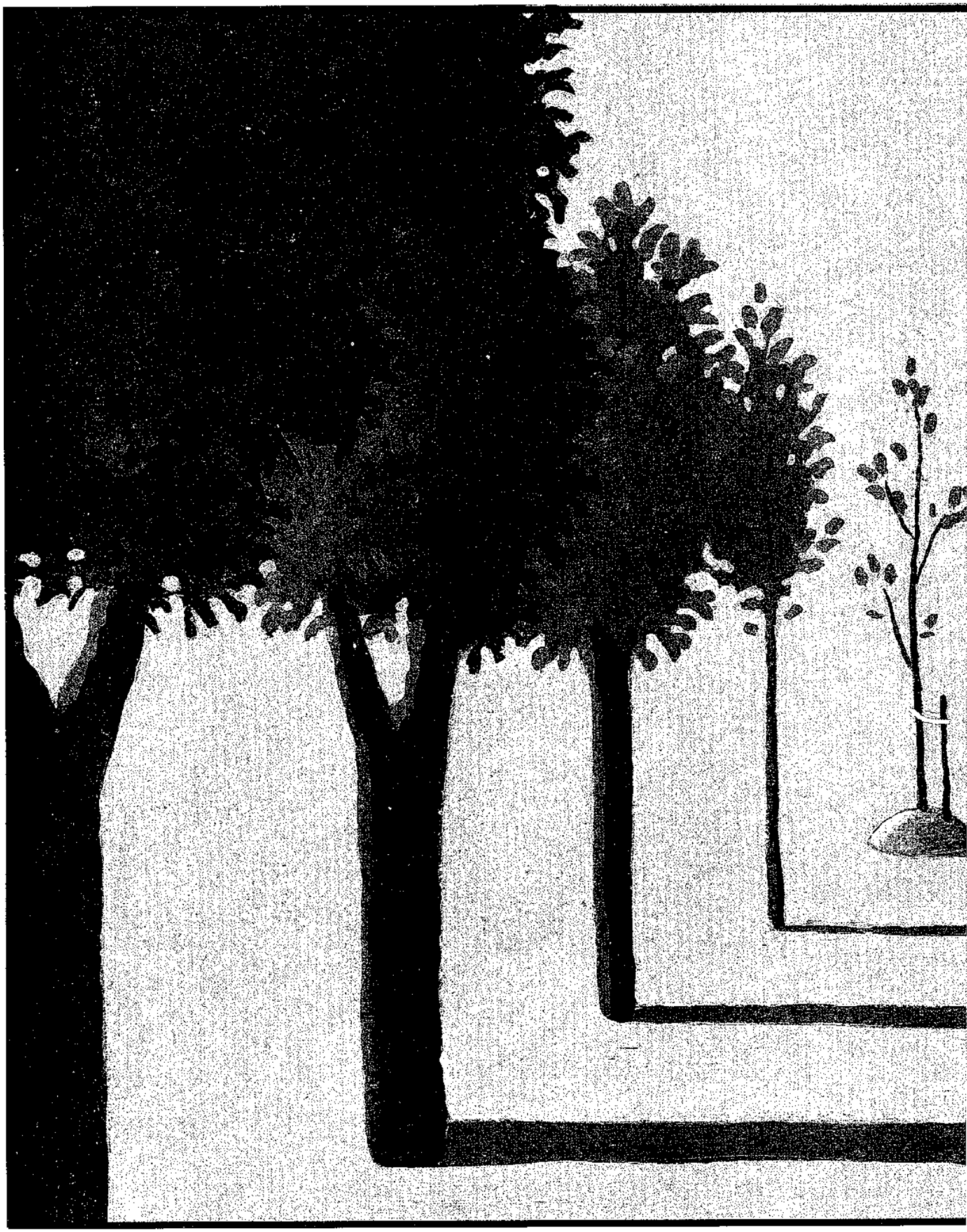
In order to enroll in a telecourse or an online course a student must meet the following criteria:

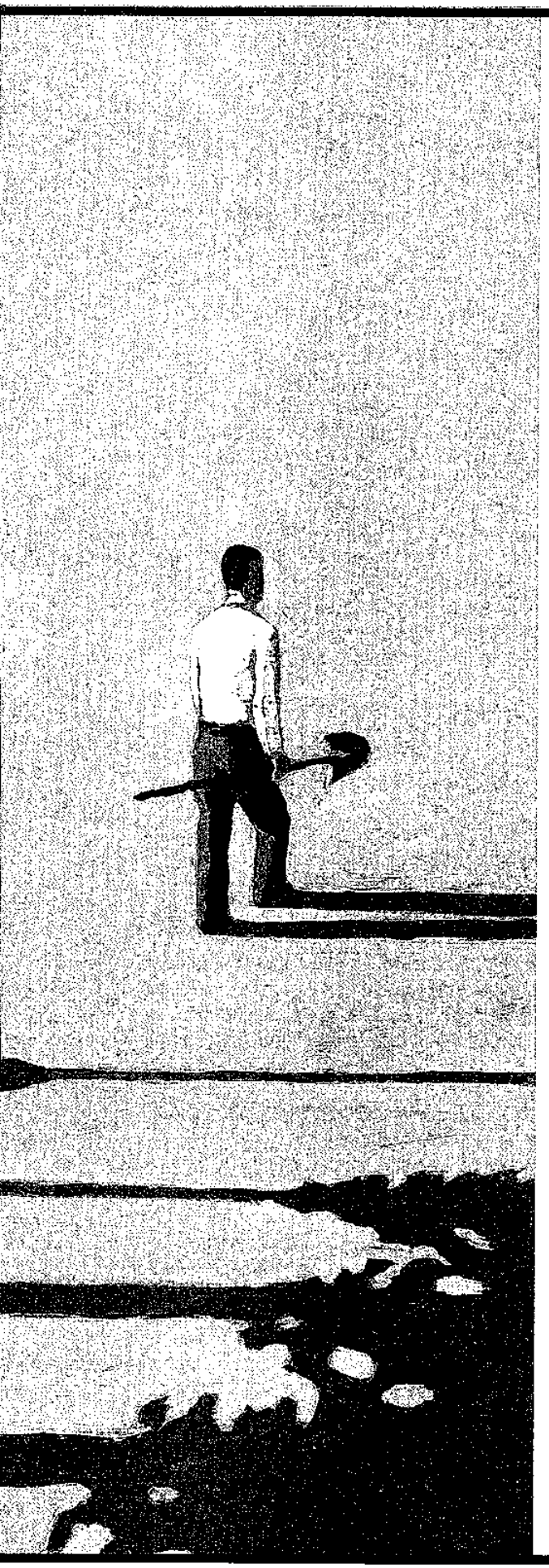
1. The student must have taken and successfully completed a minimum of 12 credits of college level coursework with a cumulative GPA of 2.5 or higher prior to registering for a telecourse. If the GPA prerequisite is not met and the student does not have any registration holds, the student may enroll with the signature of the instructor scheduled to teach the course.

2. The student must complete a telecourse orientation. Failure to do so may result in the student being dropped from the telecourse.

The College offers several college credit courses over the Internet. These online classes provide flexible scheduling because students can perform class work at any time of the day. Students participate in class discussions through forums and submit assignments electronically. Students considering an online course should have experience using word processing, e-mail and the Worldwide Web. Students will also need an Internet service provider and an e-mail account. The college provides free student e-mail accounts.







Business and Community Services

Business and Community Services

Service to Targeted Populations

Noncredit Seminars, Short Courses, and Workshops

Washtenaw Community College extends educational resources and facilities to the community by offering non-credit programs, emeritus programs, customized training programs, conference services, and outreach services through sites accross the college's service area.

A broad spectrum of noncredit seminars, short courses, and workshops is offered to the public throughout the year. The non-credit program areas offered currently include:

- Business and professional development offerings
- Computer and other technology offerings
- Health care training/retraining offerings
- Lifelong education offerings (e.g., personal development, community development, life skills development, cultural development).
- GED instruction and short term job training

These classes are offered at the main campus as well as the regional sites. For details and locations please call (734) 677-5016.

Institute for Workforce Development

The Institute for Workforce Development coordinates education and training to business, labor, and government in Washtenaw County. This educational experience is designed to help the county and its citizens to be globally competitive and economically viable.

In this arena, the Institute for Workforce Development provides customized training, seminars and workshops for businesses, labor, governmental organizations, community organizations, and professional groups.

Depending on the client's needs and objectives, programs can range from half-day workshops to semester-length courses or even associate degree programs spanning several years. Traditional college credit courses also are offered as part of the College's response to the specific educational requirements of business, labor and government. Courses are taught either on campus or at a client's site, whichever is most convenient and most appropriate for the subject and skills being taught.

Extension Sites

WCC offers a variety of credit courses in various sites throughout its Washtenaw/Livingston County service area at convenient locations and times.

The Western Site (734-475-5935) is located in the Washington Street Education Center (the old Chelsea High School). Classes are held at the Chelsea and Dexter High School buildings, and at the Washington Street Education Center.

The Southern Site (734-429-8153) is located in Saline Union School. Classes are held at the Saline High School and in the Saline Union School.

The Northern Site (810-229-1419) is located in Brighton High School. Classes are held at Brighton High School and Pinckney High School.

Classes are also held at the Ann Arbor "Y" and Briarwood Mall in Ann Arbor.

This extension program is coordinated and managed through the Office of Evening and Extension Services

Some credit-free short courses, seminars or workshops also are offered at the regional centers to meet the needs of specific community groups. Students may register on the main campus or at the regional centers in accordance with a pre-determined and published schedule. For general information, call (734) 677-5027.

Emeritus Program

Special opportunities are provided by WCC for county residents who are at least 65 years of age. At various retirement facilities and nutrition sites throughout Washtenaw County, credit-free courses, workshops and seminars are provided with tuition waived. Registration is conducted on site.

These residents also might be eligible for tuition-free credit classes, although they are required to pay a per-semester registration fee for credit courses. Contact the Department of Business and Community Services at (734) 677-5027 for eligibility details.

Adult Transitions

The Adult Transitions Program is a community outreach program offering job training, basic education, and personal development to Washtenaw County residents. It has three components: the skill building program, job education service, and personal counseling. Students meet with counselors and work together to develop a personal action plan that includes job training. Workshops are also offered to students on searching for a job and other pertinent topics. The following describes the academic and occupational programs in Adult Transitions in more detail.

Job Education Service

This service provides short-term, intensive training in specific occupations to set a student on a career path. It serves students who are unemployed or underempolyed and are seeking opportunities that will enable them to become gainfully employed. Students receive scholarships or other forms of support based on financial need.

Short-term training programs designed to prepare students for entry-level employment or to give students a foundation to continue in a degree program are available. They include: Automotive Spray Painting, Machine Operation, and Professional Office Systems. These programs are described in more detail in the Program Listings Section of the catalog. Three additional programs, Nursing Assistant, Child Development Associate Program, and Sterile Processing and Distribution Program are being developed and will be offered in the near future.

Skill Building Program

This is a short pre-college program that covers the areas of mathematics, reading, writing, and thinking skills. The program consists of an open-entry/open-exit model with an individualized student curriculum. Its purpose is to prepare students for one or more of the following: 1) GED, COMPASS and ASSET testing, 2) entrance into short-term job training programs; 3) entrance into college degree programs; and 4) entrance into the workforce with stronger skills. Students who attend the program will have scholarships to pay for GED testing. This program is offered free of charge.

Academic Policies and Procedures

Academic Policies/Procedures

Articulation Agreements with Public Schools

Articulation agreements exist between WCC and 18 local area public school districts. The purpose of the articulation agreements is to coordinate curriculum to eliminate duplication, cover omissions, and to ensure a smooth transition from high school to the community college. The college will grant credit to articulated students for identified task competencies achieved in secondary programs. Credit earned from public school articulations will not be awarded until the student has earned six or more credit hours at WCC with a cumulative grade point average of at least 2.0. Students should check with the WCC Office of Student Records or their high school guidance counselor for more detailed information.

Cancellation of Classes

The college may cancel course offerings due to low enrollment, lack of instructor, or any other reason deemed viable by the Vice President of Instruction and Student Services. Every effort is made to accommodate students into alternate sections. Information regarding the current status of course offerings for all semesters is available at the Office of Student Records.

Class Attendance

Students are expected to attend all sessions of the courses for which they register. Regular class attendance is necessary for maximum success in college. In the event of excessive absence or tardiness, individual instructors determine whether the quality of students' work has been adversely affected. Students are responsible for all material covered during their absence. No person is allowed to attend a class unless officially enrolled on a credit or noncredit (audit) basis with the appropriate tuition and fees paid.

Class Level

Freshman/First-Year Student – One who has completed fewer than 31 credit hours.

Sophomore/Second-Year Student – One who has completed 31 or more credit hours but has not received an associate degree or has not qualified for upper division classification in a four-year college or university.

Complaint Procedure

Students having concerns or problems of an instructional nature (e.g., faculty, course offerings) should first confer with the instructor involved in an effort to resolve the issue informally. Issues that are unresolved at the informal stage should be referred by the student (verbally or in writing) to the respective division dean, who will attempt to mediate a resolution to the problem. Issues unresolved by the dean also may be referred to the dean of counseling and support services who will continue to mediate a resolution. If the problem is still unresolved, the student may initiate a final appeal to the associate vice president of student services (see Grade Appeal Procedure page 48 for grading complaints). Consult the Student Rights and Responsibilities section of the Student Handbook for details.

Core Curriculum or General Education

In response to the expectations and demands of employers and four-year institutions, Washtenaw Community College developed a core curriculum which was instituted in fall 1993. This curriculum more effectively prepares students to enter the workforce, transfer to four-year institutions, and be well-educated members of the community. Students who entered the college in Fall 1993 or later are required to complete this "core of common learnings," which consists of 24 learning areas, to receive an associate's degree. These areas include communication, mathematics, critical thinking, computer literacy, arts and humanities, natural sciences, technology, and social science.

See page 59 for a complete description of the core curriculum.

Course Load

Full-time student	One who enrolls in twelve or more credit hours per semester.
Part-time student	One who enrolls in less than twelve credit hours per semester.
Half-time student	A part-time student enrolled in at least six credit hours per semester.

Students enrolling in 18 or more credit hours in a semester must have their schedule approved by a counselor before their registration may be processed.

Credit for Non-Credit Experiences/Transfer Credit

Continuing Education Units (CEUs)

Normally, courses for which CEU's are awarded are not eligible for college credit. However, under special circumstances these courses may be evaluated for college credit as "credit for prior learning." See the details listed below.

Correspondence Courses

Only correspondence courses from accredited colleges and universities are acceptable.

Credit for Prior Learning (CLEP, Credit by Exam, Credit by Portfolio)

Washtenaw Community College recognizes that students come to the college with competencies obtained from prior learning experiences such as work experience, previous training or education, and various forms of self-learning. To receive credit, a prior learning experience must be verified. If such learning is documented and evaluated to be equivalent to college level coursework, it is the College's policy to allow equivalent credit to be granted to the student.

To receive credit, a prior learning experience must be verified by one or more of the following methods: credit by examination, portfolio evaluation, or other college-approved technique for evaluating educational experiences that meet state or national criteria. Credit for prior learning will be evaluated and posted on the student's transcript only after the student has earned one or more credit hours at WCC and will not apply toward satisfying the minimum credits in residence required for graduation.

College Level Examination Program (CLEP)

A maximum of three semester credits may be granted for the successful completion of each of the five general examinations of CLEP. Minimum scores for awarding credit are based on Commission of Educational Credit and Credentials of the American Council on Education recommendations:

English Composition*.....530

Mathematics.....421

Humanities.....421

Natural Sciences.....421

Social Sciences and History.....421

** Students who complete the English Composition General Examination will be granted English elective credit. To receive credit for ENG 111 (Composition I), students must pass the CLEP English Composition Subject Examination With Essay.*

Students who have earned six or more credits in any one of the general examination subject areas are not eligible to receive credit for the general examination in that area.

Subject examinations exist in the general areas of composition, literature, history, social sciences, science, mathematics, and business. In general, a maximum of three semester credits may be granted for each college approved subject examination for scores equivalent to a "C" or better in a comparable college course. The Office Student Records has CLEP brochures which contain a complete list of available examinations. Some general and subject examinations also require the successful completion of an essay examination or laboratory demonstration.

Credit by Examination

Students who appear to have proficiency for a course may, upon recommendation of a full-time instructor, and with the approval of the appropriate department chair, take a course examination for credit. The student must first have completed the application process and been accepted to the College as a credit student. The cost of the examination is based on the number of credits in the course. The maximum number of credits earned by examination that may apply toward a degree is 30. Credit is granted and posted on the transcript. Credit earned by examination may not apply toward satisfying the minimum 15 residence credits required for graduation. Each student is responsible for arranging to complete the various examinations. Credit earned by examination does not count as part of a student's credit load for any given semester and is not computed into the grade point average. In most cases, credit earned by examination will not transfer to other colleges or universities. Students are allowed to attempt only one credit by examination per course.

Credit by Portfolio/Document Evaluation

Students with background experiences/certifications obtained through military service, on-the-job training, nursing or apprenticeships, for example, may have this prior learning evaluated for college credit. Students may pick up a Non-Traditional Credit Evaluation form from the Office of Student Records to begin the process, which also includes contacting the appropriate faculty member(s) in the student's enrolled program area. Courses granting CEUs are not normally eligible for college credit.

Students must submit to the appropriate faculty member all official documents and specific information on the length and content, as well as other pertinent documentation, before an evaluation is completed. Normally, a maximum of 20 credits may be accepted in this category (with the exception of students with backgrounds in Nursing or apprenticeship training). Credit earned from non-traditional sources will not be awarded until the student has been fully admitted to the College and completed at least one credit at WCC. Credit earned from nontraditional sources may not apply toward satisfying the minimum 15 credits in residence required for graduation.

Military Training and Schools

College credit for military training is generally awarded as nontraditional credit. Students must submit an inservice training record and DD 214, unless still on active military duty, for an evaluation of service school training. Students must show the exact title of the course, location of the course, and length of the course in weeks. Credit may be granted based on the recommendations found in *A Guide to the Evaluation of Educational Experiences in Armed Services*. If a course is not listed, no credit is granted. If a course is relevant to a student's occupational degree objective, a decision as to acceptance and applicability of credit is made by the program advisor and appropriate dean. Other courses may be acceptable as elective credit.

An exception to the above is accredited military schools (e.g., The Community College of the Air Force); credit for courses from accredited schools follows the policies set forth under the category Transfer Credit from Other Colleges and Universities.

National League for Nursing (NLN) Examination.

Advanced Standing Nursing students who are already LPNs may demonstrate competency in maternity nursing by writing the NLN - Nursing of the Childbearing Family examination. Upon successful completion of the test, students will receive credit for NUR 131, Nursing of the Childbearing Family, and NUR 132, Nursing of the Childbearing Family Clinical Practice. Credit by examination for five credits will be posted on the transcript.

Proprietary Schools

Credits are accepted only from proprietary schools accredited by one of the regional accrediting agencies. (Some specialized business and technical accreditations may be acceptable.) Students may have to provide course descriptions or catalogs along with an official transcript.

Transfer Credit from Other Colleges and Universities

Applicants must submit an official transcript from all colleges previously attended if they plan to apply the credit from the other institution(s) to their program at WCC. The accreditation

of the institution and the listing published in the *American Association of Collegiate Registrars and Admissions Officers Transfer Credit Practices of Designated Educational Institutions* governs the acceptance of transfer credit. The coursework may be evaluated, at the student's request, after the student has completed at least one credit at WCC.

Credit may be granted for courses in which a grade of "C" or better was earned at any of the institutions with a general (AG) or provisional (AP) rating. Credit is not accepted from schools that have an N or NP rating. If the school is not listed, refer to the section of this catalog titled Non-Traditional Credits.

Transfer courses which are evaluated as being equivalent to courses WCC offers are posted on the transcript as such. Courses which are evaluated as college level but are not equivalent to courses offered at WCC are posted as elective credit in the appropriate discipline. Transfer courses which are equivalent to WCC courses will meet the same core elements as the WCC course. Courses evaluated as elective credit will not satisfy any core elements. If the elective credit transfer course was completed within the last 10 years and the student is able to provide a complete description and detailed syllabus of the course, the student may petition to the Office of Student Records to have the transfer course evaluated for core elements. Decisions on the completeness of the course description and detailed syllabus will be made by the Curriculum Office. Decisions on the core elements met by the transfer course will be made by the Vice President of Instruction and Student Services.

Degrees Awarded

Associate's Degrees

Since the Fall 1992 semester, WCC has offered five associate degree titles which reflect students' chosen programs of study. The degree title and specific program title appear on the diploma. Students completing general studies programs have only the degree title indicated on their diploma. The degree titles and their purposes are as follows:

Associate in Arts (A.A.): primarily a transfer degree, used for all humanities and social science programs.

Associate in Science (A.S.): primarily a transfer degree, used for programs carrying large math and science requirements. Most math and natural science programs use this designation. Additionally, some transfer programs in health, technology, and business use the A.S. degree title.

Associate in Applied Science (A.A.S.): the standard career-entry degree for career-entry programs in health, business, and technology. It also has transfer use in engineering technology.

Associate in Technical Studies (A.T.S.): exclusively for career-entry technical programs.

Associate in General Studies (A.G.S.): for student personal interest or customized programs. The A.G.S. is provided for in all divisions. Although students will have flexibility in defining a program, all core requirements for an associate degree must be met.

Associate's Degree Requirements

WCC offers five types of associate degrees. The degree titles with their descriptions are on pages 44-45. To be eligible for graduation with a degree from the college a student must meet all of the following requirements:

1. Fulfill all of the prescribed course and credit hour requirements of the specific degree curriculum. A minimum of 60 credits is required. (See Program Requirements section on the next page.) Courses numbered 051 and below do not count toward graduation.
2. Complete a minimum of 15 residence credits (Washtenaw Community College credits) for each degree pursued. Credit for prior learning, including credit by exam and transfer credit, may not be used as residence credit.
3. Fulfill the 24 core curriculum elements (see pages 59-60). If you have earned a bachelor's degree or higher from an accredited U.S. college or university, you may file a petition to waive the core element requirements in the Office of Student Records.
4. Earn a minimum cumulative grade point average of 2.0.
5. Meet all financial and library obligations to the college.
6. File an Application for Graduation form.

Certificates

WCC offers four types of certificate programs. They are designed to meet a broad range of student needs not possible with the standard two year certificate. The certificate titles with brief descriptions are as follows:

Advanced Certificate: For post-associate's degree programs for students who are pursuing advanced study in an occupational or general area. These may be from nine to 36 credits with the focus on study beyond the associate's level.

Mastery Certificate: For standard credit programs of 25 to 38 credits. Primarily used to prepare for entry-level occupations, this certificate may be a discrete program or the first year of an associate's degree program.

Achievement Certificate: For short-term credit programs primarily used to prepare students for entry-level occupations or occupational certifications. This certificate of six to 24 credits may also be used to document completion of one part of a longer program.

Certificate of Completion: For short-term noncredit programs or programs of less than six credits.

Certificates totaling 15 or more credits are awarded at the college's annual May and December commencement ceremonies.

See the General Information section of this catalog for a list of WCC programs by degree title and type of certificate.

Certificate Requirements

WCC offers four types of certificates. Descriptions of the certificates are on page . To be eligible for graduation with a certificate from the college a student must meet all of the following requirements:

1. Fulfill all of the prescribed requirements of the specific certificate curriculum including courses, credit hours, and/or hours of attendance. Courses numbered 051 and below do not count toward graduation.
2. Earn a minimum cumulative grade point average of 2.0.
3. To earn a second certificate in the same program area, you must complete at least nine additional credit hours, including the specific course requirements in the curriculum.
4. Meet all financial and library obligations to the college.
5. File an Application for Graduation form. If you plan on earning a degree in the same program area as your certificate, you must file for and receive your certificate at least one semester before the degree.

In addition to the requirements listed above, the following requirements apply to the specific type of certificate listed:

Advanced Certificate

Complete a minimum of 75 percent of the total credits required for the certificate as residence credits (Washtenaw Community College credit).

Mastery Certificate

1. Complete a minimum of 3 credit hours in English (ENG 091 or higher), or Communications (COM 101 or COM 102)
2. Complete a minimum of 25 percent of the total credits required for the certificate as residence credits (Washtenaw Community College credit).

Achievement Certificate

Complete all credits required for the certificate as residence credit (Washtenaw Community College credit).

Certificate of Completion

Complete all credits, if any are required, as residence credit (Washtenaw Community College credit).

Educational Intent

In order that students develop and achieve their educational plans, they are required to declare their primary educational goal and program or area of study upon application to the College. This information is verified and updated during each subsequent registration period.

Entry Assessment Policy

WCC is committed to maximizing success for each student. The college is committed to an open access, student-oriented learning atmosphere in which each student has the opportunity to acquire basic literacy skills. While WCC is open to all individuals who can benefit from its educational and service programs, the mandatory assessment process for new students provides information that helps the College match student skill levels with the right courses. Some health-related programs have an additional screening process. See the Admissions section of this catalog. This interview process may include reviewing past educational work experiences as well as current life and educational goals and/or testing.

Grades

Grading Scale

Grade	Grade Points Per Credit Hour
A – Superior	4
B – Excellent	3
C – Average	2
D – Below Average	1
F – Failure	0
S* – Satisfactory	0
U* – Unsatisfactory	0
I* – Incomplete; Credit Withheld	0
IX* - Expired Incomplete	0
W* – Withdrawal	0
DF* – Deferred	0
N* – Non-Attendance	0
AU* – Auditor	0
P* - Pass	0
NP* – No Pass	0

NOTE: Grades (except S, P, and AU) having 0 grade points may be treated by other educational institutions as an 'F'.

* *Explanation of Grades:*

Satisfactory 'S' or Unsatisfactory 'U': 'S' and 'U' grades are given for courses numbered 051 and below. Credits for courses with 'S' or 'U' grades are not figured into credits attempted in determining a student's GPA and do not count toward graduation.

Incomplete Grade 'I' Credit Withheld: If the instructor determines that the student has nearly completed the requirements of a course but is missing a small but essential part of the course due to unforeseen or extenuating circumstances, the instructor may issue an 'I' grade. The 'I' grade will remain on

the student's transcript until the requirements of the course are met and a letter grade given or an instructor-determined deadline has passed. The final grade will depend on the quality of the completed work and its significance to the course. After the deadline, the grade that has been preset by the instructor will be posted on the transcript. The 'I' grade could become a letter grade such as B, C, D, or S and credit granted or a U, F, or IX (permanent 'I') in which case a student would need to register in the course again to receive credit. Neither the 'I' or the 'IX' grade will be figured into credits attempted or honor points earned.

Withdrawal 'W': A 'W' grade is posted to the student's permanent academic record for any course the student withdraws from after the 100% refund deadline. The 'W' grade is not considered a deficiency and is not figured into credits attempted in determining a student's GPA.

Deferred Grade 'DF' Credit Withheld: In certain designated courses, a student may be unable to complete the required work until the following semester. If, in the opinion of the instructor, the student is making normal progress, the 'DF' may be assigned. Students must re-enroll in the course and complete the required work the following semester (spring and summer session excluded). The 'DF' grade is not considered a deficiency and is not figured into credits attempted in determining a student's GPA.

Non-Attendance 'N': No credit due to lack of attendance. Generally this grade is assigned to a student who has only attended class once or twice.

Auditor 'AU' No Credit: A student may enroll in a credit course on a noncredit (audit) basis. The number of credits the course normally carries is included as part of the total credit load and tuition assessed accordingly. Change from audit to credit or credit to audit status is not permissible after one quarter of the course has elapsed. Refer to the schedule of courses for specific dates each semester. Credit is not earned in courses taken as an auditor.

Pass 'P'/No Pass 'NP': Pass/No Pass grades are given only in specifically-designated courses numbered above 051; students and faculty cannot elect this grading option for other courses. The Pass/No Pass grades must be part of the approved course syllabus and will apply to all students in all sections of the course. The 'P' grade equates to 'C' or better work and will not be included in a student's GPA. No more than 25 percent of credits applied toward an associate degree or certificate can have a "P" grade.

Grade Appeal Procedure

A student may appeal any grade from any course. The process consists of the following steps:

1. Student discusses concerns with instructor.
2. If step one does not resolve the appeal, the student submits to the department chair a written request for a meeting. This step must be taken within five months of the mailing of the grade to the student.
3. After discussion with the student and/or the instructor, the department chair may suggest to the student either there is no basis for appeal, or the student may wish to appeal to the dean.
4. If the student wishes to pursue the appeal, he/she should submit the appeal in writing to the division dean with a request for a meeting.
5. The division dean invites both the student and the instructor to a meeting and issues a final decision. This step must be completed within six months of the mailing of the grade to the student.

All parties are to be notified of any action taken during the entire process.

Grade Point Average (GPA)

Grade points measure the achievement of students for the number of credit hours attempted. Grade points are determined by multiplying the grade points per credit hour by the credit hour value of the course attempted. The cumulative grade point average is the total number of grade points earned divided by the total number of credit hours attempted. Attempted credit hours include the number of credit hours of 'F' even though no grade points are earned for this grade.

Program Requirements/Discontinued Programs

In meeting program requirements, students may select either those requirements that were in effect during the year in which they initially enrolled at WCC or those in effect the year they complete the program. When a program is discontinued, students are given a specified amount of time to complete the program (usually 3 years), after which they must change to a different program. Students who change programs should see a program advisor to select appropriate courses and make course substitutions as necessary. If students interrupt their studies for more than two consecutive semesters, the College strongly encourages them to meet the requirements in effect the year in which they return. Graduation requirements may be completed during any semester.

Course Substitutions

Courses required in a program of study may be substituted by other courses only with the approval of the program advisor and the appropriate Division Dean. A course substitution form must be filed with the Office of Student Records.

Waiver of Program Requirement

Under extenuating circumstances, a course required in a program of study may be waived; all waivers must be approved by the program advisor, the division dean, and the vice president for instruction and student services. A Waiver of Program Requirements form must be filed with the Office of Student Records.

Graduation Application

To be eligible for graduation, a student must file an Application for Graduation with the Office of Student Records at least four months prior to the expected date of graduation. This form is available from the Office of Student Records. The date of graduation that will appear on the diploma and transcript is the last month of the semester in which a student completes all requirements for graduation. Associate Degrees and Certificates of 15 or more credit hours are awarded at the College's annual May and December commencement ceremonies. To receive a degree or certificate, a student must file an application for graduation even if he/she does not plan on attending commencement ceremonies. A student may not receive a certificate and a degree from the same program area during the same semester.

Graduation Ceremony

The commencement ceremony for August and December graduates is held in December. The ceremony for April and June graduates is held in May. The conferring of degrees and college certificates, and the awarding of honors highlight the commencement exercises. Students receiving associate degrees or college certificates of 15 credits or more are invited to participate in commencement. Students must meet all financial and library obligations to the College before a transcript, diploma, or certificate will be issued.

Guarantee of Student Success Policy

WCC is committed to ensuring that all its degree graduates demonstrate the knowledge and performance skills that are specified in their program. This extends beyond the student's graduation from WCC to include performance in the occupational area studied or successfully transferring into a similar or compatible program at a four-year college or university. Contact the associate vice president of student services for further details and/or a copy of the full policy.

Honors

Honor Roll and Graduation Honors

The Deans' Honor Roll acknowledges students who have completed 12 or more credits during a semester with a minimum 3.5 grade point average. Students completing 12 or more credits with a minimum 3.8 grade point average are considered High Honor Roll students. Students attending the college on a part-time basis who, over the previous three semesters (Spring/Summer counts as one semester), have accumulated at least 15 credits and earned a minimum 3.7 grade point average are also on the Deans' Honor Roll. Students are honored at either a spring or winter honors convocation.

Graduation honors are awarded to students earning a minimum 3.5 cumulative grade point average at the time of graduation; High Honors are awarded to students earning a minimum 3.8 cumulative grade point average at the time of graduation. Honors or High Honors is indicated on students' transcripts, the commencement program, and press releases.

Honors Options in Associate Degree Programs

Two honors options are available for all WCC students: special courses designated as honors sections, and honors options in WCC associate's degree programs.

WCC offers some sections of courses that will be designated as honors sections. The honors sections of courses will provide interested students with the opportunity to pursue more challenging work in a supportive environment in which a high level of scholarship is stressed. There is no prerequisite for registering for honors course sections. The honors sections of courses generally will be characterized by:

1. Greater emphasis on the use of primary source material or artifacts.
2. Greater emphasis on independent study and research.
3. More challenging course material having a higher degree of intellectual rigor.
4. An interdisciplinary approach to course material where such an approach is appropriate.
5. Greater emphasis on the development of students' critical thinking skills.
6. Use of, or experimentation with, alternative methods of instruction.
7. Satisfaction of the honors service component through coursework where appropriate.

An Honors Program option is available for some associate's degree programs. Students graduating with honors options in associate's degree programs will have this designation printed on their diplomas. Students wishing to fulfill the honors option requirements at WCC will need to:

- complete twelve (12) hours of designated honors classes prior to graduation in the following:

  two courses in general education, one course in the student's program area, and the required capstone seminar

- maintain a 3.5 GPA overall average with a 3.5 GPA in the Honors classes and no less than 3.0 GPA in any one Honors class
- meet the service requirement of the Honors Program through activities approved by the honors director and/or steering committee
- meet any other requirements for graduation from WCC

An Honors Program brochure is available from the Information Center, or you may call the Counseling Office at (734) 973-5124 for further information. Also, please see the section below on Phi Theta Kappa, the International Honor Society for two-year colleges.

Honor Society (Phi Theta Kappa)

Phi Theta Kappa, the international honor society for two-year colleges, has been recognizing academic achievement since 1918. This organization has chartered 1,100 chapters; it inducted its one-millionth member in 1993.

To be eligible for membership, students must be enrolled at WCC or another regionally accredited institution offering an associate degree program. They must have completed at least 12 hours of course work leading to an associate degree (part-time students may be eligible) and have a cumulative GPA of 3.5.

Students inducted into the organization will receive a Golden Key membership pin, an embossed certificate, the Golden Key Newsletter, and a Phi Theta Kappa Scholarship Directory. Some $21 million in transfer scholarships is available exclusively for society members as well as many other scholarship opportunities. Society members will wear a gold braid and tassel at commencement ceremonies and receive a gold diploma seal indicating membership. This designation will also be included on students' academic transcripts.

If you meet the eligibility requirements for Phi Theta Kappa or would like further information, a brochure is available from the Information Center, or you may call the faculty advisor for Phi Theta Kappa at (734) 973-3367.

Release of Student Information Policy (FERPA)

It is the purpose of the Board of Trustees' Policy on Release of Student Information to enssure students' access to their educational records and to protect their rights to privacy by limiting the transferability of their records without their consent. It is the further purpose of this policy to comply with the Family Educational Rights and Privacy Act (FERPA) of 1974, as amended. A copy of the complete policy may be obtained from the Office of Student Records.

Education records are maintained in various offices of Washtenaw Community College, 4800 E. Huron River Drive, Ann Arbor, Michigan. Refer to the entire policy for types and custodians of records.

No one shall have access to, nor will the college disclose, any information from a student's educational records without the written consent of the student except to WCC personnel performing an assigned college activity and those designated by federal law.

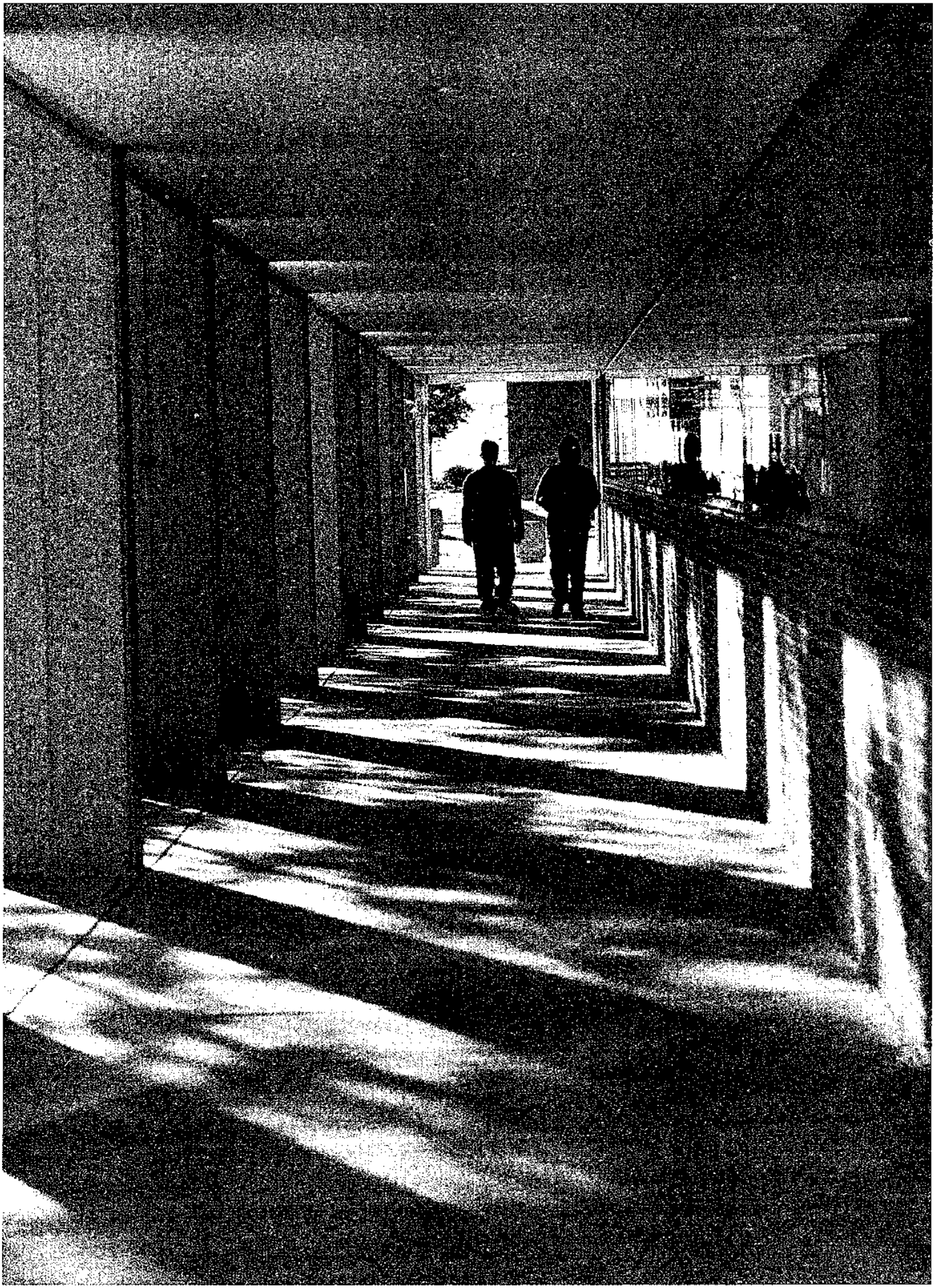
Although it is the practice of the college not to release information without the informed consent of the student, at its discretion, the College may provide directory information in accordance with the provisions of FERPA to include: student name, address, telephone number, semesters of attendance, full-time/part-time status, degree(s) awarded, major field(s), and date(s) of graduation.

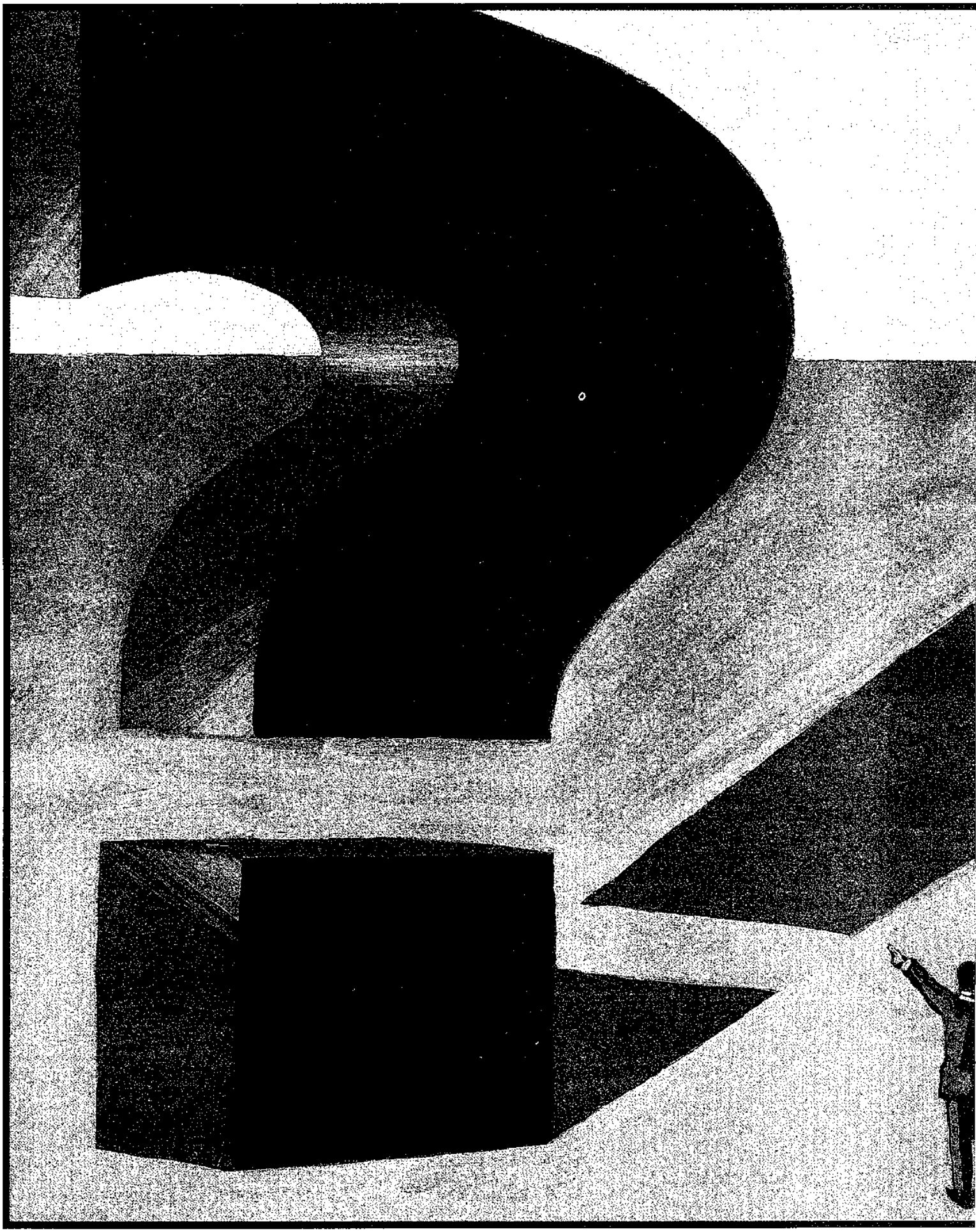
Students may have directory information withheld by filing, within two weeks of the first day of the academic semester, a petition for exemption with the Office of Student Records. WCC assumes that failure to specifically request the withholding of categories of directory information indicates individual approval for disclosure. Requests for the withholding of directory information are only valid for the current academic year.

Students wishing to review their educational records must file a written request with the custodian of the records, listing the item(s) of interest. Records covered by FERPA will be made available for inspection within 30 days of the request.

The law provides students with the right to inspect and review information in their educational records, to challenge the content of their educational records, to have a hearing if the outcome of the challenge is unsatisfactory, and to submit explanatory statements for inclusion in their file if they feel the decision of the hearing panel to be unacceptable.

Students who believe that the adjudication of their challenge was unfair, or not in keeping with the provisions of FERPA, may request in writing assistance from the president of WCC. Further, students who believe their rights have been abridged may file complaints with the Family Policy and Regulations Office, U.S. Department of Education, Washington, D.C. 20202, concerning the alleged failure of WCC to comply with the Act. Revisions and clarifications of college policies are published as experience with the law warrants.





Campus Information

Campus Information

Alcoholic Beverages on Campus

Students, employees, and visitors of WCC are expected to observe all federal, state, and local regulations governing the use and possession of alcoholic beverages while on College property, and at College-sponsored events while any minor is present. All students, employees, and visitors are specifically forbidden to use or possess alcoholic beverages or to be under the influence of same while on College property.

College Closing for Emergency and Severe Weather

Occasionally extreme weather conditions or other unforeseen events necessitate closing the College either before or after classes have begun for the day. Students can tune into local radio stations for college closing information: WDET-FM (101.9), WEMU-FM (89.1), WHMI-FM (93.5), WIQB-FM (102.9), WJXQ-FM (106.1), WLEN-FM (103), WQKL-FM 107.1) WUOM-FM (91.7), WXIK (KIX 94 News), WAAM-AM (1600), WJR-AM (750), WSDS-AM (1480), WWJ-AM (950), WCM-AM (900) and WNRS-AM (1290) WTKA-AM (1050). The following TV stations will also broadcast college closing information: WJBK (Channel 2), WDIV (Channel 4), WXYZ (Channel 7) and WKBD (Channel 50). A pre-recorded message will be available at the College switchboard giving details of the College closing and reopening.

Dental Clinic

The College has a complete, modern dental clinic which is open to students, faculty, and staff. Treatment is provided by University of Michigan dental students under the supervision of a licensed dentist. Contact the Dental Clinic for current information regarding services provided, hours of operation, and fees.

Eating and Drinking in Classes

Eating and drinking in classes and instructional labs are strongly discouraged. However, faculty members are provided the freedom to make judgments regarding these matters in their particular classes. In instances where eating and drinking in classes are detrimental to the learning atmosphere or the well-being of instructional equipment/facilities, the College administration reserves the right to deny these privileges in selected rooms. Students may also file complaints if they feel that eating and/or drinking rules in a particular course are inappropriate and are inhibiting their learning. Such complaints should be filed with the area dean or the associate vice president of student services.

Emergency Notification Service for Students

If the Office of Campus Safety and Security receives a telephone call stating that an emergency exists for a student on campus, the Campus Safety and Security staff will consult student records and attempt to locate the student in the assigned classroom. If they cannot be located, an attempt will be made to advise the caller that they could not be located. No other information will be released to the caller.

Emergency Telephones and Escort Services

The Office of Campus Safety and Security ensures the safety and security of the College community. This includes nighttime escort services for students walking to their cars. An escort can be obtained by calling 3411 from any in-house telephone. The Office of Campus Safety and Security is located in the Plant Operations building.

Six emergency telephones are available on campus. Locations are:

- Adjacent to the Business Education Building
- Adjacent to the Technical and Industrial Building (near the plaza)
- Lobby of the Occupational Education Building
- Southeast corridor in the Occupational Education Building
- Third floor of the Liberal Arts and Science Building
- Adjacent to Lot C near the Family Education Building

Exterior emergency telephones are answered 24 hours per day. Interior emergency telephones are answered during normal school hours when the Information Center is staffed.

Food Services

Food service is available on the first floor of the Student Center Building in the cafeteria and vending machine area. There are also vending machines in every building on campus. During the fall and winter semesters, the Artists' Gallery dining room also is open for lunch. Students staffing the kitchen and dining room earn credit in the Culinary Arts program.

Information Center

The College Information Center, located on the second floor of the Student Center Building, is available to assist individuals who have questions or concerns. Many printed materials about the College, including program brochures, are available at the Center. The Center can also direct individuals to specific areas/individuals, provide AATA bus schedule information, and offer other assistance. The Information Center can be reached at (734) 973-3622.

Lost and Found

The Lost and Found is located in the Campus Safety and Security Office. Any person finding lost property on campus should call or deliver it to the Campus Safety and Security Office. Persons losing property on college premises should contact the Campus Safety and Security Office with a description and approximate value of the item. A report will be made by the Campus Safety and Security Office if requested.

Medical Emergency Procedures

In the event of a medical emergency, dial (734) 973-3411. Campus Safety personnel are trained in emergency medical procedures and can access other emergency medical services.

Meeting Rooms

Organized student or community groups may secure rooms for meetings by calling the Office of Conference Services at (734) 677-5033.

Parking

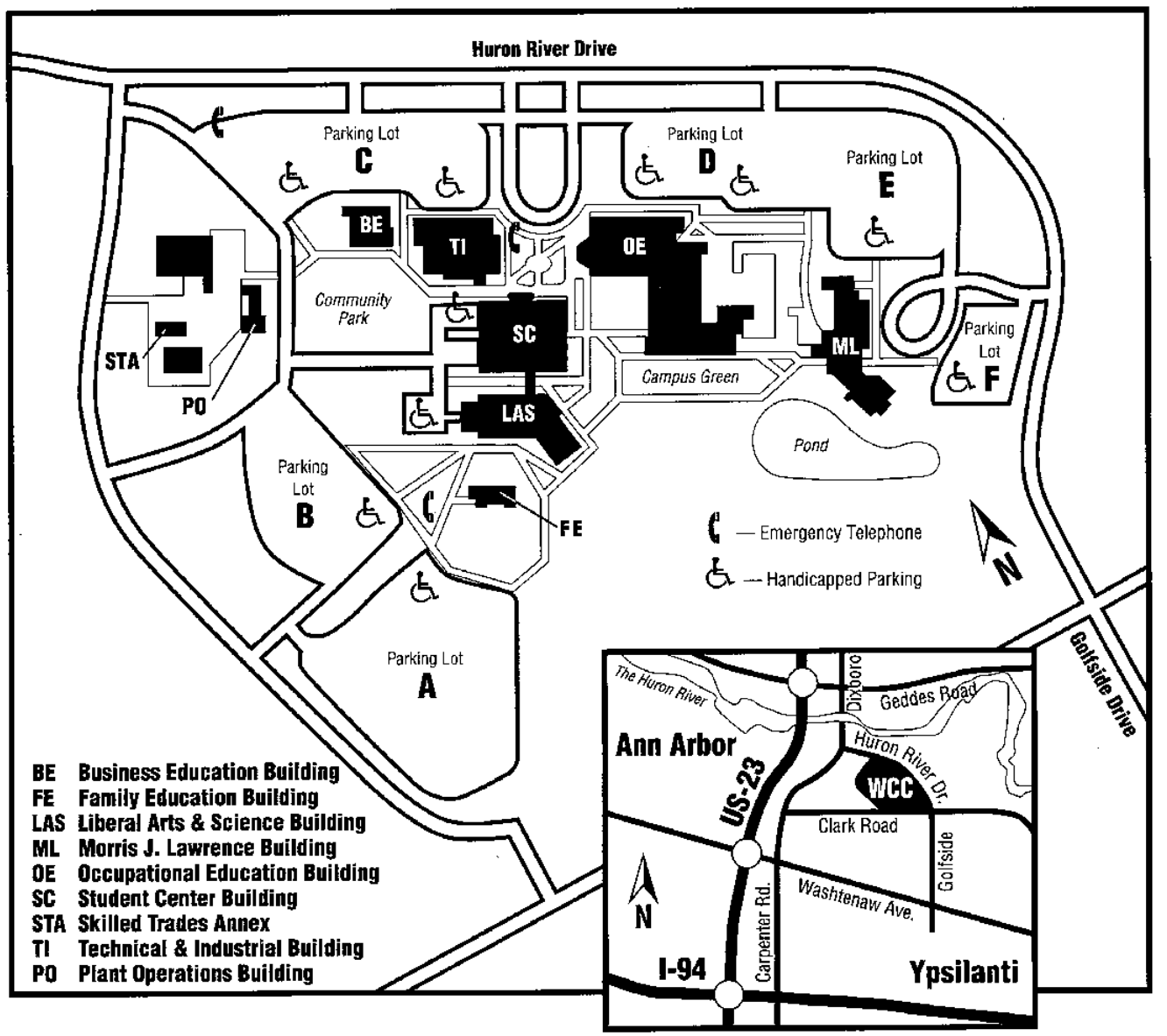
Parking is provided on campus for general, handicapped, visitor, vendor and service vehicles. Parking is prohibited in the following areas: bus stops, fire lanes, main travel lanes, sidewalks, handicapped spaces without a permit, restricted parking spaces without a permit, marked crosswalks, building entrances and exits, and outside marked parking spaces. Parking regulations on campus are covered by township ordinance and violations will be issued.

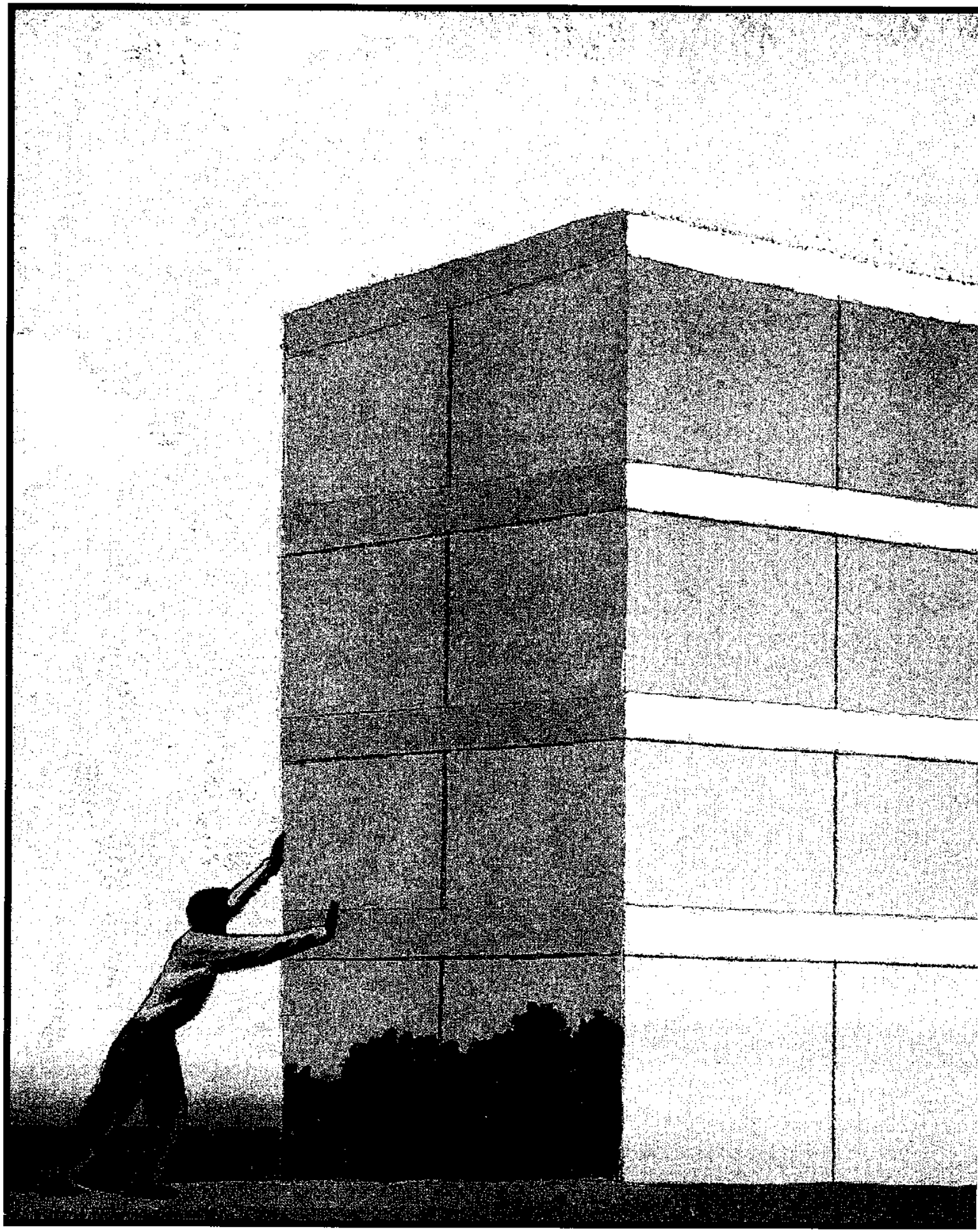
Smoke-Free Campus

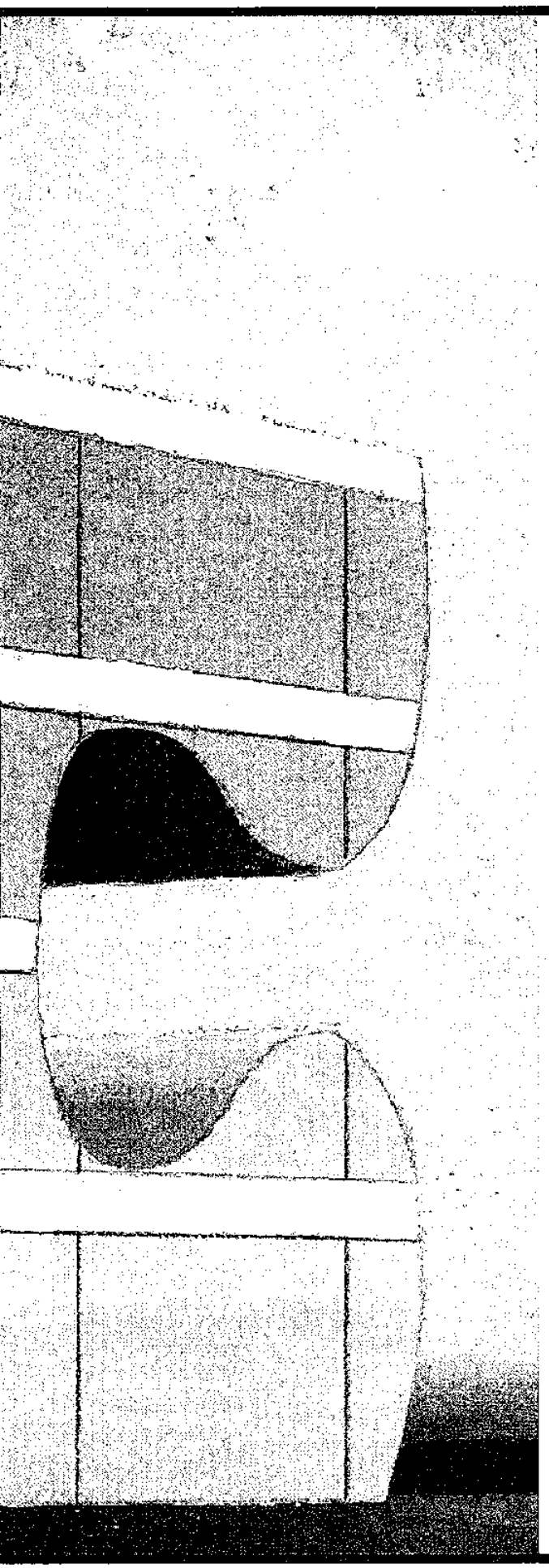
In the interest of providing a safe and healthy environment for the College's students, employees, and visitors, smoking is prohibited in all Washtenaw Community College buildings.

Reporting Theft and Vandalism

Incidents of criminal acts should be reported to the Office of Campus Safety and Security where staff will assist in filling out appropriate reports. The Office of Campus Safety and Security will also assist the Washtenaw County Sheriff's Department in establishing the facts surrounding an incident and determining preventive measures.







Program Listings

Program Index

General Studies Programs

Associate's degree programs in general studies with concentrations in one of the five instructional divisions can be created to meet individual students' needs and interests. Students may choose what area(s) they wish to emphasize. They begin this program by meeting with a counselor who will assist them with customizing their program to ensure that the courses selected meet all of the core curriculum elements and graduation requirements. An individual's program will be entered into the computer system so that it can be stored, revised, and used to evaluate progress toward graduation.

The requirements of general studies programs are: 1) a minimum of 60 credit hours, 2) a minimum earned cumulative GPA of 2.00, 3) completing the 24 core elements, and 4) meeting the 15-credit WCC residency requirement. Approximately 24 credit hours are needed in English, political science, biology, computer information systems and math in order to meet the core curriculum requirements. Specialty courses also meet core elements.

Associate's degree programs in general studies may be completed in the following areas:

Business (Code: GSBU)
Health and Public Services (Code: GSHP)
Humanities and Social Sciences (Code: GSHS)
Math and Natural Sciences (Code: GSMN)
Technology (Code: GST)

Washtenaw Technical Middle College

The Washtenaw Technical Middle College made its official debut as a charter school on September 2, 1997. The Middle College is essentially a high school on campus. Its mission is the development of high school graduates for success in high skill/high wage technology-based fields including computing, manufacturing, engineering, business, and health. This program targets its graduates for immediate employment, continuation at WCC, or transfer to a college or university beyond high school. All classes take place on campus and students receive dual credit in the 11th and 12th grade as appropriate, graduating with a high school diploma and college credit for all WCC courses completed. The Technical Middle College has its own dean and board of directors. Admission is open to all high school students. For further information call (734) 973-3410 or visit the WTMC office located in the Technical and Industrial Building.

WASHTENAW
TECHNICAL
MIDDLE
COLLEGE

General Education Philosophy Statement

General Education is highly valued at Washtenaw Community College because it develops and nurtures certain habits of mind that reach beyond a student's area of academic emphasis and enables the student to meet critically, objectively, and successfully the challenges of education, work, and life. By requiring a strong core of common learning, the College demonstrates its commitment to providing a broad-based education to all degree recipients, which includes useful skills, knowledge, and experiences to support a variety of lifelong endeavors. To this end, the College has defined general education as a set of common skills and knowledge known as the "core curriculum" for all degree programs at WCC. This core is interdisciplinary and requires that those receiving an associate degree demonstrate competencies and knowledge in the following areas:

- oral and written communication,
- mathematics,
- critical thinking and problem solving,
- the arts and humanities,
- the natural sciences,
- the social sciences, and
- computer and technology literacy.

WCC Core Curriculum for all Degree Programs

Effective Fall 1993

Each of the associate degree programs listed in the College catalog or on the College web page have been designed to fulfill the 24 elements of the Core Curriculum. Successfully completing the required courses for a specific degree program will insure that the core elements are met. Substitutions for required courses should be made carefully to be sure core elements are not being missed. To find out which core elements are included in a particular course, check the course description. Elements fulfilled by each course are indicated by number at the bottom of the description following the words "fulfills core elements:" Students who customize their own programs for a General Studies Degree must be careful to select courses for a program of study that meets all 24 elements. A counselor or advisor should be consulted to develop a general studies program. Students who entered into a program before Fall 1993 are not required to meet the core curriculum as long as their program is still active and they meet its requirements.

Note: Students who have earned a bachelor's degree or higher from an accredited U.S. college or university may inquire in the Office of Student Records to waive the core element requirements.

The Core Curriculum Elements:

Communication:

1. To read and listen in a critical and perceptive way; to speak in an organized, clear, and effective manner.
2. To use information sources and information-gathering techniques; to cite sources when producing written communications.
3. To develop, organize, and express thoughts in writing using standard English.

Mathematics:

4. To apply basic mathematics through the level of elementary algebra.
5. To represent and solve problems using mathematical techniques.
6. To interpret elementary descriptive statistics.

Critical thinking:

7. To comprehend and use concepts and ideas.
8. To develop, express, test, and evaluate ideas.
9. To analyze problems, develop solutions, and evaluate results in a clear, logical, and consistent manner.
10. To distinguish between fact and opinion; to recognize biases and fallacies in reasoning.

Computer literacy:

11. To use computer systems to achieve professional, education, and personal objectives.
12. To apply the protocols of computer use and respect the legal and other rights of individuals and organizations.

Arts and Humanities:

13. To be aware of the artistic experience in personal and cultural enrichment, growth, and communication.
14. To be aware of the nature and variety of the human experience through the methods and applications of the humanities.

Natural Sciences:

15. To understand the basic principles of scientific inquiry.
16. To have a knowledge of basic human biological principles, including those related to wellness.
17. To understand the basic principles of the natural sciences, and their relationship to the environment.

Technology:

18. To understand the basic principles and applications of technology.
19. To understand the principle of integrating technological elements into systems.
20. To understand the relationship of technology to individuals, society, and the environment.

Social Sciences:

21. To understand the methods and applications of the social sciences in exploring the dynamics of human behavior.
22. To understand those principles and values, including individual rights and civic responsibilities, which maintain and enhance democracy and freedom in a pluralistic society.
23. To have a working knowledge of the history, structure, and function of American social, political, and economic institutions.
24. To be aware of the contemporary global community, especially its geographical, cultural, economic, and historical dimensions.

Courses Meeting Core Elements 13 and 14

Throughout the following listing of programs, a frequent requirement for completion of the programs is to select a course that meets core elements 13 and 14. The following is a list of those courses. Any of these may be chosen to fulfill core elements 13 and 14.

Course Number	Course Title	Credit Hours
ANT 201	Introduction to Cultural Anthropology	3
ART 130	Art Appreciation	3
ART 143	Art and Culture of Afro-America	3
ART 150	Monuments from Around the World	3
COM 142	Oral Interpretation of Literature	3
DAN 110	Afro-American Dance I	1
DAN 180	Dance Appreciation (The World of Dance)	3
DAN 210	Afro-American Dance II	1
DRA 167	Theater Production	2
DRA 170	Stratford Theatre Festival	2
ENG 140	Horror and Science Fiction	3
ENG 160	Introduction to Literature: Poetry and Drama	3
ENG 170	Introduction to Literature: Short Story and Novel	3
ENG 181	African-American Literature	3
ENG 200	Shakespeare	3
ENG 211	American Literature I	3
ENG 212	English Literature I	3
ENG 213	World Literature I	3
ENG 214	Literature of the Non-Western World	3
ENG 222	American Literature II	3
ENG 223	English Literature II	3
ENG 224	World Literature II	3
FRN 111	First Year French I	4
FRN 112	French Laboratory	1
FRN 120	Beginning Conversational French	2
FRN 121	Intermediate Conversational French	2
FRN 122	First Year French II	4
FRN 123	French Laboratoiry II	1
FRN 213	Second Year French I	3
FRN 224	Second Year French II	3
GRM 111	First Year German I	4
GRM 120	Conversational German	2
GRM 121	Intermediate Conversational German	2
GRM 122	First Year German II	4
HST 160	American Film	3
HUM 101	Humanities I – Ancient to Medieval Times	3
HUM 102	Humanities II – Renaissance to Modern Times	3
HUM 140	Special Topics	3
HUM 150	International Cinema	3
HUM 160	American Film	3
HUM 170	Montreal World Film Festival	2
HUM 180	Understanding the Moving Image	3
MUS 180	Music Appreciation	3
MUS 206	Vocal Performance	2
PHL 120	Philosophy of Work	3
PHL 200	Existentialism	3
PHO 103	History of Photography	3
RUS 111	First Year Russian I	4
RUS 120	Conversational Russian	2
RUS 121	Intermediate Conversational Russian	2
RUS 122	First Year Russian II	4
SPN 111	First Year Spanish I	4
SPN 112	Spanish Laboratory I	1
SPN 119	Spanish Language Adventures	1
SPN 120	Beginning Conversational Spanish - Level I	2
SPN 121	Beginning Conversational Spanish - Level II	2
SPN 122	First Year Spanish II	4
SPN 123	Spanish Laboratory II	1
SPN 211	Intermediate Conversational Spanish	2
SPN 213	Second Year Spanish I	3
SPN 224	Second Year Spanish II	3

Accounting Department

Accounting (ACCT)

Associate in Applied Science Degree

This program prepares you for jobs with duties assigned to a beginning accountant, such as verifying additions; checking audits, postings, and vouchers; analyzing accounts; and preparing financial statements. It also gives you credits for transfer to four-year accounting degree programs, including programs at Eastern Michigan University, Madonna University, and Walsh College.

Advisors: Cliff Bellers, Mark Johnston

Articulation:
This program has articulation agreements with Eastern Michigan University (EMU), Madonna College, and Walsh College. If you are interested in transferring to any of these institutions, you may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide.

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
ACC 111	Principles of Accounting I	3
BMG 140	Introduction to Business	3
CIS 110	Business Computer Systems	4
Elective 1	MTH 163 or MTH 181 or Higher	3
Elective [2]	BIO 101 or SCI 100	1
Semester 2		**(16 Credits)**
ACC 122	Principles of Accounting II	3
ACC 131	Computerized Accounting	3
COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4
Elective	PLS 112 or PLS 150	3
Semester 3		**(15 Credits)**
ACC 213	Intermediate Accounting	3
BMG 111	Business Law I	3
BMG 230	First Line Management	3
ECO 211	Principles of Economics I	3
ENG 122	Composition II	3
Semester 4		**(16 Credits)**
ACC 225	Managerial Cost Accounting	3
BMG 200	Human Relations in Business	3
BMG 207	Business Communication	3
BMG 220	Principles of Finance	3
ECO 222	Principles of Economics II	3
Elective *[3]	Humanities Elective	1
Minimum Credits Required:		**61**

*Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).

[1] Choose MTH 181 if transferring to EMU. Madonna will accept either MTH 163 or MTH 181.
[2] Choose BIO 101 if transferring to EMU or Madonna.
[3] If transferring to EMU, choose ENG 181 or ENG 214.

Computerized Accounting (CAC)

Mastery Certificate

This program prepares you for entry-level accounting positions with accounting and tax services, CPA firms, and small businesses, where you'll provide accounting skills, computer competence, and office support. It also gives you credit for transfer into WCC's accounting associate's degree program.

Advisors: Cliff Bellers, Mark Johnston

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- One semester of high school keyboarding; or BOS 101, 101A or 102; or pass proficiency exam.
- One year of high school computer instruction, or CIS 100 or 110, or permission of the program advisor.

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
ENG 111 *	Composition I	4
Elective	ACC 091 or ACC 111*	3
Elective	BOS 157 or BOS 158	2
Elective	BOS 257 or BOS 258	2
Elective *	MTH 163 or MTH 181 or Higher	3
Semester 2		**(14 Credits)**
ACC 131 *	Computerized Accounting	3
BMG 200 *	Human Relations in Business	3
BMG 207 *	Business Communication	3
BOS 183	Introduction to Excel	2
TAX 101	Federal Income Taxes for Individuals and Small Bus	3
Semester 3		**(3 Credits)**
ACC 174	ACC Co-op Education I	3
Minimum Credits Required:		**31**

*These courses are also required in the two-year associate's degree program in Accounting.

Business Department

Business (BAS)

Associate in Science Degree

This program prepares you for transfer into a Bachelor of Business Administration degree program at a four-year college or university, where you'll further improve your communication and interpersonal skills while developing a specialty in accounting, economics, finance, management, computer information systems, or some other aspect of business. It also gives you the ability to focus your program by selecting transferable elective courses in business management, computer science, or computer information systems.

Advisor: Ron Zeeb

Articulation:
Please consult a transfer counselor or academic advisor to confirm that courses in this program will meet the requirements of the college and major to which you will transfer. In some cases, substitutions may need to be made. The general courses in this program meet the requirements of the MACRAO Agreement for transferring general education between Michigan colleges and universities. See Appendix A of the WCC Catalog for more information on MACRAO. Transfer guides for most Michigan colleges and universities are available in the Transfer and Placement Center.

Program Admission Requirements:
Two years of high school algebra (Algebra I and II), or MTH 169, or equivalent score on math placement test. Students must have passing scores on the College's basic skills placement tests.

Course Number	Course Title	Credit Hours
General Courses		**(34 Credits)**
BIO 101	Concepts of Biology	4
CIS 110	Business Computer Systems	4
COM 101	Fundamentals of Speaking	3
COM 102	Interpersonal Communication	3
ENG 111	Composition I	4
ENG 122	Composition II	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective	Humanities Restricted Elective	3
	Choose a course from the list of humanities courses in the WCC Catalog that meet core elements 13 &14 (see p. 60).	
Elective	MTH 181, or MTH 191, or MTH 197	4
Program Courses		**(30 Credits)**
ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
BMG 111	Business Law I	3
BMG 140	Introduction to Business	3
BMG 207	Business Communication	3
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
BMG 265	Business Statistics	3
Elective [1]	Business Elective	6

Choose six credit hours from the disciplines of BMG, CIS, or CPS.

Minimum Credits Required: 64

[1] *Consult your advisor to select courses that will meet the requirements of the college or university to which you are transferring.*

Business Management (BMG)

Associate in Applied Science Degree

This program prepares you for being promoted within your current field or entering the job market with a new position where you will use skills in planning, decision making, problem solving, human resources management among others that are required for leadership in business operations and supervision. It also gives you credits for transfer to four-year business programs. If you are sure of your intention to transfer into a bachelor's degree program in business, you should enroll in the Business Associate in Science Degree program.

Advisor: Rosemary Wilson

Articulation:
This program has articulation agreements with Eastern Michigan University's College of Business and College of Technology, Madonna College, and Walsh College. If you are interested in transferring credits to any of these institutions, you may obtain copies of the articulation agreements from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following these guides. Students planning to transfer to four-year institutions should consult with an advisor at the receiving institution to confirm the transferability of courses.

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- One semester of high school keyboarding; or BOS 101, 101A or 102; or pass proficiency exam.
- One year of high school computer instruction, or CIS 100 or 110, or permission of the program advisor.

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
BMG 140	Introduction to Business	3
BMG 160	Principles of Sales	3
ENG 111	Composition I	4
Elective [1]	ACC 091 or ACC 111	3
Elective [2]	MTH 163 or Higher	3
Semester 2		**(19 Credits)**
BMG 111	Business Law I	3
BMG 208	Principles of Management	3
CIS 110	Business Computer Systems	4
COM 101	Fundamentals of Speaking	3
ENG 122	Composition II	3
Elective [1]	ACC 092 or ACC 122	3
Semester 3		**(15 Credits)**
BMG 150	Labor-Management Relations	3
BMG 207	Business Communication	3
ECO 211	Principles of Economics I	3
Elective	PLS 112 or PLS 150	3
Elective [3]	BIO 101 or SCI 100	1
Elective	Select from ACC 225, BMG 122, BMG 174, BMG 230, BMG 235, or BMG 255	2

Semester 4		(18 Credits)
BMG 200	Human Relations in Business	3
BMG 220	Principles of Finance	3
BMG 240	Human Resources Management	3
BMG 250	Principles of Marketing	3
ECO 222	Principles of Economics II	3
Elective *	Humanities Elective	3
Minimum Credits Required:		**68**

[1]If transferring, choose higher level ACC 111 and ACC 122. Courses under 100 level generally do not transfer.
[2]Choose MTH 181 if transferring to EMU. Madonna will accept MTH 163 or anything higher.
[3]Choose BIO 101 if transferring to EMU or Madonna. SCI 100 does not transfer to either institution.

**Choose from list of humanities courses that meet elements 13 and 14 (on page 60) or choose ENG 181 or ENG 214 if transferring to EMU.*

Business Sales (BSLS)

Mastery Certificate

This program prepares you for immediate employment in sales jobs that require skills in sales presentation, negotiation, customer service, display preparation, inventory analysis, and basic market research. It also gives you credit hours which can be used toward a Washtenaw Community College associate's degree in business management.

Advisor: Steve Ennes

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- One semester of high school keyboarding; or BOS 101, 101A, or 102; or pass proficiency test

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
BMG 140	Introduction to Business	3
COM 101	Fundamentals of Speaking	3
PSY 100	Introductory Psychology	3
Elective	ENG 100 or ENG 111	4
Elective	MTH 163 or MTH 169 or Higher	3
Semester 2		**(17 Credits)**
BMG 111	Business Law I	3
BMG 160	Principles of Sales	3
BMG 200	Human Relations in Business	3
BMG 250	Principles of Marketing	3
Elective	ACC 091 or ACC 111	3
Elective	Select from BMG 174, BMG 255, BMG 270, or CIS 100	2
Minimum Credits Required:		**33**

First Line Management (FLMC)

Mastery Certificate

This program prepares you to move into a position as a supervisor, team leader, or first-line manager by adding interpersonal and conceptual skills to your background in a technical area. The program also gives you coursework that can be applied toward a WCC associate's degree in first-line management.

Advisor: Rosemary Wilson

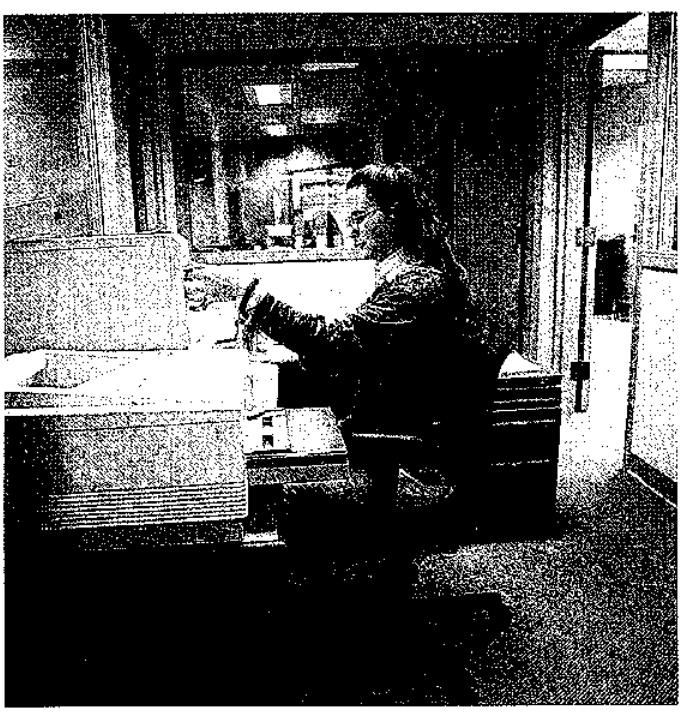
Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(4 Credits)**
ENG 111	Composition I	4
Program Courses		**(26 Credits)**
BMG 106	Legal Basics in Business	3
BMG 200	Human Relations in Business	3
BMG 207	Business Communication	3
BMG 230	First Line Management	3
BMG 272	Problem Solving	2
BMG 273	Understanding the Organization: Systems	3
BMG 279	Performance Management	3
BMG 287	Managerial Leadership	3
BMG 291[1]	First Line Leadership Capstone	3
Program Related Courses		**(6 Credits)**
ACC 220[2]	Financial Planning, Budget, and Control	3
ACC 230[3]	Financial Statement Analysis for Non-Accountants	3
Minimum Credits Required:		**36**

[1]Complete 24 credits of program requirements before taking BMG 291.

[2]BMG 273 must be taken before ACC 220.

[3]ACC 220 must be taken before ACC 230.



First Line Management (FLMD)

Associate in Applied Science Degree

This program prepares you for management and supervision job opportunities by adding management skills to your technical or occupational certificate. You earn this degree by combining the First-Line Management Mastery Certificate with courses that meet the core curriculum and fifteen credit hours from a technical or occupational area.

Advisor: Cheryl Gracie

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(15 Credits)**
ENG 111	Composition I	4
Elective	CIS 100 or 110	3
Elective	SCI 100 or BIO 101 or 102	1
Elective	Humanities Restricted Elective: Choose a course from the list of humanities courses in the College catalog that meet core elements 13 &14 (see p. 60).	1
Elective	MTH 163 or higher	3
Elective	PLS 112 or PLS 150	3
Program Courses		**(26 Credits)**
BMG 106	Legal Basics in Business	3
BMG 200	Human Relations in Business	3
BMG 207	Business Communication	3
BMG 230	First Line Management	3
BMG 272	Problem Solving	2
BMG 273	Understanding the Organization: Systems	3
BMG 279	Performance Management	3
BMG 287	Managerial Leadership	3
BMG 291 [1]	First Line Leadership Capstone	3
Program Related Courses		**(21 Credits)**
ACC 220 [2]	Financial Planning, Budget, and Control	3
ACC 230 [3]	Financial Statement Analysis for Non-Accountants	3
Elective	15 credits from any occupational/technical certificate	15
Minimum Credits Required:		**62**

[1] Complete 24 credits of program requirements before taking BMG 291.
[2] BMG 273 must be taken before ACC 220.
[3] ACC 220 must be taken before ACC 230.

Human Resource Management (HRSC)

Achievement Certificate

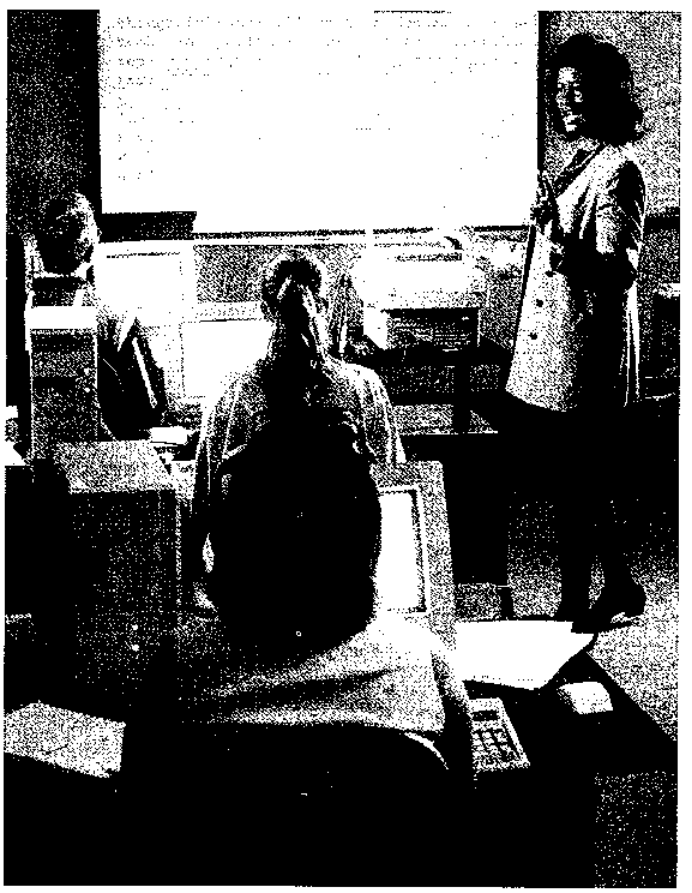
This program prepares you for entry-level jobs as a human resource assistant or specialist where you will be assisting in activities that range from recruiting, interviewing and hiring job candidates to evaluating jobs, negotiating contracts, and ensuring company compliance with equal opportunity regulations. This program also provides you with basic management skills that will improve your ability to manage people.

Advisors: Colette Young

Articulation:
All of the courses in this program can be applied toward the Associate in Applied Science degree in Business Management.

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(22 Credits)**
BMG 140	Introduction to Business	3
BMG 150	Labor-Management Relations	3
BMG 200	Human Relations in Business	3
BMG 208	Principles of Management	3
BMG 240	Human Resources Management	3
BMG 279	Performance Management	3
CIS 110	Business Computer Systems	4
Minimum Credits Required:		**22**



Small Business and Entrepreneurship (SBEA)

Achievement Certificate

This program prepares you for getting started in your own small or home-based business, where skills in basic small business management and writing a business plan will be crucial. The program also gives you a taste for what is involved in having your own business (if you're using this program to explore the idea), and a feeling for "intrapreneurship" — an entrepreneurial approach to expanding your opportunities within the corporate structure.

Competency in keyboarding is necessary for success in this program. If you need to improve your keyboarding skills you should take BOS 101 or 101A before beginning the program.

Advisors: **Granville Lee**

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(13 Credits)**
BMG 109	Intro to Home-Based/Small Business Management	3
BMG 207	Business Communication	3
BMG 209	Writing the Business Plan	2
BMG 292	Small Business and Entrepreneurship Capstone	2
Elective	Directed Business Elective: Select one course ACC 111, 122; BMG 106, 111, 130, 140, 210, 220, 230, 272, 273, 279; or CIS 110	3
Minimum Credits Required:		**13**

Business Office Systems Department

Administrative Assistant Technology (AATC)

Mastery Certificate

This program prepares you for immediate employment in entry-level information processing, data entry, receptionist, and general office positions where skills in keyboarding and document formatting using computers, record management, and internet communication skills are important. It also gives you credits that can be used toward a Washtenaw Community College associate's degree in Administrative Assistant Technology.

Advisors: **Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson**

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 130	Business Machines	3
BOS 151	Information Processing Principles and Applications	4
ENG 100	Communication Skills	4
Semester 2		**(17 Credits)**
BOS 102	Keyboarding and Document Formatting II	3
BOS 107	Clerical Methods and Procedures	4
BOS 157	Microsoft Word for Windows I	2
BOS 206	Outlook and Netscape Office Applications	2
BOS 250	Administrative Office Systems and Procedures	4
BOS 257	Microsoft Word for Windows II	2
Minimum Credits Required:		**31**

Administrative Assistant Technology (AATD)

Associate in Applied Science Degree

This program prepares you for higher level support positions in office settings where increased responsibilities require technical skills in desktop publishing, presentation software, accounting, and database software. You will also gain broader skills through completion of the core curriculum competencies required for an associate's degree.

Advisors: **Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson**

Program Admission Requirements:
One year of high school computer instruction, or CIS 100 or 110, or permission of the program advisor.

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 130	Business Machines	3
BOS 151	Information Processing Principles and Applications	4
ENG 100	Communication Skills	4
Semester 2		**(17 Credits)**
BOS 102	Keyboarding and Document Formatting II	3
BOS 107	Clerical Methods and Procedures	4
BOS 157	Microsoft Word for Windows I	2
BOS 206	Outlook and Netscape Office Applications	2
BOS 250	Administrative Office Systems and Procedures	4
BOS 257	Microsoft Word for Windows II	2
Semester 3		**(15 Credits)**
BOS 183	Introduction to Excel	2
BOS 208	Desktop Publishing for the Office	3
BOS 225	Information Processing Systems and Procedures	3
MTH 163	Business Mathematics	3
PLS 112	Introduction to American Government	3
Elective *	Humanities Elective	1

Semester 4		(17 Credits)
BOS 152	Computerized Transcription	3
BOS 182	Introduction to Microsoft Access	2
BOS 203	Keyboarding and Document Formatting III	3
BOS 207	Introduction to PowerPoint	2
COM 101	Fundamentals of Speaking	3
SCI 100	Introduction to Natural Sciences	1
Elective	ACC 091 or ACC 111	3
Minimum Credits Required:		**63**

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Computer Software Specialty (CSSC)

Achievement Certificate

This program focuses on upgrading your basic keyboarding and computer skills to intermediate or advanced levels in six typical office software applications, using the Microsoft® Office Suite as well as a web browser. Successful completion of the required courses prepares you to take the Microsoft® Office User Specialist (MOUS®) certification exams.

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson

Program Admission Requirements:

Course Number	Course Title	Credit Hours
Required Courses		**(18 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 157	Microsoft Word for Windows I	2
BOS 182	Introduction to Microsoft Access	2
BOS 183	Introduction to Excel	2
BOS 206	Outlook and Netscape Office Applications	2
BOS 207	Introduction to PowerPoint	2
BOS 257	Microsoft Word for Windows II	2
Elective	BOS 151 or CIS 100 or CIS 110	3
Minimum Credits Required:		**18**

Medical Administrative Assistant Technology (MATC)

Mastery Certificate

This program prepares you for entry-level positions in doctor's offices, clinics, hospitals, pharmaceutical or insurance companies, or public health facilities where you will prepare, analyze, and retrieve health information. You may also perform receptionist duties, prepare charts and reports, schedule and bill patients, code and submit bills to insurance companies, and carry out some patient care duties such as sterilizing instruments and taking vitals. The program also provides the first two semesters of the Associate in Applied Science Degree in Medical Administrative Assistant Technology.

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 102	Keyboarding and Document Formatting II	3
BOS 151	Information Processing Principles and Applications	4
HSC 101	Healthcare Terminology	1
HSC 113	Introduction to Medical Science	2
Elective	BIO 102 Human Biology or BIO 111 Anatomy and Physiology	4
Semester 2		**(17 Credits)**
BOS 157	Microsoft Word for Windows I	2
BOS 223	Medical Office Procedures	3
BOS 224	Medical Office Insurance and Billing	4
BOS 257	Microsoft Word for Windows II	2
COM 101	Fundamentals of Speaking	3
HSC 115	Medical Office and Laboratory Procedures	3
Minimum Credits Required:		**34**

Medical Administrative Assistant Technology (MATD)

Associate in Applied Science Degree

This program builds on the skills acquired in the Medical Administrative Assistant Technology Mastery Certificate to prepare you for increased responsibility and greater job opportunities within the medical office setting.

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 102	Keyboarding and Document Formatting II	3
BOS 151	Information Processing Principles and Applications	4
HSC 101	Healthcare Terminology	1
HSC 113	Introduction to Medical Science	2
Elective	BIO 102 Human Biology or BIO 111 Anatomy and Physiology	4
Semester 2		**(17 Credits)**
BOS 157	Microsoft Word for Windows I	2
BOS 223	Medical Office Procedures	3
BOS 224	Medical Office Insurance and Billing	4
BOS 257	Microsoft Word for Windows II	2
COM 101	Fundamentals of Speaking	3
HSC 115	Medical Office and Laboratory Procedures	3

Semester 3		(13 Credits)
BOS 107	Clerical Methods and Procedures	4
BOS 210	Medical Transcription	3
BOS 225	Information Processing Systems and Procedures	3
MTH 163	Business Mathematics	3

Semester 4		(15 Credits)
BOS 182	Introduction to Microsoft Access	2
BOS 183	Introduction to Excel	2
BOS 203	Keyboarding and Document Formatting III	3
BOS 250	Administrative Office Systems and Procedures	4
PLS 112	Introduction to American Government	3
Elective *	Humanities Elective	1

Minimum Credits Required: 62

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Medical Transcription (MTR)

Achievement Certificate

This program prepares you for entry-level positions as a medical transcriptionist in a hospital, doctor's office, or private transcription company. It also gives you a foundation for work on a more comprehensive Mastery Certificate or Associate in Applied Science degree in Medical Administrative Assistant Technology.

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson

Program Admission Requirements:
One semester of high school chemistry or CEM 057

Course Number	Course Title	Credit Hours
Required Courses		**(16 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 102	Keyboarding and Document Formatting II	3
BOS 157	Microsoft Word for Windows I	2
BOS 210	Medical Transcription	3
HSC 101	Healthcare Terminology	1
Elective	Select one: BIO 102 Human Biology or BIO 111 Anatomy and Physiology	4

Minimum Credits Required: 16

Professional Office Systems (POSC)

Achievement Certificate
This program prepares you for entry-level office jobs requiring skills in keyboarding, information processing, and written communication. The program also gives you a foundation for continued study in one of Washtenaw Community College's Business Office Systems associate's degree programs.

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Dosye Thompson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(11 Credits)**
BOS 101	Keyboarding and Document Formatting I	3
BOS 107	Clerical Methods and Procedures	4
BOS 151	Information Processing Principles and Applications	4

Minimum Credits Required: 11

Computer Instruction Department

Business Computer Programming (BCP)

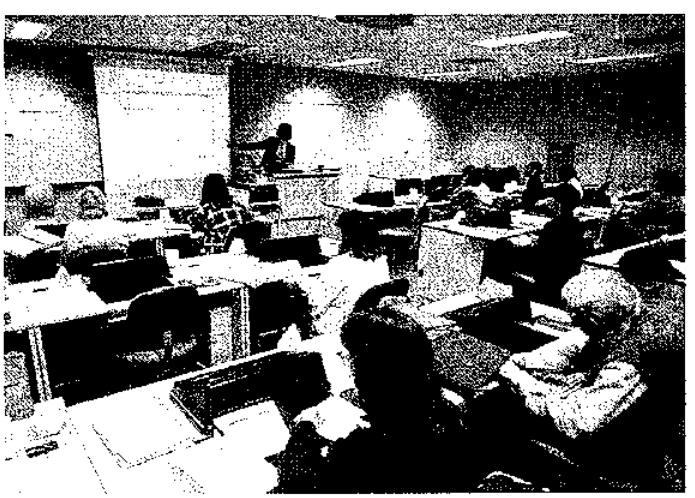
Associate in Applied Science Degree

This program prepares you for entry-level or trainee computer programmer positions, where you'll work with a systems analyst in an applications environment to support information processing functions. The program also gives you the opportunity to focus your program in a particular discipline by choosing from a list of elective courses covering topics such as UNIX, web site management, Visual Basic programming, object-oriented programming, among others.

Advisors: Charles Finkbeiner, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn

Program Admission Requirements:
- One year of high school computer instruction, or CIS 100 with a grade of "C" or better, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
ACC 111	Principles of Accounting I	3
CIS 110	Business Computer Systems	4
SCI 100	Introduction to Natural Sciences	1
Elective	English: Select one course from ENG 100, 107 or 111	3
Elective	Math: Select one course from MTH 169, 179 or 181	4
Semester 2		**(14 Credits)**
ACC 122	Principles of Accounting II	3
CPS 171	Introduction to Programming with C++	4
PLS 112	Introduction to American Government	3
Elective	English: Select one course from ENG 107, 122 or 208	3
Elective *	Humanities Elective	1



Semester 3		**(6 Credits)**
BMG 200	Human Relations in Business	3
COM 101	Fundamentals of Speaking	3
Semester 4		**(13 Credits)**
CIS 286	UNIX Systems Administration	4
CIS 288	Systems Analysis and Design	3
CPS 271	Object Features of C++	4
Elective	CIS/CPS: Select four credits from CIS 121, 160, 174, 221, 260, 265, 275, 277; CNT 200, 210; CPS 185, 285, 290, 293, 295; or ELE 118	2
Semester 5		**(15 Credits)**
CIS 238	PC Assembly Language	3
CIS 240	Career Practices	2
CIS 282	Small System Data Base	3
CPS 272	Data Structures with C++	4
Elective	Business: Select from BMG 150, 208, 230, 235, or 240	3
Minimum Credits Required:		**63**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Computer Information Systems Transfer (CIST)

Associate in Science Degree

This program prepares you to transfer into a bachelor's degree program in computer information systems at a four-year college or university, where you will continue developing the skills needed for a career in areas such as systems analyst, programmer, software engineer, database specialist, and information systems management administrator. The program also provides the courses needed to meet the requirements of the transfer articulation agreement between WCC and Eastern Michigan University.

Advisors: **Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, Janet Remen, John Rinn**

Articulation:
This program was designed to fulfill the course requirements of the Computer Information Systems Articulation Agreement between WCC and Eastern Michigan University. Copies of articulation agreements are available in the Transfer and Placement Center. If you are planning to transfer to an institution other than EMU, you may have to make course substitutions to meet the requirements of the desired college or university. This program fulfills the MACRAO requirement for transferring general education to a Michigan four-year college or university. All students should consult with a counselor or academic advisor to confirm that courses will meet the requirements of the college and major to which they will transfer. Transfer guides for most Michigan colleges and universities are available in the Transfer and Placement Center.

Program Admission Requirements:
- Two years of high school algebra (Algebra I and II), or MTH 169, or equivalent score on math placement test
- One semester of high school computer literacy, or CIS 090, or equivalent

Course Number	Course Title	Credit Hours
General Courses		**(30 Credits)**
BIO 101	Concepts Of Biology	4
COM 101	Fundamentals of Speaking	3
COM 102	Interpersonal Communication	3
ENG 111	Composition I	4
ENG 122	Composition II	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective	ENG 181 African American Literature ENG 214 Literature of the Non-Western World	3
Elective	MTH 181 Mathematical Analysis I or MTH 197 Linear Algebra	4
Program Courses		**(30 Credits)**
ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
BMG 207	Business Communication	3
CIS 110	Business Computer Systems	4
CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
Elective	CIS 238 PC Assembly Language or CPS 272 Data Structures with C++	3
Minimum Credits Required:		**60**

Computer Systems Technology (CSTC)

Mastery Certificate
This cross-disciplinary program is listed under both the Computer Instruction and Electronics Departments. The program prepares you for the rigorous Computer Technology Industry Association's (CompTIA) A+ Certification exam and for employment as a microcomputer service technician, where you'll be expected to be equally adept at hardware solutions, working with operating systems, and relating to customers. It also provides the foundation for Washtenaw Community College's two advanced certificates in computer networking.

Advisors: **Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner**

Program Admission Requirements:
- One year of high school computer instruction with a grade of "C" or better, or CIS 116 and CIS 117, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
CIS 110	Business Computer Systems	4
ELE 118	MS DOS for Technicians	2
ELE 150	PC Hardware Concepts and Troubleshooting	4
Elective	English/Communication: Select from COM 101,102; ENG 100, 107, 111, or 122	3
Elective	Customer Relations: Select one course from ELE 299, 174,199; CIS 174 or 199	1

Semester 2		(14 Credits)
CIS 121	Beginning UNIX	2
CPS 185	Introduction to Visual Basic Programming	4
ELE 155	Advanced Computer Concepts and Troubleshooting	4
ELE 216A	Modem Hardware Install, Config & Troubleshoot	2
ELE 225A	Network Installation and Troubleshooting	2
Minimum Credits Required:		**28**

Computer Networking Technology I (CNT)

Advanced Certificate

This program prepares you for a job as a Novell® or Microsoft® technician, where you will install, configure, and troubleshoot Local Area Networks under the supervision of a network administrator. It also gives you the knowledge you'll need to pass the first required exam for either the Novell Certified NetWare® Engineer or Microsoft® Certified Systems Engineer.

Advisors: **Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner**

Program Admission Requirements:
Successful completion of the Computer Systems Technology Mastery Certificate or equivalent industry experience

Course Number	Course Title	Credit Hours
Required Courses		**(12 Credits)**
CNT 200	Networking Fundamentals	4
CNT 215	Structured Cabling Systems	4
CNT 225	Introduction to Routers	4
Program Options		**(6 Credits)**

Choose one of the options below to make a complete program. Some option courses are taken before required courses. See the footnotes for the sequence in which courses must be taken.

Novell NetWare® Option[1]		
CNT 210	NetWare Administration	3
CNT 220	Advanced NetWare Administration	3
Microsoft Windows® NT Option[2]		
CNT 211	Administering MS Windows NT®	3
CNT 221	Supporting MS Windows NT® Core Technologies	3
Minimum Credits Required:		**18**

[1]Novell NetWare® Option: Take CNT 210 before CNT 220.
[2]Microsoft Windows® NT Option: Take CNT 211 before CNT 221.

Computer Networking Technology II (CNTA)

Advanced Certificate

This program provides you with the advanced skills needed for a job as a Novell® or Microsoft® network administrator, where you will design, install, configure, and troubleshoot Local and Wide Area Networks. It also prepares you to pass either the Novell Certified NetWare® Engineer or the Microsoft® Certified Systems Engineer exam, depending on which option you choose.

Advisors: **Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner**

Program Admission Requirements:
Successful completion of the Computer Networking Technology Advanced Certificate (CNT)

Course Number	Course Title	Credit Hours
Required Courses		**(16 Credits)**
CNT 235	Advanced Local Area Networking	4
CNT 245	Introduction to Wide Area Networks	4
CNT 255	Heterogeneous Networks	4
CNT 265	Network Design	4
Program Options		**(9-10 Credits)**

Choose one of the options below to make a complete program. Some option courses are taken before program courses. See the footnotes for the sequence in which courses must be taken.

Novell NetWare® Option[1]		
CNT 230	NetWare Service and Support	4
CNT 240	Novell Directory Services	3
CNT 250	Integrating MS Windows NT® into a Novell Network	3
Microsoft Windows® NT Option[2]		
CNT 231	MS Windows NT® Enterprise Technologies	3
CNT 241	Internetworking MS TCP/IP®	3
CNT 251	Microsoft Internet Information Server	3
Minimum Credits Required:		**25**

[1]Novell NetWare® Option:
Take CNT 250 before or concurrently with CNT 255.
Take CNT 255 before or concurrently with CNT 265.

[2]Microsoft Windows® NT Option:
Take CNT 231 before CNT 251 and take CNT 241 before or concurrently with CNT 251.
Take CNT 241 before CNT 255.
Take CNT 255 before or concurrently with CNT 265.

Internet Professional (INPC)

Mastery Certificate

This program prepares you for a job as an Internet professional where you will provide services which might include designing web pages, administering a web site, programming for the web, or conducting business on the web depending on whether you choose the design or technical option. The program also provides you with a well-rounded experience in all aspects of Internet development and prepares you for industry certification examinations.

Advisors: **Technical Option: Laurence Krieg;**
Design Option: Dennis Guastella;
Technical and Design Options: Christine Anderson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Program Courses		**(16 Credits)**
CIS 160	Introduction to the Internet	2
CIS 165	Basic HTML	2
ENG 208	Advanced Technical Communications	3
GDT 200	Design and Publishing on the Internet	3
INP 230	Advanced Web I	3
INP 260	Advanced Web II	3
Program Options		**(20-22 Credits)**

Complete all of the required courses in either the Design or Technical Option below. Check course prerequisites to determine the sequence for taking option courses with program courses.

Design Option		
GDT 112	Graphic Communication	4
GDT 143	Imaging for the Web	3
INP 240	Advanced Imaging for the Web	3
INP 250	Audio and Video for the Web	3
INP 255	Animation on the Web	3
Elective	GDT 100, GDT 246, or PHO 127	4
Technical Option		
CIS 121	Beginning UNIX	2
CIS 265	Programming the Web	3
CIS 283	Databases and the Web	3
CIS 286	UNIX Systems Administration	4
CIS 287	Internet Security	3
Elective	CPS 171 or CPS 185	4
Elective	CIS 277 or 291	3
Minimum Credits Required:		**36**

Internet Professional (INPD)

Associate in Applied Science Degree

This program prepares you for a job as an Internet professional where you will provide services which might include designing web pages, administering a web site, programming for the web, or conducting business on the web depending on whether you choose the design or technical option. The program also provides you with a well-rounded experience in all aspects of Internet development and includes the courses you need to complete the core curriculum requirements for an associate's degree. It also prepares you for industry certification examinations.

Advisors: **Technical Option: Laurence Krieg;**
Design Option: Dennis Guastella;
Technical and Design Options: Christine Anderson

Program Admission Requirements:
Students must have passing scores on the College's placement tests in reading, writing, and math.

Course Number	Course Title	Credit Hours
General Courses		**(16 Credits)**
COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4
Elective	MTH 169, 179, or 181	4
Elective	PLS 112 or PLS 150	3
Elective	SCI 100 or BIO 101	1
Elective	Humanities Restricted Elective Choose a course from the list of humanities courses in the College catalog that meet core elements 13 and 14 (see p. 60).	1
Program Courses		**(19 Credits)**
CIS 160	Introduction to the Internet	2
CIS 165	Basic HTML	2
ENG 208	Advanced Technical Communications	3
GDT 200	Design and Publishing on the Internet	3
INP 230	Advanced Web I	3
INP 260	Advanced Web II	3
Elective	Choose at least 3 credits from the disciplines of CIS, CPS, GDT, or INP	3
Program Related Courses		**(6 Credits)**
BMG 250	Principles of Marketing	3
Elective	BMG 109, 230,or 272	3
Program Options		**(20-22 Credits)**

Complete all of the required courses in either the Design or Technical Option below. Check course prerequisites to determine the sequence for taking option courses with program courses.

Design Option		
GDT 112	Graphic Communication	4
GDT 143	Imaging for the Web	3
INP 240	Advanced Imaging for the Web	3
INP 250	Audio and Video for the Web	3
INP 255	Animation on the Web	3
Elective	GDT 100 or GDT 246 or PHO 127	4

Technical Option

CIS 121	Beginning UNIX	2
CIS 265	Programming the Web	3
CIS 283	Databases and the Web	3
CIS 286	UNIX Systems Administration	4
CIS 287	Internet Security	3
Elective	CPS 171 or 185	4
Elective	CIS 277 or 291	3

Minimum Credits Required: 61

Microcomputer System Support (MSS)

Associate in Applied Science Degree

This program prepares you for jobs that require you to support the end user in hardware and software matters and to analyze the user's needs and implement the application packages best suited for the situation. The program also emphasizes people skills.

Advisors: Charles Finkbeiner, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn

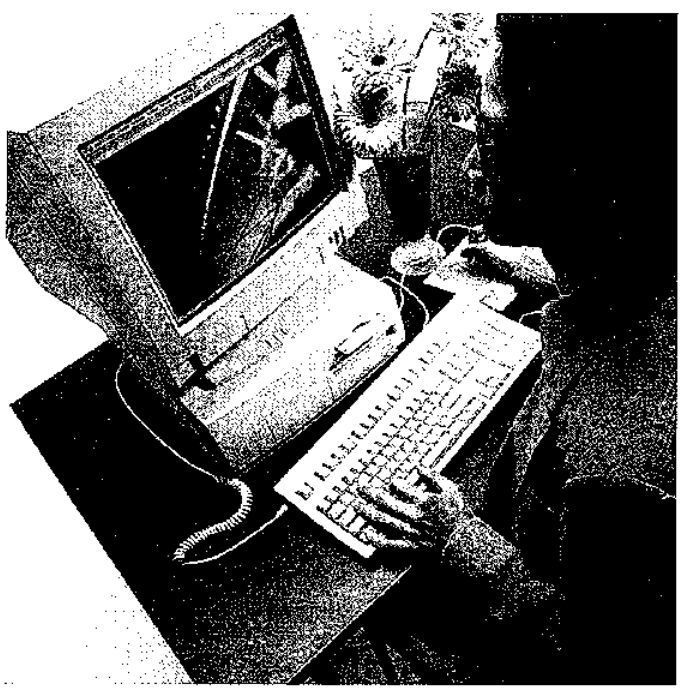
Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- One semester of high school keyboarding, or BOS 101A, or proficiency test at 30 wpm
- One year of high school computer instruction in Windows operating system, or CIS 116 and 117, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
ACC 111	Principles of Accounting I	3
CIS 110	Business Computer Systems	4
Elective	English: Select one: ENG 100 or 111	4
Elective	Math: Select one: MTH 163, 169, 179 or 181	3
Semester 2		**(14 Credits)**
BOS 157	Microsoft Word for Windows I	2
BOS 183	Introduction to Excel	2
ELE 118	MS DOS for Technicians	2
Elective	Select from CPS 171 or 185	4
Elective	English: Select from ENG 107, 122 or 208	3
Elective *	Humanities Elective	1
Semester 3		**(6 Credits)**
COM 101	Fundamentals of Speaking	3
Elective	Select from BMG 200 or PSY 100	3
Semester 4		**(15 Credits)**
CIS 240	Career Practices	2
CIS 288	Systems Analysis and Design	3
CNT 200	Networking Fundamentals	4
ELE 150	PC Hardware Concepts and Troubleshooting	4
SCI 100	Introduction to Natural Sciences	1
Elective	Select one course from CIS 121, 174, 182, 221, 238, 260, 265, 265A, 286; CNT 210, 211; COM 102; ELE 216A or 216B	1
Semester 5		**(16 Credits)**
CIS 282	Small System Data Base	3
CIS 290	Microcomputer System Support	4
Elective	Select one course from CIS 121, 174, 182, 221, 238, 260, 265, 265A, 286; CNT 210, 211; COM 102; ELE 216A or 216B	3
Elective	Business: Select from BMG 150, 208, 215, 230, 235, or 240	3
Elective	Political Science: Select from PLS 112 or 150	3

Minimum Credits Required: 65

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*



Culinary and Hospitality Management Department

Baking and Pastry (BAKP)

Mastery Certificate

This program prepares you for careers in commercial baking, where you will work in retail deli-bakeries, country clubs, resorts, hotels, and institutional food service operations. It also gives you on-the-job experience in the form of 120 hours in a cooperative education placement, as well as courses that can be applied toward the Associate in Applied Science Degree in Culinary Arts.

Advisors: Don Garrett, Jill Beauchamp, and Paul McPherson

Program Admission Requirements:
Students must have passing scores on the College's entry assessment tests.

Course Number	Course Title	Credit Hours
Required Courses		**(30 Credits)**
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation	6
CUL 114	Baking I	3
CUL 115	Pastry I	3
CUL 124	Baking II	3
CUL 125	Pastry II	3
CUL 130	Beginning Cake Decorating	1
CUL 131	Wedding Cake Design	1
CUL 140	Bakery Management and Merchandising	2
CUL 174	CUL Co-op Education I	1
ENG 100	Communication Skills	4
Minimum Credits Required:		**30**

Food Production Specialty (FPS)

Mastery Certificate

This program prepares you for a job as a food production specialist in a hotel, restaurant, or institution, where sautéing, roasting, broiling, baking, vegetable preparation, producing soups and sauces, food storage, and sanitation will be among the skills you'll need. The program also gives you a foundation for continued study in the Washtenaw Community College associate's degree program in culinary arts.

Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(36 Credits)**
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation	6
CUL 114	Baking I	3
CUL 150	Food Service Management	6
CUL 230	Quantity Food Production	3
CUL 231	A La Carte Kitchen	3
Elective	Select one: CUL 210* or CUL 250	3
Elective	Select one course: ENG 100, 107, or 111	3
Elective	Select one: MTH 090 or Higher	3
Minimum Credits Required:		**36**

**This course is offered in spring semesters only.*

Culinary Arts (CUL)

Associate in Applied Science Degree

This program prepares you for a career as a culinary arts technician in a restaurant, hospitality, or institutional setting. Culinary arts technicians have a variety of responsibilities that may include supervising and coordinating the activities of food service workers or dining room employees, planning menus, estimating daily or weekly needs, ordering and maintaining inventories of supplies and equipment, and keeping records of meals served. The program also gives you a foundation for continued culinary arts studies at a four-year college and for training as a chef.

Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(16 Credits)**
ART 130	Art Appreciation	3
PLS 112	Introduction to American Government	3
Elective	CIS 100 or 110	3
Elective	Select one course: MTH 090, 097, 151, 152, or 163	3
Elective	Select one course: ENG 100, 107, 111, or 122	3
Elective	Select one course: AST 100, 111; BIO 101, 102, 227, 228; GEO 100; GLG 100; PHY 105; or SCI 100	1
Program Specialty Courses		**(51 Credits)**
CUL 100 *	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111 *	Elementary Food Preparation	6
CUL 114 *	Baking I	3
CUL 118	Principles of Nutrition	3
CUL 150 *	Food Service Management	6
CUL 210 *	Gardemanger	4
CUL 220	Organization/Management of Food Systems	3
CUL 224	Principles of Cost Control	3
CUL 228 *	Layout and Equipment	4
CUL 230 *	Quantity Food Production	3
CUL 231 *	A La Carte Kitchen	3
HRM 174 *	HRM Co-op Education I	2
Elective	Select one: CUL 115 Pastry I or CUL 124 *Baking II	3
Elective	Select one: CUL 125 Pastry II or CUL 227* Adv Culinary Techniques or CUL 250 Adv Service Techniques	2
Minimum Credits Required:		**67**

**Courses should be taken in the following order:*
CUL 111 must be taken before CUL 210, 230 and 231. CUL 230 and 231 must be taken together.
CUL 100 must be taken before CUL 220.
CUL 210, 230 and 231 must be taken before CUL 227.
CUL 114 must be taken before CUL 124.
30 credit hours in the program are required before taking HRM 174.
Other courses may be taken in any order.
CUL 210 and 228 are offered in spring semesters only.

Hotel-Restaurant Management (HRM)

Associate in Applied Science Degree

This program prepares you for supervisory and mid-management jobs in the hospitality industry, where you'll direct the production and/or service in the kitchen, dining room, or front office in a hotel, restaurant or other dining establishment. The program also gives you a foundation for study in a four-year college program.

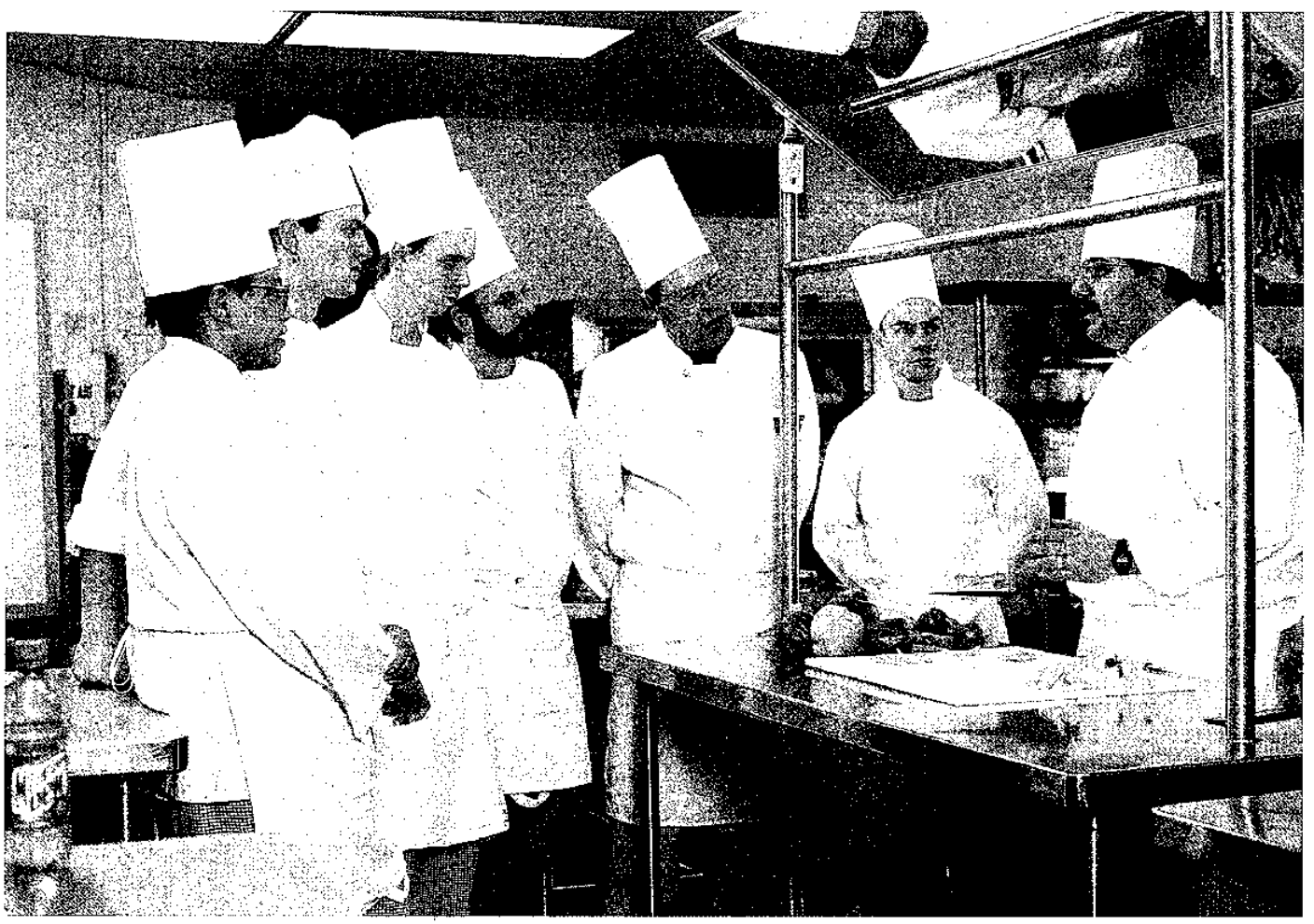
Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

Program Admission Requirements:

- Mathematics competency at MTH 062 level, or permission of the program advisor

Course Number	Course Title	Credit Hours
General Courses		**(19 Credits)**
COM 101	Fundamentals of Speaking	3
PLS 112	Introduction to American Government	3
Elective	Select one course: MTH 090, 097, 151, 152, or 163	3
Elective	Select one course: ENG 100, 107, 111, or 122	3
Elective	CIS 100 or CIS 110	3
Elective	Select one course: ART 130; FRN 111, 122; SPN 111, 122	3
Elective	Select one course: AST 100, 111; BIO 101, 102, 227, 228; GEO 100; GLG 100; PHY 105; or SCI 100	1
Program Specialty Courses		**(44 Credits)**
CUL 100 *	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111 *	Elementary Food Preparation	6
CUL 118	Principles of Nutrition	3
CUL 150	Food Service Management	6
CUL 220 *	Organization/Management of Food Systems	3
CUL 224	Principles of Cost Control	3
CUL 230 *	Quantity Food Production	3
CUL 231 *	A La Carte Kitchen	3
CUL 250	Principles of Beverage Service	3
HRM 104	Front Office Procedures	3
HRM 174 *	HRM Co-op Education I	2
HRM 222	Lodging Marketing and Promotion	3
Program Related Courses		**(6 Credits)**
BMG 111	Business Law I	3
Elective	ACC 091 or Higher	3
Minimum Credits Required:		**69**

**These courses should be taken in the following order:*
CUL 100 must be taken before CUL 220
CUL 111 must be taken before CUL 230 and 231.
CUL 230 and 231 must be taken together.
30 credit hours in the program must be completed before taking HRM 174.
Other courses may be taken in any order.



Dental Assisting Department

Dental Assisting (DAC)

Mastery Certificate

This program prepares you for dental assisting positions in a variety of settings such as private dental offices, dental schools, the military, and dental insurance offices. The program prepares you for both the Dental Assistant National Board examination and the Michigan State Board of Dentistry examination. As a Certified Dental Assistant, you assist in the treatment of patients and participate in all functions of dentistry. As a Registered Dental Assistant in the State of Michigan, you can perform specified intra-oral functions normally performed by a dentist. Successful completion of the required dental radiography courses also gives you Michigan State Board of Dentistry authorization to expose dental radiographs. You may enroll in this program in either a traditional (two-year) or an accelerated (one-year) mode. Both lead to certification, registration, and a certificate in dental assisting. The Department of Dental Assisting offers advanced standing in this program for dental assistants trained on the job with two years full-time employment. The Alternative Dental Assistant Education Project (ADAEP) requires validation of skills by successful completion of the Dental Assisting National Board examination (DANB) prior to admission. If you have two or more years of experience as an on-the-job trained dental assistant you may apply for advanced standing as part of the admissions process for the Alternative Dental Assistant Education Project (ADAEP). Successful completion of the Dental Assisting National Board Examination must be validated prior to ADAEP admission.

Advisors: Betty Finkbeiner

Applying for Admission to the program:
Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Submission of a completed application for admission to the Dental Assisting program
- Date of application to the program
- Washtenaw County residency

Program Admission Requirements:

- Applicants must possess a valid high school diploma or GED to start the program. Applications will be accepted prior to high school graduation or GED completion.
- It is strongly recommended that applicants also complete the following high school courses or equivalent WCC courses with a grade of "C" or better:

- One year of high school biology, or BIO 101 (Concepts of Biology)
- One semester of high school keyboarding, or BOS 101A, or an equivalent course

- Admission to the Dental Assisting program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Dental Assisting program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Dental Assisting program.
- Advanced-standing students must successfully pass the Dental Assisting National Board examination (DANB).

Continuing Eligibility Criteria:

- Program courses are sequential and complemented with appropriate support courses. All courses must be completed with a grade of "C" or better in order to graduate from this program.
- Students must demonstrate proficiency in keyboarding or complete a computer course equivalent to BOS 101A (Keyboarding) prior to enrolling in DEN 212 (Dental Practice Management).
- A current CPR card is required prior to enrolling in DEN 130A.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses.

Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
DEN 102	Infection Control	1
DEN 106	Biomedical Science for Dental Assistants	2
DEN 107	Oral Anatomy	2
DEN 108	Dental Radiography	1
DEN 109	Oral Hygiene	1
DEN 110	Basic Clinical Dental Assisting	4
DEN 112	Dental Materials	4
Semester 2		**(13 Credits)**
DEN 119	Dental Nutrition	1
DEN 120	Oral Diagnosis Theory	1
DEN 128	Dental Radiography Practicum	1
DEN 129	Oral Pathology and Dental Therapeutics	2
DEN 130A	Oral Diagnosis/Clinical Practicum	0.5
DEN 130B	Oral Diagnosis/Clinical Practicum	0.5
DEN 131	Principles of Dental Specialties	4
Elective	COM 101,102; ENG 100, 107, 111, or 122	3
Semester 3		**(10 Credits)**
DEN 202	Advanced Clinical Practice	3
DEN 204	Advanced Functions	3
DEN 212	Dental Practice Management	4
Minimum Credits Required:		**38**

Nursing and Health Science Department

Registered Nursing Preparation (NURS)

Associate in Applied Science Degree

This program prepares you for the National Council Licensure Examination for Registered Nurses and for challenging and exciting jobs in all settings of health care, from the hospital to home care. You will be proficient in technical aspects of nursing care, such as medication administration, treatments and procedures, and use of medical technology, and you will receive personal satisfaction from your ability to make a difference in someone's life and health. You will also get credits that transfer to area RN-BSN completion programs. If you are a licensed practical nurse (LPN) you may apply for entry to the Nursing program with advanced standing by having practical nursing or other college transcripts evaluated for credit.

Advisors: **Barbara Goodkin, Sherry Lee, Theresa Nestorak, Maxine Moulton, Judith Pawloski, Judith VanderVeen, Gloria Velarde**

Applying for Admission to the Program:
A limited number of students are admitted each year following an application period each fall and winter semester. Students not admitted during a specific year are encouraged to reapply during the next admission cycle.

Admission to the program is based on:
- Completion and submission of an application for admission to the nursing program during the specified time period
- Completion of program admission requirements (see below for specific courses)
- Cumulative GPA of required courses
- Overall cumulative high school GPA, or college GPA if the student has completed 12 or more college credits
- Related health care activities (optional)
- Residency status (Washtenaw County residents are given priority.)

Applying for Advanced Standing Admission (LPN to RN)
LPNs must follow the same admission procedures as other students applying to the Nursing program (see above), with the addition of the following:
- Submit transcripts for evaluation of transfer credits.
- Seek approval of an individualized course of study by a committee of Nursing faculty before admission is granted.

Program Admission Requirements:
- Applicants must possess a valid high school diploma or GED. (doesn't apply to advanced standing admission)
- Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:
  One year of high school biology or BIO 101 (Concepts of Biology)
  One year of high school algebra, or MTH 097
  One year of high school chemistry, or CEM 057 and 058 (Introductory Chemistry/Laboratory)
- Applicants must successfully pass the pre-admission math test with a minimum score of 80 percent (to be scheduled after the completion of 1 and 2).
- Admission to the Nursing program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Nursing program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Nursing program.

Additional Admission Requirements for Advanced Standing Applicants:
In addition to the admission requirements above, applicants for LPN advanced standing have the following requirements:
- Applicants must be a graduate of a practical nursing program
- Applicants must complete a pharmacology course equivalent to NUR 112, Pharmacology II, with a grade of "C" or higher or possess a current NAPNES pharmacology card.
- Applicants must hold a current LPN license.*
- Applicants must have completed a minimum of one year full-time employment as an LPN within the last three years or the equivalent in part-time experience.*

**NOTE: Applicants who have not had recent LPN work experience or who do not have a current license may be granted conditional advanced standing admission to the program, but additional coursework will be required.*

Continuing Eligibility Criteria:
- Program courses are sequential and complemented with appropriate support courses. All courses must be completed with a grade of "C" or better in order to graduate from this program.
- Some support courses may be taken prior to admission to the nursing sequence, but not later than the scheduled semester. Enrollment in HSC 220 (Pathophysiology) or HSC 244 (Health Care Ethics) prior to admission to the program is open only to those students with prior nursing or health care experience.
- Students are required to adhere to rules of the Nursing Code of Ethics published in the Nursing Program Student Handbook. Students should be aware that the Michigan Board of Nursing may deny a license to an applicant who has been convicted of a crime or is addicted to drugs or alcohol.
- Students in the Nursing program will be required to purchase special uniforms and supplies throughout the duration of the program.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses.

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
BIO 111 [1]	Anatomy and Physiology	5
HSC 147 [1]	Growth and Development	4
NUR 101	Introduction to Nursing	1
NUR 104	Nursing of the Older Adult	1
NUR 105	Nursing of the Older Adult - Clinical Practice	1
NUR 111	Pharmacology I	1
Elective 1	ENG 111 or 122	3
Semester 2		**(12 Credits)**
HSC 118 [1]	General Nutrition	2
NUR 102	Fundamentals of Nursing	2
NUR 103	Fundamentals of Nursing - Clinical Practice	3
NUR 112	Pharmacology II	2
Elective [1]	BIO 147 or 237	1
Elective [1]	CIS 100 or 101	2

Semester 3		(15 Credits)
HSC 128	Therapeutic Nutrition	1
HSC 220	Pathophysiology	4
NUR 123	Acute Care Nursing I	3
NUR 124	Acute Care Nursing I - Clinical Practice	2
NUR 131	Nursing of the Childbearing Family	3
NUR 132	Nursing of the Childbearing Family - Clinical Practice	2

Semester 4		(15 Credits)
HSC 244	Health Care Ethics	2
NUR 223	Acute Care Nursing II	3
NUR 224	Acute Care Nursing II - Clinical Practice	2
NUR 255	Mental Health Nursing	3
NUR 256	Mental Health Nursing - Clinical Practice	2
PSY 100 [1]	Introductory Psychology	3

Semester 5		(13 Credits)
NUR 231	Nursing of Children	3
NUR 232	Nursing of Children - Clinical Practice	2
NUR 261	Transition to Graduate Nurse Role	1
NUR 262	Transition to Graduate Nurse Role - Clinical Practice	4
Elective [1]	PLS 112, 150, or 211	3
Minimum Credits Required:		**71**

[1] These courses may be taken prior to admission to the Nursing program.

Nursing Transfer (NURT)

Associate in Science Degree

This program prepares you for a smooth transition into the third and fourth years of the University of Michigan School of Nursing's Bachelor of Science in Nursing program. You will receive a solid science foundation and begin taking nursing courses, including one at UM during your third semester at WCC. You will not be eligible for registered nurse (RN) licensure until completion of the University of Michigan program.

Advisors: Peggy Eckhauser, Gloria Velarde

Articulation:
This program is designed to articulate with the University of Michigan School of Nursing. Other requirements for transferring to the University of Michigan School of Nursing are included in the articulation agreement, which may be obtained from the Placement and Transfer Center or the health occupation advisor. Students who wish to transfer to nursing programs at other four-year colleges or universities should check with an advisor or counselor at that institution to insure the transferability of courses.

Program Admission Requirements:
- Students applying to the Nursing Transfer program must meet the admission requirements of both Washtenaw Community College and the University or Michigan School of Nursing.
- Students must have a minimum high school GPA of 3.4 and SAT scores above 1000 or an ACT composite score above 21. They must have earned a grade of at least "B" in all high school science courses.
- Required high school work:
  - -Three units of English
  - -Three units of math
  - -Two units of laboratory science, including chemistry and biology
  - -Four units of foreign language and/or social science and/or laboratory science
  - -Four units of other academic courses

Continuing Eligibility Criteria:
This transfer program is designed for full-time students. WCC students must demonstrate the ability to carry a full-time course load by maintaining a minimum full-time enrollment of 12 credit hours with a 3.0 GPA in at least two terms in the 12 months prior to transfer to the U-M School of Nursing. Each of these two terms must include a transferable science course and one clinical course.

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
CIS 101	Basic Computer Skills for Hospital Professionals	2
ENG 111	Composition I	4
SOC 100	Principles of Sociology	3
Elective	CEM 105 or 111	4
Elective	Select one from COM 130; ENG 211, 222; HST 160, 200, 201, 202; PHL 205; or PLS 112	3
Semester 2		**(14 Credits)**
BIO 237	Microbiology	4
CEM 140	Organic Biochemistry	4
NUR 205	Introduction to Professional Nursing: Societal Dim	3
PSY 100	Introductory Psychology	3
Semester 3		**(17 Credits)**
BIO 111	Anatomy and Physiology	5
HSC 147	Growth and Development	4
N215 [1]	UM Nursing Research	3
NUR 111 [2]	Pharmacology I	1
NUR 222	Health Assessment	4
Semester 4		**(14 Credits)**
HSC 220	Pathophysiology	4
NUR 102	Fundamentals of Nursing	2
NUR 103	Fundamentals of Nursing - Clinical Practice	3
NUR 112	Pharmacology II	2
Elective	Select one from ANT 201, ART 143, or ENG 181	3
Minimum Credits Required:		**61**

[1] Students in this program are required to dual enroll in U-M's School of Nursing course NURS 215. Please speak with a program advisor for more information.

[2] May be taken in the first or second semester with advisor permission.

Pharmacy and Surgical Technology Department

Pharmacy Technology (PHT)

Mastery Certificate

This program prepares you for jobs in hospitals, health care agencies, and retail outlets, where you'll work under the supervision of a registered pharmacist and be expected to blend a high attention to detail with customer service. The program also gives you the opportunity to explore health care as a place for future career opportunities.

Advisors: Suzette Ripepe

Applying for Admission to the program:
A limited number of students is admitted to the Pharmacy Technology program each year. Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Pharmacy Technology program
- Completion of all prerequisite courses
- Date of application to the program
- Residency status (Washtenaw County residents are given priority.)

Program Admission Requirements:

- Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better
  - One year of high school algebra; or MTH 054, 090, 097 or 165
  - One year of high school chemistry, or CEM 057 and 058 (Introductory Chemistry/Laboratory)
- Admission to the Pharmacy Technology program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Pharmacy Technology program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Pharmacy Technology program.
- State law prohibits individuals who have been convicted of a crime that involves controlled substances from working in a pharmacy where they have access to controlled substances (MCL SS338.3145(f)). A police record check will be done on each student prior to program admission. If a student has a record that includes a conviction for a controlled substance crime, the student has a right to apply to the Drug Enforcement Agency (DEA) for an exemption to allow working in a pharmacy where they have access to controlled substances. The exemption must be obtained prior to admission to the program.

Continuing Eligibility Criteria:
Program courses are sequential and complemented with appropriate support courses.

- Student must complete all first-semester courses with a grade of "C" or better to progress to the second semester.
- Students must complete all courses with a grade of "C" or better in order to graduate from this program.
- Students must possess a valid high school diploma or GED by the end of the program and in order to sit for the National Pharmacy Technician Certification Exam.

Additional requirements to be completed prior to the clinical course PHT 198 include:

- Completion of a satisfactory physical exam documented on the WCC health form. This form contains verification of childhood immunizations, negative TB test, and evidence of Hepatitis B vaccination or a signed waiver. This physical exam must be completed within three months of the start of the clinical rotation and turned in to the program director four weeks before the start of the clinical rotation.
- Proof of health insurance
- Demonstration of proficiency in the English language prior to placement in clinical courses

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
HSC 101 [1]	Healthcare Terminology	1
PHT 100	Introduction to Pharmacy and Health Care Systems	4
PHT 101	Pharmacology for Pharmacy Technicians	4
PHT 103	Pharmaceutical Calculations	2
Elective [1]	CIS 100 or CIS 110	3
Semester 2		**(16 Credits)**
COM 102 [1]	Interpersonal Communication	3
PHT 140	Pharmacy Prescription Processing	2
PHT 150	Pharmacy Operations and Compounding	3
PHT 198	Pharmacy Experience	4
Elective [1]	ENG 100 or ENG 111	4
Minimum Credits Required:		**30**

[1] May be taken prior to admission to the Pharmacy Technology program

Surgical Technology (SURC)

Mastery Certificate

This program prepares you for jobs in the operating room, where you'll assist the surgeon by arranging instruments, maintaining surgical supplies, providing a sterile environment, and applying post-surgery dressings. You may work in a variety of settings including ambulatory surgery units, private surgical practices, and central sterile processing departments. You also could work as a surgical product salesperson or as a clinical instructor. The program also prepares you for the national certifying examination for surgical technologists.

Advisors: Vivian Murphy

Applying for Admission to the program:
A limited number of applicants are admitted to the Surgical Technology program each year. Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Surgical Technology program
- Completion of all prerequisite courses
- Date of application to the program
- Residency status (Washtenaw County residents are given priority)

Program Admission Requirements:

- Applicants must possess a valid high school diploma or GED.
- Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:
  - One year of high school algebra, or MTH 054, 090, 097, or 165
  - One year of high school chemistry, or CEM 057 and 058 (Introductory Chemistry/Laboratory)

- Applicants must have a GPA of 2.0 or above.
- Applicants must declare that they have specific physical and cognitive abilities. These requirements are detailed in the Surgical Technology program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Surgical Technology program.

Continuing Eligibility Criteria:
- Program courses are sequential and complemented with appropriate support courses. Students must complete all courses with a grade of "C" or better in order to graduate from this program.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses.

Course Number	Course Title	Credit Hours
Semester 1		**(13 Credits)**
BIO 237 *	Microbiology	4
HSC 101 *	Healthcare Terminology	1
SUR 100	Surgical Technology I Theory	3
SUR 105	Surgical Technology I Lab	1
Elective *	BIO 102 or BIO 111	4
Semester 2		**(15.5 Credits)**
COM 102 *	Interpersonal Communication	3
SUR 120	Surgical Technology II	3
SUR 125	Surgical Technology II Lab	1
SUR 135	Surgical Technology II Clinical	2.5
SUR 140	Surgical Technology Pharmacology	2
Elective *	ENG 100 or ENG 111	4
Semester 3		**(8 Credits)**
SUR 150	Surgical Technology III Theory	3
SUR 155	Surgical Technology III Clinical Practice	4
SUR 160	Surgical Technology Seminar	1
Minimum Credits Required:		**36.5**

**May be taken prior to admission to the program*

Sterile Processing and Distribution (SPDC)

Achievement Certificate

This program prepares you for entry-level positions as a sterile processing technician. You'll work in hospitals, ambulatory surgery centers, or clinics, where you'll decontaminate, prepare, and sterilize specialized medical equipment, supplies, and surgical instrumentation. The program also prepares you for the national certification exam.

Advisor: Vivian Murphy

Course Number	Course Title	Credit Hours

Program Admission Requirements:
- Minimum age of 18 years
- Negative TB skin test or chest x-ray
- Hepatitis immunization or signed waiver
- Health insurance

Continuing Eligibility Criteria:
- Successful completion of the program requires a minimum grade of 78% in theory and a Pass in clinical practice.
- All students must demonstrate proficiency in the English language prior to placement in the clinical course (SUR 098).

Required Courses (7 Credits)

HSC 101	Healthcare Terminology	1
SUR 097	Sterile Processing and Distribution Theory	4
SUR 098	Sterile Processing and Distribution Clinical	2
Minimum Credits Required:		**7**

Public Service Careers Department

Child Care (CC)

Associate in Applied Science Degree

This program prepares you for jobs as a child care worker in nursery schools, day-care centers, or playrooms where you're expected to organize and lead the activities of pre-kindergarten children. It also gives you some courses that can be applied to four-year programs in early childhood development and education.

Advisors: Sally Adler

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
CCP 101 [1]	Child Development	3
CCP 113	Health, Safety and Nutrition for Child Care	3
ENG 111	Composition I	4
HSC 131	CPR/FPR and First Aid	1
Elective	COM 101 or COM 102	3
Elective	SOC 205 or SOC 230	3
Semester 2		**(16 Credits)**
CCP 108	Expressive Arts for Children	3
CCP 109	Language and Communication	3
CCP 110	Social/Emotional Development	3
CCP 118 [2]	Beginning Child Care Seminar	1
CCP 119 [2]	Beginning Child Care Practicum	2
ENG 240	Children's Literature	3
Elective	Humanities: Select one course from ANT 201; ART 130, 143; DAN 110; ENG 140, 160, 170, 181, 200, 211, 212, 213; FRN 111; GRM 111; HUM 101, 102, 150; MUS 180; PHO 103; RUS 111; or SPN 111	1
Semester 3		**(16 Credits)**
CCP 100	The Exceptional Child	3
CCP 103	Alternative Programs in Child Care	3
CCP 107	Educational Experiences in Science and Math	3
CIS 100	Introduction to Computers	3
MTH 090	Occupational Mathematics	3
Elective	Science: Select one course from AST 100, 111; BIO 101, 102; GLG 100; PHY 105; or SCI 100	1

Semester 4		(15Credits)
CCP 111	Administration of Child Care Programs	3
CCP 200	Staff/Parent Interpersonal Relations	3
CCP 218 [3]	Advanced Child Care Seminar	1
CCP 219 [3]	Advanced Child Care Practicum	2
PLS 150	State and Local Government and Politics	3
Elective	Select one course from: CCP 116, ECO 111, PSY 100, SOC 100 or207	3

Minimum Credits Required: 64

[1]CCP 101 is pre-requisite or co-requisite for taking any other CCP course.
[2]CCP 174 (3 credits) may be substituted for CCP 118 and 119.
[3]CCP 274 (3 credits) may be substituted for CCP 218 and 219.

Child Development (CDA)

Achievement Certificate

This program prepares you for the assessment exam required for the Child Development Associate (CDA) credential and for employment in child care centers or in family home daycare settings working with infants and toddlers, or preschoolers. It also provides you with skills from the 13 functional areas required by the National Council for Early Childhood Professional Recognition, as well as courses that transfer into WCC's associate's degree childcare program.

Advisors: Sara Jane Adler

Articulation:
The courses in this program may be transferred into the Child Care Associate's Degree program as CCP 108, 110, 118, and 119.

Program Admission Requirements:
Students must be at least 18 years of age and have a high school diploma or equivalent.

Course Number	Course Title	Credit Hours
Required Courses (11 Credits)		
CCP 122	Child Development Credentialing I	4
CCP 123	Child Development Credentialing II	4
CCP 132	Child Development Practicum I	1
CCP 133	Child Development Practicum II	1
HSC 131	CPR/FPR and First Aid	1
Elective *	Optional (not required): CCP 124 and/or CCP 134	

Minimum Credits Required: 11

** These additional courses are not required for the WCC achievement certificate, but may be taken to prepare for the final assessment test administered by the National Council and to complete the final observation assessment for the Child Development Associate credential.*

Correctional Science (CORC)

Mastery Certificate

This program prepares you for taking the required exams for jobs in county- and state-level correctional facilities. It also gives you the first of what could be many career advancements. Corrections is an advancement-oriented field, as long as you're successful on the job, willing to keep going back to school, and able to pass the required exams. The program is certified by the Michigan Corrections Officers Training Council.

Advisors: Ruth Walsh

Course Number	Course Title	Credit Hours

Program Admission Requirements: None

Semester 1		(15 Credits)
COR 122	Introduction to Corrections	3
COR 132	Correctional Institutions	3
SOC 100	Principles of Sociology	3
Elective	English: ENG 100 or ENG 208	3
Elective	Psychology: Select one course from PSY 100, 107, 130, 200, 209, or 257	3
Semester 2		**(15 Credits)**
CJT 120	Criminal Justice Ethics	2
COR 211	Legal Issues in Corrections	3
COR 219	Client Relations in Corrections	3
COR 228	The Correctional Client: Growth and Development	3
Elective	Science: Select one course from SCI 100, BIO 101 or 102	1
Elective	Humanities: Select one course from ANT 201; ART 130, 143; DAN 110; ENG 140, 160, 170, 181, 200, 211, 212, 213; FRN 111; GRM 111; HUM 101, 102, 150; MUS 180; PHO 103; RUS 111; or SPN 111	3

Minimum Credits Required: 30

Correctional Science (COR)

Associate in Arts Degree

This program prepares you for taking the required exams for jobs in county- and state-level correctional facilities. Corrections is an advancement-oriented field, as long as you're successful on the job, willing to keep going back to school, and able to pass the required exams. The program also includes the courses you need to complete an associate in arts degree. The program is certified by the Michigan Corrections Officers Training Council.

Advisors: Ruth Walsh

Program Admission Requirements: None

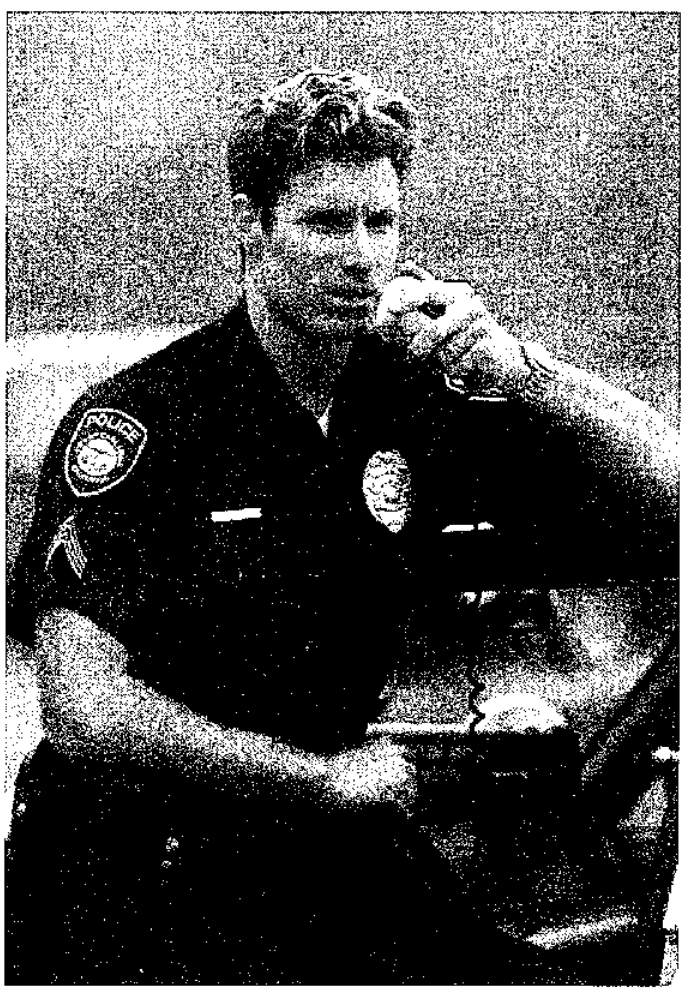
Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
COR 122	Introduction to Corrections	3
COR 132	Correctional Institutions	3
SOC 100	Principles of Sociology	3
Elective	ENG 100 or ENG 208	3
Elective	Psychology: Select one course from PSY 100, 107, 130, 200, 209, or 257	3

Semester 2		(15 Credits)
CJT 120	Criminal Justice Ethics	2
COR 211	Legal Issues in Corrections	3
COR 219	Client Relations in Corrections	3
COR 228	The Correctional Client: Growth and Development	3
Elective	Science: Select one from SCI 100 or BIO 101 or 102	1
Elective	Humanities: Select one course from ANT 201; ART 130, 143; DAN 110; ENG 140, 160, 170, 181, 200, 211, 212, 213; FRN 111; GRM 111; HUM 101, 102, 150; MUS 180; PHO 103; RUS 111; or SPN 111	3

Semester 3		(15 Credits)
CJT 100	Introduction to Criminal Justice	3
MTH 090	Occupational Mathematics	3
Elective	Psychology: Select an additional course from PSY 100, 107, 130, 200, 209, or 257	3
Elective	SOC 202 or SOC 250	3
Elective	Select one course from BMG 230; CJT 199, 223; ECO 111; HUM 101; PHL 101; SOC 202, 205, 207, 250;or any psychology course	3

Semester 4		(15 Credits)
CIS 100	Introduction to Computers	3
CJT 225	Seminar in Criminal Justice	3
Elective	Psychology: Select an additional course from PSY 100, 107, 130, 200, 209, or 257	3
Elective	Sociology: Select two courses from SOC 202, 205, 207, 250, or CJT 223	6

Minimum Credits Required: 60



Criminal Justice (CJ)

Associate in Arts Degree

This program prepares you for jobs in police work, probation and parole, and juvenile criminal justice. It also gives you the required academic background to enter the Washtenaw Police Academy, the Law Enforcement Certification program run by Washtenaw Community College, as well as credits that transfer into Eastern Michigan University's Criminology and Criminal Justice program.

Advisors: Hank Townsend, Ruth Walsh

Articulation:
This program is articulated with Eastern Michigan University's Criminology and Criminal Justice program. If you are interested in transferring to this institution, you may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide.

Program Admission Requirements: None

Course Number	Course Title	Credit Hours

Semester 1		(15 Credits)
CIS 100	Introduction to Computers	3
CJT 100	Introduction to Criminal Justice	3
CJT 120	Criminal Justice Ethics	2
ENG 111	Composition I	4
SOC 100	Principles of Sociology	3

Semester 2		(15 Credits)
CJT 111	Police/Community Relations	3
CJT 112	Constitutional Law for Criminal Justice	3
CJT 223	Juvenile Justice	3
PSY 100	Introductory Psychology	3
Elective	Science: Select one course from AST 111; BIO 101,102; GLG 100; or PHY 105	3

Semester 3		(15 Credits)
CJT 209	Criminal Law	3
CJT 224	Criminal Investigation	3
SOC 202	Criminology	3
Elective	Humanities: Select one course from ART 130; FRN 111, HUM 101, MUS 180 or SPN 111	3
Elective	Math: Select one course from MTH 090, 160 or 181	3

Semester 4		(15 Credits)
CJT 208	Criminal Evidence and Procedure	3
CJT 225	Seminar in Criminal Justice	3
Elective	Psychology: Select one course from PSY 107, 130, 200, 209, or 257	3
Elective	Restricted Elective: Select one course from CJT 199, COM 102, COR 122, HSW 100 or PLS 150	3
Elective	Sociology: Select one course from SOC 150, 201, 203, 205, 207 or 250	3

Minimum Credits Required: 60

Criminal Justice-Law Enforcement (CJLE)

Associate in Applied Science Degree

This program prepares you for certification to work in law enforcement jobs in the State of Michigan. You must complete the academic program prior to entering the Police Academy component of the program.

Advisors: Ruth Walsh

Program Admission Requirements: None

Continuing Eligibility Criteria:
Admission to the Police Academy component (CJT 221 A, B and C) is based on passing reading, writing, and physical activity examinations as well as fingerprinting and criminal history checks. Students who do not enter the academy may complete the Criminal Justice Associate in Arts Degree program instead of the Criminal Justice Law Enforcement Associate in Applied Science, and will not be certified for employment. Students admitted to the Police Academy are required to purchase gym clothes, khaki uniforms, textbooks, and other supplies. Academy students are required to adhere to additional rules of behavior and discipline beyond the general code of conduct.

Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
CJT 100	Introduction to Criminal Justice	3
CJT 120	Criminal Justice Ethics	2
PSY 100	Introductory Psychology	3
SOC 100	Principles of Sociology	3
Elective	Select one course: ENG 100 or ENG 111	4
Semester 2		**(15 Credits)**
CIS 100	Introduction to Computers	3
CJT 111	Police/Community Relations	3
CJT 112	Constitutional Law for CJ	3
PEA 102	Cardiovascular Training	1
PEA 105	Weight Training-Cybex/Free Weights	2
Elective	Select one course: CJT 223 or SOC 250	3
Semester 3		**(13 Credits)**
CJT 225	Seminar in Criminal Justice	3
MTH 090	Occupational Mathematics	3
SCI 100	Introduction to Natural Sciences	1
SOC 202	Criminology	3
Elective	Select one course: HUM 101 or SPN 111	3
Semester 4		**(17 Credits)**
CJT 221A	Law Enforcement Investigations	13
CJT 221C	Community Policing & Communication	4
Semester 5		**(13 Credits)**
CJT 221B	Law Enforcement Skill Areas	13
Minimum Credits Required:		**73**

Radiography Department

Radiography (RAD)

Associate in Applied Science Degree

This program prepares you for jobs as a medical specialist who operates X-ray equipment and prepares patients for a variety of diagnostic procedures, including producing radiographs of bones and organs. The program also gives you credits that transfer to Eastern Michigan University's Health Administration Program.

Advisors: Gerald Baker, Connie Foster

Articulation:
This program has an articulation agreement with Eastern Michigan University's Health Administration program, which will accept most of the program courses. You may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide.

Applying for Admission to the program:
A limited number of students are admitted to the Radiography program each year. All students enter the program during the summer term. Application packets may be picked up from the WCC Office of Admissions. Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Radiography program
- Completion of all prerequisite courses by January 1 (see below for specific courses)
- Residency status (Washtenaw County residents are given priority)
- Date of application to the program

Program Admission Requirements:

- Applicants must possess a valid high school diploma or GED
- Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:
  - One year of high school biology, or BIO 101 (Concepts of Biology)
  - One year of high school algebra, or MTH 097 (Introductory Algebra)
  - One year of high school chemistry, or CEM 057 and 058 (Introductory Chemistry/Laboratory)
- Admission to the Radiography program is contingent upon students declaring that they have specific physical and cognitive abilities. These requirements are detailed in the Radiography program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Radiography program.
- It is strongly advised that students take BIO 111 (Anatomy & Physiology) before entering the Radiography program.

Continuing Eligibility Criteria:

- Students must pass a physical examination, taken at their own expense, not more that three months before enrolling in the first clinical education course.
- Students must maintain personal health coverage.
- Students must be certified in Basic Life Support to be eligible to enroll in clinical education courses. If they have not received certification through another agency, they can obtain it by completing HSC 131 (CPR/FPR and First Aid).
- Program courses are sequential and complemented with appropriate support courses. Students must complete all Radiography courses with a grade of "C" or above.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses.

Course Number	Course Title	Credit Hours
Semester 1		**(6 Credits)**
MTH 116	Radiographic Calculations	2
RAD 100	Introduction to Radiography	2
RAD 101	Methods in Patient Care	2
Semester 2		**(17 Credits)**
BIO 111[1]	Anatomy and Physiology	5
HSC 101[1]	Healthcare Terminology	1
RAD 110	Clinical Education	2
RAD 111	Fundamentals of Radiography	2
RAD 112	Radiographic Positioning I	2
RAD 113	Radiographic Processing	2
RAD 124	Principles of Radiographic Exposure	3
Semester 3		**(12 Credits)**
ENG 111[1]	Composition I	4
RAD 120	Clinical Education	2
RAD 123	Radiographic Positioning II	2
RAD 125	Radiographic Procedures and Related Anatomy	3
RAD 127	Principles of Radiographic Exposure Laboratory	1
Semester 4		**(7 Credits)**
PLS 112[1]	Introduction to American Government	3
RAD 150	Clinical Education	4
Semester 5		**(11 Credits)**
CIS 101[1]	Basic Computer Skills for Hospital Professionals	2
RAD 215	Radiography of the Skull	2
RAD 217	Clinical Education	3
RAD 218	Radiation Biology and Protection	4
Semester 6		**(15 Credits)**
RAD 135	Pathology for Radiographers	2
RAD 200	Physical Foundations of Radiography	3
RAD 221	Ethics and Legal Issues for Radiographers	2
RAD 225	Clinical Education	3
RAD 280	Radiographic Critique	2
Elective[1]	Humanities: Select one course from Art 130, FRN 111,GRM 111,HUM 101, MUS 180, SPN 111	3
Semester 7		**(2 Credits)**
RAD 240	Clinical Education	2
Minimum Credits Required:		**70**

[1]These courses may be taken before admission and/or entry into the Radiography program.

Respiratory Therapy Department

Respiratory Therapy (RTH)

Associate in Applied Science Degree

This program prepares you for jobs as a respiratory therapist where you will treat persons with respiratory problems ranging from giving temporary relief to patients with chronic asthma or emphysema, to giving emergency care to victims of heart failure, stroke, drowning, or shock. Under a doctor's supervision you will use special equipment such as respirators and positive-pressure breathing machines to administer gas therapy, aerosol therapy, and other treatment involving respiration, mainly in hospital intensive-care units. The program also gives you credits that may be transferred to Eastern Michigan University's Health Administration program.

This program is conducted in cooperation with: St. Joseph Mercy Hospital; University Hospital; The University of Michigan Medical Center; Veterans Administration Hospital, Ann Arbor; Beyer Memorial Hospital, Ypsilanti; Annapolis Hospital, Wayne; Heritage Hospital, Taylor; and Children's Hospital of Michigan, Detroit.

Advisors: Mimi Norwood, Martin Redick

Articulation:
This program is articulated with Eastern Michigan University's Health Administration program which accepts most of the program courses. You may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide.

Applying for Admission to the program:
The Respiratory Therapy program admits students once a year during the fall semester. Application packets may be picked up from the WCC Office of Admissions.

Applicants will be screened based on the following criteria:

- Completion and submission of an application for admission to the Respiratory Therapy program
- Completion of all prerequisite courses
- Date of application to the program
- Residency status (Washtenaw County residents are given priority)

Program Admission Requirements:

- Applicants must possess a valid high school diploma or GED
- Applicants must complete the following high school courses or equivalent WCC courses with a grade of "C" or better:
  - One year of high school biology, or BIO 101 (Concepts of Biology)
  - One year of high school algebra, or MTH 097 (Introductory Algebra)
  - One year of high school chemistry, or CEM 057 and 058 (Introductory Chemistry/Laboratory)
- Applicants must declare that they have specific physical and cognitive abilities. These requirements are detailed in the Respiratory Therapy program admission packet, which can be obtained from the Office of Admissions. WCC reserves the right to request that students successfully demonstrate the specific cognitive and physical abilities related to the Respiratory Therapy program.

Continuing Eligibility Criteria:

- Program courses are sequential and complemented with appropriate support courses. Students must complete all courses with a grade of "C" or better in order to graduate from this program.
- All students must demonstrate proficiency in the English language prior to placement in clinical courses.

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
BIO 111 *	Anatomy and Physiology	5
HSC 101 *	Healthcare Terminology	1
RTH 101	Electrocardiography	1
RTH 120	Introduction to Respiratory Therapy	3
RTH 121	Basic Equipment and Procedures	4
Semester 2		**(14.5 Credits)**
CIS 100 *	Introduction to Computers	3
RTH 122	Respiratory Physiology	3
RTH 123	Respiratory Pathophysiology	3
RTH 148	Pharmacology for Respiratory Therapists	2
RTH 149	Respiratory Pathology	2
RTH 198	General Clinical Practice I	1.5
Semester 3		**(4 Credits)**
Elective *[1]	Select one course: ENG 100 or ENG 111	4
Semester 4		**(8 Credits)**
RTH 199	General Clinical Practice II	3
RTH 212	Ventilators	5
Semester 5		**(14 Credits)**
RTH 200	Advanced Clinical Practice	4
RTH 214	Cardiodiagnostics	3
RTH 219	Pediatric Respiratory Therapy	3
RTH 222	Pulmonary Function Testing	1
Elective *[2]	Select one course: PSY 100 or SOC 100	3
Semester 6		**(2 Credits)**
RTH 201	Specialty Clinical Practice	2
Semester 7		**(11 Credits)**
Elective*[3]	Select one course: HUM101 or HUM 102	3
PLS 112	Introduction to American Government	3
RTH 202	Pediatric Clinical Practice	2
RTH 217	Seminar in Respiratory Therapy	2
RTH 221	Pulmonary Rehabilitation	1
Minimum Credits Required:		**67.5**

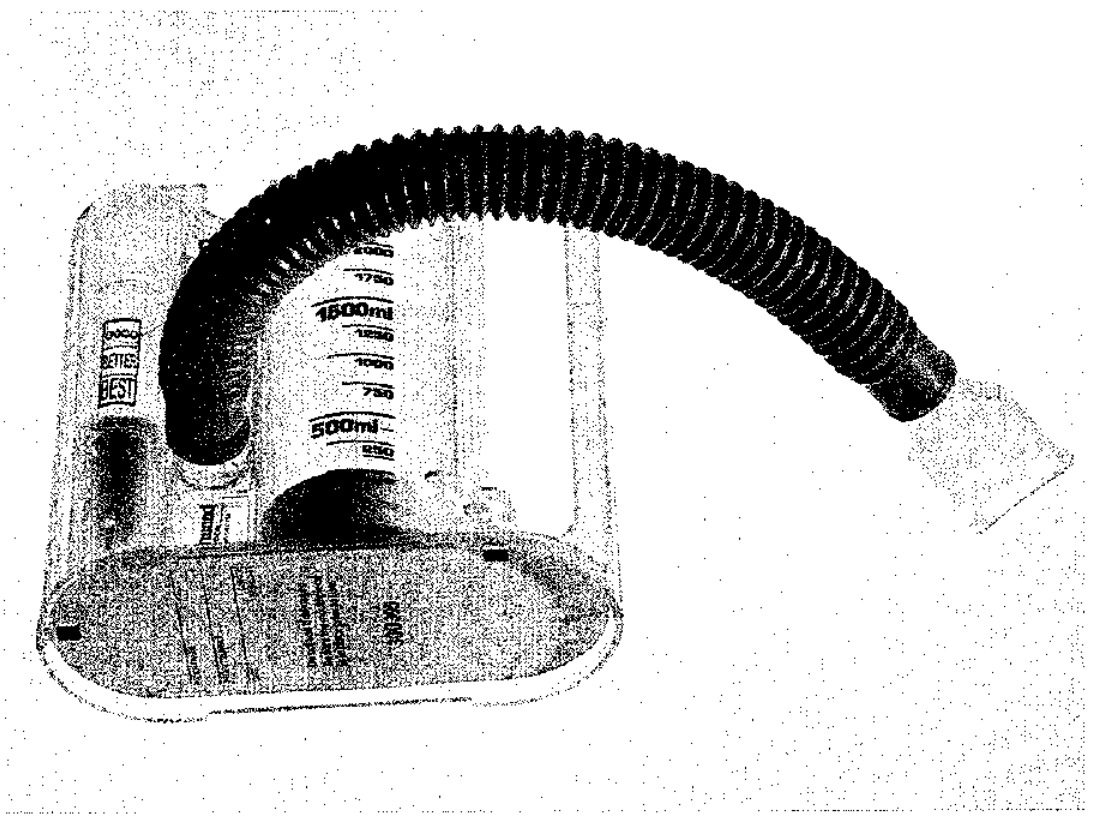
** These courses may be taken before admission and/or entry into the Respiratory Therapy program.*

These footnotes refer to the articulation agreement with EMU's Health Administration program.

[1]Choose ENG 111 if transferring to EMU

[2]Choose PSY 100 if transferring to EMU

[3]Choose HUM 101 if transferring to EMU



Division of Humanities and Social Sciences

Behavioral Science Department

Human Services (HUMS)

Associate in Applied Science Degree

This program prepares you for jobs as a substance abuse, hospice, case, psychiatric, or social services aide in settings such as schools, rehabilitation centers, and mental health clinics, or as a staff member in a community/neighborhood center. The program provides skills you will need to work on a one-to-one basis or in groups to help people cope with problems.

Advisors: Nan Holmes and Chris Siehl

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
BIO 102	Human Biology	4
ENG 111	Composition I	4
HSW 100	Introduction to Human Services	3
PSY 100	Introductory Psychology	3
Semester 2		**(18 Credits)**
CIS 100	Introduction to Computers	3
HSW 200	Intro to Interviewing and Assessment Techniques	3
MTH 090	Occupational Mathematics	3
SOC 100	Principles of Sociology	3
Elective	Select one course: COM 101 or COM 102	3
Elective *	Humanities Elective	3
Semester 3		**(15 Credits)**
HSW 210	Behavior Modification	3
HSW 230	Field Internship and Seminar I	3
PSY 130	Alcoholism: Its Effects, Impact and Treatment	3
Elective	Select one course: PLS 112 or SOC 205	3
Elective	Sociology: Select one course from SOC 201, 202, 203, 230, or 250	3
Semester 4		**(15 Credits)**
HSW 220	Helping Approaches for Groups	3
HSW 232	Field Internship and Seminar II	3
PSY 257	Abnormal Psychology	3
SOC 207	Social Problems	3
Elective	Psychology: Select one course from PSY 107, 200, 209, or 260	3
Minimum Credits Required:		**62**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Human Services Transfer (HUST)

Associate in Arts Degree

This program prepares you for the same job opportunities as described in the Human Services Associate in Applied Science Degree, as well as for transfer to bachelor's degree programs in social work. The program includes a transfer agreement with Eastern Michigan University.

Advisors: Nan Holmes and Chris Siehl

Articulation:
This program has an articulation agreement with Eastern Michigan University (EMU). If you are interested in transferring to this institution, you may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide. Students wishing to transfer to another four-year institution should seek the advice of an advisor or counselor.

Program Admission Requirements:
- One year of high school algebra, or MTH 097

Course Number	Course Title	Credit Hours
Semester 1 (16 Credits)		
CIS 100	Introduction to Computers	3
ENG 111	Composition I	4
HSW 100	Introduction to Human Services	3
PSY 100	Introductory Psychology	3
Elective*	Humanities: Select one course from the list of courses that meet core elemets 13 and 14 on p. 60 of the catalog. The course should also be from the humanities category of the MACRAO Agreement in this Catalog.	3
Semester 2		**(16 Credits)**
ENG 122	Composition II	3
HSC 147	Growth and Development	4
HSW 200	Intro to Interviewing and Assessment Techniques	3
SOC 100	Principles of Sociology	3
Elective*	Humanities: Select an additional course from the humanities category of the MACRAO Agreement.	3
Semester 3		**(16 Credits)**
ENG 181	African American Literature	3
HSW 210	Behavior Modification	3
HSW 230	Field Internship and Seminar I	3
MTH 160	Basic Statistics	4
PSY 257	Abnormal Psychology	3
Semester 4		**(16 Credits)**
HSW 220	Helping Approaches for Groups	3
HSW 232	Field Internship and Seminar II	3
SOC 205	Race & Ethnic Relations	3
Elective	Select one course: BIO 101 or BIO 102	4
Elective	Select one course: COM 102 or ENG 225	3
Minimum Credits Required:		**64**

**The Marco Agreement is in Appendix A of the cataolg.*

Students transferring to EMU are encouraged to take SWRK 251 Self Assessment and Development for Social Work at EMU during the final year at WCC. See an advisor or counselor for information on how to dual enroll at EMU.

Behavioral Science, English/ Writing, Foreign Languages, Humanities, Performing Arts, and Social Science Departments

Humanities and Social Sciences (HSAA)

Associate in Arts Degree

This program prepares you to transfer to a four-year college or university to major in a liberal arts, humanities, or social science discipline. It also gives you skills in communication, and analytical, computational and critical thinking, all of which provide flexibility in a changing job market. Liberal arts graduates become economists, foreign service officers, journalists, librarians, lawyers, and psychologists among other possible professions.

Advisors: **Rosalyn Biederman, Ruth Hatcher, Maija Kibens, Mike Kollen, Tracy Komarmy, Randy LaHote, Elisabeth Thoburn**

Articulation:

Please consult with a counselor or academic advisor to select courses for your program of study that are equivalent to the courses required by the college and major to which you will transfer. Transfer guides are available for most Michigan colleges and universities in the Transfer and Placement Center. If you follow this curriculum you will meet the MACRAO agreement for transferring general education requirements between Michigan colleges. For more information on MACRAO, see Appendix A of the catalog.

Program Admission Requirements:

- One year of high school algebra or MTH 097 with a grade of "C" or higher
- Passing score on the College's writing assessment or ENG 091 with a grade of "C" or higher

Course Number	Course Title	Credit Hours
General Courses		**(45 Credits)**
COM 101[1]	Fundamentals of Speaking	3
ENG 111	Composition I	4
ENG 122	Composition II	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective [2]	Computers: Select one course CIS 100, CIS 110, or CPS 171	3
Elective [3]	Humanities: Select four courses ART 130, 150; ENG 160, 170, 181* 200, 211, 212, 213, 214*, 222, 224; HUM 101,102, 145, 150, 160; MUS 180; or PHL 250; or a foreign language sequence. *Recommended for completing multicultural requirements.	12
Elective ^	Mathematics: Select one course MTH 160, 169, 179, 181, 182, 191, 192, 293, or 295.	4
Elective [e]	Science: Select one course BIO 101, BIO 102, or BIO 103.	4
Elective	Social Science: Select two courses (6 credits) from the disciplines of anthropology, history, economics, geography, sociology, psychology, or political science.	6

Program Concentrations

Complete the requirements for one of the concentrations below. Please consult an advisor prior to beginning your concentration requirements.

Behavioral Science		**(15 Credits)**
SOC 100	Principles of Sociology	3
Elective	Select an additional four courses (12 credits) from PSY 107, 114, 200, 209, 257, 260; SOC 202, 205, 207, 230, or 250.	12
Communication		**(15 Credits)**
COM 102	Interpersonal Communication	3
Elective	Select an additional four courses (12 credits) from COM 130, 142, 183, 200, or other approved communications course.	12
Fine Arts		**(16 Credits)**
ART 102	Color	4
ART 111	Basic Drawing I	4
ART 112	Basic Design I	4
ART 122	Basic Drawing II	4
Foreign Language		**(15 Credits)**
Elective [3]	Select a first year sequence (111 & 122) in FRN, SPN, GRM, or RUS.	8
Elective	Select at least 7 additional credits in liberal arts courses. For French or Spanish, it is recommended that you take the second year sequence (213 & 224) plus one additional course.	7
Humanities		**(15 Credits)**
Elective	Select at least one course from: HUM 101, 102, 140, 150, 160, 170, 180, 189; ART 130; MUS 180; PHL 101, 120, 200, 205, or 250.	3
Elective	Choose an additional 12 credits from the list of transfer courses above, or other humanities courses listed in the catalog.	12
Performing Arts		**(15 Credits)**
Elective	Select 15 credits from DRA 152, 153, 167, 170; DAN 101, 105, 107, 110, 122; MUS 106, 140, 146, 180, 210, or 233.	15
Social Science		**(15 Credits)**
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
HST 201	United States History to 1877	3
HST 202	United States History Since 1877	3
Elective	Select one course from HST 121, 122, or 123.	3
Writing and Literature		**(15 Credits)**
Elective	Select five courses from ENG 160, 170, 181, 200, 211, 212, 213, 222, 223, 224, 270, or 271 (or choose from other ENG courses listed in the catalog)	15
Minimum Credits Required:		**60**

Eastern Michigan University Notes:

[1] If you are transferring to Eastern Michigan University, take one of the following courses: ENG 225, COM 102, or a foreign language.

University of Michigan Notes:

[2] CIS courses do not transfer to UM.

[3] Except for the Bachelor of General Studies, UM requires a minimum of 16 credits of one foreign language or fourth semester proficiency.

**To complete requirements for the Mathematics & Symbolic Analysis distribution area, choose MTH 182 or higher. MTH 169 does not transfer to UM.*

English/Writing Department

Scientific and Technical Communication (STC)

Associate in Applied Science Degree

This program prepares you for staff positions and freelance writing opportunities where your ability to convey complex scientific and technical information precisely, accurately, and clearly determines your success. The program gives you the opportunity to customize your program with specialty courses from business, technical, or scientific disciplines.

Advisors: Lisa Veasey

Program Admission Requirements:

- One year of high school algebra, or MTH 097, or equivalent placement test
- One year of high school Macintosh computer instruction, or GDT 105, or permission of the program advisor

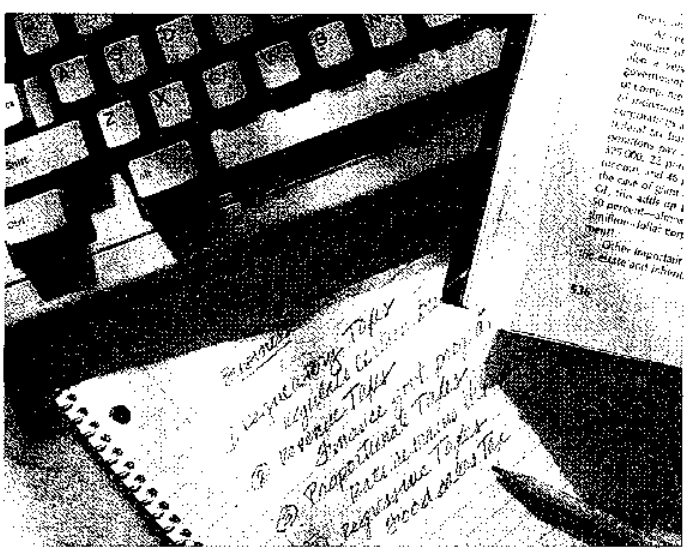
Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
ENG 100	Communication Skills	4
GDT 117	Introduction to PageMaker(	2
MTH 160	Basic Statistics	4
Elective [1]	Business, Technical, or Science Elective	3
Elective	CIS 100 or CIS 110	4
Semester 2		**(15 Credits)**
ENG 107	Technical Communications	3
GDT 118	PageMaker(II	2
Elective	Humanities: Select one course ART 130, 143; ENG 140, 160, 170, 181, 200, 211, 212, 213, 222, 223, 224; HUM 101, 102; or MUS 180	3
Elective [1]	Business, Technical, or Science Elective	7
Semester 3		**(16 Credits)**
BIO 101	Concepts Of Biology	4
COM 101	Fundamentals of Speaking	3
ENG 208	Advanced Technical Communications	3
Elective [1]	Business, Technical, or Science Elective	6
Semester 4		**(14 Credits)**
ENG 209	Award Winning Documents-Technical Writing II	3
ENG 245	Career Practices Seminar	2
PLS 112	Introduction to American Government	3
Elective [1]	Business, Technical, or Science Elective	6
Minimum Credits Required:		**62**

1Approved Specialty Courses
Students must meet with the program advisor to choose a specialty area and select appropriate courses. Twenty-two credits from the disciplines listed below must be approved by the program advisor.

Business electives may be chosen from the disciplines of:
Accounting - ACC
Business - BMG and/or RES
Computer Instruction - CIS and/or CPS
Culinary and Hospitality Management - CUL and/or HRM
Business Office Systems - BOS

Technical electives may be chosen from the disciplines of:
Automotive Service - ABR and/or ASV
Computer Instruction - CIS, CNT, CPS and/or INP
Drafting - ARC, CAD, and/or IND
Electricity/Electronics - ELE, EET
Industrial Technology - FLP, ROB, MET, MTT and/or NCT
Visual Arts Technology - DPP, GDT and/or PHO
Welding and Fabrication - WAF

Scientific electives may be chosen from the disciplines of:
Life Sciences - BIO
Mathematics - MTH
Physical Sciences - AST, CEM, GLG and/or PHY



Life Science, Mathematics, Physical Science, and Computer Instruction Departments

Math and Science (MSAS)

Associate in Science Degree

This program prepares you for transfer to a four-year college or university to complete a bachelor of science degree in the sciences, which can lead to jobs such as a teacher, scientist, chemist, biologist, doctor, laboratory researcher, computer programmer, computer systems analyst, nurse, or pharmacist, among other professions. It also gives you the opportunity to choose (within the program) a concentration in biology, chemistry, pre-medicine, physics, computer science, or math.

Advisors: **Biology and Pre-Medicine: David Shier, Esta Grossman**
Chemistry and Pre-Medicine, Physics: Kathy Butcher, Judith Fish
Mathematics: James Egan
Computer Science: Janet Remen

Articulation:
Please consult with a counselor or academic advisor to select courses for your program of study that are equivalent to the courses required by the college and major to which you will transfer. Transfer guides are available for most Michigan colleges and universities in the Transfer and Placement Center.

Program Admission Requirements:
The following high school courses or WCC equivalents must be completed with a grade of "C" or better:

- Two years of high school algebra or MTH 097 and 169
- One year of high school analysis and trigonometry or MTH 178 and 179
- One course in high school computer literacy or CIS 100.
- Biology, chemistry, and physics concentrations require one year of high school chemistry or CEM 057 and 058.
- Chemistry, physics, and computer science concentrations require one year of high school physics or PHY 105 or 111.

Course Number	Course Title	Credit Hours
General Courses		**(33 Credits)**
CPS 171	Introduction to Programming with C++	4
ENG 111	Composition I	4
ENG 122	Composition II	3
MTH 191	Calculus I	5
MTH 192	Calculus II	4
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective *	Humanities: Select one course in arts and humanities from the list of courses that meet core elements 13 & 14 in the WCC Catalog.	3
Elective	Science: BIO 101 Concepts of Biology or PHY 211 Analytical Physics I (Chemistry, Physics, and Computer Science concentrations require PHY 211. The Biology concentration requires BIO 101.)	4

Program Concentrations
Select one of the concentrations below. The concentrations are designed to fulfill the first two years of a bachelor's degree with a major in the selected concentration. Please see an advisor prior to beginning your concentration requirements.

Biology and Pre-Medicine	**(32 Credits)**
The following courses are required: BIO 103, 215, 216, 227 and 228; CEM 111, 122, 211 and 222.	32
Chemistry and Pre-Medicine	**(33 Credits)**
The following courses are required: CEM 111, 122, 211 and 222; MTH 197 and 293; and PHY 222.	29
Select an additional 4 credits in chemistry.	4
Computer Science	**(30 Credits)**
The following courses are required: CPS 271, 272; CIS 238; MTH 197, 293; and PHY 222.	24
Select an additional 6 to 8 credits in humanities, social science, and/or behavioral science.	6
Mathematics	**(32 Credits)**
The following courses are required: MTH 160, 197, 293, and 295.	16
Choose either BIO 103 or PHY 222.	4
Select an additional 12 credits in humanities, social science, and/or behavioral science.	12
Physics	**(33 Credits)**
The following courses are required: CEM 111, 122, 211, 222; MTH 197, 293, and 295; PHY 222.	33
Minimum Credits Required:	**63**

**Some Michigan colleges accept the MACRAO agreement for transferring general education requirements. This program will meet MACRAO requirements if you take one additional course in humanities and one additional course in social science. For more information on MACRAO, see Appendix A of the WCC Catalog and talk to a counselor. If you choose to take foreign language you should take a full year sequence.*

Physical Science Departments

Pre-Engineering Science-Transfer (PET)

Associate in Science Degree

This program will prepare you for transfer into an engineering program (with junior status) at a four-year college where you will continue preparing for a career in engineering. Because requirements vary slightly from one engineering field to another, two pre-engineering curricula have been developed. You should meet with a program advisor to which program best meets your individual needs.

Advisors: **George Kapp**

Articulation:
Students planning to transfer to a four-year institution should discuss transferability of courses with an advisor or counselor. Transfer guides for many colleges are available in the Placement and Transfer Center.

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- Two years of high school algebra or MTH 169
- One year of high school trigonometry or MTH 178
- One semester of high school chemistry or CEM 057
- One semester of high school physics or PHY 105 or 111

Course Number	Course Title	Credit Hours
Semester 1		**(18 Credits)**
CEM 111	General Chemistry I	4
CPS 171	Introduction to Programming with C++	4
ENG 111	Composition I	4
MTH 191	Calculus I	5
Elective	HSC 131 or SCI 100	1
Semester 2		**(15 Credits)**
CEM 122	General Chemistry II	4
MTH 192	Calculus II	4
MTH 197	Linear Algebra	4
Elective	ENG 107* or ENG 122 or IND 100	3
Semester 3		**(18 Credits)**
MTH 293 [3]	Calculus III	4
PHY 211	Analytical Physics I	5
PLS 112	Introduction to American Government	3
Elective	ECO 211 or PSY 100	3
Elective	ART 130 or ENG 213* or PHL 101	3
Semester 4		**(15 Credits)**
MTH 295 [3]	Differential Equations	4
PHY 222	Analytical Physics II	5
Elective	ECO 222* or HST 122 or SOC 100	3
Elective	ENG 200 or ENG 224* or HUM 101 or HUM 102	3
Minimum Credits Required:		**66**

** Recommended elective*
[1]Technical Drawing is required for Civil, Mechanical, and Naval Engineering at the University of Michigan. Some engineering schools may require ENG 122 Composition II.
[2]Required for Civil, Mechanical, and Environmental Science Engineering at the University of Michigan.
[3]It is recommended that students take differential equations before Analytical Physics II. Therefore, students may want to takeCalculus III, the prerequisite for differential equations, during the Spring-Summer semester following the second semester. Differential equations would then be taken in the third semester.

Pre-Engineering Science-Chemical & Materials Engineering Option (PECT)

Associate in Science Degree

This program will prepare you for transfer into an engineering program (with junior status) at a four-year college where you will continue preparing for a career in engineering. Because requirements vary slightly from one engineering field to another, two pre-engineering curricula have been developed. You should meet with a program advisor to determine which program best meets your individual needs.

Advisors: George Kapp

Articulation:
Students planning to transfer to a four-year institution should discuss transferability of courses with an advisor or counselor. Transfer guides for many colleges are available in the Placement and Transfer Center.

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- Two years of high school algebra or MTH 169
- One year of high school trigonometry or MTH 178
- One semester of high school chemistry or CEM 057
- One semester of high school physics or PHY 105 or 111

Course Number	Course Title	Credit Hours
Semester 1		**(18 Credits)**
CEM 111	General Chemistry I	4
CPS 171	Introduction to Programming with C++	4
ENG 111	Composition I	4
MTH 191	Calculus I	5
Elective	HSC 131 or SCI 100	1
Semester 2		**(15 Credits)**
CEM 122	General Chemistry II	4
ECO 211 [1]	Principles of Economics I	3
MTH 192	Calculus II	4
MTH 197	Linear Algebra	4
Semester 3		**(19 Credits)**
CEM 211	Organic Chemistry I	4
MTH 293 [2]	Calculus III	4
PHY 211	Analytical Physics I	5
PLS 112	Introduction to American Government	3
Elective	ART 130 or ENG 213* or PHL 101	3
Semester 4		**(16 Credits)**
CEM 222	Organic Chemistry II	4
MTH 295 [3]	Differential Equations	4
PHY 222	Analytical Physics II	5
Elective	ENG 200 or ENG 224* or HUM 101 or HUM 102	3
Minimum Credits Required:		**68**

** Recommended elective*
[1]Some engineering schools may require ENG 122 Composition II in place of a social science or humanities course. Please check with the engineering school about specific requirements.
[2]Required for Chemical and Materials Engineering at the University of Michigan.
[3]It is recommended that students take differential equations before Analytical Physics II. Therefore, students may want to take Calculus III, the prerequisite for differential equations, during the spring-summer semester following the second semester. Differential equations would then be taken in the third semester.

Automotive Services Department

Automotive Body Repair (ABRC)

Mastery Certificate

This program prepares you for immediate employment in jobs that require you to straighten bent frames, remove dents, and replace damaged parts. You'll be skilled to work on all vehicles but most of your work will be on cars and small trucks. You also get training on the latest equipment and a foundation of coursework you can take into a WCC associate's degree program in auto body service.

Advisors: Lester Jordan

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses (31 Credits)		
ABR 111	Auto Body Repair Fundamentals	4
ABR 112	Auto Refinishing Fundamentals	4
ABR 113	Auto Body Service Fundamentals	2
ABR 114	Applied Auto Body Welding	1
ABR 123	Body Repair Applications	4
ABR 124	Auto Refinishing Applications	4
ABR 125	Flat Rate Estimating	2
ABR 126	Fundamentals of Frame and Body Alignment	2
ABR 226	Unibody Structural Alignment	2
ENG 107	Technical Communications	3
MTH 090	Occupational Mathematics	3
Minimum Credits Required:		**31**

Automotive Body Service (ABRD)

Associate in Technical Studies Degree

This program prepares you for expanded job opportunities in auto body repair shops, manufacturing settings, and in the sales of auto body equipment and supplies. Upon completing the program you'll be a master technician. You'll also get training in auto body spray painting.

Advisors: Lester Jordan

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(14 Credits)**
CIS 100	Introduction to Computers	3
ENG 107	Technical Communications	3
MTH 090	Occupational Mathematics	3
PLS 112	Introduction to American Government	3
SCI 100	Introduction to Natural Sciences	1
Elective *	Humanities Elective	1
Program Specialty Courses		**(41 Credits)**
ABR 111	Auto Body Repair Fundamentals	4
ABR 112	Auto Refinishing Fundamentals	4
ABR 113	Auto Body Service Fundamentals	2
ABR 114	Applied Auto Body Welding	1
ABR 123	Body Repair Applications	4
ABR 124	Auto Refinishing Applications	4
ABR 125	Flat Rate Estimating	2
ABR 127	Major Repair Fundamentals	2
ABR 219	Major Repair Procedures	4
ABR 220	Enamel Refinishing	4
ABR 230	Specialized Study	4
Elective [1]	ABR 126 or ABR 226	2
Elective [2]	ABR 199 or ABR 230	4
Program Related Courses		**(8 Credits)**
ASV 124	Wheel Balance and Alignment	2
ASV 214	Steering and Suspension Systems	2
ASV 227	Heating and Air Conditioning	2
WAF 101	Acetylene Welding	2
Minimum Credits Required:		**63**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

[1] You may substitute an elective, approved by your faculty advisor, for ABR 199 On-The-Job Training.

Automotive Technology (ATC)

Achievement Certificate

This program prepares you for entry-level jobs in the field of automotive technology, where you will work under the supervision of an experienced mechanic or to update your skills if you are already in the field. You will develop entry-level skills in brakes, suspensions, engine repair, electrical performance, and drive trains. You also get courses that can be applied toward the Mastery Certificate in Automotive Mechanics and the Associate in Applied Science in Automotive Technology.

Advisors: Thomas Hemsteger, John Mann, Bill Schuster

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(20 Credits)**
ASV 141	Automotive Mechanics I	4
ASV 142	Automotive Mechanics II	4
ASV 143	Automotive Mechanics III	4
ASV 144	Automotive Mechanics IV	4
ASV 145	Automotive Mechanics V	4
Minimum Credits Required:		**20**

Automotive Mechanics (ASC)

Mastery Certificate

This program prepares you for jobs as an automotive mechanic where you will diagnose mechanical problems; perform minor repairs; and replace and adjust fuel, electrical and cooling system components. The courses also prepare you for the State of Michigan and national mechanic certification exams as well as provide a foundation for completing Washtenaw Community College's associate's degree program in automotive service technology.

Advisors: Thomas Hemsteger, John Mann, Bill Schuster

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(33 Credits)**
ASV 124	Wheel Balance and Alignment	2
ASV 125	Brake Systems	2
ASV 141	Automotive Mechanics I	4
ASV 142	Automotive Mechanics II	4
ASV 143	Automotive Mechanics III	4
ASV 144	Automotive Mechanics IV	4
ASV 145	Automotive Mechanics V	4
ASV 212	Automatic Transmissions - Mechanical	2
ASV 227	Heating and Air Conditioning	2
Elective	ENG 100 or ENG 107 or ENG 111 or ENG 122	3
Elective	ASV 160 Small Engine Repair or ASV 218 Engine Performance Diagnosis	2
Minimum Credits Required:		**33**

Automotive Service Technology (ASD)

Associate in Technical Studies Degree

This program prepares you for the state and national exams to become a Certified Master Automotive Technician; the exams cover engine repair, automatic transmission/transaxle, manual drive train and axle, suspension and steering, brakes, electrical system, heating and air conditioning, and engine performance.

Advisors: Thomas Hemsteger, John Mann, Bill Schuster

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(18 Credits)**
CIS 100	Introduction to Computers	3
MTH 090	Occupational Mathematics	3
PHY 110	Applied Physics	4
PLS 112	Introduction to American Government	3
Elective	ENG 107 or ENG 111	3
Elective	SCI 100 or BIO 101 or BIO 102	1
Elective *	Humanities Elective	1
Program Specialty Courses		**(41 Credits)**
ASV 124	Wheel Balance and Alignment	2
ASV 125	Brake Systems	2
ASV 141	Automotive Mechanics I	4
ASV 142	Automotive Mechanics II	4
ASV 143	Automotive Mechanics III	4
ASV 144	Automotive Mechanics IV	4
ASV 145	Automotive Mechanics V	4
ASV 212	Automatic Transmissions - Mechanical	2
ASV 216	Electrical Circuits	2
ASV 218	Engine Performance Diagnosis	2
ASV 222	Automatic Transmission - Hydraulic Systems	2
ASV 227	Heating and Air Conditioning	2
ASV 228	Driveability	2
Elective	ASV 174 ASV Co-op I or ASV 199 On-the-Job-Training	3
Elective	ASV 160 Small Engine Repair or ASV 218 Engine Performance Diagnosis	2
Program Related Courses		**(2 Credits)**
Elective	BMG 109, ELE 137, FLP 111, FLP 226, MTT 100, MTT 111, ROB 111, WAF 100	2
Minimum Credits Required:		**61**

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Automotive Spray Painting Assistant (ASPC)

Achievement Certificate

This program prepares you for quick entry into the auto spray paint job market, where you'll mix paints, remove old paint, and apply new paint under the supervision of an experienced auto spray painter. You also get a foundation of skills upon which you can build, should you continue your coursework with a mastery certificate or associate's degree.

Advisors: **Lester Jordan**

Program Admission Requirements: None

Required Courses		**(16 Credits)**
ABR 111	Auto Body Repair Fundamentals	4
ABR 112	Auto Refinishing Fundamentals	4
ABR 113	Auto Body Service Fundamentals	2
ABR 114	Applied Auto Body Welding	1
WAF 101	Acetylene Welding	2
Elective	MTH 090 or MTT 111	3
Minimum Credits Required:		**16**

Automotive Spray Painting (ABRS)

Mastery Certificate

This program prepares you for automotive spray painting jobs in car dealerships or auto repair shops where you will remove finishes, mix paints, and use spray painting techniques to match the color and finish of repaired vehicles or vehicle parts. The program also gives you courses that can be applied toward Washtenaw Community College's associate's degree in Automotive Body Service.

Advisors: **Lester Jordan**

Program Admission Requirements: None

Required Courses		**(31 Credits)**
ABR 111	Auto Body Repair Fundamentals	4
ABR 112	Auto Refinishing Fundamentals	4
ABR 113	Auto Body Service Fundamentals	2
ABR 114	Applied Auto Body Welding	1
ABR 124	Auto Refinishing Applications	4
ABR 125	Flat Rate Estimating	2
ABR 199 [1]	On the Job Training	2
ABR 230	Specialized Study	4
ENG 107	Technical Communications	3
MTH 090	Occupational Mathematics	3
WAF 101	Acetylene Welding	2
Minimum Credits Required:		**31**

[1] *You may substitute an elective, approved by your faculty advisor, for ABR 199 On-The-Job Training.*

Drafting Department

Architectural Drafting Detailing (ADD)

Mastery Certificate

This program prepares you for jobs as an architectural drafting detailer where you're expected to draw each part shown on a layout by giving dimensions, materials, and any other necessary information to make the drawing clear and complete.

Advisors: **Michael Pogliano, James Teevens**

Program Admission Requirements:

- One year of high school algebra, or MTH 097, or equivalent with a grade of "C" or better.

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
ARC 111	Architectural Drawing I	6
ARC 117	Construction Materials	3
MTH 169	Intermediate Algebra	4
Elective	Select ENG 100 or ENG 111	4
Semester 2		**(17 Credits)**
ARC 100	Specifications	1
ARC 109	Site Layout	3
ARC 120	Mechanical and Electrical Systems for Buildings	3
ARC 122	Architectural Drawing II	6
ARC 150	Presentation Drawings and Models	4
Minimum Credits Required:		**34**

Architectural Drafting (AD)

Associate in Technical Studies Degree

This program prepares you for positions as an architectural drafting technician where you will prepare detailed drawings based on rough sketches, specifications, and calculations made by scientists, engineers, architects, and designers. You'll also calculate the strength, quality, quantity, and cost of materials.

Advisors: Michael Pogliano, James Teevens

Program Admission Requirements:
- One year of high school algebra, or MTH 097, or equivalent with a grade of "C" or better.

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
ARC 111	Architectural Drawing I	6
ARC 117	Construction Materials	3
ENG 111	Composition I	4
MTH 152	Technical Geometry and Trigonometry	4
Semester 2		**(17 Credits)**
ARC 100	Specifications	1
ARC 109	Site Layout	3
ARC 120	Mechanical and Electrical Systems for Buildings	3
ARC 122	Architectural Drawing II	6
PHY 105	Conceptual Physics	4
Semester 3		**(16 Credits)**
ARC 150	Presentation Drawings and Models	4
ARC 210	Structure in Architecture	2
ARC 213	Architectural Drawing III	6
CIS 103	MS DOS Commands	1
ENG 107	Technical Communications	3
Semester 4		**(16 Credits)**
ARC 224	Architectural Drawing IV	6
ARC 227	Estimating Construction Costs	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective *	Humanities Elective	1
Minimum Credits Required:		**66**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Drafting Detailing (DFTC)

Mastery Certificate

This program prepares you for jobs as a drafting detailer where you'll prepare working plans and detail drawings from rough sketches, specifications, and calculations for engineers and designers to use for engineering or manufacturing purposes.

Advisors: Michael McGraw, Belinda McGuire, Barry Swan

Program Admission Requirements:
- Two full years of high school drafting or IND 100 must be completed with a grade of "C" or better before enrolling in first-semester drafting courses.

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
IND 111	Industrial Drafting I	4
IND 216	Introduction to Computer Aided Drafting	2
MTT 111	Machine Shop Theory and Practice	4
Elective	English: Select ENG 107 or 111	3
Elective	Math: Select MTH 177 or 178	3
Semester 2		**(14 Credits)**
IND 112	Descriptive Geometry	4
IND 114	Industrial Drafting II	4
IND 123	Geometric Dimensioning and Tolerancing	3
MTT 103	Introduction to Materials	3
Minimum Credits Required:		**30**

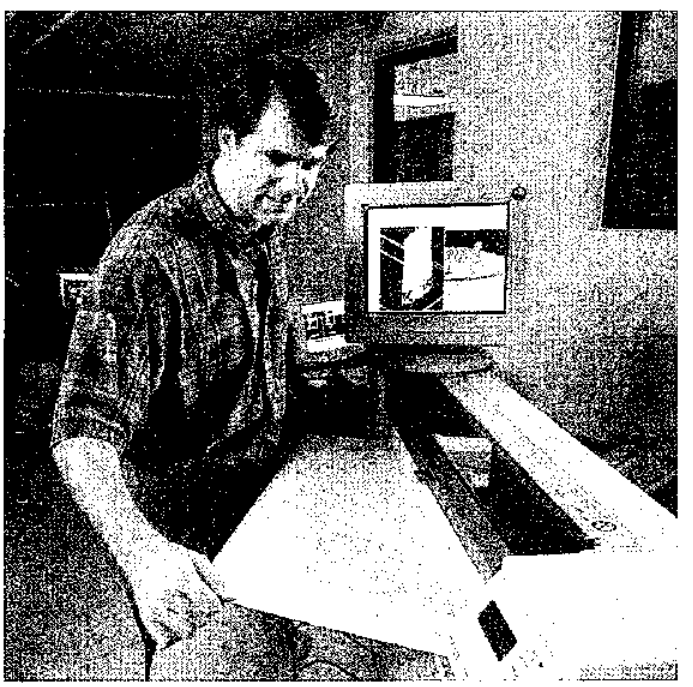
Computer Aided Drafting-Electronic Option (CADE)

Associate in Technical Studies Degree

This program prepares you for jobs as a CAD operator or technician, where you'll prepare clear, complete, and accurate detail and assembly drawings from rough sketches, specifications, and calculations of engineers and designers to be used for electronic applications.

Advisors: Frank Gerlitz, Belinda McGuire

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:
- Two years of high school drafting, or IND 100
- Two years of high school algebra (Algebra I and II), or MTH 097 and MTH 169
- One year of high school computer instruction, or CIS 100, or CIS 110



Course Number	Course Title	Credit Hours
Semester 1		**(13 Credits)**
ELE 111	Electrical Fundamentals	4
ELE 137 [1]	Switching Logic	4
IND 216	Introduction to Computer Aided Drafting	2
Elective	Select ENG 107 or ENG 111	3
Semester 2		**(14 Credits)**
ELE 211	Basic Electronics	4
HSC 131	CPR/FPR and First Aid	1
IND 251	Fundamentals of Electronic Drafting	2
MTH 179	Precalculus	4
Elective	Select PLS 112 or PLS 150	3
Semester 3		**(17 Credits)**
CPS 171	Introduction to Programming with C++	4
ELE 224	Introduction to PLC's	4
IND 220	CAD Application - Electronic Simulation	4
Elective *	Humanities Elective	1
Elective	ELE 134 or Higher	4
Semester 4		**(16 Credits)**
ELE 250	Microprocessor Interfacing	4
IND 222	Introduction to Electronic Design	4
IND 230	Advanced Product Drafting	4
Elective	Select from IND 112, 114, 123, 174, 212, 217, or 218A	4
Minimum Credits Required:		**60**

[1] *Appropriate electronics courses or work experience may be substituted.*

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Computer Aided Drafting-Mechanical Option (CADM)

Associate in Technical Studies Degree

This program prepares you for jobs as a CAD operator or technician, where you'll prepare clear, complete, and accurate detail and assembly drawings from rough sketches, specifications, and calculations of engineers and designers to be used for mechanical applications.

Advisors: Michael McGraw, Belinda McGuire, Barry Swan

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- Two years of high school Algebra I and II, or MTH 097 and MTH 169
- One semester of high school geometry or MTH 152
- Two years of high school drafting or IND 100

Semester 1		**(17 Credits)**
IND 111	Industrial Drafting I	4
IND 112	Descriptive Geometry	4
IND 216	Introduction to Computer Aided Drafting	2
MTT 111	Machine Shop Theory and Practice	4
Elective	English: Select ENG 107 or 111	3
Semester 2		**(17 Credits)**
IND 114	Industrial Drafting II	4
IND 121	Theory of Jigs and Fixtures	2
IND 123	Geometric Dimensioning and Tolerancing	3
IND 217	Introduction to 3-D CAD	2
MTT 103	Introduction to Materials	3
Elective	Math: Select MTH 177 or 178	3
Semester 3		**(14 Credits)**
IND 107	Mechanisms	4
IND 212	Theory Of Dies	2
IND 221	CAD Application - Mechanical	4
SCI 100	Introduction to Natural Sciences	1
Elective	Select one course from: CIS 275, CPS 171 or NCT112	3
Semester 4		**(12 Credits)**
IND 223	Introduction to Surfaces and Solids	4
IND 230	Advanced Product Drafting	4
PLS 112	Introduction to American Government	3
Elective *	Humanities Elective	1
Minimum Credits Required:		**60**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Mechanical Design (MDES)

Advanced Certificate

This program provides advanced skills in the development, modification, and analysis of solid model parts and assemblies. The program will give you the skills to create complex three-dimensional free form surfaces based on mathematical concepts and equations using the tools within the SDRC I-DEAS Master Series. You must have an associate's degree in CAD-Drafting, or equivalent industry experience to enroll in this program.

Advisors: Belinda McGuire

Program Admission Requirements:
Successful completion of an associate degree or higher degree in CAD-Drafting, or related industry experience.

Course Number	Course Title	Credit Hours
Required Courses (14 Credits)		
CAD 280	Part Modeling I	3
CAD 282	Constructing Assemblies	2
CAD 284	Part Modeling II	3
CAD 286	Part Modeling III	2
CAD 290	Working Details	2
CAD 292	Free Form Surfacing	2
Minimum Credits Required:		**14**

Mechanical/Manufacturing Engineering Technology (METT)

Associate in Applied Science Degree

This program prepares you for jobs in which you support technical and engineering activities in both business and industry settings by using engineering design methods and analysis techniques to improve products, processes, and systems. You also get credit that transfers to Engineering Technology Programs at four-year colleges and universities. The curriculum of this program is based on engineering theory but emphasis is placed on application, implementation skills and computer modeling.

Advisors: Frank Gerlitz

Articulation:
This program is articulated with the Engineering Technology program at the University of Toledo. If you are interested in transferring to this institution, you may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide. Students planning to transfer to four-year institutions should consult with an advisor at the receiving institution to confirm the transferability of courses.

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

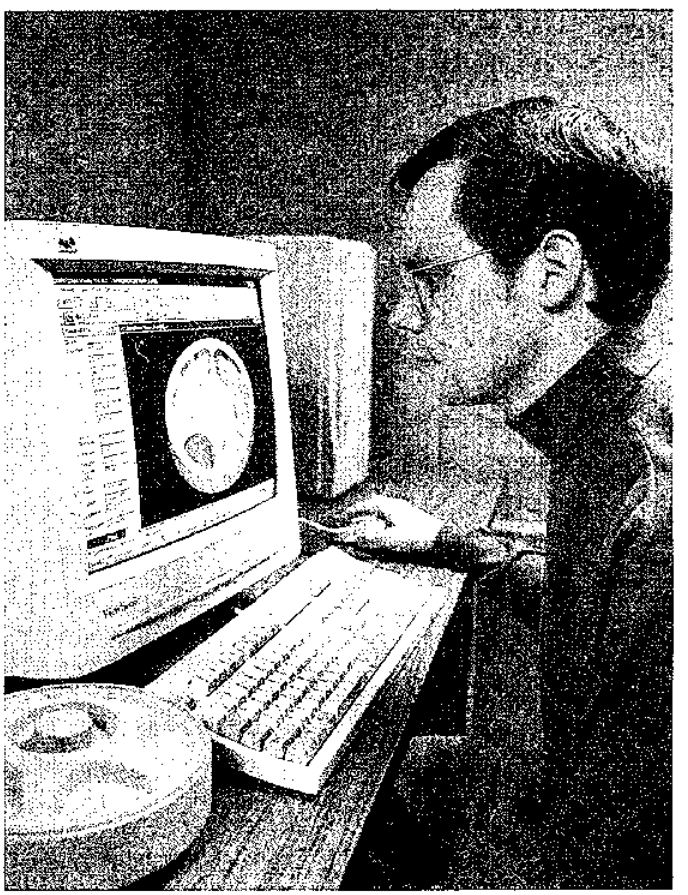
- Two years of high school drafting, or IND 100
- Two years of high school algebra (Algebra I and II), or MTH 097 and MTH 169
- High school chemistry, or CEM 057
- High school physics, or PHY 105 or 111

Course Number	Course Title	Credit Hours
Semester 1		**(19 Credits)**
CEM 111	General Chemistry I	4
IND 216	Introduction to Computer Aided Drafting	2
IND 217	Introduction to 3-D CAD	2
MTH 191	Calculus I	5
MTT 103	Introduction to Materials	3
Elective	Select one course: CPS 171, 187, or 191	3
Semester 2		**(17 Credits)**
MET 211	Statics and Introduction to Solid Mechanics	3
MTH 192	Calculus II	4
MTT 111	Machine Shop Theory and Practice	4
Elective	Select ENG 111 or 122	3
Elective [1]	Technical Elective	3
Semester 3		**(17 Credits)**
MET 241	Introduction to Dynamics	3
PHY 211	Analytical Physics I	5
Elective [1]	Technical Elective	3
Elective [1]	Technical Elective	3
Elective *	Humanities Elective	3
Semester 4		**(15 Credits)**
MET 260	Strength of Materials	3
PHY 222	Analytical Physics II	5
Elective	Political Science: PLS 112 or 211	3
Elective [1]	Technical Elective	3
Elective	Science: Select one course from: BIO 101, 102, 103, 111; HSC 131, 131A; or SCI 100	1
Minimum Credits Required:		**68**

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

[1] Select 12 credit hours from the disciplines listed below. Six of those credit hours must make up a sequence of two courses from the same discipline area. All technical electives must be approved by the program advisor.

Architectonics (ARC)
Auto Body Repair (ABR)
Automotive Service (ASV)
Computer Aided Drafting (CAD)
Construction Technology (CON)
Electricity/Electronics (ELE)
Fluid Power (FLP)
Heating (HTG)
Industrial Drafting (IND)
Journeyperson Upgrade (JUG)
Machine Tool Technology (MTT)
Mechanical Engineering (MET)
Numerical Control (NCT)
Photography (PHO)
Refrigeration/Air Conditioning (RAC)
Robotics (ROB)
Trade-Related Instruction (TRI)
Welding and Fabrication (WAF)



Electricity/Electronics Department

Computer Systems Technology (CSTC)

Mastery Certificate

This cross-disciplinary program is listed under both the Computer Instruction and Electronics Departments. The program prepares you for the rigorous Computer Technology Industry Association's (CompTIA) A+ Certification exam and for employment as a microcomputer service technician, where you'll be expected to be equally adept at hardware solutions, working with operating systems, and relating to customers. It also provides the foundation for Washtenaw Community College's two advanced certificates in computer networking.

Advisors: **Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner**

Program Admission Requirements:
• One year of high school computer instruction with a grade of "C" or better, or CIS 116 and CIS 117, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
CIS 110	Business Computer Systems	4
ELE 118	MS DOS for Technicians	2
ELE 150	PC Hardware Concepts and Troubleshooting	4
Elective	English/Communication: Select from COM 101,102; ENG 100, 107, 111, or 122	3
Elective	Customer Relations: Select one course from ELE 299, 174,199; CIS 174 or 199	1
Semester 2		**(14 Credits)**
CIS 121	Beginning UNIX	2
CPS 185	Introduction to Visual Basic Programming	4
ELE 155	Advanced Computer Concepts and Troubleshooting	4
ELE 216A	Modem Hardware Install, Config & Troubleshoot	2
ELE 225A	Network Installation and Troubleshooting	2
Minimum Credits Required:		**28**

Computer Networking Technology I (CNT)

Advanced Certificate

This program prepares you for a job as a Novell® or Microsoft® technician, where you will install, configure, and troubleshoot Local Area Networks under the supervision of a network administrator. It also gives you the knowledge you'll need to pass the first required exam for either the Novell Certified NetWare® Engineer or Microsoft® Certified Systems Engineer.

Advisors: **Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner**

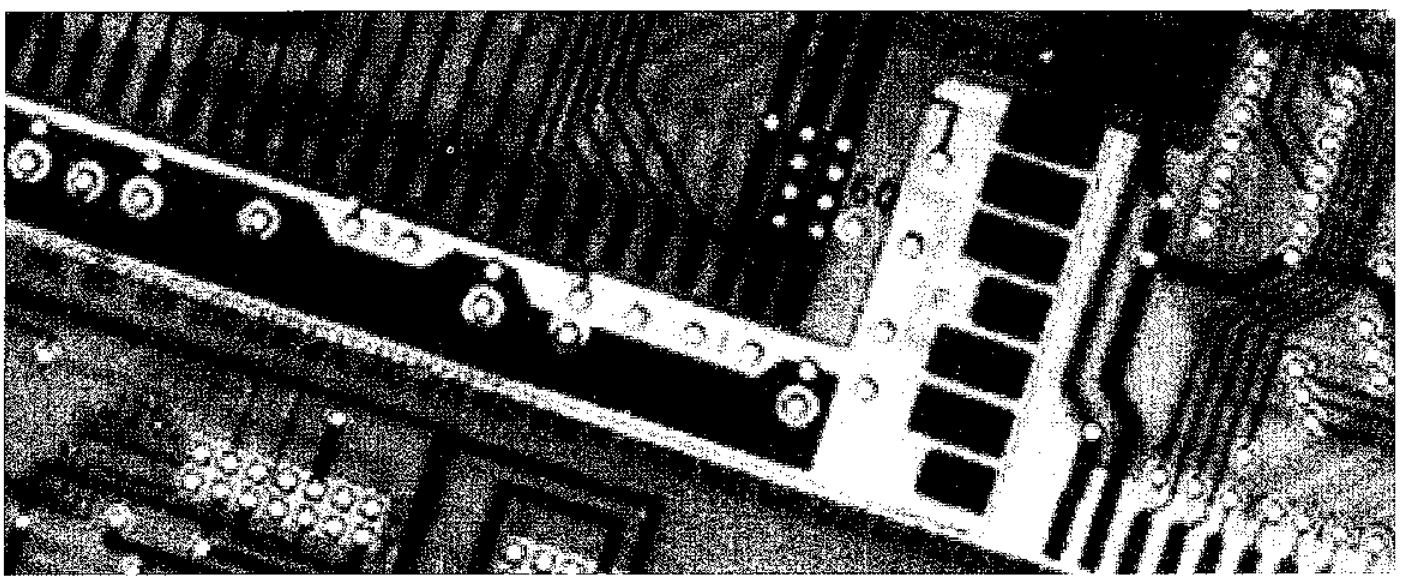
Program Admission Requirements:
Successful completion of the Computer Systems Technology Mastery Certificate or equivalent industry experience

Course Number	Course Title	Credit Hours
Required Courses		**(12 Credits)**
CNT 200	Networking Fundamentals	4
CNT 215	Structured Cabling Systems	4
CNT 225	Introduction to Routers	4
Program Options		**(6 Credits)**

Choose one of the options below to make a complete program. Some option courses are taken before required courses. See the footnotes for the sequence in which courses must be taken.

Novell NetWare® Option[1]		
CNT 210	NetWare Administration	3
CNT 220	Advanced NetWare Administration	3
Microsoft Windows® NT Option[2]		
CNT 211	Administering MS Windows NT®	3
CNT 221	Supporting MS Windows NT® Core Technologies	3
Minimum Credits Required:		**18**

[1] *Novell NetWare® Option: Take CNT 210 before CNT 220.*
[2] *Microsoft Windows® NT Option: Take CNT 211 before CNT 221.*



Computer Networking Technology II (CNP)

Advanced Certificate

This program provides you with the advanced skills needed for a job as a Novell® or Microsoft® network administrator, where you will design, install, configure, and troubleshoot Local and Wide Area Networks. It also prepares you to pass either the Novell Certified NetWare® Engineer or the Microsoft® Certified Systems Engineer exam, depending on which option you choose.

Advisors: Gary Downen, Charles Finkbeiner, Michael Galea, Phil Geyer, Usha Jindal, Laurence Krieg, Roland Meade, John Rinn, John Trame, Catherine Wagner

Program Admission Requirements:
Successful completion of the Computer Networking Technology Advanced Certificate (CNT)

Course Number	Course Title	Credit Hours
Required Courses		**(16 Credits)**
CNT 235	Advanced Local Area Networking	4
CNT 245	Introduction to Wide Area Networks	4
CNT 255	Heterogeneous Networks	4
CNT 265	Network Design	4
Program Options		**(9-10 Credits)**

Choose one of the options below to make a complete program. Some option courses are taken before program courses. See the footnotes for the sequence in which courses must be taken.

Novell NetWare® Option1		
CNT 230	NetWare Service and Support	4
CNT 240	Novell Directory Services	3
CNT 250	Integrating MS Windows NT® into a Novell Network	3
Microsoft Windows® NT Option2		
CNT 231	MS Windows NT® Enterprise Technologies	3
CNT 241	Internetworking MS TCP/IP®	3
CNT 251	Microsoft Internet Information Server	3
Minimum Credits Required:		**25**

[1]Novell NetWare® Option:
Take CNT 250 before or concurrently with CNT 255.
Take CNT 255 before or concurrently with CNT 265.
[2]Microsoft Windows® NT Option:

Take CNT 231 before CNT 251 and take CNT 241 before or concurrently with CNT 251.
Take CNT 241 before CNT 255.
Take CNT 255 before or concurrently with CNT 265.

Electronics Technology (ELEC)

Mastery Certificate

This program prepares you for entry-level jobs in almost any of the electricity/electronics cluster of occupations, where you'll be expected to be skilled in the installation, maintenance, and troubleshooting of personal computers, electric motors, and motor controls and in relating to customers, managers, and co-workers. The program also gives you skills and coursework you can apply toward a Washtenaw Community College associate's degree in electronics technology.

Advisors: William Cleary, Gary Downen, Lawrence Kramer, Dale Petty, John Trame, Catherine Wagner

Program Admission Requirements:
- Two years of high school algebra with a grade of "C" or better, or MTH 097 and MTH 169, or equivalent placement test
- One year of high school Windows operating system with a grade of "C" or better, or CIS 116 and CIS 117, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
ELE 104	Electronic Soldering	1
ELE 111	Electrical Fundamentals	4
ELE 137	Switching Logic	4
Elective	Select one course: ELE 140 or CPS 171	4
Elective	Select one course: ENG 107 or ENG 111	3
Semester 2		**(17.5 Credits)**
ELE 134	Motors and Controls	4
ELE 139A	Microprocessors A	2
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 209	Operational Amplifiers	2
ELE 211	Basic Electronics	4
HSC 131A	Community CPR	0.5
Elective	Select one course: ELE 299 or ELE 174	1
Minimum Credits Required:		**33.5**

Electronics Technology (ELET)

Associate in Technical Studies Degree

This program prepares you for jobs installing, maintaining, and troubleshooting a wide range of equipment, from digital computer, telephone and data communications systems to automated industrial machine control systems, to name a few. The program allows you to specialize by selecting from a list of elective courses and prepares you to communicate and work effectively with customers, managers, and co-workers.

Advisors: **William Cleary, Gary Downen, Lawrence Kramer, Dale Petty, John Trame, Catherine Wagner**

Program Admission Requirements:

- Two years of high school algebra, or MTH 097 and MTH 169, or equivalent placement test
- One year of high school Windows Operating System, or CIS 116 and 117, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
ELE 104	Electronic Soldering	1
ELE 111	Electrical Fundamentals	4
ELE 137	Switching Logic	4
Elective	Select one course: ELE 140 or CPS 171	4
Elective	Select one course: ENG 107 or ENG 111	3
Semester 2		**(17 Credits)**
ELE 134	Motors and Controls	4
ELE 139A	Microprocessors A	2
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 209	Operational Amplifiers	2
ELE 211	Basic Electronics	4
Elective	Select one course: ELE 174 or ELE 299	1
Semester 3		**(14.5 Credits)**
ELE 216A	Modem Hardware Install, Configur & Troubleshoot	2
ELE 225A	Network Installation and Troubleshooting	2
HSC 131A	Community CPR	0.5
Elective *	Humanities Elective	2
Elective	Select 8 credits from CIS 121&CIS 221,ELE 155, ELE 204,ELE 224,ELE 244, ELE 254,ELE 275,PHY 110	8
Semester 4		**(13 Credits)**
ELE 240	Career Practices Seminar	2
ELE 250	Microprocessor Interfacing	4
PLS 112	Introduction to American Government	3
Elective	Select an additional 4 credits from CIS 121&CIS 221, ELE 155,ELE 204,ELE 224,ELE 244,ELE 254,ELE 275, PHY 110	4
Minimum Credits Required:		**60.5**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Electrical Engineering Technology (EETT)

Associate in Applied Science Degree

This program prepares you for immediate entry-level employment as an engineering technician while serving as the first two years of a bachelor's degree in electrical engineering technology. You'll learn electrical engineering theory and practice using computer-aided design and computer modeling in the areas of microprocessor and digital electronic design, motor control design, and electronic communications system design and analysis.

Advisors: **William Cleary, Gary Downen, Lawrence Kramer, Catherine Wagner, Dale Petty, John Trame**

Articulation:
This program is articulated with the Engineering Technology program at the University of Toledo. If you are interested in transferring to this institution, you may obtain a copy of the articulation agreement from the Placement and Transfer Center, your faculty advisor, or the office of the area dean. Since these agreements are updated on a regular basis, check with an advisor prior to following the curriculum guide. Students planning to transfer to other four-year institutions should consult with an advisor at the receiving institution to confirm the transferability of courses.

Program Admission Requirements:

- One year of high school drafting, or IND 100, or equivalent
- Two years of high school algebra, or MTH 097 and MTH 169, or equivalent placement test
- One year of high school chemistry, or CEM 057 and CEM 058
- One year of high school computer instruction, or CIS 100, or CIS 110

Course Number	Course Title	Credit Hours
Semester 1		**(18 Credits)**
CEM 111	General Chemistry I	4
CPS 171	Introduction to Programming with C++	4
EET 100	DC Circuit Analysis and Measurements	3
MTH 178	General Trigonometry	3
MTH 179	Precalculus	4
Semester 2		**(18 Credits)**
EET 110	Digital Electronics Design I	3
ENG 111	Composition I	4
IND 216	Introduction to Computer Aided Drafting	2
IND 251	Fundamentals of Electronic Drafting	2
MTH 186	Applied Calculus I	3
PHY 111	General Physics I	4
Semester 3		**(16 Credits)**
EET 200	AC Circuit Analysis	3
EET 201	Linear Electronics I	3
MTH 286	Applied Calculus II	3
PHY 122	General Physics II	4
Elective	Select one course: PLS 112 or PLS 211	3

Semester 4		(16 Credits)
EET 211	Digital Electronics Design II	3
EET 221	Linear Electronics II	3
EET 230	Motors and Controls	3
EET 231	Electronic Communications	3
Elective *	Humanities Elective	3
Elective	Science: Select one course from ..... SCI 100; BIO 101, 102, 103, or 111	1

Minimum Credits Required: 68

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Industrial Technology Department

Hydraulic Assembly (HYDA)

Mastery Certificate

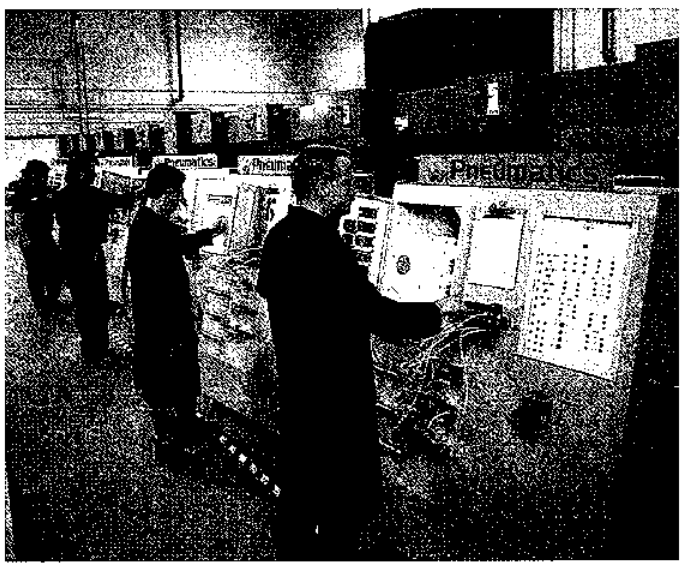
This program prepares you for hydraulic assembler jobs in which you use your skills in blueprint reading, welding, and machine shop practice to assemble machinery.

Advisors: Gary Schultz

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
FLP 111	Fluid Power Fundamentals	4
MTH 151	Technical Algebra	4
MTT 111	Machine Shop Theory and Practice	4
WAF 111	Welding I Oxy-Acetylene	4
Semester 2		**(14 Credits)**
COM 101	Fundamentals of Speaking	3
FLP 214	Basic Hydraulic Circuits	3
FLP 226	Pneumatics	3
MTT 101	Blueprint Reading for Manufacturing	3
Elective	Elective, See program advisor to select a course	2

Minimum Credits Required: 3



Fluid Power Technology (FLPT)

Associate in Technical Studies Degree

This program prepares you for jobs as a fluid power technician where you may perform any of a variety of tasks from designing and preparing drawings of fluid components and systems, to installing, inspecting, or operating fluid power systems in various industrial settings. The program also gives you training that you can use in inside sales, outside sales, or service and testing jobs.

Advisors: Gary Schultz

Program Admission Requirements:

- One year of high school algebra (Algebra I), or MTH 097, or equivalent placement test

Semester 1		(16 Credits)
ELE 111	Electrical Fundamentals	4
FLP 111	Fluid Power Fundamentals	4
MTH 169	Intermediate Algebra	4
MTT 111	Machine Shop Theory and Practice	4
Semester 2		**(15 Credits)**
COM 101	Fundamentals of Speaking	3
FLP 213	Hydraulic Controls	3
FLP 214	Basic Hydraulic Circuits	3
FLP 226	Pneumatics	3
WAF 100	Fundamentals of Welding	2
Elective *	Humanities Elective	1
Semester 3		**(15 Credits)**
IND 100	Technical Drawing	4
PHY 110	Applied Physics	4
ROB 111	CIM Fundamentals	4
Elective	Select one course: ENG 107 or ENG 111	3
Semester 4		**(14.5 Credits)**
FLP 225	Fluid Power Instrumentation	3
HSC 131A	Community CPR	0.5
MTT 122	Machine Tool Operations and Set-Up I	4
PLS 112	Introduction to American Government	3
Elective	Select one course from: IND (Higher than 100)	4

Minimum Credits Required: 60.5

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Machine Operation (MOPC)

Achievement Certificate

This program prepares you for a job as a semi-skilled operator of production manufacturing equipment where you'll need skills in the use of precision measuring tools, the adjustment of cutting tools and setup machines, the operation and set up of lathes, mills, grinders, and CNC turning and machining centers, and the interpretation of engineering drawings and metal cutting techniques. It also gives you the foundation to continue in the machine tool mastery certificate and degree programs.

Advisors: Dean Avery, Burton Lowe

Program Admission Requirements:
- Mathematics competency at the MTH 039 level

Semester 1		**(14 Credits)**
MTT 100	Machine Shop Theory	4
MTT 101	Blueprint Reading for Manufacturing	3
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to CNC Machining	3
Minimum Credits Required:		**14**

Machine Tool Operation (TOMO)

Mastery Certificate

This program prepares you for jobs in the skilled machine trade industry as a machinist, toolmaker or diemaker. You will need skills to set up and operate conventional and CNC machine tools, make adjustments to NC controllers and perform editing commands to enhance productivity. You will also increase mathematical skills and calculations including those used to calculate correct speeds and feeds of machines and basic statistical process control charting techniques.

Advisors: Dean Avery, Burton Lowe

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
MTT 100	Machine Shop Theory	4
MTT 101	Blueprint Reading for Manufacturing	3
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to CNC Machining	3
Semester 2		**(13 Credits)**
ENG 107	Technical Communications	3
MTT 122	Machine Tool Operations and Set-Up I	4
NCT 121	Manual Programming and NC Tool Operation	4
QCT 100	Charting Techniques	2
Minimum Credits Required:		**27**

Machine Tool Technology (MTT)

Associate in Technical Studies Degree

This program prepares you for jobs in which you'll assist mechanical engineers in designing, building, maintaining, and modifying many kinds of machines, mechanical devices, and tools. Blueprint reading, cost analysis, drafting, testing, and report writing are among the skills you'll need. You may also supervise the manufacturing process.

Advisors: Dean Avery, Burton Lowe

Program Admission Requirements:

- One year of high school algebra (Algebra I), or MTH 097 with a grade of "C" or better, or equivalent placement test

Course Number	Course Title	Credit Hours
Semester 1		**(18 Credits)**
MTT 101	Blueprint Reading for Manufacturing	3
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to CNC Machining	3
ROB 111	CIM Fundamentals	4
Elective	Select one course: MTH 151 or 169	4
Semester 2		**(18 Credits)**
MTT 103	Introduction to Materials	3
MTT 122	Machine Tool Operations and Set-Up I	4
NCT 121	Manual Programming and NC Tool Operation	4
Elective	Select one course: IND 100 or IND 111	4
Elective	Select one course: MTH 152 or 178	3
Semester 3		**(14 Credits)**
IND 216	Introduction to Computer Aided Drafting	2
MTT 123	Machine Tool Operations and Set-Up II	4
NCT 122	Advanced Manual Programming and NC Tool Operation	4
SCI 100	Introduction to Natural Sciences	1
Elective	Select one course: ENG 107 or 111	3
Semester 4		**(15.5 Credits)**
HSC 131A	Community CPR	0.5
MTT 201	Machine Tool Technology	4
NCT 236	CAM Machine Tool Programming	4
PLS 112	Introduction to American Government	3
QCT 101	Process Quality Control	3
Elective *	Humanities Elective	1
Minimum Credits Required:		**65.5**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Numerical Control Machine Operation (NC)

Mastery Certificate

This program prepares you for positions as a CNC machine tool operator or programmer where you'll be required to use skills in manual and computer assist programming languages, interpretation of engineering drawings, visualization of machining operations and the set-up of numerical controlled machine tools. You will also increase your skills in selecting cutting tools and incorporating speeds and feeds into CNC programs.

Advisors: Roger Dick, Jeffrey Donahey

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
MTT 100	Machine Shop Theory	4
MTT 101	Blueprint Reading for Manufacturing	3
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to CNC Machining	3
Semester 2		**(13 Credits)**
ENG 107	Technical Communications	3
MTT 122	Machine Tool Operations and Set-Up I	4
NCT 121	Manual Programming and NC Tool Operation	4
QCT 100	Charting Techniques	2
Semester 3		**11 Credits)**
MTT 103	Introduction to Materials	3
NCT 122	Advanced Manual Programming and NC Tool Operation	4
NCT 236	CAM Machine Tool Programming	4
Minimum Credits Required:		**38**

Numerical Control Technology (NCTT)

Associate in Technical Studies Degree

This program prepares you for jobs as a numerical control technician where you serve as the link between design and manufacturing using computer controlled equipment. You'll write the programs which control the machine motion required to manufacture parts and you'll have to be skilled in various numerical control machine tool languages, as well as in using Computer Aided Design (CAD) hardware and software.

Advisors: Roger Dick, Jeffrey Donahey

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(18 Credits)**
MTT 101	Blueprint Reading for Manufacturing	3
MTT 111	Machine Shop Theory and Practice	4
NCT 112	Introduction to CNC Machining	3
ROB 111	CIM Fundamentals	4
Elective	Select one course: MTH 151 or 169	4
Semester 2		**(18 Credits)**
MTT 103	Introduction to Materials	3
MTT 122	Machine Tool Operations and Set-Up I	4
NCT 121	Manual Programming and NC Tool Operation	4
Elective	Select one course: IND 100 or 111	4
Elective	Select one course: MTH 152 or 178	3
Semester 3		**(16 Credits)**
IND 216	Introduction to Computer Aided Drafting	2
NCT 122	Advanced Manual Programming and NC Tool Operation	4
NCT 236	CAM Machine Tool Programming	4
QCT 101	Process Quality Control	3
Elective	Select one course: ENG 107 or 111	3
Semester 4		**(13.5 Credits)**
HSC 131A	Community CPR	0.5
NCT 247	Advanced CAM Machine Tool Programming	4
PLS 112	Introduction to American Government	3
ROB 260	CIM Applications	4
SCI 100	Introduction to Natural Sciences	1
Elective*	Humanities Elective	1
Minimum Credits Required:		**65.5**

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Robotic Technology (ROB)

Associate in Technical Studies Degree

This program prepares you for entry-level positions as an automated equipment technician who assembles, installs, and maintains robotic equipment. You'll use hand tools, testing instruments, and diagrams to work on electrical and electronic, electro-mechanical, pneumatic and hydraulic components in computer-assisted machinery.

Advisors: Gary Schultz

Program Admission Requirements:
The following high school courses or equivalents must be completed with a grade of "C" or better:

- One year of high school algebra, or MTH 097, or MTH 151
- One year of high school geometry, or MTH 152
- One semester of high school trigonometry, or MTH 152 or 177

Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
ELE 111	Electrical Fundamentals	4
FLP 111	Fluid Power Fundamentals	4
IND 100	Technical Drawing	4
Elective	Select one course: ROB 111 or ROB 121	3
Semester 2		**(17 Credits)**
FLP 213	Hydraulic Controls	3
FLP 214	Basic Hydraulic Circuits	3
FLP 226	Pneumatics	3
ROB 212	Robotics II	4
Elective	Select one course: PHY 110 or PHY 111	4
Semester 3		**(16 Credits)**
ELE 137	Switching Logic	4
IND 107	Mechanisms	4
PSY 100	Introductory Psychology	3
ROB 223	Robotics III	4
SCI 100	Introduction to Natural Sciences	1
Semester 4		**(15 Credits)**
ELE 224	Introduction to PLC's	4
PLS 112	Introduction to American Government	3
ROB 224	Robotics IV	4
Elective *	Humanities Elective	1
Elective	Select one course: ENG 107 or ENG 111	3
Minimum Credits Required:		**63**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Machine Tool Technology (MTTA)

Advanced Certificate

This program prepares you for manufacturing jobs where you will use process planning and advanced machine tool set-ups for the manufacture of non-mass produced parts or prototype parts for industry. The program gives you advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments as well as a working knowledge of basic mathematical calculations, Word Address CNC programs, and the operation of CNC turning and machining centers. You must have a mastery certificate in Machine Tool Operation or equivalent industry experience to enroll in this program.

Advisors: Dean Avery, Roger Dick, Jeff Donahey, Burton Lowe

Program Admission Requirements:
Successful completion of the Machine Tool Operation Mastery Certificate or equivalent industry experience

Course Number	Course Title	Credit Hours
Required Courses		**(11 Credits)**
MTT 103	Introduction to Materials	3
MTT 123	Machine Tool Operations and Set-Up II	4
MTT 201	Machine Tool Technology	4
Minimum Credits Required:		**11**

Numerical Control Programming (NCP)

Advanced Certificate

This program prepares you for jobs that require you to produce full 3-D CAD databases and surfaces required for machining. You must complete WCC's Machine Tool Operation Mastery Certificate, or have the equivalent industry experience, in order to enroll in this program. You will also gain proficiency in SURFCAM(and MASTERCAM(software in which challenging and complex 2, 3, and 4 Axis CNC machine tool operations are programmed.

Advisors: Roger Dick, Jeffrey Donahey

Program Admission Requirements:
Successful completion of the Machine Tool Operation Mastery Certificate or equivalent industry experience.

Course Number	Course Title	Credit Hours
Required Courses		**(10 Credits)**
IND 216	Introduction to Computer Aided Drafting	2
NCT 247	Advanced CAM Machine Tool Programming	4
NCT 249	Mastercam CNC Programming	4
Minimum Credits Required:		**10**

Visual Arts Technology Department

Digital Prepress (DPPC)

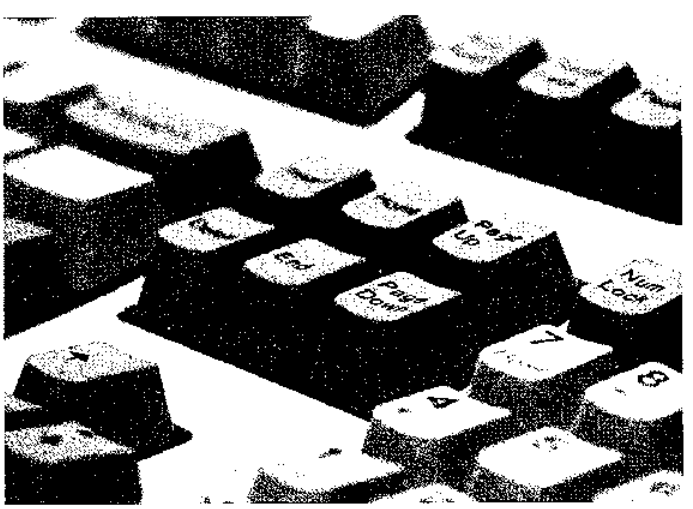
Mastery Certificate

This program prepares you for working with computer generated publications and graphic files to ensure proper imaging to film or direct-to-plate. You'll work for a printer, service bureau, book manufacturer, publisher, design agency, or color separator.

Advisors: Kristine Willimann, Lind Babcock

Program Admission Requirements:
- One year of high school Macintosh graphics, or GDT 105, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(11 Credits)**
GDT 125	Introduction to QuarkXPress	2
GDT 126	QuarkXPress II	2
GDT 141	Introduction to Photoshop	2
GDT 142	Intermediate Photoshop	2
Elective	Select one course: COM 101,102; ENG 100, 101, 107, 111, or 122	3
Semester 2		**(12 Credits)**
DPP 111	Digital Prepress I	4
DPP 117	Printing Essentials for Digital Prepress	4
GDT 137	Introduction to Illustrator	2
GDT 138	Illustrator II	2
Semester 3		**(8 Credits)**
DPP 122	Digital Prepress II	4
GDT 117	Introduction to PageMaker	2
GDT 118	PageMaker II	2
Minimum Credits Required:		**31**



Graphic Design Technology-Design Option (GDTD)

Associate in Technical Studies Degree

This program prepares you for a career as a graphic artist where you'll work with typographers, printers, and other specialists on commercial projects that are meant to communicate, inform, instruct, or sell. You may work in package design, professional publications, book illustrations, annual reports, magazines, trade publications, desktop publishing, or in-house publications. The program focuses on developing your skills in keylining, paste-up, typography, graphic communication, knowledge of materials (paper and ink), fundamentals of design, computer graphics, and illustration. You will also have the opportunity to prepare a portfolio. Creative or artistic ability is required for these careers as well as qualities such as resourcefulness, experimentation, and inquiry.

Advisors: Lind Babcock, Dennis Guastella

Program Admission Requirements:
- One year of high school Macintosh graphics, or GDT 105, or permission of the program advisor

Course Number	Course Title	Credit Hours
Semester 1		**(15 Credits)**
ART 112	Basic Design I	4
GDT 101	History of Graphic Design	3
GDT 137	Introduction to Illustrator(	2
GDT 138	Illustrator(II	2
SCI 100	Introduction to Natural Sciences	1
Elective	Select one course: ENG 107 or ENG 111	3
Semester 2		**(15 Credits)**
GDT 100	Typography I	4
GDT 125	Introduction to QuarkXPress(	2
GDT 126	QuarkXPress(II	2
GDT 141	Introduction to Photoshop(	2
GDT 142	Intermediate Photoshop(	2
Elective	Select one course: MTH 151 or MTH 163	3
Semester 3		**(17 Credits)**
GDT 112	Graphic Communication	4
GDT 220	Publication Design	4
GDT 239	Imaging and Illustration	4
PLS 112	Introduction to American Government	3
Elective *	Humanities Elective	2
Semester 4		**(16 Credits)**
GDT 200	Design and Publishing on the Internet	4
GDT 230	Professional Practices	4
GDT 252	Advanced Digital Studio	4
Elective	Select four credits from: DPP 111, 122; GDT 117, 118, 174, 201, 236, 243, 245, 246, 274; PHO 111	4
Minimum Credits Required:		**63**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Graphic Design Technology-Illustration Option (GDTI)

Associate in Technical Studies Degree

This program prepares you for a career as a commercial and technical illustrator, including staff positions and freelance opportunities. Manufacturing and technology firms, as well as newspaper art departments, art studios, ad agencies, and magazines are among the employers you could work for. In this program you will use a variety of media and methods, including computer-generated illustration, to produce a portfolio of finished art that can be presented to potential employers. Illustration requires understanding and visualizing of technical information, attention to detail, and an interest in precision drawing.

Advisors: Dennis Guastella

Program Admission Requirements:
- One year of high school Macintosh graphics, or GDT 105, or permission of the program advisor.

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
ART 111	Basic Drawing I	4
GDT 101	History of Graphic Design	3
GDT 137	Introduction to Illustrator(	2
GDT 138	Illustrator(II	2
Elective	Select one course: ENG 107 or ENG 111	3
Semester 2		**(17 Credits)**
GDT 100	Typography I	4
GDT 141	Introduction to Photoshop(	2
GDT 142	Intermediate Photoshop(	2
GDT 201	Graphic Illustration	4
PHO 111	Photography I	4
SCI 100	Introduction to Natural Sciences	1
Semester 3		**(17 Credits)**
GDT 112	Graphic Communication	4
GDT 245	Computer-Aided Painting	4
Elective *	Humanities Elective	2
Elective	Select one course: MTH 151 or MTH 163	3
Elective	Select from: ART 140, 122; DPP 111, 122; GDT 117, 118, 125, 126, 246; or any PHO course	4
Semester 4		**(19 Credits)**
GDT 222	Commercial Illustration	4
GDT 230	Professional Practices	4
GDT 239	Imaging and Illustration	4
GDT 243	3D Computer Illustration/Rendering	4
PLS 112	Introduction to American Government	3
Minimum Credits Required:		**67**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Internet Professional (INPC)

Mastery Certificate

This program prepares you for a job as an Internet professional where you will provide services which might include designing web pages, administering a web site, programming for the web, or conducting business on the web depending on whether you choose the design or technical option. The program also provides you with a well-rounded experience in all aspects of Internet development and prepares you for industry certification examinations.

Advisors: **Technical Option: Laurence Krieg;**
Design Option: Dennis Guastella;
Technical and Design Options: Christine Anderson

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Program Courses		**(16 Credits)**
CIS 160	Introduction to the Internet	2
CIS 165	Basic HTML	2
ENG 208	Advanced Technical Communications	3
GDT 200	Design and Publishing on the Internet	3
INP 230	Advanced Web I	3
INP 260	Advanced Web II	3

Program Options
Complete all of the required courses in either the Design or Technical Option below. Check course prerequisites to determine the sequence for taking option courses with program courses.

Design Option (20 Credits)		
GDT 112	Graphic Communication	4
GDT 143	Imaging for the Web	3
INP 240	Advanced Imaging for the Web	3
INP 250	Audio and Video for the Web	3
INP 255	Animation on the Web	3
Elective	Select one course from: GDT 100, GDT 246, or PHO 127	4

Technical Option (22 Credits)		
CIS 121	Beginning UNIX	2
CIS 265	Programming the Web	3
CIS 283	Databases and the Web	3
CIS 286	UNIX Systems Administration	4
CIS 287	Internet Security	3
Elective	Select one course: CPS 171 or CPS 185	4
Elective	Select one course: CIS 277 or 291	3
Minimum Credits Required:		**36**

Internet Professional (INPD)

Associate in Applied Science Degree

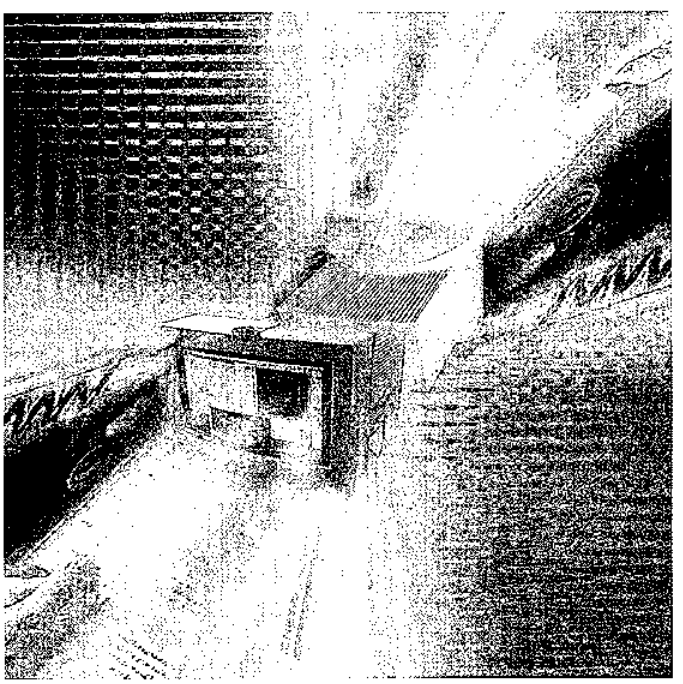
This program prepares you for a job as an Internet professional where you will provide services which might include designing web pages, administering a web site, programming for the web, or conducting business on the web depending on whether you choose the design or technical option. The program also provides you with a well-rounded experience in all aspects of Internet development and includes the courses you need to complete the core curriculum requirements for an associate's degree. It also prepares you for industry certification examinations.

Advisors: **Technical Option: Laurence Krieg;**
Design Option: Dennis Guastella;
Technical and Design Options: Christine Anderson

Program Admission Requirements:
Students must have passing scores on the College's placement tests in reading, writing, and math.

Course Number	Course Title	Credit Hours
General Courses		**(16 Credits)**
COM 101	Fundamentals of Speaking	3
ENG 111	Composition I	4
Elective	Select one course: MTH 169, 179, or 181	4
Elective	Select one course: PLS 112 or PLS 150	3
Elective	Select one course: SCI 100 or BIO 101	1
Elective	Humanities Restricted Elective	1

Choose a course from the list of humanities courses in the College catalog that meet core elements 13 and 14 (see p. 60).



Program Courses		(19 Credits)
CIS 160	Introduction to the Internet	2
CIS 165	Basic HTML	2
ENG 208	Advanced Technical Communications	3
GDT 200	Design and Publishing on the Internet	3
INP 230	Advanced Web I	3
INP 260	Advanced Web II	3
Elective	Choose at least 3 credits from the disciplines of CIS, CPS, GDT, or INP	3

Program Related Courses		(6 Credits)
BMG 250	Principles of Marketing	3
Elective	Select one course: BMG 109, 230,or 272	3

Program Options

Complete all of the required courses in either the Design or Technical Option below. Check course prerequisites to determine the sequence for taking option courses with program courses.

Design Option		(20 Credits)
GDT 112	Graphic Communication	4
GDT 143	Imaging for the Web	3
INP 240	Advanced Imaging for the Web	3
INP 250	Audio and Video for the Web	3
INP 255	Animation on the Web	3
Elective	Select one course: GDT 100 or GDT 246 or PHO 127	4

Technical Option		(22 Credits)
CIS 121	Beginning UNIX	2
CIS 265	Programming the Web	3
CIS 283	Databases and the Web	3
CIS 286	UNIX Systems Administration	4
CIS 287	Internet Security	3
Elective	Select one course: CPS 171 or 185	4
Elective	Select one course: CIS 277 or 291	3

Minimum Credits Required: 61

Photographic Assisting (PHOA)

Mastery Certificate

This program prepares you for working with small and medium format cameras and processing images with both darkroom and computer-based processes. You'll assist professional photographers in the studio and on location shoots, or you can work in the photo processing industry. The program also gives you a starting point for continued study in photography in one of Washtenaw Community College's associate's degree programs.

Advisors: Terry Abrams, Jennifer Baker

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(14 Credits)**
MTH 151	Technical Algebra	4
PHO 111	Photography I	4
PHO 117	Introduction to the Studio	3
Elective	Select one course: ENG 100 or COM 102	3
Semester 2		**(17 Credits)**
PHO 122	Photography II	4
PHO 124	Color Photography	4
PHO 127	Digital Photo Imaging	4
Elective	Business: Select one course from BMG 160, 208, 209,or 250	2
Elective	Photography: Select one course from PHO 116, 211,216, 220, or 228	3

Minimum Credits Required: 31

Photographic Technology (PHOT)

Associate in Technical Studies Degree

This program prepares you for work as a photographer in a variety of settings including working behind the camera, behind the computer, in the studio, in the photolab, and in photojournalism. You also get the ability to specialize by selecting the appropriate elective courses, the opportunity to use photography as a means of personal expression, and credits for transfer into a four-year photography degree program.

Advisors: Terry Abrams, Jennifer Baker

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
PHO 103	History of Photography	3
PHO 111	Photography I	4
PHO 117	Introduction to the Studio	3
PLS 112	Introduction to American Government	3
Elective	Select one course: ENG 100 or 111	4
Semester 2		**(16 Credits)**
MTH 151	Technical Algebra	4
PHO 122	Photography II	4
PHO 124	Color Photography	4
PHO 127	Digital Photo Imaging	4
Semester 3		**(15 Credits)**
PHO 210	Alternative Processes	3
PHO 211	Large Format Photography	3
Elective	Select one course: BMG 200 or COM 102	3
Elective	Select one course: PHO 219 or ART 112	3
Elective	Photography: Select one course from PHO 101, 116, 174, 212, 216, 220, 227, 228, or 274	3
Semester 4		**(17 Credits)**
PHO 230	Specialized Studies in Photography	3
PHO 231	Portfolio Seminar	4
SCI 100	Introduction to Natural Sciences	1
Elective	Business: Select one course from BMG 109, 140, 208, 209,or 250	3
Elective	Photography: Select two courses from PHO 101, 116, 174, 212, 216, 220, 227, 228, or 274	6

Minimum Credits Required: 65

Photographic Technology-Marketing Option (PHOM)

Associate in Technical Studies Degree

This program prepares you for the same opportunities described in the Photographic Technology Program, only with an emphasis on business skills so that you can pursue self-employment or a position in the retail or manufacturing areas of the photographic fields. The program also gives you the ability to specialize by selecting the appropriate elective courses, the opportunity to use photography as a means of personal expression, and credits for transfer into a four-year photography degree program.

Advisors: Terry Abrams, Jennifer Baker

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(17 Credits)**
BMG 140	Introduction to Business	3
ENG 111	Composition I	4
PHO 103	History of Photography	3
PHO 111	Photography I	4
PHO 117	Introduction to the Studio	3
Semester 2		**(19 Credits)**
COM 102	Interpersonal Communication	3
MTH 151	Technical Algebra	4
PHO 122	Photography II	4
PHO 124	Color Photography	4
PHO 127	Digital Photo Imaging	4
Semester 3		**(16 Credits)**
BMG 250	Principles of Marketing	3
CIS 110	Business Computer Systems	4
PHO 211	Large Format Photography	3
PLS 112	Introduction to American Government	3
Elective	Photography: Select one course from PHO 101, 116, 174, 212, 216, 220, 227, 228, or 274	3
Semester 4		**(17 Credits)**
BMG 109	Intro to Home-Based/Small Business Management	3
BMG 160	Principles of Sales	3
BMG 270	Advertising Principles	3
PHO 231	Portfolio Seminar	4
SCI 100	Introduction to Natural Sciences	1
Elective	Photography: Select two courses from PHO 101, 116, 174, 212, 216, 220, 227, 228, or 274	3
Minimum Credits Required:		**69**

Welding and Fabrication Technology Department

Welding (WLDC)

Achievement Certificate

This program prepares you for entry-level jobs involving gas welding, brazing, and various combinations of arc welding processes, where you'll work under the supervision of an experienced welding technician. The program also gives you courses that may be applied toward WCC's Mastery Certificate and Associate in Technical Studies Degree in Welding.

Advisors: William Figg, Clyde Hall

Articulation:
All of the courses in this program may be applied toward the achievement certificate and associate's degree in Welding.

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(20 Credits)**
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced OAW	4
WAF 124	Welding IV Advanced SMAW	4
WAF 215	Welding V Advanced GTAW & GMAW	4
Minimum Credits Required:		**20**

Welding Maintenance Mechanics (WLDM)

Mastery Certificate

This program prepares you for jobs as a welding maintenance mechanic in which you weld metal parts together according to layouts, blueprints, or work orders using gas welding or brazing and any combination of arc-welding processes. The program also gives you courses that may be applied toward WCC's Associate in Technical Studies Degree in Welding.

Advisors: William Figg, Clyde Hall

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
General Courses		**(6 Credits)**
COM 101	Fundamentals of Speaking	3
MTH 090	Occupational Mathematics	3
Program Specialty Courses		**(28 Credits)**
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced OAW	4
WAF 124	Welding IV Advanced SMAW	4
WAF 200	Layout Theory Welding	2
WAF 210	Welding Metallurgy	3
WAF 215	Welding V Advanced GTAW & GMAW	4
WAF 227	Basic Fabrication	3
Minimum Credits Required:		**34**

Welding Technology (WLDT)

Associate in Technical Studies Degree

This program prepares you for jobs as a welding and fabrication technician or positions as a foreman, sales representative, or specialist. You'll apply your welding skills to the assembly of a variety of structures, from machinery frames, tanks, and pressure vessels to furnace shells and building and bridge parts.

Advisors: William Figg, Clyde Hall

Program Admission Requirements:
One year of high school algebra (Algebra I), or MTH 097, or equivalent score on math placement test

Course Number	Course Title	Credit Hours
General Courses		**(17 Credits)**
CIS 100	Introduction to Computers	3
MTH 177	Triangle Trigonometry	3
PLS 112	Introduction to American Government	3
PSY 100	Introductory Psychology	3
Elective	Select one course: ENG 100 or ENG 111	4
Elective *	Humanities Elective	1
Program Specialty Courses		**(38 Credits)**
WAF 106	Blueprint Reading for Welders	3
WAF 111	Welding I Oxy-Acetylene	4
WAF 112	Welding II Basic ARC	4
WAF 123	Welding III Advanced OAW	4
WAF 124	Welding IV Advanced SMAW	4
WAF 200	Layout Theory Welding	2
WAF 210	Welding Metallurgy	3
WAF 215	Welding V Advanced GTAW & GMAW	4
WAF 226	Specialized Welding Procedures	4
WAF 227	Basic Fabrication	3
WAF 229	Shape Cutting Operations	3
Program Related Courses		**(16.5 Credits)**
FLP 111	Fluid Power Fundamentals	4
HSC 131A	Community CPR	0.5
IND 100	Technical Drawing	4
IND 112	Descriptive Geometry	4
MTT 100	Machine Shop Theory	4
Minimum Credits Required:		**71.5**

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Technical Education Department

Trade Related Instruction

Apprentice and Employee Training

Apprenticeship training combines on-the-job training with related classroom instruction to ensure that apprentices master skills with confidence and precision. More than 300 occupational areas use apprenticeships to train workers. Individuals entering an apprenticeship program are hired in jobs for which vacancies exist. They are paid a percentage of the journeyperson's (someone who has completed an apprenticeship) rate, usually starting at about 50% and increasing as skills are mastered. The apprentice is supervised on the job by an experienced worker and also attends related classroom instruction.

The purpose of the Trade Related Instruction Program is to provide employers with the opportunity to participate in training programs that assist their employees in becoming more skilled. The College provides related instruction for most apprenticeable trades. The Director of Technical Training will work directly with apprentices and sponsoring firms to meet their requirements. The related instruction program has been approved by the Bureau of Apprenticeship and Training of the U.S. Department of Labor. Sponsoring firms are invited to contact the Director of Technical Training concerning employees who wish to participate.

Pre-Apprenticeship Training
If you would like to enter an apprenticeship program, but have not passed the required entrance examination, you may contact the Director of Technical Training. An individual pre-apprenticeship curriculum can be arranged to help prepare for most apprenticeship entrance examinations. Placement in an apprenticeship program is at the mutual discretion of employers, employees, and organizations representing the involved skill trades and cannot be guaranteed.

Journeyperson Industrial (JPI)

Associate in Technical Studies Degree

This program gives skilled tradespersons who are sponsored by qualified firms, the opportunity to apply trade-related instruction credits from their apprenticeship programs toward an associate's degree. Trade-related credits completed at other institutions may be evaluated.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements:

- Passing score on apprenticeship entrance exam
- Sponsorship of qualified firm

Required Courses		**(60 Credits)**
CIS 100	Introduction to Computers	3
ENG 111	Composition I	4
PLS 112	Introduction to American Government	3
SCI 100	Introduction to Natural Sciences	1
Elective	Mathematics: Select one course from MTH 151, 160, 169, or 179	4
Elective *	Humanities Elective	1
Elective [1]	Restricted Trade-Related Instruction Electives	44
Minimum Credits Required:		**60**

1See program advisor before selecting these courses.

**Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14 (see p. 60).*

Residential Construction Technology (RCT)

Achievement Certificate

This program prepares you for entry-level jobs in the broad range of careers in the construction industries, where you'll need an understanding of building systems, the safe use of tools and equipment, materials, and the vocabulary of the field. The program also gives you the potential for being selected for one of the many apprentice classifications associated with the construction field.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(20 Credits)**
CON 104	Construction I	5
CON 105	Construction II	5
CON 204	Construction III	4
CON 205	Construction IV	4
Elective	Select one course: CON 174 or 199	2
Minimum Credits Required:		**20**

Construction Management (CON)

Associate in Applied Science Degree

This program prepares you for entry-level supervisory and mid-management positions in the construction industry where you will prepare estimates and bids, procure materials, manage projects, supervise office and jobsite workers, and communicate with owners, contractors, subcontractors, vendors and inspectors. Some courses may transfer to a bachelor's degree program.

Advisors: Les Pierce, Mike Pogliano, Patricia Stegall, James Teevens

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Semester 1		**(16 Credits)**
ARC 111	Architectural Drawing I	6
CON 104	Construction I	5
CON 105	Construction II	5
MTH 163	Business Mathematics	3
Semester 2		**(11 Credits)**
ARC 109	Site Layout	3
BMG 140	Introduction to Business	3
CIS 103	MS DOS Commands	1
CON 204	Construction III	4
Semester 3		**(5 Credits)**
ARC 100	Specifications	1
PHY 110	Applied Physics	4
Semester 4		**(13 Credits)**
CON 205	Construction IV	4
BMG 200	Human Relations in Business	3
ENG 100	Communication Skills	4
PLS 150	State and Local Government and Politics	3
Semester 5		**(15 Credits)**
ACC 111	Principles of Accounting I	3
ARC 199	On the Job Training	2
CIS 100	Introduction to Computers	3
PSY 100	Introductory Psychology	3
Elective	Humanities: Select one course from ANT 201; ART 130, 143; DAN 110; ENG 140, 160, 170, 181, 200, 211, 212, 213; FRN 111; GRM 111; HUM 101, 102, 150; MUS 180; PHO 103; RUS 111; or SPN 111	1
Elective	Science: Select one course from AST 111, BIO 101,102,111, 227, 228; GEO 100; GLG 100; or PHY 105	3
Minimum Credits Required:		**64**

Heating Ventilating and Air Conditioning (HVAC)

Achievement Certificate

This program prepares you for entry-level jobs in HVAC contracting companies, HVAC servicing companies, hospitals, schools and other public institutions, and apprenticeships in large manufacturing plants and supply houses. In these commercial, residential, or institutional settings you will combine your diagnostic and repair skills with customer relations skills to service equipment. The program helps prepare you for the third class refrigeration licensure examination.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements: None

Course Number	Course Title	Credit Hours
Required Courses		**(22 Credits)**
HVA 101	Heating, Ventilating and Air Conditioning I	5
HVA 103	Heating, Ventilating and Air Conditioning II	5
HVA 105	Heating, Ventilating and Air Conditioning III	5
HVA 107	Heating, Ventilating and Air Conditioning IV	5
WAF 104	Soldering & Brazing	2
Minimum Credits Required:		**22**

Quality Control Technology-Electronics Option (QCTE)

Associate in Technical Studies Degree

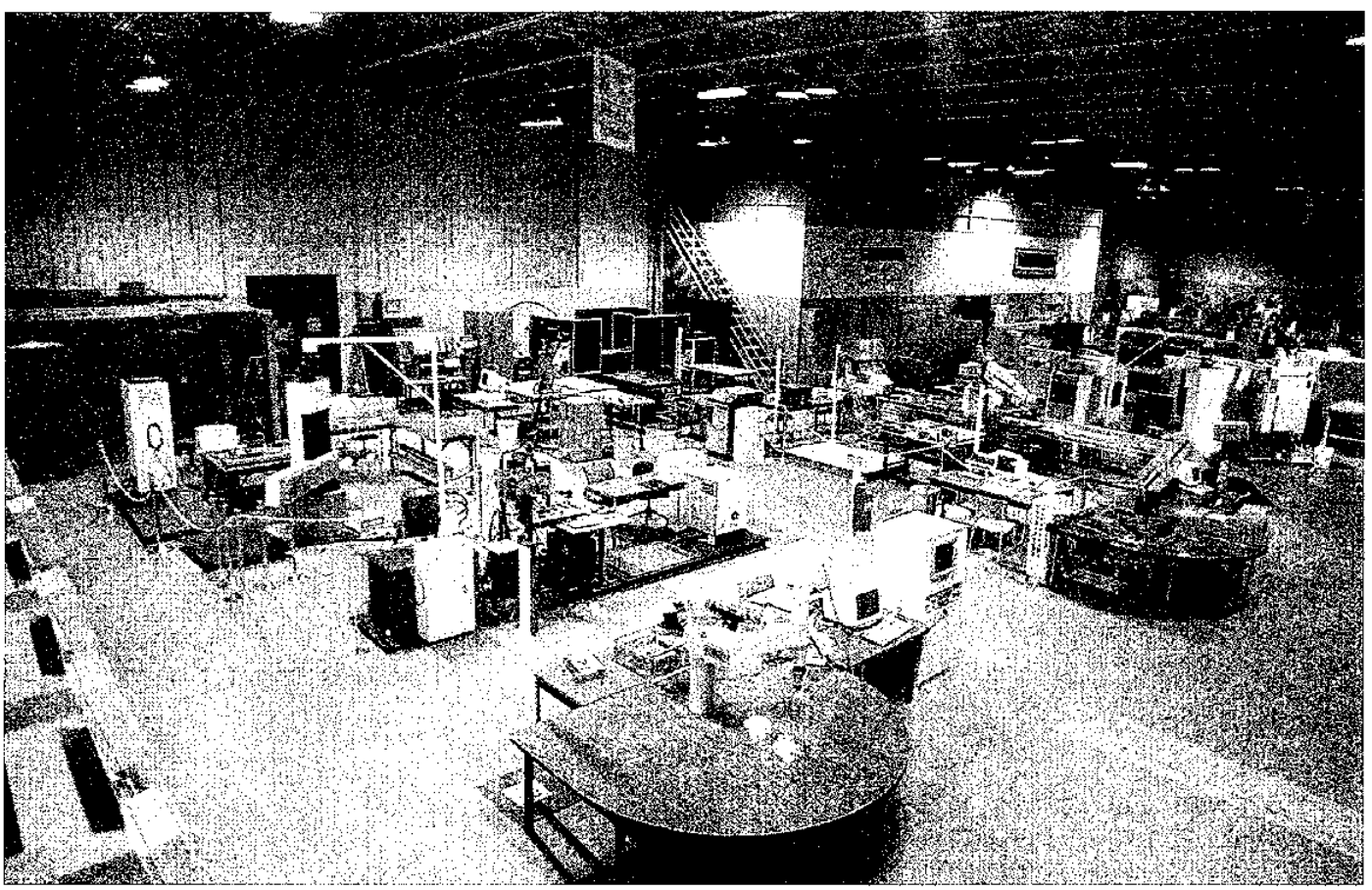
This program prepares you for a variety of technician and supervisory jobs within several specialties, but all focused on quality control and its use in manufacturing to prevent defects, reduce quality defect losses, increase productivity, and improve product quality. You have the option of specializing in electronics, management, science and engineering, or an area of your own interest.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements:

- One year of high school algebra (Algebra I), or MTH 097, or equivalent placement test
- One year of high school Windows operating system, with a grade of "C" or better, or CIS 116 and 117, or permission of the program advisor

General Courses (20 Credits)		
MTH 169	Intermediate Algebra	4
PLS 112	Introduction to American Government	3
Elective	English/Writing: Select two courses ENG 100, 107, 111, or 122	7
Elective	Computers: Select at least 4 credits from CIS 100, 110, 282; CPS 171, 187, or 290	4
Elective *	Humanities Elective	1
Elective	Science: Select one from BIO 101, 102, or SCI 100	1



Program Courses (18 Credits)

QCT 101	Process Quality Control	3
QCT 122	Sampling Quality Control	3
QCT 213	Quality Control by Statistical Methods	3
QCT 224	Quality Control Problem Solving	3
QCT 225	Quality Control Management	3
QCT 226	Dimensional Metrology and Testing	3

Option Courses (22 Credits)

ELE 118	MS DOS for Technicians	2
ELE 111	Electrical Fundamentals	4
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 211	Basic Electronics	4
Elective	ELE 100 or Higher (select as needed)	8

Minimum Credits Required: 60

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14.*

Quality Control Technology-Management Option (QCTM)

Associate in Technical Studies Degree

This program prepares you for a variety of technician and supervisory jobs within several specialties, but all focused on quality control and its use in manufacturing to prevent defects, reduce quality defect losses, increase productivity, and improve product quality. You have the option of specializing in electronics, management, science and engineering, or an area of your own interest.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements:

- One year of high school algebra (Algebra I), or MTH 097, or equivalent placement test

Course Number	Course Title	Credit Hours
General Courses		**(19 Credits)**
MTH 169	Intermediate Algebra	4
Elective	Political Science: PLS 112 or 150	3
Elective *	Humanities Elective	1
Elective	Science: Select one from BIO 101, 102, or SCI 100	1
CIS 100	Introduction to Computers	3
ENG 111	Composition I	4
ENG 122	Composition II	3
Program Courses (18 Credits)		
QCT 101	Process Quality Control	3
QCT 122	Sampling Quality Control	3
QCT 213	Quality Control by Statistical Methods	3
QCT 224	Quality Control Problem Solving	3
QCT 225	Quality Control Management	3
QCT 226	Dimensional Metrology and Testing	3
Option Courses (23 Credits)		
ACC 111	Principles of Accounting I	3
ACC 122	Principles of Accounting II	3
COM 101	Fundamentals of Speaking	3
CPS 171	Introduction to Programming with C++	4
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
MTH 160	Basic Statistics	4

Minimum Credits Required: 60

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14.*

Quality Control Technology-Science & Engineering Option (QCTS)

Associate in Technical Studies Degree

This program prepares you for a variety of technician and supervisory jobs within several specialties, but all focused on quality control and its use in manufacturing to prevent defects, reduce quality defect losses, increase productivity, and improve product quality. You have the option of specializing in electronics, management, science and engineering, or an area of your own interest.

Advisors: Les Pierce, Patricia Stegall

Program Admission Requirements:
The following high school courses or the equivalents must have been completed with a grade of "C" or better:

- One year of high school algebra (Algebra I), or MTH 097
- One semester of high school chemistry, or CEM 057

Course Number	Course Title	Credit Hours
General Courses		**(19 Credits)**
CIS 100	Introduction to Computers	3
ENG 111	Composition I	4
ENG 122	Composition II	3
MTH 169	Intermediate Algebra	4
PLS 112	Introduction to American Government	3
Elective *	Humanities Elective	1
Elective	Science: Select one from BIO 101, 102, or SCI 100	1
Program Courses (18 Credits)		
QCT 101	Process Quality Control	3
QCT 122	Sampling Quality Control	3
QCT 213	Quality Control by Statistical Methods	3
QCT 224	Quality Control Problem Solving	3
QCT 225	Quality Control Management	3
QCT 226	Dimensional Metrology and Testing	3
Option Courses (28 Credits)		
CEM 111	General Chemistry I	4
CEM 122	General Chemistry II	4
MTH 178	General Trigonometry	3
MTH 179	Precalculus	4
MTH 191	Calculus I	5
PHY 111	General Physics I	4
PHY 122	General Physics II	4
Minimum Credits Required:		**65**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14.*

Quality Control Technology-Specialty Option (QCTP)

Associate in Technical Studies Degree

This program prepares you for a variety of technician and supervisory jobs within several specialties, but all focused on quality control and its use in manufacturing to prevent defects, reduce quality defect losses, increase productivity, and improve product quality. You have the option of specializing in electronics, management, science and engineering, or an area of your own interest.

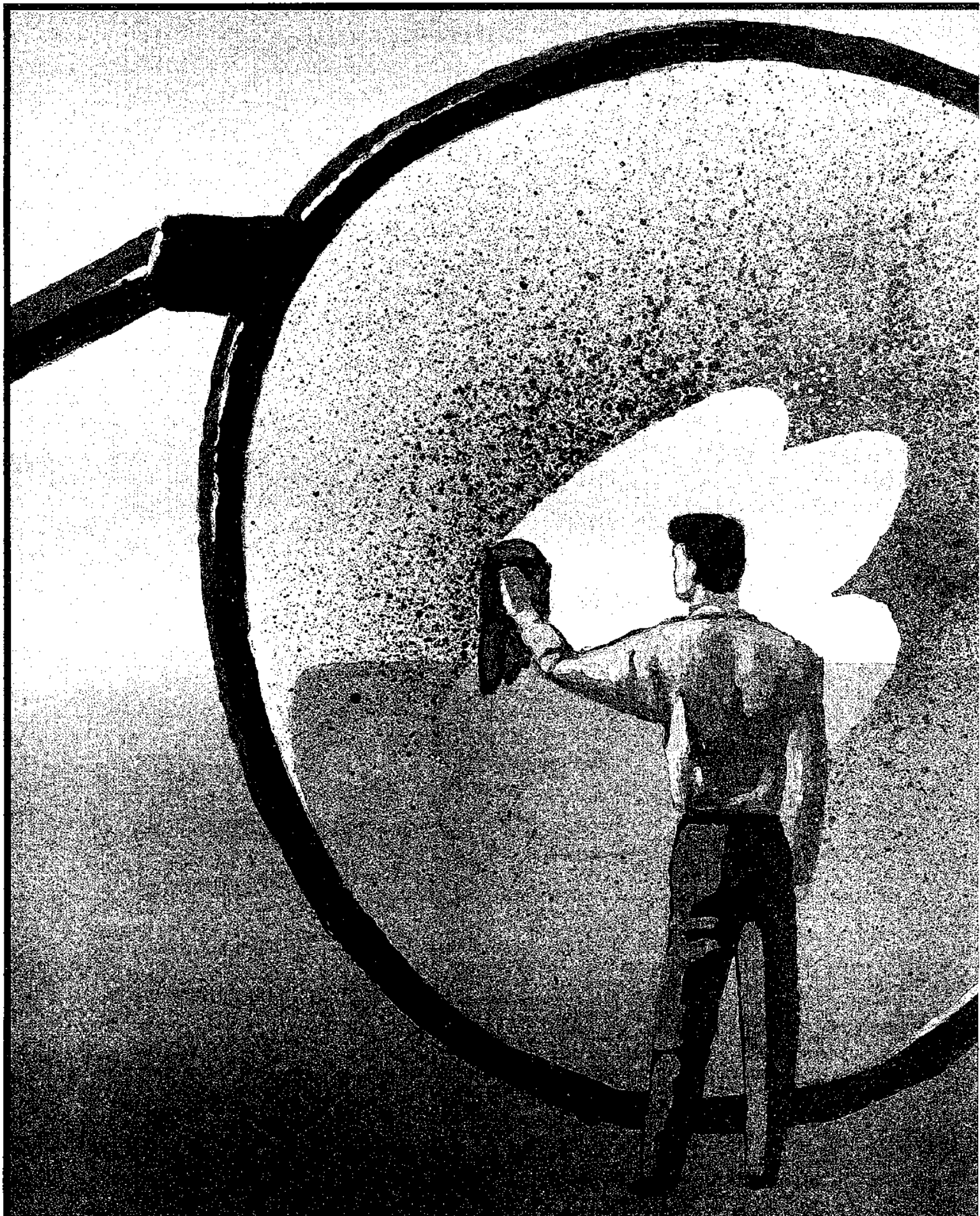
Advisors: Les Pierce, Patricia Stegall

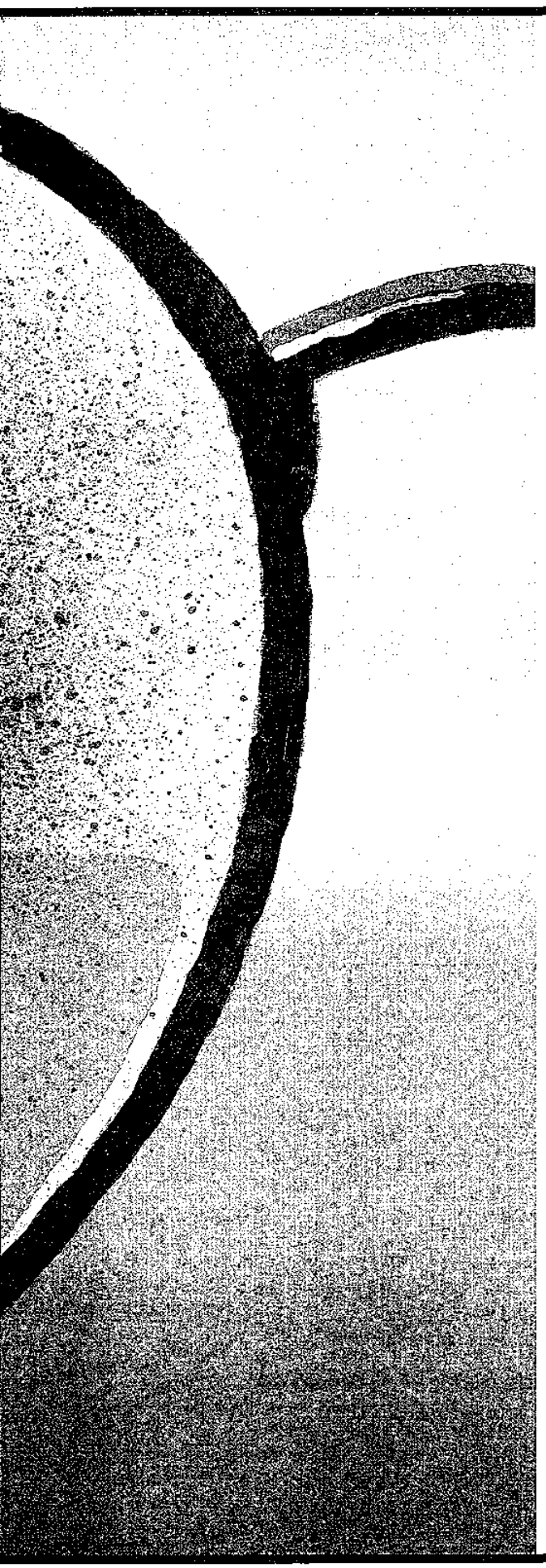
Program Admission Requirements:

- One year of high school algebra (Algebra I), or MTH 097, or equivalent placement test
- Permission of the program advisor

Course Number	Course Title	Credit Hours
General Courses		**(16 Credits)**
PLS 112	Introduction to American Government	3
SCI 100	Introduction to Natural Sciences	1
Elective	Select one course: CIS 100 or CIS 110	3
Elective	Select one course: ENG 100 or ENG 111	4
Elective	Select one course: MTH 169 or 179	4
Elective *	Humanities Elective	1
Program Courses (18 Credits)		
QCT 101	Process Quality Control	3
QCT 122	Sampling Quality Control	3
QCT 213	Quality Control by Statistical Methods	3
QCT 224	Quality Control Problem Solving	3
QCT 225	Quality Control Management	3
QCT 226	Dimensional Metrology and Testing	3
Option Courses (27 Credits)		
Elective	Open Electives: Consult with your program advisor to select 27 credits from your area of interest.	27
Minimum Credits Required:		**61**

** Choose from list of humanities courses in the WCC Catalog that meet core elements 13 and 14.*





Course Descriptions

Course Descriptions

Descriptions of all credit courses offered at Washtenaw Community College follow. These descriptions include the Course number, title and credit hours. Also included are the prerequisites and corequisites for the courses and the total number of hours each course meets.

As of Fall '93, students entering into a new program of study must meet the 24 elements of WCC's core curriculum. The elements covered in each course are also listed, by number, in the following descriptions. For a full explanation of the core curriculum, see pages 59-60 of this Catalog.

Co-op Courses

Co-op Education courses available in most career programs are Co-op Education I (number 174) and Co-op Education II (number 274). Co-op courses provide the student with worksite skills and experiences in an approved, compensated position related to their chosen field of study. Together with an instructor, an employer, and the Workplace Learning Center, the student determines work assignments and learning objectives to connect classroom learning with career related work experience. Co-op experiences are coordinated by the Workplace Learning Center, in conjunction with WCC faculty and cooperating employers. Registration for a cooperative education course requires attendance at a Co-op Orientation and a faculty signature. Please contact a faculty member in your area of interest or the Workplace Learning Center for further information about Co-op courses.

Academic Skills ACS

ACS 000: ACS Computer Lab .....0 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The Academic Skills Learning Lab (LA 111) is available to all students enrolled in ACS courses. It is required for students enrolled in ACS 041, 045, 046, 070, 108, and 109. Students not enrolled in these courses may be referred for individual consultation or practice. The Lab provides interactive practice in vocabulary and comprehension skills and an introduction to information retrieval using CD ROM software and the Internet. Students receive immediate feedback and learn to monitor their progress.

ACS 040: Vocabulary and Comprehension Skills I .....4 - 8 credit hours

Prerequisite(s): ND-G(0-22) or ND-H(0-24) or Asset (23-29)
Corequisite(s): ACS 040L
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to increase the student's primary vocabulary and comprehension skills. Dictionary skills and active reading strategies are introduced: recalling facts, main ideas, supporting details. Students must enroll for a co-required hour in the ACS Learning Lab. It may be completed in three semesters if needed as ACS 040A, ACS 040B, and ACS 040C. This course uses the satisfactory/unsatisfactory grading scale.

ACS 041: ESL Vocabulary and Comprehension Skills I.....4 credit hours

Prerequisite(s): ND(EXT)-G(0-38) or ND(EXT)-H(0-42), or English Placement Test
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to increase reading improvement skills needed by ESL students. Emphasis is placed on vocabulary development, active reading strategies, independent reading and comprehension. Students must enroll for a co-required hour in the ACS Learning Lab. Satisfactory/unsatisfactory grading scale.

ACS 045: Vocabulary and Comprehension Skills II.....4 credit hours

Prerequisite(s): ND-G(24-28) or ND-H(26-30) or Asset(30-34)
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to develop reading comprehension through concentrated skill work. In addition, emphasis is placed on increasing the student's vocabulary and active reading skills. Students are introduced to test-taking and study skills. Students must enroll for a co-required hour in the ACS Learning Lab. This course may be completed in two semesters if needed as ACS 045A and ACS 045B. (Students enrolled in ENG 050 are encouraged to take ACS 045 at the same time.) This course uses the satisfactory/unsatisfactory grading scale.

ACS 046: ESL Vocabulary and Comprehension Skills II.....4 credit hours

Prerequisite(s): ND(EXT)-G(40+) or ND(EXT)-H(44+) , or EPT
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to further develop independent reading comprehension skills for ESL students through reading authentic texts including novels and textbook selections. Emphasis is placed on vocabulary development, active reading strategies, variable reading rates, silent reading and comprehension. Students must enroll for a co-required hour in the ACS Learning Lab. This course uses the satisfactory/unsatisfactory grading scale.

ACS 070: Vocabulary and Comprehension Skills III .....4 credit hours

Prerequisite(s): ND-G(32-38) or ND-H(34-40) or Asset(35-37)
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to strengthen student's active reading skills and includes a college-level vocabulary program. In addition, the student develops abstract reasoning skills, e.g., inferencing in relation to textbook content. Emphasis is placed on test-taking, study skills, and an introduction to the Internet. Upon testing-out, a student is prepared for enrollment in WCC's occupational training programs and academic courses. Students must enroll for a co-required hour in the ACS Learning Lab. The standard grading scale is used.

ACS 101: Student Success Seminar.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This is a college survival, college success course. It is recommended for all WCC students, particularly those entering college for the first time, returning after an absence, or interested in improving class performance. Topics include an introduction to the library (LRC), student support services, and good study habits (reading, writing, outlining, notetaking, test taking, and time management). Career and academic goal-setting also are addressed.

ACS 102: Spelling Power.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course will improve the student's spelling through programmed instruction in English phonics, modular textbook materials, and common prefixes, suffixes, and roots. Additional instruction is offered in dictionary skills. This is not a developmental course; students in need of basic spelling and vocabulary skills should elect ACS 040. Grading is based on the standard grading scale.

ACS 104: Study Skills Short Course.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course is designed for students interested in improving study and note taking skills. Reading and note taking techniques appropriate to academic materials are stressed. It is essential that students electing this course be enrolled in an English, humanities, social or natural science course so they can apply their newly learned study skills.

ACS 105: Vocabulary and Spelling Power.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

In this course, students develop college-level vocabularies by learning common prefixes, suffixes, and roots. They also improve their spelling through programmed instruction in English phonics. Additional instruction is offered in dictionary skills and determining meaning from context. This is not a developmental course; students in need of basic spelling and vocabulary skills should elect ACS 040.

ACS 106: Speed Reading.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Designed to improve reading rates, this course is guaranteed to double student's reading speeds (at a minimum) with no loss in comprehension. Students also learn a variety of techniques that enable them to vary their reading speed according to the material and their specific purpose.

ACS 107: College Skills & Speed Reading.....3 credit hours

Prerequisite(s): ACS 070 or ASSET (38+) or ND-G(40+); H(42+)
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9

This course is designed to assist students with improving their study skills and with developing rapid reading techniques. Instructional units include all the essentials for academic success: learning styles, time management, vocabulary development, textbook reading, note-taking skills, computer literacy, skimming and scanning skills, speed reading, and test-taking skills.

ACS 108: Problem Analysis and Critical Thinking Skills.....4 credit hours

Prerequisite(s): ND-G(44+) or ND-H(46+) or Asset(41+)
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 10

This course is designed for advanced learners who wish to improve their performance in all academically demanding courses (including math, science, and technology). Analytical, problem-solving and critical thinking skills are enhanced through a variety of instructional units (analogies, serial order, spatial diagrams, etc.), and 15th grade level textbook selections are used for analysis. A co-required lab hour provides logical reconstruction exercises in the ACS Lab.

ACS 109: ESL Advanced Vocabulary.....4 credit hours

Prerequisite(s): ND(EXT)-G(56+) or ND(EXT)-H(58+), or Asset (38+)
Corequisite(s): ACS 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is not a developmental course. It is designed for advanced learners who wish to increase their knowledge and use of college-level vocabulary. Major areas of emphasis include the study of word derivations, context clues, dictionary skills, and vocabulary acquisition skills. Students must enroll for a co-required hour in the ACS Learning Lab.

ACS 179: Family Literacy .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8

This course is designed to help adults work effectively with young children in developing preliteracy and literacy skills. The student explores the benefits for children of shared book experiences with family members of all ages.

Accounting ACC

ACC 091: Fundamentals of Accounting I .....3 credit hours

Prerequisite(s): MTH 090
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

This course introduces students to the theory and practice of modern double-entry accounting systems and procedures. Emphasis is placed on journalizing and posting, adjusting and closing books and the preparation of financial statements for both service and merchandising businesses. The class is designed for the non-accounting major. Does not give transfer college credit.

ACC 092: Fundamentals of Accounting II ....3 credit hours

Prerequisite(s): ACC 091
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

A continuation of ACC 091, which includes notes, inventories, depreciation, accruals, and end of the year procedures with financial statements. The course addresses partnerships, corporations, statement analysis and interpretation, and is designed for non-accounting majors. Does not give transfer college credit.

ACC 111: Principles of Accounting I .....3 credit hours

Prerequisite(s): MTH 163, MTH 181 or higher
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

This is an introductory course in accounting principles and theory with emphasis on the accounting cycle, receivables and payables, depreciation, inventories, payroll, deferrals and accruals, systems and controls. It is required of all Accounting majors and Business Administration transfer students.

ACC 122: Principles of Accounting II.....3 credit hours

Prerequisite(s): ACC 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

A continuation of Principles of Accounting 111 covering partnerships, corporations, statement of cash flows, financial analysis and an introduction to managerial accounting. It is required of all Accounting majors and Business Administration transfer students.

ACC 131: Computerized Accounting.....3 credit hours

Prerequisite(s): ACC 092 or ACC 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9, 11

Accounting applications (spreadsheet, general ledger, accounts receivable, accounts payable, depreciation and payroll) are presented and mastered on the microcomputer in such a manner that no prior knowledge of microcomputers is required. This course does not teach computer programming, but is intended to train students to become intelligent users of accounting software on the microcomputer.

ACC 174: ACC Co-op Education I.....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

ACC 213: Intermediate Accounting .....3 credit hours

Prerequisite(s): ACC 122, ACC 131
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9

Further study of generally accepted accounting principles is provided as they apply to financial statements, cash, and temporary investments, receivables, merchandise, plant assets, current liabilities, fixed assets, long-term investments, capital and earnings. This course is required of all students in the Accounting Program and is offered in the fall semester only.

ACC 220: Financial Planning, Budget, and Control.....3 credit hours

Prerequisite(s): MTH 163 or higher or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 6

This course is intended for those students who are responsible for spending decisions and allocating company resources in pursuit of organizational goals. The course explores the accounting and budgeting process and the use of reports generated from these processes to analyze, monitor, and control the monetary impact of business activity on the organization as a whole.

ACC 225: Managerial Cost Accounting .....3 credit hours

Prerequisite(s): ACC 122, ACC 131
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

Principles and procedures for measuring and controlling costs are discussed as well as cost-volume profit relationships, job order accounting, budgets, standard costs, relevant costs, and process accounting. This course is required of Accounting majors and is offered in the Winter Semester only.

ACC 230: Financial Statement Analysis for Non-Accountants.....1 credit hour

Prerequisite(s): MTH 163 or higher or Consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 6

This course examines financial statements commonly used in business. Students interpret information contained in these statements in terms of the business operations and activities that are reported. Concepts of ratio analysis and accrual accounting are covered. The course is designed for students with a business background but not necessarily in accounting.

ACC 274: ACC Co-op Education II.....1 - 3 credit hours

Prerequisite(s): ACC 174
Corequisite(s): none
120 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is the second of two co-op courses in which students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

Anthropology ANT

ANT 201: Introduction to Cultural Anthropology.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14, 21, 24

This course explores the way our species lives and has lived. It begins with the hunting and gathering level of cultural development and ends

with the origin of the state. Contemporary peasants are also studied. This course is also taught as a television course using the program series "Faces of Culture."

ANT 202: Introduction to Physical Anthropology.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 21

This course examines the emergence of the human species using materials from primate studies, archaeological findings and early humankind.

Architectonics ARC

ARC 100: Specifications.....1 credit hour

Prerequisite(s): ARC 117
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 8, 18

An introduction is provided to building construction specifications, stressing the organization and preparation of specifications for construction contracts.

ARC 109: Site Layout .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 18

This lecture and field course deals with the principles of site layout of construction projects. Approved site plans, builders level transit, tape chain and preferred equipment are demonstrated and used.

ARC 111: Architectural Drawing I .....6 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 8, 9, 18, 19

An introduction is provided to light frame construction and requirements including the preparation of working drawings for the construction of structures classified as Light Frame Structures.

ARC 117: Construction Materials .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

A survey is provided of typical types of materials used in building construction. Emphasis is placed on the properties, selection and building techniques appropriate for a wide range of materials. Included are woods, metals, plastics, clay, gypsum, glass and aggregate materials.

ARC 120: Mechanical and Electrical Systems for Buildings .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 7, 9, 15, 18, 19

The drafting of mechanical and electrical systems in buildings from prepared design data is emphasized. This is a laboratory course with lectures related to the laboratory. Students must have drafting instruments.

ARC 122: Architectural Drawing II .....6 credit hours

Prerequisite(s): ARC 111
Corequisite(s): none
45 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 20

The preparation of architectural presentation drawings from diagrammatic sketches, pictures, surveys and conference notes is included in this course. The student is taught to develop preliminary studies, presentation drawings and working drawings for an architectural project utilizing masonry construction.

ARC 150: Presentation Drawings and Models.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

The emphasis in this course includes manual skills to make perspective drawings for pictorial presentation, scale models showing site conditions with topography, simple methods for rendering drawings, shades and shadows on architectural drawings, and photographs of models for simulated comparison of proposed building to proposed building site.

ARC 174: ARC Co-op Education I.....1 - 3 credit hours

Prerequisite(s): ARC 111, ARC 117
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, the student sets up work assignments and learning objectives to connect classroom learning with career-related work experience.

ARC 210: Structure in Architecture.....2 credit hours

Prerequisite(s): PHY 105 or PHY 111
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 19

This class provides an introduction to the use of structural systems (steel, timber, and reinforced concrete, etc.). Design fundamentals of simple structural components are emphasized.

ARC 213: Architectural Drawing III 6 credit hours

Prerequisite(s): ARC 122
Corequisite(s): none
30 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8

Major problems in architectural detailing are studied through the preparation of drawings and details for a moderate sized building such as a school or church. The option to use a computer for drafting tasks is provided, with instructor consent. Choice of software features AutoCAD AEC, Data CAD, and Micro Station PC.

ARC 219: Architectural Engineering and Construction CAD .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Lectures, demonstrations, research and primarily guided lab practice introduce the latest techniques that CAD systems employ to assist in the preparation of presentation, construction and detail drawings. Software featured includes base packages and 3R party applications as available. Features microstation, AutoCAD or DataCAD or a combination of the several.

ARC 224: Architectural Drawing IV .....6 credit hours

Prerequisite(s): ARC 213
Corequisite(s): none
30 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 5, 7, 8, 9, 11, 12, 18, 19

Major problems in architectural drawing are studied through the preparation of programs and drawings for a large size building project such as a shopping center or multi-story structure. Choice of software features AutoCAD AEC, Data CAD, and Micro Station PC.

ARC 227: Estimating Construction Costs .....3 credit hours

Prerequisite(s): ARC 117, ARC 120
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18

This course provides an introduction to the field of estimating construction costs for building construction projects and includes advanced topics such as computer estimating software selection and researching methods and techniques employed by construction estimators. Analysis of quantitative survey methods of estimating materials, labor, equipment, overhead and profit are included and discussed.

ARC 274: ARC Co-op Education II .....1 - 3 credit hours

Prerequisite(s): ARC 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and the employer, students determine work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Art ART

ART 101: Drawing and Painting .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This class is a user-friendly introduction to art for students with no previous studio experience. Instruction is provided in the fundamentals of color and composition. This course is not intended to take the place of ART 111 or ART 114.

ART 102: Color .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

Color is not what it seems to be. Through a series of experiments using colored papers, students will investigate the elusive behavior of color. Students will develop sensitivity to color so that it can be used effectively in every area.

ART 111: Basic Drawing I .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 75 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 13

This class is an introduction to the central problems and issues of freehand drawing. This course emphasizes accurate representational drawing through a series of projects concentrating on simple objects. It is recommended for students who are planning to continue at WCC or to transfer into other art programs.

ART 112: Basic Design I .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

This studio course uses a broad range of exercises and materials to involve the student in two and three dimensional design experiences. Its objective is to develop careful seeing and analytical thinking that can be applied to all areas of the visual arts. This course is recommended for students who are planning to continue at WCC or to transfer into other art programs.

ART 114: Painting I .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

The necessary skills of controlling the application of colored pigments to achieve a unified two dimensional surface are developed. Emphasis is on development of sustaining attitudes toward painting regardless of subject matter or style.

ART 120: Portrait Painting and Life Drawing .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Working from live models, students study anatomy, techniques in drawing, pastel painting and visual expression; multi-media; philosophy and envisioning. It is preferred, although not required, that students have some art background. Interest is critical.

ART 122: Basic Drawing II .....4 credit hours

Prerequisite(s): ART 111
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

Complex problems of drawing are explored with greater emphasis placed on individual solutions. Several new media are introduced.

ART 124: Imaginative Drawing I .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course is devoted to imaginative drawing, both abstract and representational. The aim is to help students to develop and to refine imaginative ideas and to improve the graphic quality of their work.

ART 125: Painting II .....4 credit hours

Prerequisite(s): ART 114
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

This course is a continuation of ART 114, with emphasis on individual development.

ART 126: Imaginative Drawing II .....2 credit hours

Prerequisite(s): ART 124 or Consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course is devoted to imaginative drawing, both abstract and representational. Students develop and refine imaginative ideas and improve the graphic quality of their work. This course continues the objectives of ART 124.

ART 130: Art Appreciation .....3 credit hours

Prerequisite(s) : none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 13, 14

An inquiry into the ways in which art reflects, extends and shapes experience. The course investigates art of the past and present, seeing in it a statement of our human condition. This is an academic course involving textbook, class discussions, short papers, and projects.

ART 140: Life Drawing.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 13

This class will provide instruction in basic approaches to drawing the nude. We will begin with quick gesture drawing, and move gradually toward longer poses. Emphasis is on analyzing the figure in terms of its simple, solid, underlying forms.

ART 143: Art and Culture of Afro-America ...3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

This course prepares students to participate in and appreciate the arts (visual, dance, music, film, poetry, literature) of African and Afro-American people. Perspectives and definitions that differ from Western values and standards are presented. The anthropological approach is used to recognize the importance of history in understanding the present. Multi-media methods, skill development and aesthetic competence are emphasized.

ART 150: Monuments from Around the World .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 10, 13, 14, 24

In this course various monuments around the world will be explored and analyzed for their significance as part of a particular civilization, religion, or culture. Specific rituals, traditions, myths and beliefs will be discussed as well as scientific, philosophical, and art historical implications for our contemporary world. A field trip will be included. Students will express themselves orally and in writing about different cultures and ideas. Emphasis is put on tolerance and the appreciation of difference and equality.

Astronomy AST

AST 100: Introductory Astronomy1 credit hour

Prerequisite(s): none
Corequisile(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 15, 17

An introduction to objects seen in the sky, with some opportunity for direct observation when weather permits. Astronomy is presented as a hobby as well as a basic science. No prior knowledge of astronomy is required.

AST 111: General Astronomy 3 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 10, 15, 17

This is a survey course of the solar system and the universe designed for both transfer and vocational students. No previous mathematics or science is required. Topics include: the sun, moon and planets; Ptolemaic and Copernican systems; seasonal changes in the sky and modern ideas growing from early beliefs in astrology.

Auto Body Repair ABR

ABR 111: Auto Body Repair Fundamentals.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This course involves repairing damaged body panels and studying the working properties of automobile sheet metal and basic damage conditions, analyzing typical damage conditions and establishing accepted repair procedures.

ABR 112: Auto Refinishing Fundamentals.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

Methods and procedures used with automobile refinishing materials are covered in this course. Also included are: acrylic lacquers and enamels used to spray paint automobile body panels and complete automobiles, proper use of refinishing materials and the development of basic skills and procedures used in the trade.

ABR 113: Auto Body Service Fundamentals.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This course is an introduction to the principles of alignment and servicing of bolted on, riveted, screwed on, or adhesive bonded panels or components of automobile and light truck bodies.

ABR 114: Applied Auto Body Welding .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This class is a demonstration-lab course developing basic welding skills used in auto body repair. Types of welded joints used to repair or replace damaged panels are taught with special emphasis on joint construction and heat control.

ABR 123: Body Repair Applications .....4 credit hours

Prerequisite(s): ABR 111
Corequisite(s): none
0 lecture, 120 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This is a continuation of Auto Body Repair 111. Lab work includes actual repair jobs to develop all of the basic bumping skills. Emphasis is placed on quality and work habits.

ABR 124: Auto Refinishing Applications .....4 credit hours

Prerequisite(s): ABR 112
Corequisite(s): none
15 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

This is a continuation of units in Auto Refinishing 112. Lab assignments on actual automobiles provide an opportunity to improve skills, match high metallic colors using modern spot repair and color blending techniques, as well as overall refinishing.

ABR 125: Flat Rate Estimating .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 4, 5, 7, 9, 11

The course involves the use of flat-rate manuals to determine parts and labor prices in estimating damaged automobiles. Emphasis is on procedures used to establish complete and accurate prices in preparing the estimate.

ABR 126: Fundamentals of Frame and Body Alignment .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

This course provides an opportunity to work with common types of body frame damage and the equipment used to make repairs. Laboratory assignments include use of frame gauges and portable body-frame straightening equipment to make a diagnosis and set up corrective hook ups.

ABR 127: Major Repair Fundamentals .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This course teaches the use of hydraulic jacking equipment to repair sheet metal damage. Lab work includes set up of typical push or pull operations and straightening procedures used on major collision damages.

ABR 130: Custom Painting .....3 credit hours

Prerequisite(s): ABR 112
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course provides students with an understanding of the art of custom painting. Students work with the tools and techniques used in the field. The course covers the use of special effect colors such as pearls and candies. Students use air brushes, pinstripe brushes, and lettering brushes. Murals, graphics, appliqués, and etching are also covered.

ABR 131: Advanced Custom Painting .....2 credit hours

Prerequisite(s): ABR 130
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This class is a continuation of methods and procedures used in automotive custom painting. Lab assignments on actual automobiles provide an opportunity to improve skills in pin striping, color design coordination, lettering on automobiles, mural development, and the use of specific effect color and related materials.

ABR 134: Auto Graphics.....2 credit hours

Prerequisite(s): ABR 112, ABR 130
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9

This class is a continuation of methods and procedures used in automotive custom painting. Lab assignments on actual cars provide an opportunity to develop skills in graphic application, color design coordination, special effect colors, and layout transfer.

ABR 174: ABR Co-op Education I.....1 - 3 credit hours

Prerequisite(s): Consent, ABR 111, ABR 112, ABR 113
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated position in the field of auto body repair. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ABR 219: Major Repair Procedures.....4 credit hours

Prerequisite(s): ABR 123
Corequisite(s): none
15 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This course provides a detailed study of the automobile body that includes use of hydraulic jacks and accessories to make repairs common to the front, side and rear sections of automobiles damaged by collision. Repair jobs are included to provide diversified experience on body trim and hardware, replacement and alignment of various body components.

ABR 220: Enamel Refinishing .....4 credit hours

Prerequisite(s): ABR 112, ABR 124
Corequisite(s): none
0 lecture, 120 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is a study of modern acrylic and polyurethane enamels which includes surface preparation, mixing and application of solid and metallic colors. Actual cars and light trucks provide the student diversified experience and skill development.

ABR 226: Unibody Structural Alignment .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 18

This course offers training for the repair of structurally damaged unibody automobiles and light trucks. Included are a detailed study of body construction, diagnostic procedures, repair techniques and structural parts replacement using both conventional gauging and universal measuring equipment.

ABR 230: Specialized Study .....4 credit hours

Prerequisite(s): ABR 111, ABR 112
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9

In this class, students utilize periods of concentrated effort on specific assignments in selected areas of the auto body repair field. Students work with instructor consultation to demonstrate development within the assigned area of general collision service, body shop organization and management, or estimating automobile physical damage.

ABR 274: ABR Co-op Education II.....1 - 3 credit hours

Prerequisite(s): ABR 174, Consent
Corequisite(s): ABR 174
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Automotive Service ASV

ASV 097: Automotive Service Fundamentals.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for the non-professional. The course explains the basic theory and inspection techniques that are helpful when buying or maintaining a car. Students are encouraged to inspect their vehicles, identify problems and make good decisions about what repairs they can perform. Consumer rights are discussed and good communication techniques with the repair facilities are presented. This course is designed and tailored to accommodate the needs of the beginning and experienced automobile owner. Some of the systems covered are: lubrication, heating and cooling, suspension and steering, brake systems, and drivetrains.

ASV 110: Automotive Technology .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This Automotive Technology course introduces students to the major systems of the automobile. It also, covers how these systems work together to enable the automobile to perform. In addition, to helping students take care of their vehicles, it will help them discuss their automobiles more knowledgeably when problems occur. This course is not intended for the training of Automotive Technicians. It is meant to make individuals aware of the technology and design that goes into the vehicle. This course will be taught on the Internet.

ASV 111: Cylinder Head Service.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

Students develop skills and understanding of the automobile engine and related service procedures for the most common engine service complaints. Using text, tools, manuals and automobiles in a laboratory setting, students perform service on the upper half of the modern automobile engine. This is the first half of a complete engine repair sequence. Students are encouraged to take this course early in their schooling but must have, or be developing, the skills offered in ASV 097, to expect success.

ASV 113: Manual Transmissions and Drivetrains.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18, 19

This is an introductory course to the operating principles and repair procedures of manual driveline systems. Units of study include a wide range of concepts dealing with such areas as: final drive systems, clutches, transmissions and transaxles. Both front- and rear-wheel drive systems as well as four-wheel drive units are studied. Diagnosis and repair procedures on live vehicles is stressed.

ASV 116: Automotive Electronics .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 9, 18, 19

Students are introduced to basic electricity theory and practice. Using auto-motive components and laboratory exercises, students progress from the theory of Ohms Law and component function, total diagnosis, service and/or repair of battery, charging system and cranking circuits. Electricity is a vital component in almost every phase of auto service. It is recommended that this course be one of the first courses taken to build a strong foundation for advanced automotive courses.

ASV 118: Fuel Systems.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
22.5 lecture, 37.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 18, 19

Students experience demonstrations, laboratory exercises and discussion designed to develop an understanding of basic fuel system operation and factors affecting its performance. Objectives are designed to build a strong understanding of carburetion, emission controls, fuel injection theory and their components. Emission systems are introduced and basic service procedures are practiced. The knowledge obtained in PHY 110 Applied Physics, provides an excellent base of theory for successful completion of this course.

ASV 120: Engine Performance .....1 credit hour

Prerequisite(s): MI Cert/Eng.Perf.
Corequisite(s): none
16 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for Michigan Certified Mechanics in the engine performance area. To maintain their certification, recertification is granted if class is passed.

ASV 124: Wheel Balance and Alignment .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

Students learn the basic theory of wheel alignment and develop skills needed to diagnose and align all foreign and domestic cars. Using state-of-the-art balancers, students understand and perform wheel balance equal to the level accepted by the industry. This is the first course in a two course suspension sequence. To repair and align vehicles, both courses must be completed.

ASV 125: Brake Systems.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18, 19

Students are guided through each component of the brake system. Text, tools, manuals, and live automobiles are used to teach the theory of brakes and function of components. Students are prepared to perform comprehensive brake service required in later classes. This is the introductory automotive brakes class and must be followed by the second in the sequence. Completion of the first semester auto service courses are recommended to get full benefits of the course.

ASV 126: Electrical Systems .....2 credit hours

Prerequisite(s): ASV 116
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

Building on the skills developed in ASV 116, students explore electronic and computerized ignition, starting systems and charging systems. This is the middle class in a three course sequence designed for in-depth understanding and skill development. It is strongly recommended that the first semester classes be completed prior to enrolling in this class.

ASV 128: Fuel Injection .....2 credit hours

Prerequisite(s): ASV 118
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

Students build on the concepts of carburetor and emission controls. Instruction centers on electronic fuel injection systems, computer controlled systems, final testing and service of them. This is the second course in the fuel sequence. Students are encouraged to enroll in this class immediately following ASV 118. Involvement in Automotive Electronics will enhance learning in this course.

ASV 129: Diagnosis and Repair I .....4 credit hours

Prerequisite(s): ASV 111, ASV 113, ASV 116, ASV 118
Corequisite(s): none
0 lecture, 120 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This course is designed to provide students with the basic diagnosis and repair skills necessary to properly service late model automobiles. Specialized areas of instruction include engines, electrical systems, fuel systems and drive trains. Cooling, lubrication and exhaust system service are also included.

ASV 141: Automotive Mechanics I.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students perform preventative maintenance procedures, basic engine systems repairs, basic electrical system testing, and chassis component inspections. Instruction stresses live work and preparation for the State of Michigan Mechanics Exams.

ASV 142: Automotive Mechanics II.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students perform suspension system service, drive line service, electrical troubleshooting techniques, and basic fuel systems testing. Instruction stresses live work and preparation for State of Michigan Mechanics Exams.

ASV 143: Automotive Mechanics III .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students learn to perform brake system service and basic emission testing.

ASV 144: Automotive Mechanics IV .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a course in the diagnosis and repair of drive train systems. The course covers manual transmissions, axles and differentials, 4-wheel/all-wheel drive and automatic transmissions.

ASV 145: Automotive Mechanics V .....4 credit hours

Prerequisite(s): ASV 141, ASV 142
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students diagnose and repair onboard computer systems, ignition systems, fuel management systems, and advanced emission systems.

ASV 156: Electrical Systems Recertification .....1 credit hour

Prerequisite(s): Michigan certification in electrical systems
Corequisite(s): none
16 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for automotive mechanics who wish to renew their Michigan State certification in electrical systems. Recertification is granted by the state for passing the course. Students must already be certified in this area to register for the course.

ASV 160: Small Engine Repair .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 15, 18

This course covers the complete teardown and assembly of a small air cooled engine. It covers in detail the theory and operation of Briggs & Stratton, Tecumseh, and Kohler engines which constitute about 80% of the lawnmowers, garden tractors, tillers, mini-bikes, etc. in the area.

ASV 161: Small Engine Diagnosis and Repair I .....2 credit hours

Prerequisite(s): ASV 160
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18

This course is a continuation of ASV 160 Small Engine Repair. Students perform in-depth diagnosis and repair of small gasoline engine units. In addition, units in electrical troubleshooting, advanced test equipment and driveline components are studied.

ASV 162: Small Engine Diagnosis and Repair II .....2 credit hours

Prerequisite(s): ASV 161
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

This is an advanced course in small engine service. Laboratory work is stressed and based on concepts and skills learned in ASV 160 and 161. Work on live units is stressed.

ASV 174: ASV Co-op Education I .....1 - 3 credit hours

Prerequisite(s): ASV 111, 113, 116, 118, 124, 125 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated position in the field of automotive service technology. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ASV 177: Recertification in Brakes .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course prepares students for the State of Michigan mechanics recertification exam in brakes.

ASV 212: Automatic Transmissions - Mechanical .....2 credit hours

Prerequisite(s): ASV 113
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18, 19

Complete live automatic transmission overhaul is featured in this course. Principles of operation and diagnosis are also included. The development of high standards of workmanship is given special emphasis.

ASV 214: Steering and Suspension Systems .....2 credit hours

Prerequisite(s): ASV 124
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 19

This is an advanced course involving diagnosis and service procedures of front and rear wheel drive suspension and steering systems. Emphasis is on proper removal and replacement of components. It is essential that students have all required hand tools and have successfully completed ASV 124, or have previous alignment experience.

ASV 215: Brake Systems Service.....2 credit hours

Prerequisite(s): ASV 125
Corequisite(s): none
15 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Using live cars where possible, students develop skills in repairing brake systems. Concentration is on factory technique and accepted field practice. Instruction includes drum, rotor, hydraulic system and mechanical system inspection and service.

ASV 216: Electrical Circuits.....2 credit hours

Prerequisite(s): ASV 126
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

This class involves the theory and application of automotive electronic circuits and accessories. It includes construction and servicing lighting systems, gauges, warning devices, windshield wipers and solid state devices.

ASV 218: Engine Performance Diagnosis.....2 credit hours

Prerequisite(s): ASV 111, 126, 128
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18, 19

This course is designed to incorporate the basic skills learned in ASV 111, 116, 121, 126, and 128, into a working diagnostic and repair sequence. Extensive use is made of live vehicles to enable students to learn in as close to a real situation as possible.

ASV 222: Automatic Transmission - Hydraulic Systems.....2 credit hours

Prerequisite(s): ASV 212
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

An application of hydraulic fundamentals to automatic transmission operation is provided in this class. Diagnosis of transmission problems is featured, with emphasis on understanding basic transmission functions.

ASV 227: Heating and Air Conditioning .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18, 19

Air conditioning now appears on 80% of all new cars produced. This unique accessory is explained in depth including theory of refrigeration, servicing procedures and diagnostic techniques. Compressor service and distribution systems are studied. Laboratory experience is given, testing and servicing a variety of systems and problems.

ASV 228: Driveability .....2 credit hours

Prerequisite(s): ASV 218
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

This course is designed to utilize the diagnostic and repair skills learned in ASV 218 on later model vehicles that have computerized controlled ignition, fuel and emission control systems. Additional diagnostic and repair sequences of the computerized systems are introduced.

ASV 234: Steering and Suspension System Service.....1 credit hour

Prerequisite(s): ASV 124, 214
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Using live vehicles, students develop skills in diagnosing and repairing steering and suspension systems. Concentration is on factory techniques and accepted field practice. Instruction includes diagnosis and repair of struts, springs, ball joints, suspension bushings, tie rods, rack and pinion, and other steering and suspension components.

ASV 239: Customer Service .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 9

Students enhance their interpersonal skills through the techniques gained in this course. Developing insight using demonstrations, video tape, role playing, and interaction, students are guided through a curriculum, which builds a value-added attitude for customer service personnel. Skills learned include controlling one's emotions in difficult situations and increasing customer satisfaction. Career options in the auto service area are explored and a career plan developed. Professional ethics, resume preparation, interviewing skills, salary negotiations and job success are explored.

ASV 274: ASV Co-op Education II .....1 - 3 credit hours

Prerequisite(s): ASV 174, Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Biology BIO

BIO 101: Concepts Of Biology.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 15, 16, 17

Basic principles and concepts of biology are surveyed in lecture and laboratory with emphasis on biological processes as well as practical applications. If followed by BIO 103, this course provides a comprehensive year sequence for biology majors. Taken alone, it serves as a good introduction to biology for non-science students.

BIO 102: Human Biology .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 15, 16, 17

This course covers the basic structure and function of the human body, as well as human interactions with the larger biological community, including issues of health and disease, food use and labeling, and environmental pollution. Comparisons to other organisms highlight the ways in which we adapt to our world. Includes a laboratory portion involving the use of models, dissection, demonstrations, and actual medical equipment.

BIO 103: General Biology II.....4 credit hours

Prerequisite(s): BIO 101, CEM 111, Consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 10, 15, 16, 17, 18, 19

The emphasis in this course is on analyzing the processes and mechanisms involved in biological systems including the cell, genetics, organisms and ecology/evolution. Topics are covered from an experimental point of view. This course, with BIO 101, provides a comprehensive survey of biological concepts and shows the interrelationship of topics covered from the molecular to the population level. This course is required for the Biology/Pre-medicine Program.

BIO 107: Introduction to Field Biology .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is an introduction to the biology of the outdoors for the beginning student. Subjects such as trees and shrubs, wild flowers, insects, various animals, pond and stream life, and different Michigan terrestrial and aquatic communities will be covered. An outdoor journal and other similar activities will be stressed.

BIO 111: Anatomy and Physiology .....5 credit hours

Prerequisite(s): CEM 057 or high school chemistry
Corequisite(s): none
60 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 11, 12, 15, 16, 17, 18, 19, 20

This course provides students with an intensive, in-depth introduction to the structure and function of all human body systems, with examples of both normal and disease conditions relevant to health professionals. The emphasis on basic physiological principles also provides students with a good base for more advanced courses. Laboratory provides dissections and experiments.

BIO 137: Ornamental Indoor Plants .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for people who enjoy houseplants and want to learn more about them. Selection and growth of ornamental indoor plants from seeds and cuttings highlight the course. Students should be able to increase their collection of houseplants by at least fifteen varieties. Proper care of houseplants is stressed, relating to soil, potting, transplanting, watering, fertilizers, insects, control of growth and flowering.

BIO 147: Hospital Microbiology.....1 credit hour

Prerequisite(s) : none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 10, 16

This class provides a survey of the morphology, physiology and immunology of pathogenic organisms with emphasis on infection, aseptic, and sterilizing procedures.

BIO 200: Current Topics in Biology.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 15, 16, 17, 18

This class is an examination from a biological point of view of the state of current knowledge in carious fields of biology. It includes the state of current studies and the extent of our knowledge in the controversial fields of human genetic engineering; the biology of human behavior, human cycles, learning, sleep and cancer. Relationship of such knowledge to future technology and possible social and political implications also are discussed.

BIO 208: Genetics ..... 4 credit hours

Prerequisite(s): BIO 101, CEM 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 10, 15

Introduction to the basic principles of genetics and their application to viruses, bacteria, plants and animals, including humans. Classical and molecular genetics are covered, with emphasis on experimental and statistical evidence from which genetic mechanisms are deduced. Laboratory experiments demonstrate genetic principles.

BIO 215: Introduction to Cell Physiology .....3 credit hours

Prerequisite(s): CEM 111, BIO 101 or Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 10

Introduction to the chemistry and physiology of living cells, including cell metabolism, membrane permeability and excitability, movement and contractile elements, gene expression and protein synthesis. Properties common to all living things will be emphasized, as well as the importance of those properties in the human organism.

BIO 216: Cell Physiology Lab .....1 credit hour

Prerequisite(s): none
Corequisite(s): BIO 215
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 9, 15, 18, 19

This is a lab course designed to be taken concurrently with BIO 215, Introduction to Cell Physiology.

BIO 220: Human Genetics.....3 credit hours

Prerequisite(s): BIO 101 or Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 10, 15

This course covers basic principles of heredity and their relationship to humans. Included are the genetic basis of sexual dimorphism, classical pedigree studies, medical genetics, modern molecular genetics, genetic engineering, and human population dynamics.

BIO 227: Zoology .....4 credit hours

Prerequisite(s): BIO 101 or Consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 15, 17

Lecture, field, and laboratory investigation provide an intensive study of the classification, evolutionary relationship, structure, and function of the major animal groups. Included are the sponges, jellyfish, worms, mollusks, insects, arthropods, starfish and other echinoderms, fish, amphibians, reptiles, birds and mammals.

BIO 228: Botany .....4 credit hours

Prerequisite(s): BIO 101 or Consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 15, 17

In this class, field and laboratory investigations provide detailed study of plant structure and function. It is for students with a general interest in plants or to provide a basis for further work in botany or other programs.

BIO 237: Microbiology .....4 credit hours

Prerequisite(s): BIO 101 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18

Micro-organisms and their activities are studied in lecture and laboratory.

BIO 249: Field Study of Birds.....1 credit hour

Prerequisite(s) : none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This class involves identification of birds, their songs and nesting habits.

BIO 258: Field Study of Trees and Shrubs.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 17

Trees, shrubs, and vines are studied and identified in this course. The natural history of these plants is also introduced, including reproduction strategies, environmental interactions, and relevance to humans.

BIO 259: Field Study of Common Plants.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 17

Non-woody higher plants are studied with emphasis on identification.

BIO 267: Winter Field Study .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 17

This course is a study of life out of doors in winter. Topics such as plant and animal identification, observation, adaptations, and interrelationships are discussed. This class is especially for students with no previous background in biology and/or students who enjoy being outdoors and are curious about nature.

Business Management BMG

BMG 100: Investments.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to acquaint students with the basics of financial investments. Topics include: stocks, bonds, mutual funds, investment banking, financial statement analysis, the stock market, and other phases of financial investments and services.

BMG 101: Business Career Opportunities ....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

In this course students become familiar with work opportunities in business and industry and the skills that students must acquire in order to succeed in the field of their choice. Students learn how to investigate recent employment trends, both individually and as part of a team, in order to develop a habit of continual career training. Learning resources include speakers from local business, industry, and government agencies. Students complete a personal plan of study designed to qualify them for work in the business field of their choice.

BMG 106: Legal Basics in Business .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 22

This course is designed for those who are either employed in small to medium-sized companies or who own, or want to start, their own business. Students will learn to apply fundamental legal principles and rules to business law, "red flag" situations of potential legal liability, and make suggestions for reducing legal risks in situations that can arise in business settings, particularly as they apply to legal issues of the student's chosen trade or profession. Students will learn to use legal resources readily available in the community and explore the nature of the relationship between business ethics and law. Students are expected to make use of computer technologies to learn in both an individual and collaborative environment.

BMG 109: Intro to Home-Based/Small Business Management.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course introduces the learner to the knowledge, skill, and attitude necessary to start, operate, and manage a home-based small business enterprise. Accessing the Internet for communication, research and class management and using text, video, case study and experiential exercises; students cover topics such as entrepreneurial opportunities, developing the new venture business plan, preparing the business plan, small business marketing, managing small business operations and financial management in the entrepreneurial firm. Participants are also introduced to the resources of the Washtenaw Small Business Development Center (SBDC). Individuals working within a large corporate environment may also apply these skills. A basic computer competency is necessary.

BMG 110: Credit Management.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 9

This is an introductory course in consumer and commercial credit practices, techniques, and regulations for most manufacturing and service industries. Students are shown how to develop credit policies and analyze pertinent credit data, collections, controls, and effects of bankruptcy.

BMG 111: Business Law I.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9, 10, 11, 22, 23
This course involves text and case study of the general laws applicable to business, covering the nature of law courts and court procedures, contracts, real and personal property, wills and trusts and negotiable instruments.

BMG 122: Business Law II .....3 credit hours
Prerequisite(s): BMG 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9, 10, 11, 22, 23
Text and case study of agency relationships, formation and operation of partnerships, formation and operation of corporations, security laws, sales agreements, debt relationships, and current computer law.

BMG 130: Investment Strategies.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 9, 10
This is a course designed to help existing or potential investors keep abreast of investment opportunities in today's changing financial world. This course presents current information on stock and bond markets, commodities, and real estate. Students are taught the mechanics of investing and how to analyze risk and return, financial statements, annual reports, financial services reports, mutual funds, and relate to the current tax structure. Students learn to read The Wall Street Journal and utilize the information to evaluate investments.

BMG 140: Introduction to Business.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 24
This course covers functions, objectives, problems, organization, and management of modern business. Also covered are the free-enterprise system of business-economic activity and the impact of the consumer and governmental forces upon the system. Develops insight into the vital role of the administrative function in our economy as a whole and in the operation of a single business unit. A practical orientation is offered in the career opportunities available in business and industry. This course is also taught as a television course using the program series "It's Strictly Business."

BMG 150: Labor-Management Relations..... 3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 10, 22
This course acquaints students with factors affecting the labor-management relationships, develops insights into the growth, objectives and methods of organized labor and the significant managerial problems involved in dealing with labor. Analysis is done of the legal and institutional framework for collective bargaining; the nature, content and problem areas of the collective bargaining process and other labor relations problems.

BMG 160: Principles of Sales.....3 credit hours
Prerequisite(s): BMG 140
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 9
This class studies the principles and concepts of the sales function. Its primary purpose is to help students plan and deliver sales presentations. Areas of analysis are consumer buying motives, effective communication, handling objections, presenting demonstrations and closing a sale.

BMG 170: Introduction to International Business .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 24
This course surveys the principles and practices important in doing business with foreign customers from a U.S. home base and in conducting business abroad on foreign soil. The course focuses on opportunities for global business, export-import trading, culturally different business practices, foreign exchange, theories of free trade and protectionism, government assistance to international commerce, and elements of world geography.

BMG 174: BMG Co-op Education I .....1 - 3 credit hours
Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none
In this course students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

BMG 200: Human Relations in Business.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 21
This course acquaints students with administrative principles and practices emphasizing the human relations aspect of management responsibility as it affects employee attitudes, morale and productivity. Major emphasis is on relationships among individuals and/or small groups, with problem-oriented sessions used to realistically relate the course materials to the human relations aspect of modern business-industrial enterprise.

BMG 207: Business Communication.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3, 9, 11, 12
Oral, written, and non-verbal skills are developed for effective internal and external communications in business. Emphasis is placed on organization, style, clarity, accuracy, and conciseness as students prepare reports, routine correspondence, resumes, and formal business presentations.

BMG 208: Principles of Management .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

This course is an introduction to the concepts and theories of management. Emphasis is on the functions of management — planning, organizing, staffing, directing, and controlling, including motivation, decision-making and communication. This course is also taught as a television course using the program series "The Business of Management."

BMG 209: Writing the Business Plan .....2 credit hours

Prerequisite(s): BMG 109
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9

This course enables students to apply and build upon the knowledge and skills acquired in BMG 109: Introduction to Home-Based/Small Business Management. Accessing the Internet for communication, research and class management, learners use text, video, case study and experiential exercises to structure and construct a formal business plan of their choosing. This course is for persons interested in the formal thought and planning that goes into starting, owning, or operating a small or home-based business or taking responsibility for creating innovations within a small, medium or large sized corporate organization. Participants are expected to use the resources of the Washtenaw Small Business Development Center (SBDC). A basic computer competency is necessary.

BMG 210: Money, Banking and Financial Institutions.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7

This is a course in the functions of finance. The course offers a definition of money including its characteristics and component parts. It identifies how the money supply expands and contracts based upon the inter-workings of the financial system. Also discussed is the effect of national and international financial practices on the consumer and business. Other topics include a comparison of the different types and purposes of various financial institutions, the Federal Reserve system, National Fiscal Policy, and how various monetary controls influence the supply of money, credit availability, forecasting interest rates, how to calculate investment yields and security prices, and stock market reactions based upon inflation and changes in the money supply. Banking and lending practices for business and consumers are emphasized and correlated to credit policies and examples of documentation forms. This course is recommended for business students.

BMG 220: Principles of Finance.....3 credit hours

Prerequisite(s): ACC 092 or ACC 122
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7

This course surveys the basic concepts of finance that provide the foundation for successful real world financial management practices. Emphasis is on financial tools required to operate a business. Included is the role of the economy and its effect on interest rates, commercial banking practices, commercial credit, cash management, lending practices, financial statement analysis, time value of money, forecasting, budgeting, capital budgeting, sources of financing, lease vs. purchase, leverage, inventory controls, valuation of rates of return, investment banking, international finance, and bankruptcy. The course is intended to prepare students for advance studies in finance and practical application of financial principles.

BMG 230: First Line Management .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9

This supervision course introduces the roles and functions of the first-line manager and develops practical, operational management skills in the functional areas of planning, organizing, leading, and controlling.

BMG 235: Women in Management.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 9

This is a course designed to help women develop management skills that establish competence, to examine how self-concept affects management style, and to assist in effecting behavioral changes to more effectively function as a manager. Topics covered include: problem solving and decision-making, planning for results, effective communication, motivation and team building.

BMG 240: Human Resources Management .....3 credit hours

Prerequisite(s): BMG 140, BMG 208
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 8, 9, 10

This class covers basic human resources activities that must be managed in any organization. It covers employment techniques, wages and hours, job evaluation, training, employee performance reviews, collective bargaining, employment counseling and collateral benefits such as pensions and fringe benefits.

BMG 242: Cultural Diversity in the Workplace .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course highlights cultural diversity in the workplace and the advantages of valuing it.

BMG 243: Negotiating in the Workplace .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course focuses on the fundamentals of negotiating that are involved in many work-related activities.

BMG 244: Self Management for Personal Productivity in the Workplace .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course focuses on skills required to manage work habits and a career. It offers a system of goal management and tools for development, refining, and building interpersonal skills.

BMG 250: Principles of Marketing.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course is a study of our market-directed system with emphasis on the managerial level. Primary emphasis is on marketing strategy, planning in relationship to product, place, promotion and price. The concepts of economic fundamentals, marketing arithmetic, service and international marketing are incorporated. This course also is taught as a telecourse using the series "Marketing."

BMG 255: Marketing and Management Career Development.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to develop skills and understanding in careers of Marketing, Management and Merchandising using simulated and actual applications through Delta Epsilon Chi competitive events. Membership in Delta Epsilon Chi is required. This course may be elected twice. Offered winter semester only.

BMG 265: Business Statistics .....3 credit hours

Prerequisites: MTH 181 and CIS 110
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces basic concepts of statistics and applications to business decisions. Topics include elements of probability, random samples, descriptive statistics, sampling distributions, point and interval estimation, hypothesis testing, chi-square analysis, and regression and correlation analysis.

BMG 272: Problem Solving .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

This course examines problem solving techniques and methods used in today's work place. Students gain experience in using both critical and creative thinking approaches to problem solving in both individual and team settings.

BMG 273: Understanding the Organization: Systems Perspective .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course examines the various stakeholders of a business and their relationship to each other, with special emphasis on the systemic balance that must be maintained among the competing needs of these parties for organizational resources. Students become familiar with the basic functions of a company and how the activities performed as part of these functions contribute to the overall profitability and health of the organization as a whole.

BMG 274: BMG Co-op Education II .....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

BMG 279: Performance Management .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This course develops knowledge and skills to promote desired individual employee performance, planning, monitoring, measuring, improving, and rewarding performance.

BMG 280: Business Etiquette .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course develops social skills necessary for a professional image and a positive work environment. Guidance is provided for introductions, appearance, business dining, gift-giving and other workplace etiquette.

BMG 281: Conflict Resolution in the Workplace .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course prepares students to handle conflict in the workplace. Emphasis is on the impact at work and how to choose and apply approaches for resolving conflict.

BMG 282: Feedback: Criticism and Praise for hours Effective Performance .....0.5 credit

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course develops skills in providing critical feedback in the workplace. Focus is on how to give and handle praise and criticism of performance.

BMG 284: Effective Telephone Techniques.....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course acquaints students with techniques and guidelines for making the telephone a powerful business tool. Topics include basic communication skills for the phone, courtesy and handling specific types of incoming and outbound business calls.

BMG 285: Meeting Management .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course builds skills in planning and facilitating productive meetings. Focus in on strategies for planning, conducting and evaluating meetings in the workplace.

BMG 286: Business Presentations Skills .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course develops basic skills and confidence in preparing and delivering business presentations. Emphasis is placed in planning, overcoming anxiety, developing delivery techniques, using visual aids and handling questions.

BMG 287: Managerial Leadership.....3 credit hours

Prerequisites: none
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course develops a theoretical understanding of leadership and the practical application of the personal skills and behaviors to influence others toward goal attainment. Topics include the development of vision, acquisition and use of power, leadership styles, and behavioral change management.

BMG 288: Listening Skills.....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course builds basic listening skills in the workplace. Students learn to match appropriate listening styles to situations, to overcome barriers to listening and to practice techniques to improve listening behaviors.

BMG 289: Team Building .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course develops skills needed for effective team development. Topics include team leadership and interpersonal skills needed to facilitate development through the stages of the team building process.

BMG 290: Independent Directed Study .....2 - 8 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a planned program of study in selected business-industrial occupational career subject matter under the guidance and direction of a regular staff member. It supplements classroom study in a way that enhances the student's total occupational, career, and educational experience. Readings, analyses, conferences and reports are included.

BMG 291: First Line Leadership Capstone.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This is the final course in the First Line Management program.

BMG 292: Small Business and Entrepreneurship Capstone.....2 credit hours

Prerequisite(s): BMG 109, BMG 207, BMG 209 and Business elective or consent of program advisor
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to provide the student completing the Small Business & Entrepreneurship Achievement Certificate Program a hands-on experience in operating and managing a small business enterprise. Through the use of a computer-based model that simulates a small manufacturing company, each student is placed in competition with a computer simulated companies. Through the simulated model the student will decide its company's mission, goals, policies, and strategies; develop skills in planning, organizing, staffing, directing, and controlling a business; make decisions in the areas of: marketing, finance, and manufacturing; have the opportunity to ask "what-if" questions and see the results of those decisions through quarterly

Business Office Systems BOS

BOS 101: Keyboarding and Document Formatting.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
37.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed for beginning students who want to learn the basics of keyboarding as well as those who want to review their skills. Students learn to keyboard by touch and develop technique, speed, and accuracy on the alphabetic, numeric and symbol keys. The use of service keys is also covered. Students learn the basics of Windows software and file management. Basic word processing functions are covered. Students learn to format business correspondence.

BOS 101A: Introduction to Keyboarding.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Introduction to Keyboarding is a short one-credit course taught on IBM compatible computers. Students learn to keyboard (type) by touch and develop speed, accuracy, and proper techniques on the alphabetic keys. This course is useful for beginning keyboarding students as well as those who want to review the basics of the alphabetic keyboard and service keys.

BOS 101B: Keyboarding .....1 credit hour

Prerequisite(s): BOS 101Aor consent
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Keyboarding (typing) is a short one-credit course taught on IBM compatible computers. It is designed for students who already know the alphabetic keyboard by touch and are keyboarding (typing) at a minimum of 20 words per minute. Students increase speed on the alphabetic keys and improve accuracy and techniques. They learn the number and symbol keys by touch. This course is useful for students who have had typewriting and want to transfer their skills to a computer keyboard.

BOS 101C: Keyboarding and Introductory Document Formatting.....1 credit hour

Prerequisite(s): BOS 101A, BOS 101B or consent
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a short one-credit class taught on IBM compatible computers. It is designed for students who already know how to touch type and are keyboarding (typing) at a minimum of 25 words per minute. Students increase speed on the alphabetic and numeric keys, improve accuracy and technique, and apply proofreading concepts. WordPerfect is used to teach formatting of business letters, memoranda, and reports.

BOS 101D: Keyboarding and Intermediate Document Formatting .....1 credit hour

Prerequisite(s): BOS 101A, BOS 101B, BOS 101C or consent
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Keyboarding and Intermediate Document Formatting is a short one-credit course taught on IBM compatible computers. It is designed for students who already know the alphabetic and numeric keyboard by touch, are keyboarding (typing) at a minimum of 30 words per minute, and have learned to format business correspondence and reports. Students increase speed on the alphabetic and numeric keys, improve accuracy and techniques, and apply proofreading concepts. WordPerfect is used to teach formatting of tables, tabulated reports, and employment documents.

BOS 102: Keyboarding and Document Formatting II .....3 credit hours

Prerequisite(s): BOS 101 or Equivalent
Corequisite(s): none
37.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This class is a continuation of BOS 101. Students improve touch keyboarding skills through speed, accuracy, and technique drills using computerized diagnostic software. They learn to format long reports with advanced features, create and format complex tables, and format letters with special features. Using word processing commands and developing speed and control are stressed in producing these documents.

BOS 107: Clerical Methods and Procedures .....4 credit hours

Prerequisite(s): BOS 101
Corequisite(s): none
0 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

In this course students perform a variety of general office duties including processing office mail, handling the telephone, and proofreading/editing. Two extensive practice sets cover filing and payroll activities. In addition, students learn job-hunting procedures and prepare for employment in the clerical field through an understanding of the changing business world.

BOS 107A: Records Management .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 7.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

In this course, students learn the basic principles of modern, widely used filing systems and records management. The course includes indexing and filing personal and business names alphabetically; cross-referencing and geographic filing, numeric filing, and subject filing. Filing equipment and supplies are covered as well as new developments in office filing using the computer, microimages, disks, and tapes.

BOS 107B: Editing and Proofreading.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 7.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students develop skills in proofreading, editing, and formatting written business communications beginning with simple keyboarding and spelling errors. Students review rules of grammar, punctuation, abbreviations, capitalization, word division, and number expression as well as correct use of words that are frequently confused. This course also includes editing documents for clarity, content, and conciseness.

BOS 107C: Payroll Preparation and Procedures .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 7.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

In this course, students use an extensive practice set to cover payroll activities that include different methods of preparing payroll wages and salaries. Students Practice payroll procedures in a simulation of a small manufacturing business by preparing a three-week payroll for employees on a manual basis. Basic payroll records and reports are completed.

BOS 107D: Clerical Communications and Job Skills .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 7.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students learn job-hunting procedures and prepare for employment in the clerical field through an understanding of the changing business world. Preparation of effective resumes, letters of application, and interview techniques are covered. Students learn to process office mail using a variety of media including electronic and faxing service. Students also learn the correct use of the telephone in the business world.

BOS 108: Software Tools.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This is an individualized course for persons wishing to learn a software application package on a personal computer. Individuals may select any application software package approved by the instructor for which licensed training materials are available at the College. The course utilizes one-on-one instructor guidance as needed while students work with tutorial guides and software. Students may work at their own pace as long as they complete the course requirements by set timelines. It is recommended that students who do not know how to type take BOS 101A as a pre- or co-requisite.

BOS 109: Database Software.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11

This is an individualized course for persons wishing to learn how to use a database management system on a personal computer. Students may choose any database management system approved by the instructor for which there are licensed training materials available at the College. The course utilizes one-to-one instructor guidance as needed while students work with tutorial guides and software. Students may work at their own pace as long as they complete the course requirements by set timelines.

BOS 110: Spreadsheet Software.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11

This is an individualized course for persons wishing to learn how to use an electronic spreadsheet on a personal computer. Students may select any spreadsheet software package approved by the instructor for which licensed training materials are available at the College. The course utilizes one-to-one instructor guidance as needed while students work with tutorial guides and software. Students may work at their own pace as long as they complete the course requirements by set timelines. It is recommended that students who do not know how to type take BOS 101A as a pre- or co-requisite.

BOS 130: Business Machines.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7

This course emphasizes the use of electronic business calculators in problem-solving activities. Students give serious attention to efficient machine operation, verifying techniques, machine programming, and the concepts of business mathematics widely used in both business and personal situations. The emphasis given to business mathematics helps students to understand and perform many office jobs successfully and to manage personal matters effectively.

BOS 151: Information Processing Principles and Applications.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course emphasizes jobs, skills, and career opportunities in today's automated office with an examination of all phases of information processing. Students develop skill in creating, storing, retrieving, and revising a variety of documents on microcomputers, including software packages such as word processing, spreadsheet, and database. The course covers the ways computers are used in today's business offices, the computer operation cycle, and basic computer vocabulary.

BOS 152: Computerized Transcription.....3 credit hours

Prerequisite(s): BOS 102 or Equivalent
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 9, 11, 19

This course applies the current dictation/transcription practices found in the modern business office. Students transcribe from tapes of realistic office-style dictation representing a variety of business fields and voices. Mastery of the equipment as well as mastery of transcription skills essential to quality correspondence are emphasized. These skills are stressed in the attainment of acceptable productivity standards.

BOS 157: Microsoft Word for Windows I.....2 credit hours

Prerequisite(s) : BOS 101 or Keyboarding speed at 30 WPM
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 20

This course teaches the student to use Microsoft Word with the new, popular graphics Windows interface on an IBM-compatible computer. Skills include creating, editing, and printing documents; using spelling and thesaurus functions; and merging letters. This course can be used to meet the word processing requirement in Business Office Systems Programs and is also open to the general student.

BOS 158: WordPerfect for Windows I .....2 credit hours

Prerequisite(s): BOS 101 or Keyboarding speed at 30 WPM
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 20

This course teaches students to use WordPerfect with the new, popular graphics windows interface on an IBM-compatible computer. Skills include creating, editing, and printing documents; using spelling and thesaurus functions; and merging letters. This course can be used to meet the word processing requirement in Business Office Systems and is also open to the general student.

BOS 174: BOS Co-op Education I.....1 - 3 credit hours

Prerequisite(s): 8 credits in BOS courses with a 2.0 GPA in BOS and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, business-related position. Together with the instructor, the employer, and the Co-op Placement Office, students determine work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two-co-op courses.

BOS 182: Introduction to Microsoft Access .....2 credit hours

Prerequisite(s): BOS 151 or CIS 100 or CIS 110 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12

In this introductory course the student learns the basic concepts of a relational database. The course work covers the use of Microsoft Access 97. MS Access is used to create databases, enter data, maintain data, perform sorts, and create reports.

BOS 183: Introduction to Excel .....2 credit hours

Prerequisite(s): BOS 151 or CIS 100 or CIS 110 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 11

This introductory course covers the use of Excel spreadsheet software for solving problems in business, finance, and other areas that involve calculation and tabulation. Topics include command menus, formulas, and graphs; how to copy, move, sort, insert, delete, and print information and how to create, sort, and search spreadsheet data records. The course should be useful to those who need to solve mathematical problems and/or generate reports of the results.

BOS 203: Keyboarding and Document Formatting III .....3 credit hours

Prerequisite(s): BOS 102 or Keyboarding speed of 40wpm
Corequisite(s): none
37.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of BOS 102. Production of documents is emphasized along with advanced word processing functions to format complex documents. Students improve touch keyboarding skills through speed, accuracy, and technique drills using computerized diagnostic software. They learn to format long complex reports and specialized business documents including proposals, newsletters, and agendas. (This course replaces BOS 204 that was formally required in the BOS programs.)

BOS 206: Outlook and Netscape Office Applications.....2 credit hours

Prerequisite(s): BOS 101, BOS 151
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course provides an introduction to the operational and technical aspects of microcomputer communications using Microsoft Outlook and Netscape Communicator. Topics covered include sending and receiving e-mail; electronic scheduling: organizing appointments, meetings, and events; maintaining an address book; and using the Internet for common business tasks.

BOS 207: Introduction to PowerPoint .....2 credit hours

Prerequisite(s): BOS 101, BOS 151, BOS 157 or BOS 158
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course introduces students to presentation graphics using PowerPoint. Students create slides, charts, special effects, etc. to illustrate information.

BOS 208: Desktop Publishing for the Office .....3 credit hours

Prerequisite(s): BOS 101, BOS 151, BOS 157 or BOS 158
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course provides a practical hands-on approach to developing skills in the use of desktop publishing software to create office flyers, newsletters, bulletins, in-house brochures, catalogs, transparency masters, and covers for reports. Students also become familiar with style sheets, templates, and importing material created in other software programs. Emphasis is placed on producing documents in the business office environment that communicate effectively through good design and application of basic concepts of desktop publishing.

BOS 210: Medical Transcription.....3 credit hours

Prerequisite(s): HSC 101, BOS 102 or Equivalent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 9, 11, 19

This beginning medical transcription class is for students who have some proficiency in keyboarding and medical terminology. Emphasis is placed on the correct use of medical terms; the correct application of writing rules including capitalization, word usage, and punctuation; the efficient use of hardware including a computer, printer, and transcription machine; the formatting of typical medical documents; the use of medical resources; and the knowledge of current employment opportunities in medical transcription.

BOS 223: Medical Office Procedures.....3 credit hours

Prerequisite(s): BOS 102 or Equivalent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course covers administrative assistant responsibilities in a traditional and computerized medical office or hospital including appointments, patient records, telephone procedures, and credit and collection procedures as well as legal considerations in a medical office. Medical insurance is studied. Students complete forms for Blue Cross/Blue Shield, Medicare, Medicaid, Workers' Compensation, CHAMPUS, and private insurance using the proper coding system. Students must complete a minimum of 4 practice hours in addition to regular lecture and lab hours.

BOS 224: Medical Office Insurance and Billing .....4 credit hours

Prerequisite(s): BOS 101
Corequisite(s): HSC 101
60 lecture, lab, clinical, practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course is for those interested in a career in the medical office as a medical assistant, insurance, or biller/coder. The course will cover the fundamentals of health insurance and their requirements for claim form processing. Learners will use billing reference manuals and coding books to accurately abstract information necessary to produce acceptable forms in a timely manner for Blue Cross/Blue Shield, government-sponsored programs, and major commercial carriers. Case studies and exercises will be used to practice completing forms both manually and electronically for each program.

BOS 225: Information Processing Systems and Procedures.....3 credit hours

Prerequisite(s): BOS 151, BOS 257 or BOS 258
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11

This course is designed to provide practical study and advanced training in the use of Microsoft Word, or WordPerfect. Emphasis is placed on developing insights into the responsibilities of the information processing center including staff, personnel qualifications, and human relations. The course also includes information processing alternatives, equipment and needs surveys, organization and implementation of information processing, and management and control of information processing functions.

BOS 250: Administrative Office Systems and Procedures.....4 credit hours

Prerequisite(s): BOS 102 or equivalent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3, 9, 11, 18, 19, 20

This capstone course for the Administrative Assistant and Medical Administrative Assistant Technology programs covers many functions that have been changed by technology. Emphasis is placed on the expanding duties of an administrative assistant including time management, business composition, human relations skills, and information retrieval for the business office. Continued importance is placed on verbal, nonverbal, and written communications. Office planning, environment, etiquette, and protocol are other topics covered, and a variety of specialized office documents are prepared.

BOS 257: Microsoft Word for Windows II.....2 credit hours

Prerequisite(s): BOS 157
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 20

This course is a continuation of the introductory course in Microsoft Word for Windows (BOS 157). It introduces students to advanced word processing functions such as macros, styles, templates, graphics, sorting, charts, forms, advanced formatting, Word Art and Draw, outlines, indexes, and columns.

BOS 258: WordPerfect for Windows II.....2 credit hours

Prerequisite(s): BOS 158
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 20

This course is a continuation of the introductory course in WordPerfect for Windows (BOS 158). It introduces students to advanced word processing functions such as macros, style sheets, headers and footers, footnotes, graphics, sorting, forms, and merge. This course meets word processing requirements in Business Office Systems Programs.

BOS 274: BOS Co-op Education II .....1 - 3 credit hours

Prerequisite(s): BOS 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated position related to the chosen field of study. The instructor, employer and the student work together to determine work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two BOS co-op courses.

Chemistry CEM

CEM 057: Introductory Chemistry.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course offers a basic exposure to chemistry. Students with no background in high school science or algebra, or students wishing to improve their chemistry background should take this course before taking CEM 105 or CEM 111. Introductory Chemistry Laboratory (CEM 058) should be taken concurrently.

CEM 058: Introductory Chemistry Lab.....1 credit hour

Prerequisite(s): CEM 057
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Designed to accompany CEM 057, this course provides an experience with basic chemical laboratory practices and procedures.

CEM 105: Fundamentals of Chemistry .....4 credit hours

Prerequisite(s): CEM 057 or high school chemistry
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15

Students with an interest in nursing or other health related areas, or needing a general science elective find that this broad survey of the major topics in chemistry meets the requirements of their program.

CEM 111: General Chemistry I.....4 credit hours

Prerequisite(s): CEM 057 or high school chemistry and high school algebra
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15

This course covers the major topics in chemistry. Laws of chemical combination, states of matter, atomic and molecular structure, bonding, and other basic principles are covered. It is for students in a professional or preprofessional curriculum.

CEM 122: General Chemistry II .....4 credit hours

Prerequisite(s): CEM 111, MTH 169
Corequisite(s): none
45 lecture, 75 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11, 12, 15

This course covers four major topics in chemistry: kinetics, chemical thermodynamics, chemical equilibria, and electrochemistry. Laboratory work includes qualitative and quantitative analysis.

CEM 140: Organic Biochemistry.....4 credit hours

Prerequisite(s): CEM 105 or CEM 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15

An introduction to both organic chemistry and biochemistry for nursing and other health services students. Major topics covered are the structure and functional groups of organic compounds, structures of biological molecules, mechanism of enzyme-catalyzed reactions, equilibria involved in the exchange and transport of oxygen and carbon dioxide, acid-base balance, and bioenergetics.

CEM 211: Organic Chemistry I.....4 credit hours

Prerequisite(s): CEM 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15

This course provides students with the background in nomenclature of organic chemistry, stereochemistry, the preparation and reactions of aliphatic and aromatic compounds. Students also practice the preparation and handling of organic compounds in the laboratory. This is the first course in a two semester sequence.

CEM 218: Analytic Chemistry.....4 credit hours

Prerequisite(s): CEM 122
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 9, 15

Techniques for the separation and quantitative determination of chemical substances by gravimetric, volumetric, and instrumental methods are learned and practiced in this course.

CEM 222: Organic Chemistry II.....4 credit hours

Prerequisite(s): CEM 122, CEM 211
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 7, 9, 15

This course provides a continued exploration of nomenclature, stereochemistry, preparations and reactions of organic compounds including spectroscopic analysis in the laboratory. Students apply the techniques used in CEM 211 to the synthesis and analysis of complex organic compounds. Laboratory work includes hands-on spectroscopic analysis (IR, GC, and NMR) of products and unknowns. This is the second course in a two semester sequence of organic chemistry.

Child Care Professional CCP

CCP 100: The Exceptional Child.....3 credit hours

Prerequisite(s): CCP 101
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

For those with no background in special education, this course presents an overview of the various physical, sensory, intellectual, social and emotional differences found in children. Identifying and working with handicapped and gifted children within the regular child care setting is stressed. Various community, state and national resources to assist exceptional children are identified.

CCP 101: Child Development.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 21

This course provides a general overview of the physical, social, emotional and intellectual development of the child from conception to maturity with emphasis on the preschool years. It examines the environmental, ethnic and familial factors that make for group differences and individuality of growth, and reviews current research in these areas.

CCP 103: Alternative Programs in Child Care .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

The philosophy and theory of programs in child care are examined. Traditional, open, Montessori, High Scope, Piaget Based, Head Start, parent involvement and kindergarten programs are explored. Observations of area child care centers are frequently assigned.

CCP 104: The Basics of Child Care.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces care givers to the childcare profession. The focus is on the knowledge and skills needed to care for children in group care settings. Topics covered include professionalism, the business of child care, health and safety, nutrition and food handling, child development, guidance and discipline, parent/provider relationships, and community resources. The course is equivalent to the 15 hour Child Care Futures Basic Training Course conducted by the Michigan 4-C Association and its local affiliates.

CCP 107: Educational Experiences in Science and Math.....3 credit hours

Prerequisite(s): CCP 101, CCP 118, CCP 119 or CCP 174
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Integrated curriculum workshops introduce the theory of math and science experiences for children. Topics include: learning to observe and teach the science and math around us every day; making materials, collecting resource files and practical application of ideas to be used in the child care setting. Community resources are explored.

CCP 108: Expressive Arts for Children .....3 credit hours

Prerequisite or Corequisite: CCP 101
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course covers a wide range of artistic experiences including music, creative movement, art and drama. Facilitation of creativity and self-expression is emphasized. Basic materials, techniques and activities are introduced and their application with young children in child care settings is addressed.

CCP 109: Language and Communication .....3 credit hours

Prerequisite(s): CCP 101
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Designed for child care professionals, this course examines the development of language in children. Consideration is given to non-verbal communication and cultural differences. Basic methods, activities and materials for language arts and language development are introduced and their application in the child care setting is addressed.

CCP 110: Social/Emotional Development.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 21

This course provides a multi-cultural approach to the study of personality development during the first six years of life. The characteristics and needs that emerge with each developmental stage are explored. Methods, suggestions and practical guides for meeting these needs in the child care setting are emphasized.

CCP 111: Administration of Child Care Programs .....3 credit hours

Prerequisite(s): CCP 101 and Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

Practical aspects of starting and operating a child care center are presented: equipment selection, budgeting, administrative forms, taxes, insurance, operational management, interpersonal relations, staff training and supervision, and professionalism. State and federal guidelines and current issues in legislation and policy are also examined.

CCP 113: Health, Safety and Nutrition for Child Care .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 9, 16

Best practices in health, safety and nutrition are presented. Students develop specific competencies in these areas including establishing and maintaining a healthy, safe child care program, planning nutritional meals and snacks, and teaching children and their parents about health, safety and nutrition. Communicable diseases, government funded child/family food and nutrition programs, playground and toy safety, and resources for the child care provider are included.

CCP 118: Beginning Child Care Seminar .....1 credit hour

Prerequisite or Corequisite: CCP 101
Corequisite: CCP 119
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The role of the child care provider is examined in relationship to personal career goals. Curriculum planning, use of objectives or key experience, child observation and assessment, room arrangement and daily routine are introduced as ways to implement program philosophy. Developmentally appropriate practice is examined. Specific strategies and techniques for fostering early childhood development are emphasized. Establishing a safe and healthy learning environment and child guidance are major components of the course.

CCP 119: Beginning Child Care Practicum .....2 credit hours

Prerequisite(s): CCP 101 and Consent
Corequisite(s): CCP 118
0 lecture, 0 lab, 0 clinical, 240 practicum hours
Fulfills Core Elements: none

This course provides supervised teaching experience with young children in a licensed child card center. Students must take this course with CCP 118-Beginning Child Care Seminar. Students implement strategies and techniques learned in the Beginning Child Care Seminar and in Child Development. Students are expected to meet a level of competence in specific child care and teaching skills. Emphasis is placed on implementing developmentally appropriate practice. Students prepare activities for children and assume a role as a member of the teaching team. Students are required to meet with the CCP Program Advisor prior to registering for this course. Students are placed with a qualified supervising teacher in a licensed child care center either at WCC or off-campus.

CCP 122: Child Development Credentialing I .....4 credit hours

Prerequisite(s): 18 years old, high school graduate
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to provide part of the formal training for students working toward their Child Development Associate Credential. During this course, students cover eight of the thirteen functional areas of the Child Development Associate (CDA) Competency Standards. Students participate in group seminar discussions and work on assigned observations and portfolio projects.

CCP 123: Child Development Credentialing II .....4 credit hours

Prerequisite(s): CCP 122
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is a continuation of CCP 122 for students working toward their Child Development Associate Credential. Five of the thirteen functional areas of the Child Development Associate (CDA) Competency Standards are covered. Students participate in group seminar discussions and work on assigned observations and portfolio projects.

CCP 124: CDA Assessment Preparation .....1 credit hour

Prerequisite(s): 480 hrs work with children, consent, 120 hours in a CDA-approved facility
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course helps CDA candidates prepare for credential renewal or initial direct assessment. Students seeking the Child Development Associate credential for the first time should have completed the required hours of instruction and experience. Students seeking CDA recredentialing receive assistance with their professional development plan and preparation for reassessment.

CCP 132: Child Development Practicum I.....1 - 2 credit hours

Prerequisite(s): none
Corequisite(s): CCP 122
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: safe, healthy, learning environment, physical, cognitive, and communication. Students are required to work in a licensed child care center with infants and toddlers or preschoolers or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate national child care credential.

CCP 133: Child Development Practicum II.....1 - 2 credit hours

Prerequisite(s): none
Corequisite(s): CCP 123
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: creative, self, social, guidance, and families. Students are required to work in a licensed child care center with infants and toddlers or preschoolers or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate

CCP 134: Child Development Practicum III.....1 credit hour

Prerequisite(s): CCP 122, 123, 132, 133, or completion of CC program
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

This course provides a supervised field experience for CDA candidates. Students are expected to demonstrate competence in the CDA functional areas: safe, healthy, learning environment, physical, cognitive, communication, creative, guidance, self, social, and families. Students are required to work in a licensed child care center with infants and toddlers or preschoolers or licensed family child care home, or in a home visitor program during regular hours of operation. Observations will be completed at the work site using standards for the Child Development Associate national child care credential.

CCP 152: Parenting Your Preschooler.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for parents of children ages 2 1/2 through 5—the preschool years. Included are developmental characteristics of the preschooler, effective child guidance techniques, dealing with typical behavior problems and answering preschooler's questions. Discussion includes choosing appropriate activities for your child, reading with children and effects of television and child care on child behavior and development. This course is graded on a pass/no pass system.

CCP 153: Parenting Your School-Age Child .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for parents of children ages 6 through 11—the elementary school years. Included are characteristics of the school-aged child, developmentally appropriate discipline strategies, helping children do well in school, and dealing with problems of normal development. Discussions include how to talk with children about drugs, sex, and the role of extracurricular activities. This course does not meet DSS requirements for Day Care Licensing but may be used as an elective. This course is graded on a pass/no pass system.

CCP 154: Parenting your Teenager.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for parents of children ages 12 through 17—the middle and high school years. Included are handling teenager's behavior, working with the school to improve academic achievement, and dealing with the threats of drug abuse, premarital sex, and rebellion against parental values. Discussions emphasize helping the teenager make wise choices and decisions, asserting his or her independence from parents in healthy ways, and dealing with pressure. This course does not meet DSS requirements for Day Care Licensing but may be used as an elective. This course is graded on a pass/no pass system.

CCP 200: Staff/Parent Interpersonal Relations.....3 credit hours

Prerequisite(s): CCP 101, CCP 118, CCP 119 or CCP 174, plus 50 credit hours
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course explores the many facets of parent and staff involvement in the child care setting. Topics include: various forms of parent participation, ways of increasing positive communication with parents, cultural differences and goals of parents, and planning parent involvement programs. Emphasis is given to the preparation, mechanics and techniques for the individual parent/teacher conference and parent meetings.

CCP 218: Advanced Child Care Seminar .....1 credit hour

Prerequisite(s): CCP 101, CCP 118, CCP 119 or CCP 174, HSC 131 or equivalent, consent, 50 credit hours
Corequisite(s): CCP 219
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 9

Students learn about the role of the head child care provider, plan and evaluate extended sequences of activities for young children, and analyze and evaluate practice for developmental appropriateness. Students must meet with the CCP program advisor the semester before enrolling to confirm eligibility and select the appropriate work.

CCP 219: Advanced Child Care Practicum .....2 credit hours

Prerequisite(s): CCP 101, CCP 118, CCP 119 or CCP 174, HSC 131 or equivalent, consent, 50 credit hours
Corequisite(s): CCP 218
0 lecture, 0 lab, 0 clinical, 240 practicum hours
Fulfills Core Elements: 1, 3, 7, 9

Students take increasing responsibility in the child care setting and assume the role of head child care provider for a minimum of two weeks. Students develop activities and learning materials suitable for young children, implementing developmentally appropriate practice in the work place. Students are placed in licensed group child care settings; placements are arranged with the CCP Program Advisor prior to enrolling in the course.

CCP 220: Care and Development of Infants andToddlers .....3 credit hours

Prerequisite(s): CCP 101
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3

The development of infants and toddlers is studied. Emphasis is placed on stages of development in physical cognitive and social/emotional areas and developmentally appropriate practice in child care. Developmental issues related to health and safety, nutrition, toilet training, and child guidance are considered. Parent issues discussed include pregnancy, adjustment to parenting and working parents of infants and toddlers. Observation in infant./toddler group care settings is required.

CCP 274: CCP Co-op Education II.....1 - 3 credit hours

Prerequisite(s): CCP 118, CCP 119 or CCP 174
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

This course provides supervised advanced teaching experience with young children in an approved paid position in a licensed child care center or public early childhood education program. Students are expected to meet a level of competency in specific child care and teaching skills. Emphasis is placed on implementing developmentally appropriate practice. Students complete assigned readings, do written assignments and develop activities to be implemented at their work site. Prior to registering for this course, students are required to meet with the CCP Program Advisor.

Communications COM

COM 101: Fundamentals of Speaking .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9, 10

Instruction is provided in essential speaking and listening skills. Through the use of practical experience, students receive help in organization and delivery. The course attempts to relieve the stress the average person encounters when speaking in public. Students gain a heightened awareness of the relationship between speaker and audience.

COM 102: Interpersonal Communication .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 9, 10

This course offers basic elements of interpersonal communication in both theory and practice. Such concepts as self-esteem, perception, emotions, listening, and non-verbal communication are stressed. Particular attention is paid to building positive relationships and resolving conflict within groups, dyads, family, and on the job.

COM 130: Introduction to Mass Communication .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 22

This survey course investigates various mass media such as print, cinema and electronic media from historical, economic, and social viewpoints. Major emphasis is placed on the history, theory, and criticism of the broadcast media. The course attempts to create a more "critical consumer" of mass media by using examples of the media studied.

COM 142: Oral Interpretation of Literature .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 13, 14

This course is an introduction to the act of communicating thought and feeling from the printed page to an audience. Emphasis is placed on developing poise and ease before an audience and developing a clear and forceful voice. Selections from drama, prose, and poetry are prepared and presented in class.

COM 183: Advanced Public Speaking and Persuasion .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10

This course is a continuation of theory and practice in the principles of effective public speaking. The course includes practice in securing the acceptance of ideas through psychological appeal as well as logical reasoning.

COM 200: Family Communication.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 14

In this course students learn to promote healthy communication skills within the family. Major emphasis is on theories of family development, types of families, power, decision making, stress within the family, and other issues of concern to the family. The course focuses on ways to improve family communications.

Computer Aided Drafting CAD

CAD 280: Part Modeling I.....3 credit hours
Prerequisite(s): Completion of CADM or CADE programs or equivalent industry experience
Corequisite(s): none
40 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn fundamental concepts and applications of the I-DEAS Master Series (SDRC) tool set. The course specifically focuses on the creation and modification of a 3-D part or model. Students learn to navigate through the extension user interface, work with various sketch planes and reference geometry, create wireframe sketches, constrain those sketches through the use of geometric constraints and model dimensions, and extrude or revolve those wireframe sketches into 3-D solid parts. Also covered is the I-DEAS data management system.

CAD 282: Constructing Assemblies.....2 credit hours
Prerequisite(s): Completion of CADM or CADE programs or equivalent industry experience
Corequisite(s): none
32 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn to build and manage solid model assemblies, using the I-DEAS Master Series (SDRC) tool set. Students learn to create and modify an assembly hierarchy, set and modify assembly constraints, analyze assembly properties, manipulate assembly display options, generate a bill of materials, and perform an interference check on assembled parts. Also included is troubleshooting, diagnosing, and repairing of problem assemblies.

CAD 284: Part Modeling II.....3 credit hours
Prerequisite(s): CAD 280
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course you build upon the fundamental skills you obtained in Part Modeling I. You will learn how to create and modify solid parts using I-DEAS sweep, loft, and variational sweep tools. You will learn how to use the various sketchpads and planes to build associativity into a part. You will also learn how to troubleshoot, diagnose, and repair poorly constructed parts. You will learn how to build a part using the general construct operator and shell tools. You will learn how to access and research I-DEAS extensive database.

CAD 286: Part Modeling III.....2 credit hours
Prerequisite(s): CAD 280, 282, 284
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of Part Modeling II and Constructing Assemblies. Students learn how to design for ease of assembly employing the top down and bottom up approaches, to create a solid part using open part modeling techniques and to create and modify surfaces using specific surface operations. Students will learn how to import and export I-DEAS data, remaster parts, compare parts, and use design groups in the process of creating creditable designs.

CAD 290: Working Details.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course you learn how to create detail and layout drawings from solid parts and assemblies. You will be introduced into a new I-DEAS interface and functionality. You will be able to create standard views, section views, and auxiliary views as defined by ASME/ANSI standards. You will be able to create and edit dimension, geometric tolerances, and notes. You will learn to create and edit a bill of materials, layer, and other ASME/ANSI related symbols. You will also learn how to use the Command Option Area and plot drawings.

CAD 292: Free Form Surfacing.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course you learn how to create free form surfaces using the ICEM surfacing package. You will create three-dimensional simple and complex surfaces that are typically used in the construction of the outer surfaces (class 1) of a car or airplane.

Computer Information Systems CIS

CIS 090: Computers for Novices.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12

This course is designed for the non-computer major to learn basic computer terminology, develop skills to operate a variety of micro computers, learn how to use the computer as a problem solving tool, and to evaluate hardware and software.

CIS 100: Introduction to Computers.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11, 12, 18, 19, 20

This course for computer novices emphasizes how to use a microcomputer, and how to use software packages such as spreadsheet, word processing, and database. The course covers the basic vocabulary of computers, how computers are used in today's world, the basic cycle of computer operation, input and output devices, and how computers follow directions and store information. This course is also taught as a telecourse using the series "The New Literacy." It is recommended that students who do not know how to type take BOS 101A before or concurrently with this course.

CIS 100A: Basic Introduction to Computers .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course teaches computer novices how to use computers, together with the terms and concepts needed. It emphasizes how to use a microcomputer and how to use software packages, with an emphasis on word processing. The course teaches the basic vocabulary of computers, how computers follow directions and store information. CIS A, B, and C together are equivalent to CIS 100. It is recommended that students who do not know how to type take BOS 101A as a pre- or co-requisite.

CIS 100B: Introduction to Computers - Part 2 .....1 credit hour

Prerequisite(s): CIS 100A
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course teaches computer novices how to use computers, together with the terms and concepts needed. It emphasizes how to use a microcomputer and how to use software packages, with an emphasis on spread sheets. The course teaches the basic vocabulary of computers, how computers follow directions and store information. CIS A, B, and C together are equivalent to CIS 100. It is recommended that students who do not know how to type take BOS 101A as a pre- or co-requisite.

CIS 100C: Introduction to Computers - Part 3 .....1 credit hour

Prerequisite(s): CIS 100B
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course teaches computer novices how to use computers, together with the terms and concepts needed. It emphasizes how to use a microcomputer and how to use software packages, with an emphasis on data management system. The course teaches the basic vocabulary of computers, how computers follow directions and store information. CIS A, B, and C together are equivalent to CIS 100. It is recommended that students who do not know how to type take BOS 101A as a pre- or co-requisite.

CIS 101: Basic Computer Skills for Hospital Professionals .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course introduces health care professionals to computers: the principles of how they work and essential vocabulary, with hands-on practice in the software most useful in health care work in hospitals.

CIS 103: MS DOS Commands .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course covers the syntax, editing and use of elementary DOS commands and help facility. The operations and use of the hardware components of a personal computer system and function of the DOS software is discussed. Students prepare different types of disks, use subdirectories and manipulate files in sub-directories through DOS commands.

CIS 104: Advanced MS DOS .....1 credit hour

Prerequisite(s): CIS 103 or equivalent
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course covers all commands for enhancing the microcomputer system operating environment by using DosKey and by building macros, batch and configuration files. The students learn disk informational and organizational commands. Redirection and customization of input/output devices and filter commands are also covered.

CIS 110: Business Computer Systems .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course provides an overview of Business Information Systems. Students learn about computer terminology, hardware and software, ethics and protocols, database management systems, types of information systems, societal impact, information systems and program development. Students use business application software, including word processing, electronic spreadsheets, database, and presentation graphics to implement information systems. It is recommended that students who do not know how to type take BOS 101A.

CIS 113: MS Windows .....3 credit hours

Prerequisite(s): CIS 103
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course introduces students to the graphical environment of the MS Windows(program that enables users to perform file management tasks, run other programs, manage data exchange with non-windows applications, use the clipboard and dynamic data exchange and run batch files. Students install the Windows program on a stand-alone computer or on a network workstation, examine the Windows environment, optimize operating system and computer resources, customize the initialization and setup files and DOS application sessions.

CIS 116: Windows Operating System I (Windows 95) .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course teaches the use of a graphical user interface and operating system to allow a user to operate a personal computer. The hardware components and the operating software of a microcomputer system are discussed. Students learn the basic functions of the operating system through hands-on experiences. This course is an update of the MSDOS Commands course that has been incorporated into the Windows operating system. Respect for the rights of others and proper security measures will be discussed. Windows 95(is currently used in the course.

CIS 117: Windows(Operating System II (Windows 95).....1 credit hour

Prerequisite(s): CIS 116 or equivalent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course teaches the user of the operating system with a graphical user interface to maintain, troubleshoot, repair, and customize a microcomputer system. The use of the older MSDOS operating system will be covered. Respect for the rights of others and proper security measures will be discussed. Windows 95 is currently used in the course.

CIS 121: Beginning UNIX.....2 credit hours

Prerequisite(s): CIS 100 or CIS 110 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 19

This course introduces UNIX System V tools to both experienced computer users and to students with only a basic knowledge of computers. The course covers orientation to UNIX, the UNIX file system, mail, standard UNIX editors, text and information processing, file and directory organization with the commands for their management and manipulation, and standard UNIX utilities. Students also write simple UNIX shell programs.

CIS 160: Introduction to the Interne.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12

In this course students learn about Internet tools and features including connection options, addressing and delivery, directory structures, and electronic communications. Prior experience using a computer is required.

CIS 165: Basic HTML .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

Students learn to create web pages using HTML code. Topics include, creating a basic page, linking to other pages, creating tables, using colors, and publishing pages. As new coding technologies emerge, these will be addressed and discussed. Prior experience using the Internet is preferred but not required.

CIS 174: CIS Co-op Education I.....1 - 3 credit hours

Prerequisite(s): 6 CIS credit hours or Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated computer-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op experiences.

CIS 221: UNIX Tools and Scripts.....2 credit hours

Prerequisite(s): CIS 121 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 12, 19

This course enables students to use UNIX more efficiently by learning advanced forms of commands and utilities covered in CIS 121, as well as new commands and constructs. Advanced forms of topics begun in CIS 121 include sed, grep and awk and how to effectively use regular expressions, as well as constructs and special commands used in writing shell scripts. Topics covered include functions, traps, arithmetic on variables, and input/output techniques. In addition, emphasis is placed on understanding how the UNIX shell operates. If time permits, the Korn shell will also be studied.

CIS 225: Local Area Networks II.....2 credit hours

Prerequisite(s): CIS 125 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11

This course is designed for network users who are familiar with Novell trustee rights, mapping, login scripts, and network printing. Emphasis is on supervisory issues such as hardware and software installation, supervisory options of the Syscon utility, the system login script, creation of new users, console commands, the use of FCONSOLE, and the NetWare menu utility.

CIS 238: PC Assembly Language .....3 credit hours

Prerequisite(s): 1 semester computer programming language
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 18

This is a first course in the PC assembly language. The organization of the 80x86 microprocessor is examined to aid in the study of the instruction set. Topics include various character/numeric conversions, twos and tens complement arithmetic, string and bit manipulation, the calling of assembly language routines from other assembly programs as well as from high level language programs, and the use and modification of DOS and BIOS interrupt routines.

CIS 240: Career Practices .....2 credit hours

Prerequisite(s): ENG 100
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers career options available in the computer industry, how to develop a career plan, preparing a job hunting plan, hiring practices, resume preparation, interviewing skills, writing a journal of job-seeking activities, salary negotiations, customer relations and how to succeed on the job.

CIS 260: Web Site Management.....2 credit hours

Prerequisite(s): CIS 160 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course focuses on setting up and maintaining a Worldwide Web site. Topics include selecting and dealing with an Internet Service Provider (ISP), overall design of web sites, and putting pages on the site. The emphasis is on practical, efficient techniques for keeping information current using several software tools available for MS Windows. Participants can set up personal or organizational web sites for class credit.

CIS 265: Programming the Web .....3 credit hours

Prerequisite(s): CIS 165 and CPS 171 or 185
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 12

This course is intended for students who are interested in programming the web and who have a knowledge of a programming language and also some experience on the Worldwide Web. Topics covered include creating HTML forms, Common Gateway Interface (CGI) programming using Perl, an introduction to JavaScript, and the basic setup of one or more http servers. As new technologies emerge, these will be addressed and discussed.

CIS 274: CIS Co-op Education II .....1 - 3 credit hours

Prerequisite(s): CIS 174 and Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, computer-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

CIS 275: C Programming Language .....4 credit hours

Prerequisite(s): CPS 171 or CPS 185 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is an introductory course in the C programming language. The intended audience is experienced programmers. Most features of the C language are discussed so that students who successfully complete the course are capable of versatility in using C. Emphasis is placed on structured programming techniques and sound documentation.

CIS 277: Java for Programmers.....3 credit hours

Prerequisite(s): CPS 171 or CPS 185
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers the basics of Java, including creating a simple applet and application, object oriented programming concepts, objects and classes in Java, managing inheritance, and simple Java I/O. Students consider practical issues, common problems and solutions in applet development, string handling, program attributes, accessing system resources, error handling, threads, and creating a user interface.

CIS 282: Small System Data Base .....3 credit hours

Prerequisite(s): 1 semester computer programming language
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12

This course is an introduction to relational database theory and practice. Topics covered include: terminology, normal forms, design of the database tables, SQL, and application generation. The student will incorporate SQL in procedural files to program applications. This course is intended for anyone possessing a basic knowledge of programming who is interested in database theory and practice.

CIS 283: Databases and the Web.....3 credit hours

Prerequisites: CIS 265
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students will learn how to create and maintain web connected databases using code and WYSIWYG.

CIS 286: UNIX Systems Administration .....4 credit hours

Prerequisite(s): CIS 121 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 8, 9, 11, 19

Concepts and technical knowledge of operating systems, utilities and control languages are presented with hands-on experience with the UNIX operating system. Topics covered include: startup and shutdown, user accounts, security, automating routine tasks, managing system resources, file systems, back-ups, devices, and networking.

CIS 287: Internet Security .....3 credit hours

Prerequisites: CIS 286
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students will learn how to set up and maintain secure servers. Topics covered include ecommerce objectives, firewalls, passwords, and other security issues for the web.

CIS 288: Systems Analysis and Design.....3 credit hours

Prerequisite(s): CPS 171 or CPS 185 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 9, 11, 19

This course surveys computer applications and techniques in major areas of business, business structure, analytical communication with system users, principles of package software evaluation and acquisition, planning schedules and resource requirements for software development, program testing and installation procedures, principles of software development monitoring, structured walkthroughs and other programmer communication, and producing software development specifications.

CIS 290: Microcomputer System Support.....4 credit hours

Prerequisite(s): CIS 125 CIS 288 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12, 18, 19

This is the final class in the Microcomputer System Support program. In this class, students gain problem solving skills, practice user training techniques, and consolidate knowledge required for serving as a Microcomputer Systems Support Technician.

CIS 291: Introduction to Oracle SQL/ and PL/SQL .....4 credit hours

Prerequisite(s): CIS 282 CIS 275 or CPS 171 or CPS185 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 18

Students are introduced to Structured Query Language (SQL) and PL/SQL functions. They learn how to create and maintain database objects and how to store, retrieve, and manipulate data. They also learn how to create PL/SQL blocks of application code that can be shared by multiple forms, reports, and data management applications. Further topics include PL/SQL procedures, functions, and packages. Using both the Procedure Builder and the SQL Plus environments, students learn how to create and manage PL/SQL program units and database triggers.

CIS 292: Introduction to Oracle Developer .....3 credit hours

Prerequisite(s): CIS 291 or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 18

This course is an introduction to Developer/2000 technology. Students learn to navigate through the Developer/2000 interface using features such as the Object Navigator and Virtual Graphics System (VGS), which includes the Layout Editor and Menu options. Students build and test interactive applications consisting of one or more Developer/2000 forms modules. Working in a graphical user interface (GUI) development environment, participants build a complete forms application.

CIS 293: Advanced Oracle Developer.....4 credit hours

Prerequisite(s): CIS 292 or equivalent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 18

This course builds on skills learned in CIS 292 in the use of Developer/2000 technology. Students learn to manage projects using Project Builder, to design and build menu modules, use function keys and record groups, create programming modules, and manage data to produce reports. Students create advanced multiple-form applications and create various formats and styles for reports.

Computer Networking Technology CNT

CNT 200: Networking Fundamentals .....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The basics of computer networking are covered in this course. Contemporary network services, transmission media, and protocols are included. The most common implementations in today's LAN's and WAN's are used.

CNT 210: NetWare ® Administration .....3 credit hours

Prerequisite(s): CNT 200 CIS 110
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students gain the necessary knowledge and skills to perform competently in the role of network administrator or system manager. Students will accomplish fundamental network management tasks on a NetWare 5 network. This course prepares students for the Novell Computer Network Administrator (CNA) test.

CNT 211: Administering MS Windows ® NT.....3 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students learn to perform post-installation and day-to-day administration tasks in a single-domain or multiple-domain Microsoft Windows NT-based network.

CNT 215: Structured Cabling Systems.....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students learn to design, install, document, and troubleshoot structured cabling systems. Topics include category 5 unshielded twisted pair (UTP), shielded twisted pair (STP), and fiber optic cabling.

CNT 220: Advanced NetWare ® Administration .....3 credit hours

Prerequisite(s): CNT 210
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students learn, in this course, to design, configure, and administer networks with NetWare 5. This course covers the advanced skills needed to upgrade previous versions of NetWare to NetWare 5, configure IP, use Java-based utilities, NetWare Loadable Modules (NLM's), backup, and remote operations.

CNT 221: Microsoft Windows ® NT Core Technologies .....3 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the core foundation for supporting a Microsoft Windows NT operating system. The course provides support professionals with the skills to install, configure, customize, optimize, network, integrate, and troubleshoot a Windows NT operating system.

CNT 225: Introduction to Routers .....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the student with the knowledge and skills to install, configure, update, and troubleshoot network routers. Topics include connection-oriented and connectionless network services, and router configuration, topology changes in routed networks.

CNT 230: NetWare ® Service and Support .....4 credit hours

Prerequisite(s): CNT 220
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The focus of this course is on the prevention, diagnosis, and resolution of hardware-related problems that network professionals encounter while working with a network. Although the focus is on hardware issues in relation to NetWare, students learn practical skills that will help them optimize hardware resources for networking products. Students learn to solve real world hardware problems with extensive hands-on exercises.

CNT 231: MS Windows ® NT Enterprise Technology .....3 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a training solution for support professionals working in a Microsoft Windows NT Server-based enterprise environment. Students must have previous experience supporting a Windows NT Server-based network. Students learn to design, implement, and support the Windows NT Server network operating system in a multi-domain enterprise environment. The course is organized in four units, each covering support in different areas of the enterprise environment.

CNT 235: Advanced Local Area Networking .....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides students with the knowledge and skills necessary to install, configure, update, and troubleshoot complex Local Area Networks. Topics include monitoring Novell IPX on a router, LAN segmentation, Fast Ethernet, and virtual LANs.

CNT 240: Novell ® Directory Services .....3 credit hours

Prerequisite(s): CNT 220
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for network administrators, network designers, and networking consultants. Students create NDS design strategy and implementation schedules using templates that can be re-used to create designs for their workplaces.

CNT 241: Internetworking Microsoft ® TCP/IP .....3 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn to set up, configure, use, and support Transmission Control Protocol/Internet Protocol (TCP/IP) on a Microsoft Windows NT operating system.

CNT 245: Introduction to Wide Area Networks.....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the student with an introduction to Wide Area Networking technology. Topics include Frame Relay, Packet switching, Integrated Services Digital Network (ISDN), Link Access Procedure (LAP), High-Level Data Link Control (HDLC), Point-to-Point Protocol (PPP), and Dial-on-Demand Routing (DDR), Asynchronous Transfer Mode (ATM).

CNT 250: Integrating Windows ® NT into a Novell(r) Network.....3 credit hours

Prerequisite(s): CNT 211, CNT 220
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn to integrate a Windows NT environment within NetWare. NT administration is learned using Novell Directory Services for NT. Students receive hands-on experience with Novell products for administering and managing NT workstations, servers, and network-based applications in a heterogeneous environment. This course prepares students to complete one of the Certified Novell Engineer (CNE) exams.

CNT 251: Microsoft ® Internet Information Server .....3 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This instructor led course covers the various features of Microsoft Internet Information Server (IIS). Students learn to install, configure, and implement all components that comprise IIS. They will also have hands-on experience setting up a web site.

CNT 255: Heterogeneous Networks.....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn to install, document, configure, administer, update and troubleshoot heterogeneous networks. Topics include UNIX, NetWare, Windows NT, and Macintosh operating systems, and requirements to interconnect these systems and mainframe computers.

CNT 265: Network Design.....4 credit hours

Prerequisite(s): Computer Systems Technology Certificate or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the knowledge and skills students need to design networks, from a basic homogeneous single department LAN, to a complex heterogeneous global network. The course focuses on design techniques and the selection of hardware and software to meet the customer's network needs.

Computer Science CPS

CPS 171: Introduction to Programming with C++ .....4 credit hours

Prerequisite(s): MTH 169 or 2years HS Algebra, CIS 100 or CIS 110 or HS computer class
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 12, 18, 19, 20

This course is an introduction to programming using the C++ language. Students should have basic experience using a computer but no prior programming is required. (Experienced programmers should consider CPS 290) Students learn about problem solving strategies, top-down program development and programming style. Topics include sequential, decision and iterative control structures, functions, basic data structures and an introduction to classes. Students write and execute approximately eight C++ programs.

CPS 185: Introduction to Visual Basic Programming.....4 credit hours

Prerequisite(s): CIS 100 or CIS 110 or any programming language, MTH 097 or MTH 163 or high school algebra or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 19

This is an introductory course in which students learn essential principles of using Microsoft Visual Basic Programming System for Windows. Subjects covered include: creating the interface (forms, tools, controls, objects, setting properties), writing code (including some programming fundamentals such as variables, arrays, controlling execution), printing, reading from and writing to files, debugging, and creating distribution disks.

CPS 191: Introduction to Lisp Programming.....3 credit hours

Prerequisite(s): 1 programming language or IND 216
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 11, 12

This course presents an introduction to the principles and practices of the LISP programming language. Topics covered include the history and applications of LISP, atoms and lists, defining functions, conditionals, iteration, recursion, input and output. Students design and execute several programs covering these topics.

CPS 271: Object Features of C++ .....4 credit hours

Prerequisite(s): CPS 171 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course continues the study of C++ begun in CPS 171. (Experienced programmers should consider CPS 290.) Students learn the object-oriented features of the language. Topics include classes, constructors and destructors, operator overloading, pointers, dynamic allocation of memory, inheritance, polymorphism, file manipulation, templates, and exceptions.

CPS 272: Data Structures with C++.....4 credit hours

Prerequisite(s): CPS 271, or CPS 290, or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is the third of a sequence of C++ courses, following CPS 171 and CPS 271. The course covers more advanced computer science features as implemented in C++. Topics include testing, verification and complexity of algorithms, recursion, advanced data structures, class libraries, and techniques for team design of large programs.

CPS 285: Advanced Visual Basic Programming.....4 credit hours

Prerequisite(s): CPS 185 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19, 20

This course is a continuation of the CPS 185 Visual Basic course, and is intended for students with a basic understanding of Visual Basic. Among the topics to be addressed in this course are: Database Access, OLE, Windows API calls, Active-X controls, Error Checking and Internet access within our programs including Client/Server applications, creating help files, and packaging an application.

CPS 290: Program Design Methodologies.....4 credit hours

Prerequisite(s): CIS 275 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 11, 12

This course presents techniques and methodologies for designing computer programs, including an introduction to object-oriented design for students with previous experience in the C language. Limitations of traditional methods and the advantages of the object-oriented method are discussed. Topics include: structured programming, program testing and verification, encapsulation, inheritance, polymorphism, streams, templates, exceptions and extensibility of code. Students design and write programs using the C++ language.

CPS 293: Visual C++ Windows Programming.....4 credit hours

Prerequisite(s): CPS 271, or CPS 290, or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a practical introduction to application development for MS Windows using Microsoft Foundation Class (MFC) Library. Students are expected to have a working knowledge of C++ and should be familiar with Windows concepts such as buttons, menus and the mouse. No prior Windows programming experience is expected. Topics include: MFC's document-view architecture, device contexts and Graphics Device Interface (GDI) functions, Single Document Interface (SDI) and Multiple Document Interface (MDI), and use of standard Windows components such as dialogs, controls, menus toolbars, and status bars.

CPS 295: Advanced Visual C++ Windows Programming.....4 credit hours

Prerequisite(s): CPS 293
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides in-depth exposure to, and experience with, advanced topics of Microsoft Foundation Classes (MFC) Windows programming. Students should be familiar with Microsoft Visual Studio 97, including class wizard, resource and dialog editors, Visual C++ and the debugger; and have a working knowledge of basic MFC programming techniques. Advanced topics include: sockets, threads, COM servers and containers, ActiveX automation, interprocess communication and synchronization (including semaphores, events, and flags), DAO, ODBC, ADO, DLLs, metafile, multi-media and registry programming.

Construction Technology CON

CON 071: Basic Boiler and Heating Systems.....2 credit hours

Prerequisite(s): MTH 039 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is an introductory course in boiler-driven heating systems. Topics covered include terminology, heating systems, heat load calculations, equipment identification and application. This course is based upon the Building Owners and Managers Institute (BOMI) System Maintenance Technician Certification (SMT).

CON 073: Basic Refrigeration Systems.....2 credit hours

Prerequisite(s): MTH 039 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to introduce basic refrigeration cycle concepts and system components. Primarily designed for facility maintenance staff, it increases the knowledge level of workers whose major work tasks bring them into incidental contact with climate control systems. This course is based upon the Building Owners and Managers Institute (BOMI) System Maintenance Administration Certification (SMA).

CON 075: Basic Air Handling Systems.....2 credit hours

Prerequisite(s): MTH 039 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course reviews the fundamentals of human comfort and the components of HVAC systems. It is primarily directed toward maintenance staff whose major work tasks involve air cleaning devices and indoor air quality, water conditioning and treatment, and plumbing systems. Fire protection and alarm systems complete the diverse systems this course reviews.

CON 077: Building Control Systems.....2 credit hours

Prerequisite(s): Consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students learn about various building temperature control systems and their components. The course provides a basic understanding of control theory and describes components of pneumatic, electric, and electronic control.

CON 079: Electrical Systems and Illumination .....2 credit hours

Prerequisite(s): Consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course enables students to operate and maintain a building's electrical equipment. The course demonstrates how to maintain electric motors and lighting fixtures. It is based upon the Building Owners and Managers Institute (BOMI) System Maintenance Administrator Certification (SMA).

CON 100: Residential Blueprint Reading.....3 credit hours

Prerequisite(s): MTH 039
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This elementary blueprint reading course emphasizes the development of visualization skills and the study of practices and symbols for interpreting residential prints. Smaller scale construction projects are studied.

CON 104: Construction I .....5 credit hours

Prerequisite(s): none
Corequisite(s): none
lecture, lab, clinical, practicum hours
Fulfills Core Elements: none

This is an introduction to construction site safety covering portable equipment, scaffolding, personal safety and material handling. Students will be introduced to the basics of residential blueprints, sketching, and shop drawings using a systems approach that includes foundations, framing, interior and exterior systems, and roof systems. Students will develop a professional vocabulary and demonstrate competencies in measurement, layout, and safe use of portable equipment. Basic construction skills will be developed through team projects.

CON 105: Construction II.....5 credit hours
Prerequisite(s): CON 104 or consent
Corequisite(s): none
lecture, lab, clinical, practicum hours
Fulfills Core Elements: none
This is a continuation of Construction I (CON 104). After demonstrating sufficient skills and understanding of safe tools and equipment use, the students will team up to develop skills that include installation of floor covering systems, door and window installation, drywall installation, exterior wall covering systems, and roofing systems application. Tear down and demolition processes are important elements of this course.

CON 107: Basic Soil Mechanics .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course is designed for members of the construction and inspection community to provide information regarding basic soil mechanics. Topics covered include: laboratory testing procedures and reports, identification and classification of soil types, and descriptions of soil characteristics. This course covers rock mechanics, foundation design, soil-handling, equipment, quarry operations, and advances in soil technology.

CON 112: Blueprint Reading for Construction .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course is for those students seeking to obtain blueprint reading skills for intermediate and large scale construction projects. Emphasis is on the application of blueprint reading skills, principles and fundamentals of the construction process.

CON 115: Construction Site Safety.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:
This course introduces participants to the principles and procedures of working safely in the construction environment. A number of common pieces of safety equipment are introduced, together with procedures for inspections and use. This course is intended for all trades and all personnel who will work in construction.

CON 121: Property Maintenance I .....3 credit hours
Prerequisite(s): MTH 039
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course teaches basic skills and techniques used in carpentry, masonry, plumbing, electricity, and other building trades to improve ability to repair and maintain a structure and its systems.

CON 150: Property Assessment Administration I .....6 credit hours
Prerequisite(s): Consent
Corequisite(s): none
90 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course prepares students for the Level I certification exam as prescribed by the State Assessment Board. The course begins with an introduction to property assessment administration, and includes the following topics: property tax law, real property descriptions, valuation concepts, appraising vacant land, cost and market approaches to value, agricultural land, personal property, equalization, roll preparation and required reports, and board review and appeals.

CON 151: Code Enforcement I .....3 credit hours
Prerequisite(s): MTH 039
Corequisite(s): none
30 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course provides students with a better understanding of the development and role of model codes and standards in the building construction industry. Students will learn techniques used in examining construction documents for compliance with zoning ordinances and building code requirements.

CON 154: Property Assessment Administration II .....6 credit hours
Prerequisite(s): Consent
Corequisite(s): none
90 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course prepares students for State Assessors Board Level II Certification. Topics include property descriptions, parcel numbering, tax mapping, equalization and appeals, aerial photographic interpretation, local government finance, market data approach, income approach, architectural types and construction, and residential, commercial, and industrial appraisals.

CON 171: Woodworking .....3 credit hours
Prerequisite(s): MTH 039
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This is a lecture and laboratory course in woodworking as it relates to furniture and cabinetry. Knowledge and skills necessary for working with hand and machine tools are developed. Projects are worked on and completed during class time. Hand tools and materials are furnished by students.

CON 174: CON Co-op Education I.....1 - 3 credit hours
Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none
In this course students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

CON 204: Construction III.....4 credit hours

Prerequisite(s): CON 104 and 105 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers the broad range of common construction materials, including recent technological development in structural support, sound control, insulation and exterior coverings. Students will be introduced to basic concepts of estimating and a further study of residential and light commercial printreading. Further development of technical vocabulary skills are included.

CON 205: Construction IV.....4 credit hours

Prerequisite(s): CON 104, 105 and 204 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces the student to basic concepts of project management, including a further study of estimating and bid preparation, scheduling basics, jobsite management concepts, and an introduction to building codes.

CON 271: Advanced Cabinetry.....3 credit hours

Prerequisite(s): CON 171
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of CON 171 in which students design and develop more advanced and complex projects. Student skills and knowledge of materials and techniques are improved.

CON 274: CON Co-op Education II.....1 - 3 credit hours

Prerequisite or Corequisite: CON 174 and consent
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Correctional Science COR

COR 110: Basic Corrections Officer Academy.....13 credit hours

Prerequisite(s): none
Corequisite(s): none
171 lecture, 105 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 21, 22

This course teaches basic corrections officers' skills to individuals seeking employment as county corrections officers, lock-up officers, and juvenile detention facility employees.

COR 122: Introduction to Corrections.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 8, 22

This course is an introduction to the correctional system from historical to contemporary times. Examined are incarceration, probation, parole, and new programs in dealing with offenders.

COR 132: Correctional Institutions .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to examine the various types of correctional institutions and the training of the personnel who staff them. There is also an examination of the rights and responsibilities of both staff and inmates to include the social effects upon each.

COR 211: Legal Issues in Corrections.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 22

This course gives students an overview of the law as it currently applies to the field of corrections. Included is an in-depth look at the application of the Constitution and the court processes, including prisoners' rights and section 42, 1983 concerns.

COR 219: Client Relations in Corrections ....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 21

This course is designed to provide students with a general knowledge of the various meanings and functions of cultures as they might apply to the corrections setting. In addition, students are introduced to the impact of discrimination in corrections and the melting pot concept. There is also work on how one's attitudes are formed and how their background has an impact on them. Students are also exposed to the interaction approach in dealing with the correctional client, and the proper responses

COR 228: The Correctional Client: Growth and Development.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

The course is designed to examine the growth and development of the correctional client, with a particular emphasis on the early environment, psychological and sociological factors, specific problems (i.e. substance abuse, sexual, medical, mental, etc.) and intervention strategies.

Criminal Justice CJT

CJT 100: Introduction to Criminal Justice....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 20, 22, 23

This course provides an in-depth look at the Criminal Justice System including law enforcement, courts and corrections. Individuality and the purpose of each division is studied. The student is provided with a sound understanding of the basic functions of each component.

CJT 110: Emergency Telecommunication ....5 credit hours

Prerequisite(s): Consent
Corequisite(s): none
80 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The goal of this course is to provide participants with basic skills in public safety communication. Communication skills, telephone and dispatch techniques, legal issues and CPR skills are some of the topics covered in the course.

CJT 111: Police/Community Relations .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 21, 22

The role of individual officer and the department in achieving and maintaining public support is studied. Topics include: customs, culture, and problems of ethnic and minority groups. Public information services, and techniques for the alleviation of community tensions are also covered.

CJT 112: Constitutional Law for Criminal Justice .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a comprehensive examination of key provisions of the United States Constitution with emphasis on those areas affecting the rights and privileges of individual citizens (i.e. those imparting procedural law). A historical approach is adopted to give students a complete understanding of the mutable nature of the Constitution and those factors that impact it.

CJT 120: Criminal Justice Ethics.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 22

This is a normative ethics course that will examine values and issues relevant to success in the Criminal Justice area. The course includes personal values clarification, historical ethics and applied ethics.

CJT 205: Applied Psychology for Law Enforcement.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 21

Principles of psychology relevant to specific applications in law enforcement, and major psychological theories are viewed from the perspective of their application to law enforcement practices. Much of the course content deals with abnormal behaviors that police often encounter and proper techniques used to deal with them.

CJT 208: Criminal Evidence and Procedure .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 9, 22

This course examines principles of constitutional, federal and state laws as applied to law enforcement. Topics include: adjectival law, the law of evidence; role of the police, prosecutor, defense counsel, judge and jury; the judicial process; criminal procedure in various courts; law of arrest and search and seizure; and constitutional restraints.

CJT 209: Criminal Law .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7

This course is designed in order for either lawyer or layman to broaden understanding of the various agencies involved in the administration of criminal law. The more important law enforcement functions from arrest to executive pardon are emphasized.

CJT 221A: Law Enforcement - Investigations .....13 credit hours

Prerequisite(s): 45 credit hours and graduation eligible, successful completion of the MCOLES pretest, drug screening, criminal background check
Corequisite(s): none
195 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 15, 21, 22

This course is part of the basic law enforcement training program, also known as the Police Academy. The curriculum, established by the Michigan Commission on Law Enforcement Standards (MCOLES), includes physical conditioning, defensive tactics, firearms training, and first aid as well as subjects requiring extensive reading, writing, and note-taking skills. Students successfully completing the Academy are eligible for an examination administered by MCOLES for certification as a law enforcement person. Drug screening and a criminal background check are required as part of the admission procedure. This course covers, in particular, all aspects of police investigations.

CJT 221B: Law Enforcement - Skill Areas .....13 credit hours

Prerequisite(s): 45 credit hours and graduation eligible, successful completion of the MCOLES pretest.
Corequisite(s): CJT 221C
165 lecture, 126 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 15, 16, 22

This course is part of the basic law enforcement training program, also known as the Police Academy. The curriculum, established by the Michigan Commission on Law Enforcement Standards (MCOLES), includes physical conditioning, defensive tactics, firearms training, and first aid as well as subjects requiring extensive reading, writing, and note-taking skills. Students successfully completing the Police Academy are eligible for an examination administered by MCOLES for certification as a law enforcement person. Drug screening and a criminal background check are required as part of the admission procedure. This course covers, in particular, all the physical aspects of policing.

CJT 221C: Law Enforcement - Community Policing & Communication.....4 credit hours

Prerequisite(s): 45 credit hours and graduation eligible, successful completion of the MCOLES pretest
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course is part of the basic law enforcement training program, also known as the Police Academy. The curriculum, established by the Michigan Commission on Law Enforcement Standards (MCOLES), includes physical conditioning, defensive tactics, firearms training, and first aid as well as subjects requiring extensive reading, writing and note-taking skills. Students successfully completing Police Academy are eligible for an examination administered by MCOLES for certification as a law enforcement person. Drug screening and a criminal background check are required as part of the admission procedure. This section of the Academy covers interactions with community members in non-criminal situations where communication and understanding is of primary importance.

CJT 223: Juvenile Justice .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 8, 21

The major emphasis of this course is on problems of law enforcement related to juvenile crime. Major topics covered include theories of juvenile delinquency, work of youth agencies, legislative involvement and new approaches to the prevention of juvenile crime.

CJT 224: Criminal Investigation.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 15

Students will be introduced to the science of criminal investigation. They will become familiar with the methodology of crime scene investigations, evidence collection, preservation, and analysis. Included are the rudiments of follow-up investigations, interviews, interrogations and report writing. Techniques applicable to investigation of specific crimes will be highlighted.

CJT 225: Seminar in Criminal Justice .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 10

This course provides a unifying experience and evaluation of criminal justice systems, policies and practices. Preparation of a concluding research paper is required for this course. The focus is on analytical thought processes and problem solving.

Culinary Arts CUL

CUL 100: Introduction to Hospitality Management .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1

This course is designed to give students an overview of the hospitality industry and opportunities in the industry today. It is an introduction to the study of the business organization and functions of management. On-site tours of the hospitality industry will be coordinated.

CUL 110: Sanitation and Hygiene .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course communicates the importance of sanitation to the hospitality worker: layman's bacteriology, communicable diseases, food poisoning, pest control, cleaning and sanitizing, and personal hygiene. Students who complete this course and pass the exams receive National and State Sanitation Certification.

CUL 111: Elementary Food Preparation.....6 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 195 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

This course emphasizes the skills necessary to produce a la carte food preparation and presentation in a full service restaurant. This beginning production course will also examine the development of standards in food preparation, portion control, sanitation, receiving and storage of inventory, as well as the proper use in preparation and service.

CUL 114: Baking I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to introduce students to basic theory, practices, and production techniques required to produce quality baked good items such as yeast raised breads, cookies, pies, and hi-ratio cakes. Emphasis is placed on time management, safe food handling, storage, and proper utilization of ingredients and equipment.

CUL 115: Pastry I.....3 credit hours

Prerequisite(s): CUL 110, CUL 111, CUL 124 or consent
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

The student learns to produce contemporary pastries that would appear on the menus of the finer restaurants of the world. Emphasis is placed on the basics of baking and progressing to the fine art of pastry production. Lectures, demonstrations, and practical applications include petite fours and French pastry, puff pastry and pate choux specialties, gateaus and tortes, ice cream production and plated desserts.

CUL 118: Principles of Nutrition.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

General principles of nutrition are discussed in this course as they pertain to selection of foods, nutritional needs of all age groups, the meaning of food to people, the relationship of food and nutrition to menu planning.

CUL 124: Baking II .....3 credit hours

Prerequisite(s): CUL 114 or consent
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course builds on principles and production techniques learned in Baking I (CUL 114). Students learn more complex production skills in the preparation of sweet and savory specialty breads, chiffons, mousse, custard pies, egg foam based cakes, pate choix products, doughnuts, Danish and puff pastry.

CUL 125: Pastry II .....3 credit hours

Prerequisite(s): CUL 115 or CUL 124
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The student continues to learn contemporary desserts and pastries. Emphasis is placed on holiday desserts, hot and cold plated desserts, confectionery, chocolate and sugar show pieces, and management and interpersonal skills.

CUL 130: Beginning Cake Decorating.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
7 lecture, 23 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to teach students proper preparation and frosting techniques. Students learn the decorating techniques required to produce and design borders, side garlands, message inscriptions, buttercream flowers, and wedding cake construction.

CUL 131: Wedding Cake Design.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
7 lecture, 23 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to teach students the finer techniques of cake decorating. Students learn to cover a cake in rolled fondant, create lace pieces, ruffles, borders, and make beautiful gum paste flowers. Students are encouraged to demonstrate creativity in the production of cakes for competition and decorative show pieces.

CUL 140: Bakery Management and Merchandising.....2 credit hours

Prerequisite(s): 15 program hours
Corequisite(s): CUL 110
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students understand and develop merchandising techniques through analysis of current competitive practices used in bakeries. They prepare bakery products and promotional projects such as newspaper ads, brochures, press releases and the basics of arranging display cases. Proper control of processing frozen dough products, the theory and application of no-time doughs and mixes used in commercial bakeries, and management principles and practices of the industry are covered.

CUL 150: Food Service Management.....6 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 195 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1

Students demonstrate service and supervisory techniques utilized in the operation of the Artist's Gallery, a full-service restaurant. Guest speakers, tours and classroom discussions follow the lab, covering issues of sales, marketing, advertising, financial accounting, responsible beverage service, and human relations principles related to the front of the house management. Students have the opportunity to receive certification for Techniques of Alcohol Management (TAM) and Race for Life (CPR).

CUL 174: CUL Co-op Education I .....1 - 3 credit hours

Prerequisite(s): 30 program hours and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 240 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, culinary arts-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

CUL 210: Gardemanger .....4 credit hours

Prerequisite(s): CUL 111 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students demonstrate classical cold food preparation and buffet presentation techniques. Students progress to more elaborate preparations such as those used in designing catering banquets and mirror displays. Students learn methods related to the preparation of pates and galantines, terrines, ice sculpting, hors d'oeuvres, and buffet salads.

CUL 220: Organization/Management of Food Systems .....3 credit hours

Prerequisite(s): CUL 100
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

A study of the processes of recruitment, selection, training and evaluation, collective bargaining and human relations techniques in personnel management. Theoretical applications are developed and discussed through actual case studies.

CUL 224: Principles of Cost Control .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

Forecasting and cost control exercises are a major part of this course. Students are involved in analyzing all costs related to food, beverage, labor and supplies as well as discussions and exercises related to purchasing, receiving and storage.

CUL 227: Advanced Culinary Techniques .....2 credit hours

Prerequisite(s): CUL 230 and CUL 231
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a culmination of experiences for the advanced student. Focus will be placed on competitive skills in food design, presentation, organization, timing, cooking methods used in hot and cold food competition. Students will demonstrate creativity and design skills in ice sculpting.

CUL 228: Layout and Equipment.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18

This class is designed to give necessary insight involved in developing a floor plan of a restaurant or food service facility. Individual projects make use of information related to surveying, planning and design of both menu and kitchen layout.

CUL 230: Quantity Food Production .....3 credit hours

Prerequisite(s): CUL 111
Corequisite(s): CUL 231
22.5 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

This course builds on basic preparation and production techniques learned in CUL 111, Elementary Food Preparation. Quantity Food Production is designed to provide students with advanced preparation techniques and methods required to produce quality food items in quantity for breakfast, brunches, and luncheon buffets. Students will demonstrate organization, management, and production skills.

CUL 231: A La Carte Kitchen .....3 credit hours

Prerequisite(s): CUL 111 or consent
Corequisite(s): CUL 230
22.5 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

This course is designed to give students the opportunity to advance and refine their skills in quantity cooking, soup, salad, dressings, sauces, entrees, vegetables, and starch production. Food preparations focuses on restaurant "cooked to order" production. Emphasis is placed on timing, organization, portioning, and teamwork.

CUL 250: Principles of Beverage Service.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to teach students techniques in beverage production and service as well as the ability to identify strategies for effective management and marketing of beverage operations. Emphasis will be placed on point of origin, mixology and regulations of beer, wine, and spirits. Comparative tastings are a major component of this course.

Dance DAN

DAN 101: Beginning Modern Dance I .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course introduces dance as a creative art form. Basic movement vocabulary is taught along with body placement, alignment and simple tools for composing dance studies.

DAN 102: Beginning Modern Dance II .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course continues in more depth the use of basic movement vocabulary by applying the technique to more complex dance phrases and is paced faster than DAN 101.

DAN 105: Beginning Jazz Dance I.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This dance form originated in Africa and has evolved through American social and stage dance. The movement is rhythmical, bold, percussive, and expansive. Basic jazz vocabulary is taught along with body alignment. This course helps to improve overall body control, agility, and coordination.

DAN 106: Beginning Jazz Dance II.....1 credit hour

Prerequisite(s): DAN 105 or Consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This is a course designed for students with jazz dance background who want to work on proficiency of jazz movement and stylized dancing.

DAN 107: Beginning Ballet I .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course provides basic ballet movement vocabulary by associating the French ballet terms with the appropriate execution. Balance, body alignment, flexibility, and overall body control can be developed in this course and students learn how to view performance.

DAN 108: Beginning Ballet II .....1 credit hour

Prerequisite(s): DAN 107 or consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course introduces more complex ballet movements and turns. Students who want to improve their proficiency at the barre, centre, and through the space find this course appropriate.

DAN 110: Afro-American Dance I.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

This course introduces the basic movements used in American boogie, jazz, Dixieland, modern and Latin dance. The focus of the class is to identify these movements and relate them to their ancestral African and African/American dance heritage.

DAN 122: Ballroom Dance I.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

Students learn the basics of good social dance so they can feel comfortable in any dance situation. They learn how to lead, follow, and dance the most popular and most useful dances: fox trot, waltz, swing, cha-cha, rumba, polka and hustle. Designed for those with limited or no experience or for those who wish to review the basics.

DAN 123: Dance Exercise I.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Designed for students who are looking for a slower paced dance exercise course, this choreographed program of stretching and simple dance routines set to various types of music, helps trim and recondition the body while providing an excellent starting or re-entry point for a fitness program. Students are encouraged to develop a total fitness program. Discussion of nutrition and the learning of simple relaxation techniques are also a part of this class where no prior dance or exercise experience is required.

DAN 180: Dance Appreciation (The World of Dance).....3 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14

This is an introduction to dance and movement of many of the world's cultures. After learning the socio-cultural relevance of each dance style, students are encouraged to express themselves through basic movement exercises patterned after the culture being studied. Owing to the nature of dance, a high emphasis is placed on video and experiential learning and presentation.

DAN 210: Afro-American Dance II .....1 credit hour

Prerequisite(s): DAN 110 or consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

This class is designed to further students' dance vocabulary using basic African/Afro-American movements employed in the boogie, jazz, hip-hop, modern and Latin dance. Emphasis is on building confidence through the use of movement combinations, traditional African/Afro-American movement, exploring solo creation, and learning at least one Afro-American dance.

DAN 222: Ballroom Dance II .....1 credit hour

Prerequisite(s): DAN 122 or consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

Students perfect the basics of good social dance so they can excel in any dance situation. They learn advanced patterns in fox trot, waltz, swing, cha-cha, rumba, polka and hustle. They are introduced to tango, mambo and samba. It is designed for those who have previous ballroom dance experience.

DAN 223: Dance Exercise II.....1 credit hour

Prerequisite(s): DAN 123 or consent
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for students who are looking for a medium paced dance exercise course. This choreographed program of stretching and simple dance routines, set to various types of music, helps trim and recondition the body while providing an excellent maintenance or re-entry point for a fitness program. Discussion of nutrition and the learning of simple relaxation techniques are also a part of this class. No prior dance exercise is required, though a moderate level of fitness is suggested.

Dental Assisting DEN

DEN 039: Dental Assistant Review .....1 credit hour
Prerequisite(s): Dental Assistant Graduate or Assistant
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the opportunity for a prospective candidate for a dental assistant credentialing exam to review course materials; gain knowledge about test taking; take a simulated exam; and examine areas of need prior to taking a credentialing exam.

DEN 102: Infection Control .....1 credit hour
Prerequisite(s): none
Corequisite(s): none
7 lecture, 17 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a study of microbiology, types of diseases and their transmission, and the application of OSHA guidelines to dentistry. Students gain practical experience in the operation of all disinfectant and sterilization equipment and techniques. This course aids students in the preparation for the Dental Assistant National Board examination in Infection Control.

DEN 106: Biomedical Science for Dental Assistants .....2 credit hours
Prerequisite(s): Admission to program or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course covers the formation and eruption of the teeth, the nervous system, the trigeminal nerve and the types and uses of local and general anesthesia.

DEN 107: Oral Anatomy.....2 credit hours
Prerequisite(s): Admission to program or consent
Corequisite(s): none
36 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

This is an introductory course in head and neck anatomy. It covers skull and facial bones, masticatory muscles, oral anatomy-hard and soft tissues, anatomical nomenclature, tooth development and morphology, tooth surface annotation, cavity classification, occlusion and malocclusion.

DEN 108: Dental Radiography .....1 credit hour
Prerequisite(s): DEN 102 or DANB ICE exam, admission to program or consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 18

The principles, techniques, safety precautions, and operation of various types of radiographic film and equipment are studied.

DEN 109: Oral Hygiene.....1 credit hour
Prerequisite(s): Admission to program or consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course is designed to give dental assisting students a basic awareness of preventive dentistry. The etiology, prevention, and control of dental caries, and oral hygiene instruction are emphasized.

DEN 110: Basic Clinical Dental Assisting.....4 credit hours
Prerequisite(s): Admission to program
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is an orientation to dental assisting. It provides an overview of the history of dentistry and dental assisting, and the role of the modern dental health team. Students are introduced to the dental treatment room equipment and basic procedures used in the application of the concepts of four-handed dentistry.

DEN 112: Dental Materials .....4 credit hours
Prerequisite(s): Admission to program
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to give dental assisting students theoretical knowledge of the uses and properties (chemical and physical) of the most commonly used dental materials. Students will gain laboratory and clinical experience in the manipulation, practical application, and safe use of common dental materials in accordance with OSHA guidelines.

DEN 116: Four-Handed Dentistry: An Ergonomic Concept .....0.5 credit hours
Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is an overview of the concepts of four-handed dentistry. Dental team members gain experience in applying the principles of motion economy and ergonomics as applied to all aspects of the modern dental practice. Students are introduced to the criteria for equipment selection and the application of OSHA guidelines used in four-handed dentistry.

DEN 119: Dental Nutrition.....1 credit hour
Prerequisite(s): Admission to program or consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course is designed to give dental assisting students a basic awareness of nutrition in dentistry. The etiology, prevention, and control of dental caries through nutrition and diet analysis are emphasized.

DEN 120: Oral Diagnosis Theory .....1 credit hour
Prerequisite(s): DEN 102, DEN 106
Corequisite(s): none
8 lecture, 24 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This theoretical course provides students with the knowledge and techniques used to obtain diagnostic data and the methods of recording this data. Students gain practical experience in common charting techniques and record management in different specialty areas of dentistry.

DEN 128: Dental Radiography Practicum .....1 credit hour

Prerequisite(s): DEN 108
Corequisite(s): none
0 lecture, 22.5 lab, 45 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

Using mannequins and patients in the WCC Dental Clinic, students gain experience in making radiographic exposures and practicing radiation safety and infection control techniques. Students demonstrate processing techniques, maintain records, and mount, label and evaluate radiographic films for quality assurance.

DEN 129: Oral Pathology and Dental Therapeutics.....2 credit hours

Prerequisite(s) DEN 104, DEN 106, 2.0 GPA
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course is a study of diseases of teeth and supporting structures, oral pathology, and systemic diseases and their relationship to dental health. Dental assistant students gain experience in critical evaluation of a patient's health status and apply the essential skills needed to assist in common dental/medical emergencies. Various drugs and their effect on medical/dental care also are studied.

DEN 130A: Oral Diagnosis/Clinical Practicum.....0.5 credit hours

Prerequisite(s) : DEN 102, 106,107, 108, 110, 112, HSC 131A or CPR card
Corequisite(s): none
0 lecture, 0 lab, 60 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course provides students with actual clinical application of all previous knowledge as they gain clinical experience in the WCC Dental Clinic. Students have the opportunity to assist during basic preventive and operative procedures, monitor and record vital signs, apply OSHA guidelines, sterilize instruments, and manage records.

DEN 130B: Oral Diagnosis/Clinical Practicum .....0.5 credit hours

Prerequisite(s): DEN 120, DEN 130A, 2.0 GPA
Corequisite(s): none
0 lecture, 0 lab, 60 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course provides students with actual clinical application of all previous knowledge as they gain clinical experience in clinics such as the U of M Dental School. Students have the opportunity to assist during basic preventive and operative procedures, monitor and record vital signs, apply OSHA guidelines, sterilize instruments, and manage records.

DEN 131: Principles of Dental Specialties ...4 credit hours

Prerequisite(s): DEN 110
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

This course provides a study of advanced clinical procedures used in dental specialties. Latest concepts in each specialty are presented by dental specialists from the community.

DEN 202: Advanced Clinical Practice .....3 credit hours

Prerequisite(s): DEN 119, 120, 128, 129, 130A, 130B, 131, 2.0 GPA in Dental Courses
Corequisite(s): none
0 lecture, 0 lab, 280 clinical, 0 practicum hours
Fulfills Core Elements: none

Students actively participate in a variety of clinical settings. The course is structured according to students' area of interest and geographic access in dentistry. Students become acquainted with a number of office routines, procedures, equipment and patient and staff relationships.

DEN 204: Advanced Functions.....3 credit hours

Prerequisite(s): 2.0 in DEN or DANB exam or job verification
Corequisite(s): DEN 202 or full time employment
30 lecture, 30 lab, 45 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to provide dental assisting students with knowledge and skill in performing intra-oral functions identified in the ADA Composite Handout. In Michigan, the legal duties of the Registered Dental Assistant are outlined in the rules of the Michigan State Board of Dentistry, Rule #330. A student enrolled in this course must have a CPR card current for the semester enrolled.

DEN 212: Dental Practice Management .....4 credit hours

Prerequisite(s): BOS 101 or equivalent
Corequisite(s): none
52.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11

This course is an introduction to the dental business office. It is the study of systems of management used in dentistry, interpersonal communications (written and verbal), basic concepts of third party payment, machines and computer utilization. Students gain actual computer experience in word processing, database, and spreadsheet programs. Students develop skills in interviewing and writing letters of application and a resume.

DEN 230: Alternative Dental Assisting Education Project.....9 credit hours

Prerequisite(s): Completion of the Dental Assisting Board Exam
Corequisite(s): Full Time employment in a dental office
30 lecture, 16 lab, 600 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed specifically for the on-the-job trained dental assistant who has been admitted to the Dental Assisting Program with advanced standing after successfully passing the Dental Assistant National Board Examination. In this course the dental assistant will demonstrate hands on skills that can not be tested in a written examination. The student will validate clinical, laboratory, radiographic, and business office skills in the office of employment.

Digital Prepress DPP

DPP 111: Digital Prepress I .....4 credit hours

Prerequisite(s): GDT 142, GDT 126
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18

This course introduces students to digital prepress. An overview of the offset printing process is covered with an emphasis on preparation of digital publication files for output. Included are units on file preflight using FlightCheck(r), computer graphics terminology, digital fonts, raster and vector graphics and imposition.

DPP 117: Printing Essentials for Digital Prepress .....4 credit hours

Prerequisite(s): GDT 105 or Basic Macintosh proficiency
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18

This course is an introduction to printing processes stressing digital printing and modern offset lithography. Lectures and hands-on experiences include terminology, planning, estimating, processes, equipment, materials and applications for graphic communications from prepress through bindery operations.

DPP 122: Digital Prepress II.....4 credit hours

Prerequisite(s): DPP 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18, 19

This course provides continuing skills development in digital prepress, focusing on digital color for print reproduction. Included are units on color modes, adjusting color, printing inks, trapping, and producing color separations. Students should be familiar with QuarkXpress(tm), Adobe Illustrator(tm), Adobe PageMaker(tm), and Adobe PhotoShop(tm).

DPP 134: Planning, Binding and Finishing .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18, 19

This course examines the prepress planning of printed material, with an emphasis on imposition, cutting, folding and assembly as it relates to all binding and finishing operations. Topics include: saddle, perfect and case binding, embossing, foil stamping, die cutting and coating, material handling and mailing. Students make a hand bound perfect and a hand bound case book in the lab.

Drama DRA

DRA 152: Acting for the Theatre I.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 9, 13

This class is an introduction to acting through improvisation and the presentation of poetry, original text, monologues and scenes. Basic acting techniques, including voice projection, staging, character development and emotional expression are covered. Various additional theatrical workshops are made available to the student. This course will appeal to anyone interested in developing their acting, presentation and/or communication skills. All skill levels are welcome.

DRA 153: Acting for the Theatre II.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 9, 13

This course is a continuation of DRA 152, focusing on the further study and practice of acting techniques, including the presentation of poetry, spoken work, monologues, scenes, original work and oral history in performance. Various additional theatrical workshops are made available to the student.

DRA 160: Movement for Actors.....3 credit hours

Prerequisite(s): DRA 152, DAN 101, DAN 102
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces and familiarizes students with basic stage movement and techniques to increase movement vocabulary.

DRA 167: Theatre Production .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

This is a course in which, through supervised participation in the faculty-directed theatre productions, students gain practical experience in one or more phases of the theatrical arts, including stage managing, lighting, makeup, scenery, publicity, costuming, house managing, and properties. Specific duties are arranged with the instructor/director.

DRA 170: Stratford Theatre Festival.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, lab, clinical, practicum hours
Fulfills Core Elements: 13, 14

Students will travel to Stratford, Ontario to attend plays presented at the Stratford Theatre Festival. The course will appeal to those with an interest in many aspects of theatrical performance, including acting, directing, design, production, and literature. A back-stage tour of the facilities will be included. There will be additional expenses for travel.

Economics ECO

ECO 120: The Making of Economic Society .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 20, 21, 23, 24

This course examines the social, political, historical, and technological factors that shape the development of the economy. The course emphasizes basic economic ideas rather than technical analysis and theory.

ECO 211: Principles of Economics I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 10, 21, 23, 24

This is the first half of basic principles of economics. Emphasis is on macroeconomic concepts of national income, fiscal and monetary policy and problems of unemployment, inflation and economic growth. This course is required of all Business Administration transfer students. This course is also taught as a telecourse using the program series "Economics U$A."

ECO 222: Principles of Economics II .....3 credit hours

Prerequisite(s): ECO 211 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 10, 21, 23, 24

This is the second half of Principles of Economics 211. Emphasis is on microeconomic concepts of demand, supply and problems relating to prices and resource allocation. This course is also taught as a telecourse using the program series "Economics U$A."

ECO 280: International Economics.....3 credit hours

Prerequisite(s): ECO 211
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 21, 23, 24

This is a course in international trade and finance covering topics such as tariffs and quotas, trade agreements, exchange rates, and international finance institutions such as the IMF and World Bank. It is designed primarily for transfer students and those interested in pursuing international business.

Electrical Engineering Tech. EET

EET 100: DC Circuit Analysis and Measurements.....3 credit hours

Prerequisite(s): 4 years high school English, high school algebra and high school trigonometry
Corequisite(s): MTH 179
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 18

This is an introductory course in DC circuit design and analysis. The major topics in this course are: branch, nodal and mesh analysis, Thevenin, Norton and other network theorems, and electrical measurements. Other topics include laboratory data collection and interpretation, and report writing.

EET 110: Digital Electronics Design I .....3 credit hours

Prerequisite(s): EET 100
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 11

This is the first course in a two course sequence in digital circuit design. The major emphasis is on computer solutions using standard circuit design packages. Topics include combinatorial and sequential circuit design, digital circuits and logic families, and the design process. Other topics include programming, hardware design using PLDs, and an introduction to an eight bit microprocessor.

EET 200: AC Circuit Analysis.....3 credit hours

Prerequisite(s): EET 100
Corequisite(s): MTH 286
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9, 11, 18

This is a continuation of the study of electric circuits, emphasizing AC circuit analysis and design. Topics include: sinusoidal waveforms, phasors, impedance, phase relationships, behavior of R, L and C components, mesh and nodal analysis, network theorems, power, resonance, frequency response, polyphase systems, transformers, and an introduction to transform methods. Test equipment and computer simulation software are used to confirm analysis.

EET 201: Linear Electronics I .....3 credit hours

Prerequisite(s): EET 100, MTH 178, MTH 179, MTH 186, PHY 111
Corequisite(s): EET 200, PHY 122
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 4, 5, 7, 8, 9, 11, 18

This course is the first of a two-course sequence in basic electronics. There is a major emphasis on computer solutions to problems with standard software packages. Topics include diodes, transistors and biasing, small signal and power amplifiers, power supply regulation, and filtering.

EET 211: Digital Electronics Design II.....3 credit hours

Prerequisite(s): EET 110
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 19

This course is the second of a two-course sequence in digital circuit design. There is a major emphasis on computer solutions to problems with standard software packages. Topics include basic programming and hardware design using a microprocessor to interface with sensors and instrumentation, and data acquisition using the PC platform.

EET 221: Linear Electronics II .....3 credit hours

Prerequisite(s): EET 201
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is the second in a two-course sequence in electronics. There is a major emphasis on computer solutions to problems with standard software packages. Topics include differential amplifiers, the op-amp, op-amp amplifiers, feedback and control theory, summing and instrumentation amplifiers, active filters, and phase-locked loops. The design of standard circuits is emphasized.

EET 230: Motors and Controls .....3 credit hours

Prerequisite(s): EET 200, EET 201 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a course on the theory and operation of DC and AC motors. Topics include series, shunt, and compound DC generators and motors, three-phase alternators, induction motors, synchronous motors; standard control circuits used to control speed, reversing, starting, and braking.

EET 231: Electronic Communications .....3 credit hours

Prerequisite(s): EET 201
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course an overview of communications components, circuits, and systems is presented. Topics include communications systems, information theory, noise, oscillators, passive filters, RF amplifiers, modulation, transmission lines, and antennas. The selection and compatibility of systems is emphasized with basic circuit design using standard computer software packages.

Electricity/ Electronics ELE

ELE 040: Residential Wiring.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a practical hands-on course that has been designed to help students better understand wiring techniques and safety considerations for dealing with a residential wiring system. A great deal of "hands on" time is offered and is devoted to working with the wiring materials and constructing circuits of the type found in the home. Typical of the kinds of circuits that are discussed and wired by the student are: duplex outlet circuits, dimmer circuits, three and four-way switch circuits, CGI circuits, lawn and garden lighting circuits, electrical dryer and electric stove circuits. Grading is by the satisfactory/unsatisfactory system.

ELE 095: Electrical Blueprint Reading .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18

This is an introductory level course in reading basic electronic/electrical manufacturing drawings to determine if the hardware complies with the engineering design requirements. Students learn to identify the basic graphical symbols used in electrical/electronic manufacturing drawings. The basic types of technical information contained in each category of manufacturing is studied.

ELE 104: Electronic Soldering.....1 credit hour
Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18

Upon satisfactory completion of this course, students posses the knowledge and skills necessary for entry-level employment as bench soldering technicians. Students learn about the different solder alloys and their fluid temperatures, how to control heat and the flow of molten solder, and the proper procedures for removing and replacing common electronic components.

ELE 105: Introduction to Telecommunications .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 10, 18, 19, 20

This is an introductory level course designed to expose the entering student to the concepts, equipment, and terminology used in the telecommunication industry. Topics include: basic telephony, transmission systems, satellite communications, fiber optics, switching systems, data communications, local area networks, and telecommunications management.

ELE 111: Electrical Fundamentals .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 17, 20

A basic electricity course that includes both DC and AC circuits. The course has been designed for those students who need an understanding of electrical principles and applications but do not need the theoretical or mathematical depth required for circuit design. Lab exercises deal with many of the practical applications of electricity along with learning to use test equipment for the purpose of circuit diagnosis and troubleshooting.

ELE 118: MS DOS for Technicians.....2 credit hours
Prerequisite(s): CIS 117 or equivalent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course introduces students to the use of MSDOS commands and utilities used in the installation and maintenance of computer hardware and networks. Through hands-on experiences, students will examine DOS command syntax and respond to DOS error messages. Students will learn efficient techniques for managing disk drives, files, and directory structures. In addition, students will create and use batch files to automate routine configuration and maintenance tasks.

ELE 134: Motors and Controls .....4 credit hours
Prerequisite(s): ELE 111 or ELE 123A
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 18, 19

Topics include DC motors and generators, alternators, AC motors and typical controls for DC and AC motors. This is a hands-on course with heavy emphasis on laboratory exercises.

ELE 137: Switching Logic .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 15

This is a beginning course in digital switching logic. Students learn the devices and circuits used to build computers and other digital control equipment. Lecture topics include data codes, digital logic gates and circuits, ladder logic diagrams, and the use of programmable logic controllers (PLCs). Laboratory topics stress breadboarding logic circuits and programming logic circuits using PLCs.

ELE 139A: Microprocessors A.....2 credit hours
Prerequisite(s): ELE 137
Corequisite(s): ELE 140
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 7, 9, 18, 19

This course is an introduction to the makeup of a microprocessor-based computer system. The major functional elements of a microprocessor system and their relationship to each other are examined. Topics include data coding, data storage, microprocessor architecture, input/output devices and machine language programming. The laboratory exercises provide experience with microprocessor hardware and machine language programming.

ELE 140: Software Concepts .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 12, 18

Students use standard software design techniques to develop and code algorithms for the solution of electrical and electronics problems, thus gaining a useful tool for problem solution while learning software fundamentals such as understanding the difference between syntax and semantics, refinement of algorithms into working solutions, executing programs on a computer system, correct use of appropriate subsets of a language, development of consistent test cases and preparation of understandable documentation.

ELE 150: PC Hardware Concepts and Troubleshooting .....4 credit hours

Prerequisite(s): CIS 116, CIS 117 or equivalent WINDOWS experience
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 10, 11, 18, 19

This course is designed for the beginning user and those without a technical background. Through hands-on experiences, students examine the internal hardware components of IBM compatible computers with an emphasis on troubleshooting and repair. Topics covered include what the DOS operating system does and how it works with the computer hardware to run application programs. Students explore how to upgrade and optimize your computer and how to solve typical hardware and software problems using time saving and cost-effective techniques. Students in the Computer Systems Technology certificate program must take CIS 118: DOS for Technicians, either before or concurrently with ELE 150.

ELE 155: Advanced Computer Concepts and Troubleshooting .....4 credit hours

Prerequisite(s): ELE 150 or equivalent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 18, 19

This course builds on students' knowledge of computer troubleshooting and takes you through more advanced problems and how to solve them. Through hands-on experiences, students will improve their understanding of and develop specific skills for solving the tough stuff—dead PCs, memory errors, interrupt conflicts, and paralyzed hard drives—to name a few. In addition, you will learn advanced techniques for configuring and troubleshooting the Microsoft Windows operating system.

ELE 174: ELE Co-op Education I .....1 - 3 credit hours

Prerequisite(s): ELE 111, ELE 137, ELE 140, consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course the student gains skills from a new experience in an approved, compensated, electronics related position. Together with the instructor and employer, the student sets up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ELE 204: National Electrical Code .....4 credit hours

Prerequisite(s): ELE 111
Corequisite(s): none
75 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course covers the use of the National Electrical Code as a tool to plan the safe installation of electrical equipment in residential, commercial, and industrial locations. Students calculate required numbers of branch circuits; select sizes of conductors, raceways, fuses, circuit breakers, and boxes; and plan motor circuits, services, and feeders. Other topics include: cardio-pulmonary resuscitation and other safety issues, grounding, GFCI, kitchen circuits, motor controls, local codes, and code changes. Recommended for industrial controls students and those interested in becoming licensed journeypersons or master electricians.

ELE 205: Basic Telephony .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 18, 19

This course covers the theory, maintenance, and installation of telephone systems. Topics include state of the art telephone system technology, basic electromechanical and electronic key systems with emphasis placed on voice systems. Laboratory experiments involve measurements, troubleshooting, transmission line noise analysis, and switching concepts.

ELE 209: Operational Amplifiers.....2 credit hours

Prerequisite(s): ELE 111 or ELE 123B
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course is a lecture and laboratory course covering operational amplifier circuits, active filters, and regulators. Circuits are constructed and tested in the laboratory. Students also learn how to service equipment containing these circuits.

ELE 211: Basic Electronics .....4 credit hours

Prerequisite(s): ELE 111 or ELE 123B
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

Basic Electronics is a beginning lecture and laboratory course covering solid state devices. It includes the theory and application of diodes, and both bipolar and field effect transistors. These devices are tested and then circuits using them are constructed and tested in the laboratory using common laboratory equipment.

ELE 216A: Modem Hardware Installation, Configuration and Troubleshooting .....2 credit hours

Prerequisite(s): ELE 150
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11, 18

This course is designed for the beginning user and for those without a technical background. It provides the basic knowledge and skills required to install and operate modem hardware for PCs. Lecture and laboratory topics include the installation, configuration and troubleshooting of modem hardware and software for PCs. Also covered are various communications standards and protocols and PC hardware interfacing to the Internet and bulletin boards and file transfers using modems.

ELE 216B: Data Communications Hardware Standards, Configuration and Troubleshooting .....2 credit hours

Prerequisite(s): ELE 216A
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18

This course provides the basic knowledge and skills required to install and use data communications equipment, and to operate test equipment and interpret the results. Lecture and lab topics include data communications protocols and standards, data compression, error detection and correction and data communications theory.

ELE 220: Modems, Peripherals and Introduction to Networking.....4 credit hours

Prerequisite(s): ELE 150 and ELE 155
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a lecture and laboratory course in the basic knowledge and skills required to install, troubleshoot and operate modems, printers and network hardware for PC's. Topics include an introduction to the theory and practical aspects of Local Area Networks and the installation, configuration and troubleshooting of modems, printers and network hardware for PC's. Also covered are various standards, network architectures and protocols.

ELE 224: Introduction to PLC's.....4 credit hours

Prerequisite(s): ELE 137 or consent
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18, 19

This is a beginning course in programmable logic controllers (PLCs). The course introduces students to the Allen Bradley PLC-5, the SLC-500. Topics include standard relay-type instructions, timers, counters, sequencers, move instructions, and arithmetic operations. This is a hands-on course intended for students in the electronics controls and robotics programs. It is also for electricians, technicians, and engineers who wish to upgrade their skills.

ELE 225A: Network Installation and Troubleshooting .....2 credit hours

Prerequisite(s): ELE 150
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18

This is a lecture and laboratory course in the theory and practical aspects of Local Area Networks. Major lecture discussions are directed toward network architectures, hardware, operating systems, installation and troubleshooting.

ELE 225B: Advanced Networking Concepts.....2 credit hours

Prerequisite(s): ELE 225A
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18, 19

This is a lecture and laboratory course in the theory and practical aspects of advanced networking systems. Major lecture discussions are directed toward telephone system performance requirements, transmission of data, digital modulation and network protocols, multiplexers and internetworking techniques.

ELE 230: Computer System Fundamentals ...4 credit hours

Prerequisite(s): ELE 140, ELE 150
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 12, 18, 19

This course provides the basic knowledge and skills required to operate and perform corrective maintenance on modern, 32-bit micro and minicomputer systems. The uses of operational theory, system block diagrams, and diagnostics as aids in troubleshooting are emphasized. Computer operating system concepts and the use of a system's command language as a hardware maintenance tool are introduced.

ELE 235: Computer System Troubleshooting .....4 credit hours

Prerequisite(s): ELE 230
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 12, 18, 19

This course is a continuation of ELE 230. Students develop an integrated knowledge of computer hardware and software concepts with an emphasis on the installation, operation, and maintenance of peripheral controllers and devices (terminals, printers, disk and tape drives). Local Area Network (LAN) concepts and fault isolation tools are introduced.

ELE 240: Career Practices Seminar.....2 credit hours

Prerequisite(s): ENG 107 or ENG 111
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course studies career options in the computer and electronics industry. Students learn how to develop a career plan, prepare a job hunting plan and a successful resume. Salary negotiations, interviewing for the job and how to succeed on the job are other topics discussed.

ELE 244: Motion Control .....4 credit hours

Prerequisite(s): ELE 140, ELE 224 or consent
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 19

This course features the Allen Bradley IMC 120. Topics include programming and applications for multi-axis digital control systems. This course is intended for Electronics Technology Program students, technicians, electricians, and engineers who wish to upgrade their skills.

ELE 245: Transmission Systems .....4 credit hours

Prerequisite(s): ELE 216A, ELE 216B
Corequisite(s): none
60 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

This course studies the principles of digital and analog transmission systems. Topics covered are transmission codes, conventions, and hierarchy. Specific subjects include the T-1 system, Time Division Multiplexing, Frequency division Multiplexing, multiplexer interfacing and system maintenance.

ELE 250: Microprocessor Interfacing .....4 credit hours

Prerequisite(s): ELE 137, ELE 140 or CPS 171
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 10, 11, 18, 19

This is an advanced level course covering theory, hardware, software and applications of microprocessors. Topics include interfacing with sensors and actuators to control position, velocity, acceleration, temperature, flow rate and pressure. Laboratory exercises provide experience in analyzing and troubleshooting modern microprocessor-based control circuits.

ELE 254: PLC Applications.....4 credit hours

Prerequisite(s): ELE 224 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is an advanced course which features the Allen Bradley PLC 5/15 and the Modicon M-984. Topics include program control instructions, analog I/0, and PID process controls. This course is intended for ECS students and technicians, and industrial electricians and engineers who need to upgrade their skills in the area of PLC applications.

ELE 274: ELE Co-op Education II .....1 - 3 credit hours

Prerequisite(s): ELE 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

ELE 275: Switching Systems .....4 credit hours

Prerequisite or Corequisite: ELE 205
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 9, 11, 19

The theory, operation and maintenance of analog and digital telephone switches is studied. Topics include switch programming, diagnostic procedures, and system trouble shooting. Customer-owned switching systems are emphasized.

ELE 275A: Switching Systems (A) .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The theory, operation and maintenance of analog and digital switches is studied. Topics include switch programming, diagnostic procedures, system trouble shooting. Customer-owned switching systems are emphasized.

ELE 299: Customer Relations.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
21 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

Students enhance their interpersonal skills through the techniques gained in this course. Developing insight using demonstrations, video tape, role playing, and interaction, the student is guided in a curriculum that builds a value-added attitude for customer service personnel. Skills learned include controlling one's emotions in difficult situations and increasing customer satisfaction.

English ENG

ENG 010: Writing Practicum.....1 credit hour

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides individualized instruction. Students may be referred to this course by their instructor to remove a specific deficiency in their writing. Students may enroll in this course to improve writing or receive help in completing writing assignments for English classes or other courses requiring writing. Grading is by the satisfactory/unsatisfactory system.

ENG 020: English as a Second Language I.....8 credit hours

Prerequisite(s): Oral Interview
Corequisite(s): none
120 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed for students who do not speak or understand spoken or written English. This course teaches survival language necessary for minimum functioning in the community. Grading is by the satisfactory/unsatisfactory system.

ENG 021: English as a Second Language II .....8 credit hours

Prerequisite(s): ENG 020 or oral interview
Corequisite(s): none
120 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed for students who have had some exposure to and/or instruction in English. The course emphasizes survival language. Grading uses the satisfactory/unsatisfactory system.

ENG 022: English as a Second Language III .....8 credit hours

Prerequisite(s): ENG 021 or placement test
Corequisite(s): none
120 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed as a continuation of ENG 021 and is for students who have had some exposure to and/or instruction in English. This course goes beyond minimal survival English toward communication for daily living. Grading is by the satisfactory/unsatisfactory system.

ENG 030: Intermediate ESL Grammar.....3 credit hours

Prerequisite(s): EPT 60 or placement by ESL faculty
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This intermediate level class expands students' knowledge of English grammar and vocabulary and their ability to understand and use spoken and written English. Special attention is given to the appropriate use of the forms studied.

ENG 031: English as a Second Language V.....3 credit hours

Prerequisite(s): ENG 030 or placement test
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This high intermediate/low advanced grammar course includes more complex structures of English, including reduced clauses, word order reversal, and complex verb phrases. Appropriate use of the forms continues to be emphasized. Grading is by the satisfactory/unsatisfactory system. On the recommendation of the instructor, this course may be completed in two semesters as English 031A and English 031B.

ENG 035: English Pronunciation and Conversation.....3 credit hours

Prerequisite(s): ENG 022 or English Placement Test score over 40
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This intermediate pronunciation and conversation class is for learners of English as a second language. Students practice using English to agree, disagree, invite, and compare. Grammar and vocabulary are reviewed as they relate to the conversations. Some outside reading is required. Grading is by the satisfactory/unsatisfactory system.

ENG 037: Intermediate ESL Writing.....4 credit hours

Prerequisite(s): EPT 45 or placement by ESL faculty
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed to help students internalize both the grammar and vocabulary that they have been studying by using it to produce well-formed sentences and paragraphs. Writing as communication is emphasized.

ENG 050: Basic Writing I.....4 credit hours

Prerequisite(s): none
Corequisite(s): ENG 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is the first course for inexperienced writers. It helps students to gain confidence writing formal English sentences and paragraphs. It is strongly recommended that students enroll in ACS 045 before or at the same time as this course. Grading is by the satisfactory/unsatisfactory system.

ENG 051: Basic Writing II.....4 credit hours

Prerequisite(s): none
Corequisite(s): ENG 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a continuation of English 050. It meets along with an ENG 050 class but has more advanced writing lab assignments. Grading uses the satisfactory/unsatisfactory systems.

ENG 060: Advanced ESL Grammar.....3 credit hours

Prerequisite(s): English Placement Test or placement by ESL faculty
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is a continuation of ENG 030. More sophisticated forms are studied, including SV inversion, reduced clauses, and complex verb phrases. Special attention is given to the appropriate use of the forms studied. This class uses the pass/no pass grading system.

ENG 063: Advanced ESL Written Communication.....8 credit hours

Prerequisite(s): ENG 060 or placement by ESL faculty
Corequisite(s): none
105 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This advanced reading/writing course is designed to prepare students for academic study. Reading strategies and vocabulary development enable students to read authentic texts and to use the information as a springboard to their own writing. English rhetorical structure and the writing process are introduced.

ENG 065: Advanced ESL Speaking and Listening.....3 credit hours

Prerequisite(s): English Placement Test score of 60 or placement by ESL faculty
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class is designed to prepare students for active participation in college classes. Understanding lectures, taking notes in class, and participating in class discussion are covered.

ENG 085: Review of English Grammar.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course reviews basic English grammar. It helps students to write sentences more precisely and effectively as well as to understand the principles of our grammatical system. This is not an appropriate course for ESL students. It may be taken prior to or in conjunction with any writing course or a foreign language.

ENG 091: Writing Fundamentals.....4 credit hours

Prerequisite(s): ENG 051
Corequisite(s): ENG 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7

This course focuses on strengthening the writing skills required of a worker, citizen, or college student. The emphasis in on developing and organizing ideas in long paragraphs and short essays in preparation for college-level writing courses.

ENG 100: Communication Skills .....4 credit hours

Prerequisite(s): none
Corequisite(s): ENG 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3, 7, 8, 9, 10

Students receive practice in a variety of writing assignments relevant to their program area. Assignments include letter writing for a variety of situations (e.g., job application, complaint, commendation, courtesy), memos written in response to situations students are likely to encounter on the job, resumes fitted to the student's particular background (work and educational experience), and other writing forms. During the first week of class, students must demonstrate a writing proficiency at the ENG 091 level. Students must select a writing lab section with this course.

ENG 101: Journalism I .....3 credit hours

Prerequisite(s): ENG 091 or higher
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 8, 10

This course is an introduction to understanding the demands and effects of journalism in both the electronic and print media. Techniques of finding, writing and presenting both news and feature stories are emphasized. Students are expected to find and write various types of stories.

ENG 104: Special Topics Seminar for ESL Students.....1 credit hour

Prerequisite(s): none
Corequisite(s): ENG 105
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The content of this class will vary from semester to semester. Students may choose among topics such as using articles in English, understanding regional dialects, TOEFL preparation, vocabulary development, and understanding word families.

ENG 105: Bridge ESL Written Communication.....8 credit hours

Prerequisite(s): TOEFL score of 500 or placement by ESL faculty
Corequisite(s): ENG 104
105 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a bridge between ESL classes and college level classes. College level texts and video from both sciences and humanities are used as a springboard for discussion and writing. The emphasis is on fluency at the college level.

ENG 107: Technical Communications .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 8, 9, 10

This course will emphasize the principles of effective communication of technical subjects. Assignments include technical description, graphic communication, and instruction writing. During the first week of class, students must demonstrate a writing proficiency at the ENG 091 level. This course is intended primarily for native speakers of English.

ENG 111: Composition I .....4 credit hours

Prerequisite(s): none
Corequisite(s): ENG 000
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 8, 9, 10

This course focuses on developing skills in critical reading, logical thinking, and written composition (from paragraphs to expository essays and documented papers). Reading materials serve as a basis for papers and class-room discussions. Students write both in-class and outside themes frequently. Methods of organization and development are emphasized. During the first week of class, students must demonstrate a writing proficiency at the college level.

ENG 122: Composition II .....3 credit hours

Prerequisite(s): ENG 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 8, 9, 10

This course is a continuation of ENG 111 and further develops critical reading and logical thinking skills. Students will write argumentative essays using a variety of formats. The research paper is emphasized.

ENG 140: Horror and Science Fiction.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 13, 14

This course is a study of science fiction and horror in literature with emphasis on literary, historical, psychological, and social relevance. Short stories, novels, films, and/or nonfiction related to both genres are analyzed and discussed. Specially designated sections may focus on horror, science fiction, subgenres, or major authors.

ENG 160: Introduction to Literature: Poetry and Drama .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 13, 14

This course is designed to give an understanding of literature through writing assignments, close reading and discussion of selected works of poetry and drama. Students are encouraged to evolve criteria for assessing the value of literary works.

ENG 170: Introduction to Literature: Short Story and Novel .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 8, 13, 14

Students explore short stories and the novel as they provide blueprints for living, self-discovery and recreation. Each student is helped in strengthening reading and writing skills. Readings and discussion consider the cultural relevance of writings, the structural design, and the effect upon the reader. Students are encouraged to evolve criteria for assessing the value of literary works. Special, designated sections of ENG 170 emphasize popular literature, mystery, westerns or images of women in literature.

ENG 181: African American Literature .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 8, 13, 14

This course provides a critical analysis of the African-American experience in the world of literature through reading, class discussion and writing assignments. It is an introduction to contemporary African-American literature, letters and thought, as well as a survey of the great works of Afro-American fiction.

ENG 183: Special Topics in African American Literature .....3 credit hours

Prerequisite(s): ENG 181
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the opportunity for students to continue their study of African American Literature through a more focused study of a specific author, genre or topic. Individual research and writing are emphasized. See time schedule note for the focus of each section.

ENG 185: Grammar and Usage .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

In this course, students formalize their knowledge of the structure of English. They learn to respect the internal grammar of native speakers and to separate the issues of grammar and usage. Students examine some of the complex problems faced by speakers of English.

ENG 199: Scientific/Technical Communication Internship .....Variable credit

Prerequisite(s): ENG 100, ENG 107, ENG 108 or Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: 3, 7, 20

In this course, the student integrates theory and practice by working in an area of professional interest in the technical communication field under the dual supervision of a professional technical communicator and instructor of Scientific and Technical Communication. Students spend 3-18 hours per week in a work setting and one hour per week in conference with the instructor. Note: The college cannot guarantee an internship, since the employer provides the assignment.

ENG 200: Shakespeare .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3, 7, 8, 13, 14

This course provides introductory reading and discussion of the varieties of Shakespeare's plays: comedy, history, tragedy and dramatic romance. All periods of Shakespeare's work are represented. Wherever possible, the opportunity to view performances, either live or on film, is made available.

ENG 208: Advanced Technical Communications .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3, 9, 11

This course consists of 15 classroom hours of instruction in each of the following modules: research/interview techniques: editing and proofreading; and introduction to software documentation. Students can sign up for one to three credits and receive one credit for each module satisfactorily completed. Students can work on different modules in different semesters.

ENG 209: Award Winning Documents-Technical Writing II.....3 credit hours

Prerequisite(s): ENG 208
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 9, 11

This course focuses on putting the components of good manuals into complete documents. It concentrates on perfecting presentations and format, determining the different types of documentation needed, performing in-depth audience analyses, developing sequencing techniques, creating task-oriented documents, testing document outlines, and evaluating completed projects. Students can add four documents with camera-ready text to their portfolios. Documents may include video scripts, manuals, pamphlets, brochures or computer-aided instruction screen flows.

ENG 211: American Literature I.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 8, 13, 14, 22

The nation's literature from its beginnings to the Civil War are discussed, stressing the major authors of the period. The course relates trends of the period to contemporary problems and readings.

ENG 212: English Literature I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 13, 14

The course studies English literature from its origins through the 18th Century. Readings stress the major works and authorsfrom Beowulf to Swift.

ENG 213: World Literature I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 8, 13, 14

World Literature 213 and 224 is a sequence that attempts an approach to the eternal values of man through literary masterpieces written from the time of ancient Greece to the present.

ENG 214: Literature of the Non-Western World .....3 credit hours

Prerequisite(s): ENG 160 or ENG 170
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 13, 14, 24

This course is a survey of major world literature outside the body of traditional Western European and American literature usually studied in college classes. Typically, the course covers selections from African, Asian, Near Eastern, and Latin American Literature. This course includes an introduction to each culture and explore how the literature reflects that culture.

ENG 222: American Literature II.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 8, 13, 14, 22

This course is the second half of a two-semester sequence (see ENG 211). It covers the period from the Civil War to the present and relates trends of the period to problems and writings occurring after the Civil War. Major fiction of the period including poetry, drama, short stories and novels as well as literary, social, political and economic trends are part of discussions. Some designated sections focus on contemporary American Literature. Some writing is required.

ENG 223: English Literature II.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 13, 14

This course is a continuation of ENG 212. It involves a study of representative writers of the Romantic, Victorian, Modern, and Contemporary periods.

ENG 224: World Literature II.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 8, 13, 14

This course is a continuation of ENG 213. It explores some of the great literary experiences of the Western tradition since the Renaissance and attempts to show how they have contributed to present cultural heritage.

ENG 225: Advanced Composition.....3 credit hours

Prerequisite(s): ENG 122 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 3, 7, 8, 10

The purpose of this course is to help students improve critical thinking, research, and writing — especially persuasive writing — skills introduced in English 111 and English 122. Paper topics emphasize students' field of interest.

ENG 240: Children's Literature.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 8, 14

This course is a survey of prose, poetry and illustrated books suitable for the preschool, elementary, and early adolescent child. This course is required of students entering elementary education; also for library studies or work, teacher's aide program, nursery and day care work and as general education for parents.

ENG 241: Adolescent Literature .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 3, 7, 8, 14

This course is a survey of prose, poetry and some non-fiction suitable for adolescent readers. It is recommended for students entering upper elementary and high school teacher training programs; also for library science students and as a general education for parents.

ENG 245: Career Practices Seminar .....2 credit hours

Prerequisite(s): ENG 100
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 3

This course covers career options available in the field of technical communication, how to develop a career plan and a job hunting plan, hiring practices, resume preparation, interviewing skills and human relations on the job.

ENG 260: Journal Workshop I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 13

This workshop is for emotionally mature, self-directed people committed to growth and discipline in their writing and in their lives. It offers in-class writing as a means to self-discovery and expression. Students explore movement and continuity of their lives while exploring creative and healing power of symbols. There is a choice of many ways to use writing: biography, mind exploration, growth work, creative expansion, problem solving, renewing faith, celebrating life, affirming commitments.

ENG 261: Journal Workshop II .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 13

This is a continuation of ENG 260, for students who have already completed 260, and who wish to continue to develop their skills and produce additional written work.

ENG 270: Creative Writing I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 13

Students explore processes by which writers discover ideas. Aided by a series of writing exercises, students create elements of poetry, fiction, drama, and/or non-fiction such as dialogue, point of view, voice, and rhythm. Students also explore relationships between form and ideas in writing. Writing is viewed as a means of personal expression and as a craft with definable measures of quality.

ENG 271: Creative Writing II .....3 credit hours

Prerequisite(s): ENG 270
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 13

Students work on individual writing projects such as a novel, short stories, poetry, film/TV/play scripts in a workshop setting.

ENG 278: Magazine Publication .....3 credit hours

Prerequisite(s): ENG 270
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8

This workshop course produces Northern Spies, WCC'S literary journal. Students advertise for writing to be considered for publication, and then read, discuss, select, edit, typeset, and proofread work submitted by WCC writers. Students learn critical thinking, discussion, and decision-making skills, editing skills, and technical skills involved in computer desktop publishing.

Fluid Power FLP

FLP 111: Fluid Power Fundamentals .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 18, 19

This is a beginning course in fluid power that deals with the basic principles of hydraulics and pneumatics. (Hydraulics is used as a means of teaching the fundamentals.) Directional valves, pressure control valves, flow control valves, actuators and basic pump theory are studied. ANSI and ISO symbols are used to design simple circuits. Disassembly of components and assembly of circuits make up the lab experiences.

FLP 174: FLP Co-op Education I.....1 - 3 credit hours

Prerequisite(s): 1st semester courses and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

FLP 213: Hydraulic Controls.....3 credit hours

Prerequisite(s): FLP 111
Corequisite(s): FLP 214
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 10, 18, 19

FLP 213 parallels FLP 214 concentrating on the controls used in hydraulic circuits. The course takes a closer look at the directional, pressure and flow controls studied in FLP 111. The concentration is on specialty type valves such as stack modules, cartridge valves, pressure and flow control. Electric components used in ladder logic sequencing of hydraulic actuators also are studied. Lab time is an integral part of this course. It is recommended that students enroll in FLP 214 at the same time as this course.

FLP 214: Basic Hydraulic Circuits .....3 credit hours

Prerequisite(s): FLP 111
Corequisite(s): FLP 213
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 18, 19

This course parallels FLP 213 and deals with circuits as the application of hydraulic controls. Circuit design, application and troubleshooting are major topics studied. Electric logic for hydraulic sequencing is included. Lab time is an important part of this course. It is recommended that students enroll in FLP 213 at the same time as this course.

FLP 225: Fluid Power Instrumentation .....3 credit hours

Prerequisite(s): FLP 213, FLP 214
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 18, 19

This course includes the study of electronic instrumentation as it applies to hydraulics and an introduction to automatic control. Discussion and laboratory exercises involve sensors of all types, oscilloscopes, and X/Y recorders. Characteristics of various pressure controls and electro-hydraulic valves are studied utilizing this equipment. The course concludes with an introduction to feedback control theory.

FLP 226: Pneumatics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 18, 19

Basic air systems are studied as a control medium in industrial applications such as presses, clamps, transfer devices, etc. Valves, cylinders, motors, compressors, regulators, filters and other power components are included. Ladder logic provides a means of circuit design on an introductory level.

FLP 274: FLP Co-op Education II .....1 - 3 credit hours

Prerequisite or Corequisite: FLP 174 and consent
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

French FRN

FRN 111: First Year French I .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a beginning and transferable course in French which emphasizes the aural-oral approach. Classroom work and language laboratory sessions assist the student in establishing and perfecting basic conversational tools in the language.

FRN 112: French Laboratory I .....1 credit hour

Prerequisite(s): none
Corequisite(s): FRN 111
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is intended to augment FRN 111. Students work in a supervised language lab with taped materials that correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

FRN 120: Beginning Conversational French.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a basic French course, mainly conversational in approach, which assumes no previous knowledge of the language. It is chiefly for persons interested in foreign travel through a basic knowledge of spoken and written French. It may also be taken as a preview for students entering the first-year college French studies or students already enrolled in the first year French course.

FRN 121: Intermediate Conversational French.....2 credit hours

Prerequisite(s): FRN 120 or 1 semester college French or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14, 24

This course emphasizes the use of spoken French in every day context. Students work on improving aural/oral skills. By semester's end, students should feel comfortable creating with language in the present, past, and future tenses. This course does not satisfy college language requirements.

FRN 122: First Year French II .....4 credit hours

Prerequisite(s): FRN 111
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a continuation of FRN 111. Continuing classroom work and language sessions help the student to acquire basic conversational tools of the language as well as basic informational aspects of the French culture.

FRN 123: French Laboratory II .....1 credit hour

Prerequisite(s): none
Corequisite(s): FRN 122
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is intended to augment FRN 122. Students work in a supervised language lab with taped materials that correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

FRN 213: Second Year French I.....3 credit hours

Prerequisite(s): FRN 122 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

The goals for this course are the acquisition of extensive French lexicon and a comprehensive knowledge of advanced French grammar. Both areas are thoroughly tested and improved by a series of writing and oral assignments.

FRN 224: Second Year French II.....3 credit hours

Prerequisite(s): FRN 213 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a continuation of FRN 213. This course offers a complete and final overview of the French Language. Special attention is placed on the practical world of commercial, fiscal and bureaucratic French by dealing with textual and aural real life contexts. Students are exposed to the new trends and directions in the life of the French Language.

Geography GEO

GEO 100: World Regional Geography .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 17, 20, 24

This course surveys the world on a region-by-region basis identifying the specific geographic characteristics such as climate, terrain, population, industry, trade, transportation and agriculture that give the individual regions their unique identity.

GEO 103: Cultural Geography .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 24

This course examines the world-wide patterns and characteristics of some of man's major economic activities (agriculture, industry, trade and commerce), on-going processes (urbanization, population growth and movement), institutions (language, religion and the nation-state), and current concerns (health and nutrition).

GEO 212: Geography of the United States and Canada.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 17

This course examines the geography of the United States and Canada on a region-by-region basis, identifying the specific characteristics of each region and exploring the relationships among the various regions.

Geology GLG

GLG 100: Introduction to Earth Science .....4 credit hours
Prerequisite(s): none
Corequisite(s): GLG 100L
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 15, 17

This course provides practical training in earth science including work with soils, minerals, rocks, glaciers, volcanism, plate tectonics, meteorology, oceanography, and astronomy.

GLG 103: Field Geology .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17

Students examine the processes that have formed and are forming the landscape by studying formations at local sites.

GLG 104: Weather .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
22.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17

Atmospheric processes and phenomena that produce the day-to-day weather changes experienced throughout the world are studied. Emphasis is placed on empirical observation of cloud types, development, and movement. Weather map interpretation and analysis including elementary weather forecasting techniques are presented. Field trips are included. GLG 104 is normally offered only in the spring term.

GLG 109: Common Rocks .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 17

The identification of rocks and minerals is accomplished through laboratory and field studies. Emphasis is placed on Michigan specimens. This course is intended for students interested in becoming school teachers, or needing a science elective.

GLG 110: Geology of the National Parks and Monuments .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 5, 17

The geological settings of specific National Parks and Monuments are studied including the principles and processes that shaped them. Slide programs and maps are used to illustrate the geological features.

GLG 114: Physical Geology .....4 credit hours
Prerequisite(s): none
Corequisite(s): GLG 114
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 15, 17

The physical features and processes of the earth are studied. Plate tectonics along with the interpretation of topographic maps and the study of common rocks and minerals are included. A three day field trip is required with food and housing expenses the responsibility of the student.

GLG 125: Historical Geology.....4 credit hours
Prerequisite(s): GLG 100
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 15, 17

The development of North America as a typical continent is presented including the formation of mountains, plains, the evolution of life, and the identification of fossils. Several field trips are taken. A three day field trip is required with food and housing expenses the responsibility of the student.

GLG 202: Earth Science for Elementary Teachers .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 15, 17

This course presents the content and methodology necessary for success in teaching earth science in the elementary school. It includes laboratory activities, laboratory projects, lesson planning and student presentations. Content topics include rocks and minerals, volcanism, mountain building, dinosaurs, and weather. Methodology topics include behavioral objectives, lesson plans, presenting lessons, and student-centered approaches.

GLG 219: Field Studies in Geology .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 240 practicum hours
Fulfills Core Elements: none

Field Studies in Geology is intended to teach geology in the field through travel. Students will learn the geology and the geologic history of a given locale, read maps, and identify field rocks and fossils. Topics will vary in scope, place, and design. For example, students will learn the geology of the Grand Canyon by rafting through it for one week. Another is a dinosaur trek visiting museums and digging dinosaurs with experts in the west. Students will have a pre-course meeting and post-course assignments. Students are responsible for their own travel expenses.

German GRM

GRM 111: First Year German I .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a beginning and transferable course in German which emphasizes the aural-oral approach. Classroom work and language laboratory sessions assist the student in establishing and perfecting basic conversational tools in the language.

GRM 120: Conversational German .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is conversational in approach and assumes no previous knowledge of the language. It is geared chiefly for persons interested in obtaining a basic knowledge of spoken and written German, as well as an appreciation and awareness of contemporary German culture. German 120 may be taken as a preview for students entering the first year German studies or students already enrolled in the first year course.

GRM 121: Intermediate Conversational German .....2 credit hours

Prerequisite(s): GRM 120 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is a continuation of GRM 120, Conversational German. It emphasizes a conversational approach to the German language and includes instruction in the German culture including shopping, mass media, travel, social interactions, theatre and film. Emphasis is placed on speaking and listening comprehension.

GRM 122: First Year German II .....4 credit hours

Prerequisite(s): GRM 111 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a continuation of GRM 111. Continuing classroom work and language laboratory sessions emphasize the aural-oral approach. Class conversations, short readings, and lab practice also assist students in acquiring facility in the language, as well as informational aspects of the culture.

Graphic Design Technology GDT

GDT 100: Typography I .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 11, 18

This is an introduction to evolution/principles of typography with concentration on typeface identification, copyfitting, and layout formulation. Assignments investigate lettering as a design element in graphic design and advertising.

GDT 101: History of Graphic Design .....3 credit hours

Prerequisite(s) : none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 20

This course surveys historical and contemporary styles and influences in graphic design through the ages.

GDT 105: Introduction to Mac Graphics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is an introduction to the fundamental tools and procedures of desktop publishing using Macintosh computers. Students complete tutorial exercises in a laboratory setting using a variety of page layout and graphic applications. This course is recommended for those with little or no computer experience.

GDT 112: Graphic Communication .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 13

This course covers methods in visual communication, ideation, visual perception and problem solving techniques. Exercises explore word-picture-abstract design, visual thinking and communication theories.

GDT 117: Introduction to PageMaker .....2 credit hours

Prerequisite(s): GDT 105 or Basic Macintosh proficiency
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is an introduction to the fundamental tools and techniques of the page layout software application Adobe PageMakerTM. Working in a laboratory setting, students are escorted through the basic features of the current version of the software and execute tutorial exercises and industry related projects. This course is a program requirement for the GDT-Design, Illustration and Digital Prepress programs.

GDT 118: PageMaker II.....2 credit hours

Prerequisite(s): GDT 117 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is a continuation of skill building in using the page layout software Adobe PageMaker(tm). Students are guided through more advanced features of the current software version, completing tutorial exercises and publication production projects. This course is a requirement for GDT-Design, Illustration and Digital Prepress programs.

GDT 125: Introduction to QuarkXPress.....2 credit hours

Prerequisite(s): GDT 105 or basic Macintosh proficiency
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is an introduction to the fundamental tools and techniques of the page layout software QuarkXPress(tm). Working in a computer laboratory setting, students are escorted through the basic features of the current version of the software, completing tutorial exercises and publication production projects. This course is a requirement in the GDT-Design and Digital Prepress programs.

GDT 126: QuarkXPress II .....2 credit hours

Prerequisite(s): GDT 125
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is a continuation of skill building in using the page layout software QuarkXPress(tm). Students are guided through more advanced features of the current software version, completing tutorial exercises and publication production projects. This course is a requirement in the GDT-Design and Digital Prepress programs.

GDT 137: Introduction to Illustrator .....2 credit hours

Prerequisite(s): GDT 105 or basic Macintosh proficiency
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is an introduction to the fundamental tools and techniques of the vector-based drawing software application Adobe Illustrator(tm). Working in a laboratory setting, students are escorted through the basic features of the current version of the software and execute tutorial exercises and industry related projects. This course is a requirement for the GDT-Design, GDT-Illustration and Digital Prepress programs.

GDT 138: Illustrator II.....2 credit hours

Prerequisite(s): GDT 137 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is a continuation of skill building using the vector-based drawing software application Adobe Illustrator(tm). Students are guided through the more advanced features of the current software version, completing tutorial exercises and vector drawing projects. This course is a requirement for the GDT-Design, GDT-Illustration, and Digital Prepress programs.

GDT 141: Introduction to Photoshop .....2 credit hours

Prerequisite(s): GDT 105 or basic Macintosh proficiency
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18

This is an introduction to the fundamental tools and techniques of the image-editing software Adobe PhotoShop(tm). Students are guided through the basic features of the current version of the software, completing tutorial exercises and image retouching/editing projects. This course is a requirement in the GDT-Design, GDT-Illustration, and Digital Prepress programs.

GDT 142: Intermediate Photoshop .....2 credit hours

Prerequisite(s): GDT 141 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18

This course is a continuation of skill building using the image-editing software Adobe PhotoShop(tm). Students are guided through more advanced features of the current software version using tutorial exercises and completing raster imaging projects. This course is a requirement in the GDT-Design, GDT-Illustration, and Digital Prepress programs.

GDT 143: Imaging for the Web.....3 credit hours

Prerequisites: none
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course, students learn how to use advanced industry-standard software packages such as Illustrator and Photoshop to create, manipulate, and enhance attractive and effective web graphics.

GDT 174: GDT Co-op Education I .....1 - 3 credit hours

Prerequisite(s): 1st semester courses and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

Students are placed in approved industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

GDT 200: Design and Publishing on the Internet.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11

This course is an exploration into publishing, focusing on the Internet as a tool for communication through page and site design. Emphasis is placed on web site layout/organization techniques for industry related assignments using various software applications on the Macintosh computer.

GDT 201: Graphic Illustration .....4 credit hours

Prerequisite(s): GDT 103 or Consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Traditional drawing methods and materials using a variety of media, help communicate a visual concept. The use of computers and software helps develop the concepts of 3 dimensional visualization for illustrators and designers. Computer models and physical scale models are created. A computer generated walk-through animation is part of the coursework that utilizes Macintosh computers and software. This course is required for Illustration Majors and is a recommended approved elective for Design Majors. Students will need to purchase art supplies and a computer disk.

GDT 214: Advanced Photoshop.....3 credit hours

Prerequisite(s): GDT 142 or PHO 127 or consent
Corequisite(s): none
40 lecture, 20 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18

This course covers advanced features and uses of the image-setting software Adobe Photoshop. Exercises and production projects using the current version of Photoshop focus on developing skills and understanding of such topics as getting good scans, color spaces and profiles, tonal image correction, removing color casts, clipping paths, task automation and more. A good basic working knowledge of Photoshop is an essential course prerequisite. This course is an approved elective for Graphic Design Technology majors.

GDT 215: Typography II.....4 credit hours

Prerequisite(s): GDT 100 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 11, 18

This course is a continued study into the principles of typography with greater concentration on typographic composition, expressive form, computer applications, and visual communication systems. This course is required for GDT - Design option majors.

GDT 220: Publication Design.....4 credit hours

Prerequisite(s): GDT 100, GDT 126, GDT 142
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 18, 19

This is a computer-based design course focusing on layout and design of publications. Students incorporate the use of grids and other methodologies to design and produce a variety of single- and multi-page publications in black and white , spot and process color. This course is required for all GDT-Design majors.

GDT 222: Commercial Illustration .....4 credit hours

Prerequisite(s): GDT 103 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

Traditional rendering illustration methods and 3D Computer illustration software provide students with the basics used by professional illustrators and designers. Comparative techniques of rendering projects are explored using traditional tools and Macintosh computers. Emphasis is placed on developing a strong portfolio. This course is required for Illustration Majors and is a recommended approved elective for Design Majors. Students provide supplies and computer disk.

GDT 223: Image Assembly .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 18, 19

This course explores pre-press film assembly for single-color and multi-color layout and printing production. In addition, students learn proofing, step-and-repeat systems and platemaking.

GDT 228: Airbrush .....4 credit hours

Prerequisite(s): GDT 222 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Traditional airbrush method and 3D computer illustration software provide students with the basics used by professional illustrators and designers. Comparative techniques of rendering projects will be explored using traditional airbrushes, tools and Macintosh computers. Emphasis will be placed on developing a strong portfolio. This course is required for Illustration Majors and is a recommended approved elective for Design Majors. Students will provide airbrush, supplies and computer disk.

GDT 230: Professional Practices .....4 credit hours

Prerequisite(s): 48 credits of GDT program courses
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This class prepares students for seeking employment in graphic design/illustration. Topics covered include graphic design career options/specialties, job hunting skills/techniques, freelancing, resume preparation and portfolio preparation, and includes a professional review of student portfolios. This course should be taken during the final semester prior to graduation.

GDT 233: Print Estimating .....2 credit hours

Prerequisite(s) : none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

This is a course in cost estimating and production planning for the Graphic Design Technology Program. Topics include estimating the price of printed materials before manufacture, hourly cost estimation, determining production standards and optimum operating sequence for various types of printing.

GDT 236: Specialized Study .....2-4 credit hours

Prerequisite(s): Consent
Corequisite(s): none
hours vary according to credits
Fulfills Core Elements: none

This class provides an opportunity for independent study in a particular area of instruction with faculty supervision. This is a course requirement for GDT Design, Illustration and Printing option majors.

GDT 239: Imaging and Illustration .....4 credit hours

Prerequisite(s): GDT 138, GDT 142
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11, 19

In this course students create industry related illustrations using vector and raster based software programs. Projects include: charts and graphs, technical renderings, and editorial and promotional illustrations. This is a required course for GDT-Design and GDT-Illustration majors.

GDT 243: 3D Computer Illustration/Rendering .....4 credit hours

Prerequisite(s): GDT 105, or basic Macintosh proficiency
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12

Using Macintosh computers, students sketch in 3D space on 3D surfaces. This course introduces Freeform-Wireframe illustration and design. Students explore the rendering of objects with lighting, shadows, reflections and backgrounds to achieve photo realistic images. This course is required for Illustration majors and is an approved elective for Design majors.

GDT 245: Computer-Aided Painting .....4 credit hours

Prerequisite(s): GDT 105 or basic Macintosh proficiency
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12

In this course, students explore the world of digital art where the computer screen is transformed into an electronic canvas offering virtually limitless creative possibilities. Working with traditional themes, hands-on exercises and an array of simulated painting media and surfaces, students produce computer-generated images that have expressive and dynamic characteristics. Proficiency with the Macintosh computer is essential.

GDT 246: Introduction to Multimedia .....4 credit hours

Prerequisite(s): GDT 143 or (GDT 138 & 142)
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11, 18

This course is an exploration into the design and creation of multimedia presentation using Macromedia Director. Emphasis is placed on developing digital animation and interactive CD-ROM for marketing presentations, personal expression, and short movies. Created directly on the computer, the multimedia presentations are prepared for projectors, video, the Internet, or CD-ROM, by incorporating animation with sound and movies. This course is an approved elective for Graphic Design Technology majors.

GDT 252: Advanced Digital Studio .....4 credit hours

Prerequisite(s): GDT 126, GDT 138, GDT 142 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 13, 19

This course offers advanced techniques and applications in computer based imaging and publication design. Topics include design, illustration, and electronic file preparation for offset printing involving integration of several professional graphics software programs. Advanced techniques in software such as Adobe PhotoShop(tm), Adobe Illustrator(tm), and QuarkXpress(tm) emphasize creative, real-world applications for graphic design production.

GDT 274: GDT Co-op Education II .....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain further skills from continued experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

Health Science HSC

HSC 100: Nursing Assistant Skills .....4 credit hours

Prerequisite(s): Age 17 or above and consent
Corequisite(s): none
38 lecture, 22 lab, 30 clinical, 0 practicum hours
Fulfills Core Elements: none

This course prepares students for employment in hospitals, long-term care facilities or home care as a Nursing Assistant, using classroom, laboratory and clinical methods for learning basic nursing skills.

HSC 101: Healthcare Terminology .....1 credit hour

Prerequisite(s) : none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to introduce healthcare professionals to terminology used in the workplace. Lecture material is supplemented by independent student computer assignments.

HSC 113: Introduction to Medical Science .....2 credit hours

Prerequisite(s): High school reading
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides an overview of the health profession, how and why diseases occur, an overview of various health problems, and an awareness of monitoring vital signs. The course content may vary according to student interest and laboratory availability.

HSC 115: Medical Office and Laboratory Procedures .....3 credit hours

Prerequisite(s): HSC 113 or equivalent
Corequisite(s): none
37.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course consists of lecture on office examining room procedures, sterile techniques, medical emergencies, specimen collection and minor surgery. Laboratory experience applies course material from the lectures.

HSC 118: General Nutrition .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 16

This course presents normal nutrition and its relationship to health. It includes a study of the nutrients and nutrition planning guides. It covers energy balance and nutritional needs for physical activity. Nutritional needs throughout the life cycle are studied. Other topics covered include: food safety, food technology and cultural aspects of nutrition. The course meets the Nursing Program requirements and is appropriate for the general student population.

HSC 128: Therapeutic Nutrition .....1 credit hour

Prerequisite(s): 1st 2 semesters or HSC 118 or consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course combines knowledge and application of nutrition in clinical practice. Various diseases and disorders of organ systems and the use of therapeutic nutrition in alleviating the symptoms of these illnesses are addressed.

HSC 131: CPR/FPR and First Aid .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course teaches American Red Cross first aid and cardiopulmonary resuscitation for the professional rescuer (CPR/FPR). Students learn adult, child and infant CPR, use of resuscitation masks and how to treat choking emergencies. Additional skills taught include emergency care of sudden illnesses, bleeding, thermal injuries and injuries to muscles, bones and joints. Successful students earn ARC First Aid and CPR/FPR certification cards.

HSC 131A: Community CPR .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course prepares students to perform adult, child, and infant cardiopulmonary resuscitation (CPR). Information about preventing injury and illness is provided. Students also learn basic care for illness or injury until professional help arrives. Course objectives follow American Red Cross guidelines, and successful students earn the ARC Community CPR card.

HSC 131B: CPR/FPR Review .....0.5 credit hours

Prerequisite(s): CPR card
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the required annual update and skill practice for persons certified in American Red Cross cardiopulmonary resuscitation for the professional rescuer (CPR/FPR).

HSC 147: Growth and Development.....4 credit hours

Prerequisite(s): ENG 100 or ENG 111
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 8, 15, 16, 21

This course covers the physical, mental, psychological and social growth of the individual from birth to death. The role of the family and theories of death and mourning also are included. This course meets Nursing Program requirements and also is appropriate for the general student population. This course transfers to four-year institutions.

HSC 174: HSC Co-op Education I .....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

Students gain skills from a new experience in an approved, compensated position related to the chosen field of study. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

HSC 220: Pathophysiology.....4 credit hours

Prerequisite(s): BIO 111, LPN, RN or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 16

The focus of this course is the study of disease processes in humans. The course includes identification of the etiology and pathogenesis of disease, alterations in normal body function, and the reaction and adaptation of the body to disease.

HSC 244: Health Care Ethics .....2 credit hours

Prerequisite(s): Consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 8, 9, 10, 14

Various philosophies of ethics (Kantian, utilitarian, natural law, Ross, Rawls) are introduced. Models for decision making using a multifaceted approach and incorporating philosophy, values clarification, and legal aspects are used to examine current ethical issues. Among topics discussed are patient rights, confidentiality, informed consent, abortion, genetic manipulation, experimental procedures, treatment of impaired newborns, euthanasia, and AIDS.

Heating HTG

HTG 100A: Boiler Operations I .....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Boiler terminology, construction and function, fundamental application of physics, heat, steam, water, and pressures are studied. Safety instruction is included for low pressure applications.

HTG 100B: Boiler Operations II .....3 credit hours

Prerequisite(s): HTG 100A or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of HTG 100A and covers high pressure boilers and environmental problems. It also covers in greater depth physics, heat, water treatment, steam, and use of fossil fuels and atomic energy.

HTG 101: Boiler Accessories.....3 credit hours

Prerequisite(s): HTG 100B or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers all boiler accessories: their use, design, requirements, operation and care. Also, the study of combustion equipment is continued.

HTG 102: Boiler Auxiliaries.....3 credit hours

Prerequisite(s): HTG 101 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides continuing study of accessories and auxiliaries including injectors, feedwater heaters, deaerators and evaporators, economizers, air preheaters, and cooling towers, and fluid bed boilers.

HTG 103: Power Plant Engines and Turbines .....3 credit hours

Prerequisite(s): HTG 102 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Principles of operation and maintenance practices of steam condensing and non-condensing engines and turbines are presented. Also included are construction, mechanisms, engine indicators, governors, engine rating and efficiency, gas turbines, and waste heat boilers.

HTG 104: Power Plant Refrigeration.....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The basic physical principles underlying refrigerants and refrigeration cycles are studied. Students are introduced to detailed physical descriptions of refrigeration equipment with emphasis on the part each piece plays in a refrigeration compression cycle.

HTG 105: Power Plant Air Conditioning Systems .....3 credit hours

Prerequisite(s): HTG 104
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of the study of refrigeration systems used in power plants and industry. Topics studied include the characteristics of large refrigeration equipment, cooling towers, compressors, industrial air conditioning, codes, and safety.

HTG 106: Power Plant Electricity I.....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class introduces operators to basic electricity and the basic application of electrical measuring instruments including basic terms, volts, ohms, amps, power factors, AC and DC principles, single and 3-phase circuits, motor protectors (fuses, heaters, breakers) sub-stations, and transformers.

HTG 107: Power Plant Electricity II.....3 credit hours

Prerequisite(s): HTG 106 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of HTG 106. It studies types of motors and generators employed in power plants to generate electricity. It also looks at the application and maintenance of motors, induction, synchronous, single and 3 phase; power transmission, transformer lines, breakers, start and run capacitors, and control of plant power factors. Safety and appropriate

HTG 109: Review for Boiler/Refrigeration Examination .....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course reviews major units of boiler operations and refrigeration to prepare candidates for passing licensing examinations. Students may prepare for low pressure, high pressure, third class, second class, first class, steam and/or refrigeration licensing. The course will be tailored to the license desired.

HTG 174: HTG Co-op Education I .....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

HTG 228: Pneumatic Temperature Controls .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class develops an understanding of the installation, maintenance and function of pneumatic temperature control systems. It covers pneumatic controls, applications and functions, plus air compressors and maintenance, variation of applied control system, room stat., master stat., damper motors, automatic water and steam valves, return and fresh air damper blades.

HTG 274: HTG Co-op Education II .....1 - 3 credit hours

Prerequisite(s): HTG 174 and consent
Corequisite(s): HTG 174
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Heating, Ventilating, and Air Conditioning HVA

HVA 101: Heating, Ventilating, and Air Conditioning I .....5 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces the concept of thermodynamics and principles of refrigeration. Major units covered include HVAC mathematics, refrigeration systems, refrigerants, refrigerant tables, refrigerant oils, contaminants, dryers, moisture in the air, food preservation, refrigerant components, (i.e., compressors, condensers, cooling towers, evaporators, metering devices, motors and accessories), defrost systems, estimating heat loads and commercial refrigeration systems. An overview of domestic and commercial AC systems and components will be provided from an operation and service perspective.

HVA 103: Heating, Ventilating, and Air Conditioning II.....5 credit hours

Prerequisite(s): HVA 101
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is the second course in this series and covers OHM's law, voltage, amperage, and circuitry as applied to HVAC and refrigeration systems. It also introduces AC motors, common control systems and applications, wiring schematics and diagrams for both high and low voltage systems. Basic diagnostic skills are covered.

HVA 105: Heating, Ventilating, and Air Conditioning III .....5 credit hours

Prerequisite(s): HVA 101 and 103
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers common heating systems including fuels and combustion characteristics, furnaces and furnace components and accessories, burner efficiency, and supply systems. Students use charts to determine heat load and system sizing principles. Control systems are covered and basic diagnostic skills are developed.

HVA 107: Heating, Ventilating, and Air Conditioning IV .....5 credit hours

Prerequisite(s): HVA 101, 103 and 105 or Consent
Corequisite(s): none
60 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is the final course in this series that prepares students to successfully enter the HVAC industry as repair personnel, sales personnel, maintenance staff, or apprenticeship. This capstone course provides learning experiences in design, application and servicing techniques for a wide range of refrigeration and HVAC equipment commonly found in domestic and commercial applications. Basic troubleshooting skills are identified and practiced.

History HST

HST 121: Western Civilization I.....3 credit hours

Prerequisite(s) none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 13, 20, 21, 24

This course analyzes the character and evolution of Western institutions and values from the ancient Near Eastern civilizations through the High Middle Ages.

HST 122: Western Civilization II .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 13, 20, 21, 24

This course investigates the evolution and expansion of Western institutions and values from the breakdown of the medieval synthesis in the early fourteenth century through the Congress of Vienna in 1815.

HST 123: Western Civilization: Modern World - 1815-Present .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 13, 20, 21, 24

This course covers the development, evolution, and expansion of Western institutions, ideas, and values from the Congress of Vienna in 1815 through the nineteenth and twentieth centuries to the present.

HST 150: African American History.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 23

This course examines the history of African-Americans in the United States from 1619 to the present.

HST 160: American Film .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 13, 14, 18, 20, 21, 22

The development of American cinema from its beginnings in 1896 to the present is studied. The films, viewed in class, are discussed in terms of technique as well as in terms of content. The course relates American cinema to themes in American culture.

HST 200: Michigan History .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 14, 22, 23

This course focuses on the history of the State of Michigan, including its geographical, economic, social, and political development. Particular emphasis is placed on the state's industrial growth, especially the automobile industry and the rise of industrial unions. More emphasis is placed on events and personalities in the 20th century.

HST 201: United States History to 1877.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 22, 23

This is the first half of the basic, introductory survey of American History. It deals with what happened in the part of North America that became the United States, from just before European contact to the end of the Civil War. Focal points are the interaction of Native, European, and African people, the emergence of political structures and cultural patterns under British colonial rule, the nature and impact of the American Revolution, the economic and social transformation of the United States after the Revolution, the origins and course of the Civil War and the impact of Reconstruction. This course is also taught as a television course using the program series "The American Adventure."

HST 202: United States History Since 1877 .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 22, 23, 24

This is the second half of the basic, introductory survey of American history. It examines the United States development into the world's leading economic, political, and military power. Focal points are the era's major political reform movements, the changing nature of American society and culture, the impact of war upon the nation's economy and society, and the increased role played by the United States in world affairs.

HST 215: History of U.S. Foreign Relations .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 23, 24

This course traces the history of U.S. foreign relations from the late colonial period to the present. It focuses on major events and the roles played by prominent figures. Emphasis is placed on the twentieth century.

HST 216: U.S. Military History, Colonial Times to Present .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 8, 10, 23, 24

This course traces the American military from its pre-colonial origins to the present. It addresses the relationship between the American economic and social systems and the nation's military, and addresses the effect of the nation's geography on the mission and organization of the military. Key conflicts such as the American Revolution, the Civil War, the Second World War, and the Vietnam conflict are addressed in detail in an effort to discern if there is a unique "American Way of War."

HST 230: History of the Holocaust .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 21, 24

This course investigates the origins, development, and legacies of the Nazi onslaught against the European Jews from 1933 to 1945.

Hotel-Restaurant Management HRM

HRM 104: Front Office Procedures .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

The class provides an introduction to a systematic approach to front office operations as well as an overview of the flow of business through the hotel organization. Students complete exercises using front office simulation disks within the computer lab. Official certificate of completion is available from the American Hotel/Motel Association for those students who successfully pass the required exam.

HRM 174: HRM Co-op Education I .....1 - 3 credit hours

Prerequisite(s): 30 program hours and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. Students should contact supervising instructor prior to registration.

HRM 222: Lodging Marketing and Promotion .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course is designed to zero in on both hotel and restaurant marketing. A special emphasis is placed on sales and promotion of the hotel operation dealing with related activities such as banquet sales, convention planning and holiday packages. Official certificate of completion is available from the American Hotel/Motel Association for those students who successfully pass the required exam.

Human Services Worker HSW

HSW 100: Introduction to Human Services.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 21

This course is an introduction to basic human services work including discussion of the various target populations, the types of professions and careers, social organizations and systems, history and ethics and legal considerations. Self-exploration of values is also included.

HSW 200: Intro to Interviewing Techniques and Assessment .....3 credit hours

Prerequisite(s): HSW 100
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 7, 8, 9, 10, 21

This course introduces students to basic interviewing skills and to the process of individual needs assessment. These form the basis of developing treatment strategies. Videotaped and/or audiotaped practice are used.

HSW 210: Behavior Modification.....3 credit hours

Prerequisite(s): HSW 100 or PSY 100
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 21

This course covers basic behavioral principles and their applications to individuals with mental illness, developmental disabilities, closed-head injuries and problems with aging or daily living. Students learn to conduct psycho-social rehabilitation and psycho-educational groups.

HSW 220: Helping Approaches for Groups .....3 credit hours

Prerequisite(s): HSW 100, HSW 200 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 21

This course introduces the beginning helper to using groups to promote change. The student learns how to screen candidates for groups, prepare potential members to use the group productively, use basic group techniques, attend to group process, and use specific activities and techniques to achieve desired outcomes.

HSW 230: Field Internship and Seminar I.....3 credit hours

Prerequisite(s): HSW 100 and HSW 200, 2.0 GPA in all HSW courses
Corequisite(s): none
15 lecture, 0 lab, 180 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9

This course integrates students into the working world by having them complete field work in a human service agency. Student have the opportunity to progress from observation, to directly supervised client, to indirectly supervised client contact. The field work is integrated with course work during a one hour per week seminar. Learning objectives are individualized according to the field internship and career goals of each student.

HSW 232: Field Internship and Seminar II....3 credit hours

Prerequisite(s): HSW 100,HSW 200, HSW 230, 2.0 GPA in HSW courses and consent
Corequisite(s): HSW 220
15 lecture, 0 lab, 0 clinical, 180 practicum hours
Fulfills Core Elements: 7, 8, 9

This course integrates students into the working world by having them complete field work in a human service agency. Students complete this internship at a different agency from the internship held in HSW 230 or hold a significantly different role in the same agency. The field work is integrated with course work during a one hour per week seminar. Learning objectives are individualized according to the field placement and career goals of each student.

Humanities HUM

HUM 101: Humanities I - Ancient to Medieval Times.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14

This course explores the human experience in Western Culture expressed in art, literature, drama, music, and philosophy, from ancient times to the High Middle Ages.

HUM 102: Humanities II - Renaissance to Modern Times .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14

This course explores the human experience in Western Culture expressed in art, literature, drama, music, and philosophy, from the Renaissance to the present.

HUM 140: Special Topics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 10, 13, 14

Courses offered in this Special Topics series will provide a unique opportunity for alternative learning. Field work (trips to local museums), research projects, classroom discussions, slide lectures, and videos will be utilized to gather a wealth of materials which will allow a comprehensive understanding of a specific culture. Areas of study include the arts and architecture, religions, ways of life and thinking, cultural traditions and achievements and their implications for our contemporary world.

HUM 145: Comparative Religions .....3 credit hours

Prerequisite(s) none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 14, 24

This course will examine the basic beliefs and practices of a variety of Eastern and Western religious traditions. During this examination, the similarities and differences between these traditions will be explored, as will the role of religious practice in society and the lives of human beings.

HUM 150: International Cinema .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

This course provides a survey of important foreign films and film makers (primarily, though not exclusively, European). The films viewed in class are discussed in terms of film techniques as well as in terms of content. No foreign language ability is assumed.

HUM 160: American Film .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 3, 13, 14, 18, 20, 21, 22

The development of American cinema from its beginnings in 1896 to the present is studied. The films, viewed in class, are discussed in terms of technique as well as in terms of content. The course relates American cinema to themes in American culture.

HUM 170: Montreal World Film Festival .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This brief course is held at the Montreal World Film Festival in late August. Students travel to Montreal to attend screenings of films at the World Film Festival. The course appeals to those with an interest in film or in cross-cultural travel as it offers both intensive film-viewing and an introduction to the largest French-speaking community in North America. The course fee covers round trip train fare from Windsor, dormitory accommodations in Montreal, passes to ten Festival films and the Festival program guide. Orientation sessions are held both on campus and in Montreal.

HUM 180: Film Analysis.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14, 20

This course is designed to help students become more literate observers of the moving image primarily through the study of film. It is intended to give the student the background necessary to understand how films communicate using a complex network of languages. It is not designed to teach viewers how to respond, but rather suggest why people respond the way they do. Two short papers, mid-term and final exam are required.

Industrial Drafting IND

IND 100: Technical Drawing .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9

An introduction to the graphic language and the use of drafting materials and instruments. Drawings include geometry, orthographic views, auxiliary views, section views, pictorial drawings and developments, electrical block diagrams, logic diagrams and schematics.

IND 107: Mechanisms .....4 credit hours
Prerequisite(s): IND 111, MTH 177 or MTH 178
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Principles of gears, cams, pulleys and other mechanical means to transmit motion and energy are studied. Included are graphic and mathematical techniques to solve force, displacement and motion application problems.

IND 108: Industrial Blueprint Reading.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course takes a comprehensive look at all engineering drawings (blueprints) used in an industrial setting. The student is exposed to engineering drawings that are used in the machine and building trades. Specific blueprints included in the course are: machine drawings, sheet metal layouts, building floor plans, hydraulic and pneumatic schematics, plumbing and pipefitting drawings, welding and fabrication drawings, electrical diagrams and drawings, and air conditioning and refrigeration drawing sets.

IND 111: Industrial Drafting I.....4 credit hours
Prerequisite(s): IND 100 or 2years high school drafting
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 9, 19

This course examines standard drafting/ CADD practices in the application of material specifications, drawing numbering systems, tabulated drawings, auxiliary views, sectioning, screw threads and fasteners. Emphasis is placed on dimensioning, tolerancing and the use of drafting materials and CADD for the preparation of assembly drawings, detail drawings and parts lists for various manufacturing disciplines.

IND 112: Descriptive Geometry .....4 credit hours
Prerequisite(s): IND 100 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9

Points, lines and planes and their relationships in space are studied, with emphasis on practical application of principles to actual problems in industry.

IND 114: Industrial Drafting II.....4 credit hours
Prerequisite(s): IND 111
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

Practices and procedures for creating assembly and detail drawings from given layouts using conventional drafting and CADD. An introduction to principles of design is included with emphasis on the use of standard parts catalogs.

IND 121: Theory of Jigs and Fixtures.....2 credit hours
Prerequisite(s): IND 100 or IND 111
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

The various types of jigs and fixtures and their combined use are studied. Development of skills in the proper location and clamping of a part is included, with emphasis on the application principles and presentation of a practical design. The use of standard parts catalogs is also covered.

IND 123: Geometric Dimensioning and Tolerancing .....3 credit hours
Prerequisite(s): IND 111 or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9

This course is an analysis of conventional and geometric dimensioning and tolerancing. Emphasis is placed upon definitions, terminology, and practical application of principles as they apply to typical industry problems.

IND 174: IND Co-op Education I .....1 - 3 credit hours
Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

IND 212: Theory Of Dies.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 19

This is a survey course designed to introduce the students to four major types of dies and their design components.

IND 216: Introduction to Computer Aided Drafting .....2 credit hours
Prerequisite(s): IND 100 or equivalent
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11, 12

The principles and applications of computer-aided drafting systems and familiarity with the hardware components of the CAD system are emphasized. Use of the interactive graphic software, development of input and output skills, and familiarity with software, languages and systems hierarchy. AutoCAD software is featured.

IND 217: Introduction to 3-D CAD .....2 credit hours

Prerequisite(s): IND 111 and IND 216
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Using CADKEY software the student is introduced to three axis creation of parts. The drafting of auxiliary views, details, assemblies and solid models are included.

IND 220: CAD Application - Electronic Simulation .....4 credit hours

Prerequisite(s): IND 251 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course examines the principles of electronic layout including the application of CAD to circuit design and simulation. "Viewlogic" software is featured.

IND 221: CAD Application - Mechanical .....4 credit hours

Prerequisite(s): IND 111, IND 112
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 9, 11

In this course you learn the basic fundamental concepts and application creating a feature-based solid model. You will learn how to use the software interface; work with reference geometry; create wireframe sketch; constrain those wireframe sketches through the use of geometric constraints and model dimensions; and then extrude, revolve, or loft those wireframe sketches into 3D solid parts. The student will learn how to manage the part via using part configurations and design tables. The students will learn how to modify a 3D model, manipulate its feature design management tree, and add or remove 3D features such as fillets, chamfers, and drafted surfaces. Students will get hands-on experience with the latest version of SolidWorks through various projects and workshop exercises that have been integrated into this course.

IND 222: Introduction to Electronic Design .....4 credit hours

Prerequisite(s): IND 220 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Emphasized are the design principles or laying out single and double sided printed circuit assemblies, wireless, and harness drawings for electronic unit interfacing.

IND 223: Introduction to Surfaces and Solids .....4 credit hours

Prerequisite(s): IND 221
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11, 12, 18, 19

In this course you will learn how to create, manage, and modify solid-based assemblies. Building upon what you learned in IND 221, you will assemble and modify a product assembly. You will apply the assembly constraints, analyze the assembly properties, manipulate the assembly display, create a bill of materials and perform an interference check on the assembled parts. You will also learn how to create and modify ASME YY14.5M standard-based detail drawings of individual parts and assemblies. You will learn how to apply both model and drawing based dimensions. Once the detail or assembly drawing is created you will learn how to modify the part of assembly through the detail drawing. Students will get hands on experience with the latest version of SolidWorks through various projects and workshop exercises that have been integrated into this course.

IND 230: Advanced Product Drafting .....4 credit hours

Prerequisite(s): IND 107, IND 114, and IND 121
Corequisite(s): IND 223
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Students study the development of a machine from concept design and layout stages to the preparation of working drawings. Emphasis is on preparation of a layout drawing incorporating a maximum of commercially available components, fastening techniques, use of standard and special methods, keeping maintenance of the machine as a design criteria.

IND 251: Fundamentals of Electronic Drafting .....2 credit hours

Prerequisite(s): ELE 111, ELE 137, IND 216
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the beginning engineering student with an overview of engineering design, based on a "hands-on" experience with a client-centered engineering design project. The project includes: 1) a team-based design project, 2) an introduction to the use of computer tools and lab techniques for a design project, and 3) a survey of engineering disciplines involved with concurrent engineering projects.

IND 274: IND Co-op Education II.....1 - 3 credit hours

Prerequisite(s): IND 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Industry, Technology & Society ITS

ITS 100: Technology and Society.....2 credit hours
Prerequisite(s): MTH 038, MTH 039, ENG 091, ACS 070 or equivalent test scores
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18, 19, 20

This course is an introduction to the basic principles of technology. The emphasis of the course can be divided into three parts; nature of technology; methods used in studying technology, including cause and effect, models, simulations, and systems approaches; the interaction of society and technology. The purpose of the course is to create an opportunity to explore what technology is all about and how it affects our lives. The course is taught in the seminar format with experiential learning exercises, group projects, discussions and field trips.

Internet Professional INP

INP 230: Advanced Web I.....3 credit hours
Prerequisite(s): GDT 200, CIS 160, CIS 165
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is an advanced course in publishing for the Worldwide Web. The focus is on exploring and incorporating advanced technologies into web sites. Topics range from technical to design, including creating advanced tables, frames, and style sheets, utilizing interactive forms and scripts, using JavaScript(r) to create effective rollovers, and discussing and evaluating new emerging web technologies. The latest, industry-standard software for creating and publishing web sites will be used.

INP 240: Advanced Imaging for the Web .....3 credit hours
Prerequisite(s): (GDT 200 and GDT 143) or (GDT 200 & GDT138 & either GDT 142 or PHO 127)
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This advanced imaging course is an in-depth exploration into creating effective graphics for the web. Students learn advanced imaging techniques for the web, including creating and manipulating images, evaluating color issues, and optimizing images for fast load-up. The latest industry standard applications will be used.

INP 250: Audio and Video for the Web .....3 credit hours
Prerequisites: GDT 200
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This course focuses on incorporating audio and video into web sites. Topics covered include studying audio and video concepts, exploring options for publishing, manipulating audio and video elements, and optimizing audio and video for the web. The latest, industry-standard applications will be used.

INP 255: Animation on the Web .....3 credit hours
Prerequisites: GDT 143, GDT 200
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This animation course is an in-depth exploration into creating attractive and effective moving images for the web. Students will learn to create and publish basic (object animation) and advanced (vector animation) animations into their web sites. The latest, industry-standard applications for creating animations will be used.

INP 260: Advanced Web II .....3 credit hours
Prerequisites: INP 230
Corequisites: none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This is a seminar/portfolio course focusing on creating comprehensive, interactive web sites. Students will work individually and in groups to create advanced, interactive web sites for specified clients. Topics covered include creating a professional portfolio, critiquing student work, and monitoring and managing a web site.

Machine Tool Technology MTT

MTT 100: Machine Shop Theory.....4 credit hours
Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 18, 19

The purpose of this class is to obtain a general scope of the machine tool industry and manufacture of parts using metal removal techniques. This class is designed to supplement Machine Tool Theory and Practice. The theory, set-up, and operation of basic machine tools is presented. Major units include precision measurement, cutting tools, and speeds and feeds for various operations. Lecture will be supplemented with demonstrations in the machine tool laboratory.

MTT 101: Blueprint Reading for Manufacturing .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 18

Fundamentals of blueprint reading as applied to the manufacturing industry are studied. Basic drafting principles are studied as applied to specific problems. The class is designed for pre-engineers, draftsmen, machine operators, machine repairmen, inspectors, welders and supervisors.

MTT 103: Introduction to Materials .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 18

This course includes an introduction to the basic terms, processes and structures of materials. Hardness testing, classification systems and demonstrations of testing equipment are studied. Principles of heat treatments are studied and demonstrated.

MTT 111: Machine Shop Theory and Practice .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
22.5 lecture, 67.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 18, 19

This beginning machine shop class is for those with little or no machine shop experience. Much emphasis is placed on safety. Precision and semi-precision measuring instruments, layout tools and procedures, reading drawings, and the proper use of hand tools are areas covered. Lab time is used to gain experience and learn basic operations on the five basic machine tools: drill press, saws, engine lathes, milling machines and grinders.

MTT 122: Machine Tool Operations and Set-Up I .....4 credit hours

Prerequisite(s): MTT 111 or consent
Corequisite(s): none
22.5 lecture, 67.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 18, 19

This is a machine shop class for those who have either completed the beginning level machine shop or have gained equivalent experiences elsewhere. Each of the five basic machine tools are studied in depth. The projects are designed to facilitate more advanced set-ups and operations so that the cutting of spur gears, multiple threads, tapers and internal grinding operations can be performed.

MTT 123: Machine Tool Operations and Set-Up II .....4 credit hours

Prerequisite(s): MTT 122 or consent
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 18, 19

A continuation of MTT 122, this class is designed for mechanical technology students or for those who simply want to gain more machining experiences. Students experience new advanced operations on familiar machines along with new operations on entirely new machine tools, the new operations include spiral milling, taper grinding, and tracing techniques. New machine tools include the electrical discharge machine, optical comparater, turret lathe, and cutter grinder. Projects are designed to facilitate the completion of these operations and to gain experience on these machine tools.

MTT 174: MTT Co-op Education I .....1 - 3 credit hours

Prerequisite(s): MTT 111, MTT 122 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

MTT 201: Machine Tool Technology.....4 credit hours

Prerequisite(s): MTT 123 or consent
Corequisite(s): none
0 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 18, 19

The last and most advanced machine shop class, this course emphasizes students' individual goals and proficiencies of specific machining operations. After completing the assigned projects, the students choose additional projects to manufacture using several advanced techniques to meet individual needs.

MTT 274: MTT Co-op Education II .....1 - 3 credit hours

Prerequisite or corequisite: MTT 174 and consent
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated position in the field of Technology. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two possible co-op experiences.

Mathematics MTH

MTH 010: Arithmetic .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students having difficulty with arithmetic. Topics include whole numbers, common fractions, decimal fractions, percents, and applications of arithmetic. Hand calculations are emphasized, however, work with calculators and computers is included. The course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld calculators.

MTH 011: Solving Equations .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students having difficulty solving mathematical equations. Topics include: properties of real numbers, signed numbers, simplifying algebraic expressions, and solving simple equations. Work with computers is used to enhance the understanding of these concepts. The course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld

MTH 012: Geometric Figures.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students needing to improve their skills with mathematics relates to basic geometric figures. Topics covered include: points, lines, rays, segments, descriptions of geometric figures, polygons, circles, perimeter, solids, area, and volumes. Work with computers is used to enhance the understanding of some of these concepts. This course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld calculator.

MTH 013: Graphs and Elementary Statistics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students needing to improve their Graphing and Statistical skills. Topics covered include: ratio and proportions, circle graphs, bar graphs, mean mode median, and tabulation data. Work with computers is used to enhance the understanding of some of these concepts. The course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld calculators.

MTH 014: Interest and Taxes.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students needing to improve the application of mathematical skills to practical business situations. Topics covered include: use of formulas, simple and compound interest, notes, loans, installment contracts, taxes, and payroll. Work with computers is used to enhance the understanding of some of these concepts. The course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld calculator.

MTH 016: Right Triangles.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is for students needing to develop or improve mathematical skills in working with right triangles. Topics covered include: the similar triangle theorem, trigonometric ratios, and the solution of right triangles. Work with computers is used to enhance the understanding of some of these concepts. The course is offered only in an individualized format using a satisfactory/unsatisfactory grading system. This course may not be repeated for additional credit. Students are required to supply their own handheld calculator.

MTH 036: Math Anxiety .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for students who find themselves excluded from certain career choices because they are afraid to take math classes. Fear of mathematics is combated through the analysis of anxiety and the development of mathematical study skills. The course also explores the origin of math anxiety and gives help in reducing such anxiety and changing attitudes toward mathematics. This is a service course that may not be used as a substitute for a required mathematics course. Grading uses the satisfactory/unsatisfactory system.

MTH 038: Building Math Confidence .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to increase confidence levels in math-anxious people by providing instruction in problem solving techniques. Topics covered include calculator skills, story problem techniques, graphing, logic, and spatial relationships. Grading uses the satisfactory/unsatisfactory system.

MTH 039: Basic Mathematics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a review of the basic arithmetic operations common in every-day situations. Topics covered include whole numbers, fractions, decimals, and percents. This course is offered both in a self-paced format and the standard lecture format. The lecture course includes an additional hour of computation guided by the instructor. Grading uses the satisfactory/unsatisfactory system.

MTH 054: Basic Math for Health Students .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

A study of whole numbers, fractions, decimals and percentages with mental arithmetic and estimation development. Accuracy and speed of calculations are emphasized with timed tests. Ratio and proportion with applications to health are emphasized. The course is taught with a lecture mode of instruction. It is designed for students preparing for nursing and pharmacology courses.

MTH 062: Prealgebra .....3 credit hours

Prerequisite(s): MTH 039 or equivalent or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Prealgebra begins with a review of arithmetic including story problems. Topics include properties of whole numbers, signed numbers, variables, expressions, and equations.

MTH 090: Occupational Mathematics.....3 credit hours

Prerequisite(s): MTH 062 or equivalent or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 9

This course provides the computational skills needed to solve problems commonly encountered in various general occupational fields. Students with an interest in business should consider MTH 163, Business Mathematics. Students with an interest in health fields should consider MTH 165, Health Science Mathematics. Topics covered include: arithmetic review, sets, whole and integer number systems, practical algebra, geometry, measurements, the metric system, ratio and proportion problems, graphs, and statistics. This course is offered in a self-paced format and occasionally in the standard lecture format.

MTH 097: Introductory Algebra.....4 credit hours

Prerequisite(s): MTH 062 or MTH 090, or equivalent or consent
Corequisite(s): none
75 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9

The scope and content of this course is equivalent to a first-year high school algebra course. Topics include: the real number system, algebraic operations, solving equations, practical applications, inequalities, graphing, systems of equations, polynomial and rational expressions, roots and radicals, and quadratic equations. This is a standard lecture format course. The content of this course is offered in the self-paced format as MTH 097A and MTH 097B.

MTH 097A: Introductory Algebra (first half).....3 credit hours

Prerequisite(s): MTH 062 or MTH 090, or equivalent or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9

This course is the first half of MTH 097. Topics include the rational number system, algebraic operations, solving equations, ratio and proportion, and practical applications. This course is offered only in the self-paced format.

MTH 097B: Introductory Algebra (second half).....3 credit hours

Prerequisite(s): MTH 097A
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9

This course is the second half of MTH 097. Topics include inequalities, graphing, systems of equations, polynomials, rational expressions, roots and radicals, the real number system, and quadratic equations. This course is offered only in the self-paced format.

MTH 116: Radiographic Calculations .....2 credit hours

Prerequisite(s) : MTH 090 or Admission to RAD Program
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7

This is a specialized math course designed to review the mathematics needed of WCC radiographic students. The course includes the basic computational skills, statistics and formulas needed by practicing radiologic technologists. Emphasis is given to mathematics of technique adjustments that require application of basic algebraic operations, conversion factors, ration and proportion. Direct, inverse, and inverse-square proportions, the 15% Rule and Reciprocity Law are covered.

MTH 148: Functional Math for Elementary School Teachers.....4 credit hours

Prerequisite(s): MTH 097
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course presents the mathematical concepts and problem solving techniques necessary for success in a teaching career at the elementary school level. It is not a course solely for teachers of mathematics, rather, it provides the general mathematical background for teachers on all subjects. Topics covered include problem solving, sets, whole numbers, integers, rational numbers, decimals, number theory, geometry, probability and statistics, and measurement. This course transfers to some four-year institutions.

MTH 151: Technical Algebra .....4 credit hours

Prerequisite(s): MTH 039
Corequisite(s): none
75 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

This course introduces algebraic and geometric concepts in an applied setting and is primarily for trade and technical students. Topics, which emphasize applications, include: mean, median, mode, percents, ratio and proportion, operating with algebraic expressions, formulas and equations, area, volume, and right triangle trigonometry. This course is offered in both a self-paced format and the standard lecture format.

MTH 152: Technical Geometry and Trigonometry.....4 credit hours

Prerequisite(s): MTH 097 or MTH 151
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course provides students with the geometric and trigonometric concepts needed to solve problems commonly encountered in technical and trade fields. Topics, which emphasize applications, include basic theorems of geometry, formulas for areas and volumes, trigonometric functions, solutions of right triangles, laws of sines and cosines, and the solution of oblique triangles. This course is offered in both a self-paced format and the standard lecture format.

MTH 160: Basic Statistics .....4 credit hours

Prerequisite(s): MTH 097
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9, 10

This course provides students with a general understanding of statistical concepts dealing with the processing and interpretation of numerical information. Topics covered include describing a numerical data set, central tendency, variability, probability distributions, inference, and hypothesis testing. This course transfers to many four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 163: Business Mathematics .....3 credit hours

Prerequisite(s): MTH 039
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 9

This course provides the mathematical skills needed to solve business application problems and satisfies the math requirements of several one- and two-year WCC business programs. The topics, which emphasize business applications, include operations with whole numbers, fractions, decimals, and percents; measurement or computer mathematics; the metric system; signed numbers; solving equations; ratio and proportion; percent applications; circle, bar, and line graphs; savings and loans; taxes and payroll; and an introduction to statistics. This course is offered in a self-paced format, occasionally in the standard lecture format, and as a television course using the program series "By the Numbers."

MTH 165: Health Science Mathematics .....3 credit hours

Prerequisite(s): MTH 039
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 9

This course provides the mathematical skills needed to solve problems encountered in health-related fields, and satisfies the math requirements of several one- and two-year WCC occupational programs. The topics, which emphasize health science applications, include basic mathematics; operations with percents; fractions and decimals; geometry; the metric system; the line graphs; an introduction to statistics; and exponents and logarithms. This course is currently offered only in the self-paced format.

MTH 169: Intermediate Algebra .....4 credit hours

Prerequisite(s): MTH 097
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

The scope and content of this course is equivalent to a second-year high school algebra course. Topics include: descriptive statistics, the real number system, polynomials, linear equations, inequalities, absolute value, radicals and exponents, complex numbers, quadratic equations and inequalities, linear and quadratic functions, inverse functions, lines and linear systems, non-linear systems, systems of inequalities and determinants. This course is offered in the standard lecture format. The content of this course is offered in the self-paced format as MTH 169A and MTH 169B. This course transfers to some four-year

MTH 169A: Intermediate Algebra (first half) .....3 credit hours

Prerequisite(s): MTH 097
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

This course is the first half of MTH 169. Topics include descriptive statistics, the real number system, polynomials, linear equations, inequalities and absolute value. This course is offered only in the self-paced format. The combination of MTH 169A and MTH 169B transfers to some four-year institutions as MTH 169.

MTH 169B: Intermediate Algebra (second half) .....3 credit hours

Prerequisite(s): MTH 169A
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course is the second half of MTH 169. Topics include radicals and exponents, complex numbers, quadratic equations and inequalities, linear and quadratic functions, inverse functions, lines and linear systems, nonlinear systems, systems of inequalities, and determinants. This course is offered only in the self-paced format. The combination of MTH 169A and MTH 169B transfers to some four-year institutions as MTH 169.

MTH 177: Triangle Trigonometry .....3 credit hours

Prerequisite(s): MTH 097
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course is an introduction to the trigonometric concepts of the triangle. Topics covered include triangles and the basic trigonometric ratios, solving right triangles, laws of sines and cosines, trigonometric ratios of any angle, degrees and radians, and vectors. This course is currently offered only in the self-paced format. Students with very limited math experience may wish to take this course in preparation for MTH 178.

MTH 178: General Trigonometry.....3 credit hours

Prerequisite(s): MTH 169 or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course provides a rigorous background in trigonometry necessary for students intending to study calculus. Topics include: trigonometric functions, inverse trigonometric functions, trigonometric graphs and manipulations, identities, solutions of trigonometric equations, measurement of triangles and arc. This course transfers to many four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model. (MTH 179 may be taken concurrently. It is recommended that MTH 179 be taken first if the two are not taken concurrently.)

MTH 179: Precalculus.....4 credit hours

Prerequisite(s): MTH 169 or equivalent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

This course provides the necessary background in college-level algebra for calculus. Topics include set theory and set operations, relations and functions, manipulations of rational and non-rational functions, graphing, factoring, properties of exponents and logarithms, conic sections, sequences, binomial theorem, and mathematical induction. This course is currently offered only in the standard lecture format. It transfers to most four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 181: Mathematical Analysis I .....4 credit hours

Prerequisite(s): MTH 169 or equivalent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

This course teaches the methods and applications of finite mathematics applied to social science and business. Topics covered include solution to linear equations and inequalities, mathematics of finance, matrices, linear programming, sets, probability and statistics. This course transfers to many four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 182: Mathematical Analysis II .....4 credit hours

Prerequisite(s): MTH 179 or MTH 181
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This course teaches the elementary methods of calculus applied to social science and business. Topics covered include functions, differentiation of algebraic functions, optimization, exponential functions and logarithmic functions and their derivatives, integration, selected applications, and an introduction to multivariate calculus. Some four year institutions accept this course as the calculus requirement of certain of their business and social science programs. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 186: Applied Calculus I .....3 credit hours

Prerequisite(s): MTH 178, MTH 179 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 9, 11

This course is the first of a two-course sequence in applied calculus for engineering technology. An applications-oriented approach is given to topics including complex numbers, determinants and matrices, and differentiation and integration of algebraic and transcendental functions. There is a major emphasis on computer solutions standard mathematical software and scientific graphing calculators.

MTH 191: Calculus I .....5 credit hours

Prerequisite(s): MTH 178, MTH 179
Corequisite(s): none
75 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 7, 8, 9

This is first-semester college calculus of one variable. Topics include limits, continuity, derivatives, applications of derivatives, elementary integration, and applications of integration. This course transfers to four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 192: Calculus II .....4 credit hours

Prerequisite(s): MTH 191
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This is second-semester college calculus of one variable. Topics include the calculus of transcendental functions, techniques of integration, indeterminate forms and improper integrals, sequences and series, parametric equations and polar coordinates. This course transfers to four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 197: Linear Algebra .....4 credit hours

Prerequisite(s): MTH 191
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This is an introductory college course in linear algebra. Topics include linear systems of equations, properties of vectors and matrices, determinants, vector spaces, linear transformations, eigenvalues, and applications. This course transfers to four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 286: Applied Calculus II .....3 credit hours

Prerequisite(s): MTH 186 or consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is the second of a two-course sequence in applied calculus for engineering technology. An applications-oriented approach is given to topics including: further topics on integration, an introduction to differential equations, Laplace transforms, Fourier series, numerical methods of solutions to integrals and differential equations, and a brief introduction to partial differential equations. There is a major emphasis on computer solutions using standard mathematical software and scientific graphing

MTH 293: Calculus III.....4 credit hours

Prerequisite(s): MTH 192
Corequisite(s): MTH 197
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This is the third-semester college calculus of more than one variable. Topics include geometry in the plane and in space, vector-valued functions, partial derivatives, multiple integrals, and an introduction to vector calculus. This course transfers to four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

MTH 295: Differential Equations .....4 credit hours

Prerequisite(s): MTH 197, MTH 293
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9

This is a first college course in elementary differential equations. Topics include techniques for solving ordinary differential equations of order one, techniques for solving linear equations, applications, the Laplace transform, and solving linear systems of equations using eigenvalues. This course transfers to four-year institutions. A graphing calculator is required for this course. Consult the time schedule for current brand and model.

Mechanical Technology MET

MET 174: MET Co-op Education I .....1 - 3 credit hours

Prerequisite(s): 1st semester courses and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two co-op courses.

MET 188: Introduction to Engineering Design .....3 credit hours

Prerequisite(s): IND 216 or IND 217, or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the beginning engineering student with an overview of engineering design, based on a "hands-on" experience with a client-centered engineering design project. Included is a team-based design project, an introduction to the use of computer tools and lab techniques, and a survey of engineering disciplines involved with concurrent engineering

MET 211: Statics and Introduction to Solid Mechanics .....3 credit hours

Prerequisite(s): MTH 191 or equivalent, MTT 103, IND 217
Corequisite(s): MTH 191
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 18

This course is an analytical and graphical study of the principles of statics including equilibrium and static equivalence. Also covered is determination of moment and force resultants in members, centroids, and moments of inertia. The course focuses on applications to engineering problems and the introduction to concepts of stress strain relationships and generalized Hooke's

MET 221: Computer Aided Mechanical Design .....3 credit hours

Prerequisite(s): IND 217 or Consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course examines the principles of parametric and feature based three dimensional CAD models, including the application of creating assemblies, creating drawings and good design practices. Agile design models are created using Pro/Engineer software.

MET 239: Design of Machine Components .....3 credit hours

Prerequisite(s): MTH 192, PHY 211, MET 260 or consent of instructor
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students learn the methods of designing the common machine components applying the principles of mechanics of materials and other engineering sciences. The focus is on the safety, reliability and cost effective issues with emphasis on obtaining computer aided design criteria. Topics include load analysis and material strength overview, fatigue and failure theories, contact stress mechanics, hydrodynamic lubrication, and methods of design and performance analysis of machine members.

MET 241: Introduction to Dynamics .....3 credit hours

Prerequisite(s): MET 211 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 18

This course is an analytical and graphic study of the motion of rigid bodies. Vector description of force, position, velocity, and acceleration in fixed and moving reference frames are covered. Also included are kinetics of particles, assemblies of particles and of rigid bodies, energy and momentum concepts, and Euler's equations. Applications to engineering problems with principles of linkages, cams, gears, and displacement, velocity and acceleration analysis of mechanisms are included.

MET 260: Strength of Materials .....3 credit hours

Prerequisite(s): MET 241 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 6, 18, 19, 20

In this course, students learn methods for calculation of shear, tensile, and compressive stresses in industrial materials. Topics include energy methods, buckling of columns, bending of beams, shear and torsion. The focus is on design of engineering structures with emphasis on problem solutions techniques, experimental analysis, and computer aided solutions.

MET 274: MET C o-op Education II .....1 - 3 credit hours

Prerequisite(s): MET 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated position in the field of Technology. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two possible co-op experiences.

MET 278: Finite Element Modeling Fundamentals .....3 credit hours

Prerequisite(s): IND 217 or consent
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This course provides a general introduction to Finite Element Modeling (FEM). The integration of finite element theory, principles, problem formulation, and computer analysis are introduced along with the use of commercially available finite element software. Emphasis is placed on practical modeling methods, understanding FEM and FEA concepts, interpreting results and obtaining realistic solutions. Attention is give throughout to the modeling of engineering problems. Pre and post processing concepts are discussed in conjunction with the HYPERMESH software.

MET 296: Introduction to Internal Combustion Engine Theory.....3 credit hours

Prerequisite(s): MTH 192, PHY 211 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to give students, prospective automotive engineers, and others a foundation in internal combustion engine design and technology. Topics include gas/fuel-air cycles, combustion and heat engine thermodynamics, valve and in-cylinder flows, exhaust emissions and emission control, heat transfer, fuels and lubricants, engine tribology, and engine performance. Also emphasized is the use of computer subroutines obtaining solutions for a selected number of engine design and performance evaluation problems.

Music MUS

MUS 103: WCC Community Jazz Orchestra ....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 13

This course in performance is open to those who desire to read, improvise and perform. An audition is necessary for registration; the course may be repeated for credit up to a maximum of four times.

MUS 105: Basic Combo and Improvisation ....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This is a basic performance skills class for instrumental and vocal solo or small group expression. Students learn basic improvisation and listening skills, how to express their original ideas through the acquisition of chord and scale relationships, and communication and group interaction skills. Students must demonstrate basic competency on their instruments.

MUS 106: Instrumental Combo.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

The Combo course is designed for the musician with some degree of competency to gain experience and skill in performance and improvisation of different styles of music. This is a performing group which offers concerts in the college community and community-at-large.

MUS 135: Chorus .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

A course in performance covering traditional choral music. This group is open to all students. It may be repeated for credit up to a maximum of three times.

MUS 136: Gospel Chorus .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course in gospel choral performance is open to all students. It may be repeated up to a maximum of six times.

MUS 140: Basic Musicianship .....3 credit hours

Prerequisite(s) : none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This course is designed to give students, prospective teachers and others a foundation in music theory and reading, concepts of rhythm, tonality, music composition, and other techniques, with the aim of developing musical skills and understanding. No musical experience is necessary.

MUS 142: Music Theory.....3 credit hours

Prerequisite(s): MUS 140
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This course includes an in-depth study of melodic, harmonic and rhythmic aspects of tonal music related to various styles: European, rock, jazz, ballads and the Blues. The course equips students with a theoretical knowledge to extend and cultivate musical understanding and creativity while giving primary emphasis to the harmonic aspects of music.

MUS 143: Composition: Theory and Arranging.....2 credit hours

Prerequisite(s): MUS 140
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This class is designed to enable students to develop skills and techniques in music composition, orchestration and arranging for all musical mediums.

MUS 146: Creative Improvisation: Songwriting .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

For the prospective song writer, this class deals with lyric writing and musical accompaniment. Students collaborate using their talents to produce songs and also become acquainted with musical styles through recordings and demonstrations. Music industry procedures concerning how to get a song published and recorded is discussed. Other areas of study include recording, the recording studio, record pressing and copyright procedures.

MUS 147: Entertainment Law .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 22

This is a music course for the serious music student and professional musician covering basic agreements, contracts, royalties, copyrights and other legal aspects in the music industry.

MUS 149: Ear Training.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides an approach to listening to and reading music designed to develop composing and listening skills. It also offers an introduction in training the ear to identify intervals, chords, scales and chord progressions.

MUS 157: Jazz Improvisation .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13

This course in jazz theory provides students with techniques of melody, harmony and rhythm that would excite spontaneous creativity in the jazz style.

MUS 175: Audio Recording Technology I .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 18

This course is designed to provide students with the fundamentals necessary for a career-oriented study in creative audio recording. Audio-visual and hands-on experience (professional recording studio access) is provided, in addition to lecture and studio experience on automated recording techniques and multitrack.

MUS 180: Music Appreciation .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 10, 13, 14, 24

This introduction to music, using innovative techniques on how to listen to music after becoming acquainted with the socio-cultural values of people who produced the many kinds of music of our world. All music styles are covered. Presentations deal with the growth and development of musical forms and different styles through recording, demonstrations, instructor and student generated demonstrations and projects.

MUS 204: Voice.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course is an extension of Introduction to Voice and is an in-depth study of vocal techniques.

MUS 206: Vocal Performance.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14

Students refine singing techniques and learn techniques for performing songs. Public concerts and revues are held, requiring additional rehearsal time over and above class time. Emphasis is on musical theater repertoire, using live accompaniment.

MUS 210: Functional Piano .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This piano class is aimed to give non-piano majors and those who just want to play the piano the ability to read keyboard music harmonically and melodically. The course covers piano technique fundamentals, basic musician-ship, elementary keyboard harmony, sight reading, pedal technique, aids to memorization and keyboard application of subjects studied in music classes.

MUS 213: Intermediate Piano.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

A continuation of MUS 210, this course provides piano studies beyond the elementary or beginning stage. It is for those with some experience in piano playing.

MUS 216: Piano: Jazz & Blues.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This piano course is designed to cover such styles as Blues and elementary jazz improvisation techniques. Music theory in terms of chord progression and improvisational techniques are part of the course of study.

MUS 225: Drums: Beginning Jazz/Rock .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

Rudimentary skills in jazz drumming are learned; study includes historical styles such as Swing, Be-Bop, and South American and African rhythms.

MUS 233: Beginning Guitar.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

Designed for those with limited or no experience playing the guitar, this course teaches basic chords and techniques as well as folk and Blues songs. Class is keyed to students' interests and needs.

MUS 236: Intermediate Guitar .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course is for students with a basic knowledge of guitar playing. There are opportunities to learn more advanced techniques as well as learning about song arrangements and theory. Class is keyed to students' interests and needs.

MUS 239: Jazz Guitar .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

Designed to enable students to develop skills necessary to play the guitar in different jazz styles, this course includes improvisation work and chording. It requires basic guitar playing experience.

MUS 275: Audio Recording Technology II ....3 credit hours

Prerequisite(s): MUS 175
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 18

This is a career-oriented course for advanced audio technology recording. Students apply basic theory and recording skills to progressive recording of solo instrumental, small group and finally multi-track large ensembles. Students are assigned projects to record both student a professional groups within the college or externally.

Natural Resources NRS

NRS 110: Seasonal DNR Park Officer Training .....8 credit hours

Prerequisite(s): DNR employment
Corequisite(s): none
114 lecture, 12 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a short course for training Department of Natural Resources Seasonal Parks and Recreation officers.

NRS 120: DNR Enforcement Officers Training .....11 credit hour

Prerequisite(s): DNR employment and selection
Corequisite(s): none
158 lecture, 34 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides training in law enforcement skills for Department of Natural Resources Park and Recreation Forest Fire Officers. Individuals must be employed by the DNR and designated for this training.

Numerical Control NCT

NCT 112: Introduction to CNC Machining ....3 credit hours

Prerequisite(s): none
Corequisite(s): none
37.5 lecture, 37.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18

This course develops proficiency in setup and operation of CNC Machining Centers and Turning Centers. Students master CNC controls through laboratory experiences and the manufacture of pre-programmed parts. Part processing, speeds and feed, fixturing and tool offsets are major topics discussed.

NCT 121: Manual Programming and NC Tool Operation .....4 credit hours

Prerequisite(s): ROB 111, MTH 151
Corequisite(s): NCT 112
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11, 18, 19

This is the first in a two-course study of manual programming of CNC milling and turning machines. Students experience the entire process of part manufacture by processing blueprints of sample parts, writing and editing of programs, set up and operation of the machine tool, inspection of finished product. Feeds and speeds, fixed cycles, program editing, set up procedures, and tape preparation are major topics presented. Laboratory time is required outside of class time.

NCT 122: Advanced Manual Programming and NC Tool Operation .....4 credit hours

Prerequisite(s): MTH 152, NCT 121
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 8, 9, 11, 18, 19

This is the second of a two-course study of Manual Programming and CNC Machine Tool Operation. Complex cutter path generation, cutter compensation, repetitive programming, multi-quadrant circular interpolation, three axis interpolation, threading, and other advanced programming techniques are practiced. The class format is similar to that of NCT 121, and laboratory time outside of class is required.

NCT 174: NCT Co-op Education I .....1 - 3 credit hours

Prerequisite(s): NCT 112, NCT 121, NCT 122 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

Students are placed in an approved industrial work experience to gain skills and knowledge and skills offered by the employer. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

NCT 236: CAM Machine Tool Programming.....4 credit hours

Prerequisite(s): NCT 112, NCT 121
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 11

Students generate tool paths for milling and turning machines that are CNC controlled, using Computer Aided Manufacturing software. Part programs are constructed by defining the part geometry and then defining the tooling using a "PC" based CAM system. Tool path generation on CAD produced databases are included as part of the class activities. Program editing and transfer of part programs to the N/C machine tool from the CAM system are included. The machining operations are 2-D machining applications. Students are provided time outside class to use the CAM hardware and software to complete assignments.

NCT 247: Advanced CAM Machine Tool Programming.....4 credit hours

Prerequisite(s): IND 216, NCT 236
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 11, 12, 18, 19

This course is a continuation of NCT 236. Students learn advanced geometric construction and tool path generation using CAD/CAM software. The majority of the subject matter is concerned with the creation and machining of surfaces. Ruled, Coons Patch, Swept, Revolved, Fillet and Composites are some of the surface types presented. Three and four axis CNC machine tool paths are then created and used in the machining of actual parts in the CAM laboratory using CNC machine tool equipment.

NCT 249: Mastercam CNC Programming.....4 credit hours

Prerequisite(s): NCT 121, NCT 236 or equivalent
Corequisite(s): none
45 lecture, 45 lab, clinical, practicum hours
Fulfills Core Elements: 9, 11, 12, 18, 19

Students learn to use Mastercam CAD/CAM software to design parts and generate CNC Machine Tool Programs for part manufacture. Students practice the input of geometry as the basis for tool path generation. Both 2-D geometry and 3-D wireframe geometry are practiced. All methods of surface creation are presented and practiced using Mastercam. CNC Machine Tool Programs are created for the manufacture of parts within the software. Drilling, Pocketing and Contour milling are typical 2-D machining applications presented. Students are provided time in the CNC Machine Tool laboratory.

Nursing NUR

NUR 039: State Board Preparation .....1 credit hour

Prerequisite(s): Consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course assists Nursing Program graduates in preparing for the State Board of Nursing Examination. Emphasis is placed on reviewing learned materials and on taking a national competitive examination. Grading uses the satisfactory/unsatisfactory system.

NUR 101: Introduction to Nursing .....1 credit hour

Prerequisite(s): Admission to Nursing Program
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2

This is the first course in the nursing sequence. Information that provides a foundation for other nursing courses is introduced. Topics include the roles of nurses, personal philosophy of nursing, an overview of nursing history. The course emphasizes associate degree nursing, the Code of Ethics for Nurses, universal precautions, basic legal issues, and medical terminology.

NUR 102: Fundamentals of Nursing.....2 credit hours

Prerequisite(s): 1st semester courses
Corequisite(s): NUR 103
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 16

Theory that provides a foundation for other nursing courses is introduced, including Modeling and Role Modeling and the nursing process. Teaching and learning and the concepts of pain, sleep and cultural issues are included.

NUR 103: Fundamentals of Nursing - Clinical Practice .....3 credit hours

Prerequisite(s): 1st semester courses, HSC 131 or equivalent
Corequisite(s): NUR 102
0 lecture, 81 lab, 54 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 16

Students will develop skills basic to nursing care in the nursing laboratory. Clinical practice will be in acute and extended care facilities. Emphasis is on assessment skills and implementation of care using standard nursing care plans for commonly encountered nursing diagnoses. The role of the ADN on the health care team is included.

NUR 104: Nursing of the Older Adult.....1 credit hour

Prerequisite(s): Admission to program
Corequisite(s): NUR 105
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 10

This course uses the nursing process to promote self care for adults from mid-life to death. It focuses primarily on healthy, non-institutionalized older adults, their accommodations to normal changes, commonly encountered alterations in health maintenance, prevention and screening programs and national and state health systems.

NUR 105: Nursing of the Older Adult - Clinical Practice.....1 credit hour

Prerequisite(s): Admission to program, HSC 131 or equivalent
Corequisite(s): NUR 104
0 lecture, 0 lab, 45 clinical, 0 practicum hours
Fulfills Core Elements: 10, 13

Clinical practice in the nursing of the older adult is provided in community settings. Students explore community resources for the support of the older adult. Opportunities are provided for interaction with the healthy older adult to focus on psychosocial, nutritional, and mobility assessment.

NUR 111: Pharmacology I .....1 credit hour

Prerequisite(s): Consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11

Principles of pharmacology are introduced, including drug sources, preparations, classification and legislation. By the end of the course, students must demonstrate proficiency in calculating drug dosages. This course is the basis for continued learning of pharmacology in subsequent nursing courses.

NUR 112: Pharmacology II.....2 credit hours

Prerequisite(s): NUR 111 or equivalent or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16

This course builds on principles and concepts learned in NUR 111, Pharmacology I. Students are provided with expanded information on major drug classifications using a body system approach. Discussion is directed at general mechanisms of action, clinical indications for use, common adverse reactions, general nursing implications, and significant drug interactions. Students are exposed to representative drugs of each class that are frequently used in clinical practice.

NUR 123: Acute Care Nursing I .....3 credit hours
Prerequisite(s): 2nd semester courses
Corequisite(s): NUR 124
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 8

Students are introduced to principles and skills related to the care of clients/patients with problems of fluid and electrolyte balance, gas transport, inflammation and the immune responses and disorders. Using the nursing process as a framework, students learn preoperative, intra-operative and postoperative nursing care. Various nursing approaches which support an individual's adaptation to stressors are examined.

NUR 124: Acute Care Nursing I - Clinical Practice .....2 credit hours
Prerequisite(s): 2nd semester Nursing courses
Corequisite(s): NUR 123
0 lecture, 0 lab, 90 clinical, 0 practicum hours
Fulfills Core Elements: 18

This course builds on and supports skills learned in NUR 103: Fundamentals of Nursing Clinical Practice, and NUR 105: Nursing of the Older Adult Clinical Practice. Students gain increased competence in assessment skills including the integration of diagnostic tests and procedures and their results. Planning individualized nursing care including discharge teaching, based on appropriate nursing diagnoses and collaborative problems will be introduced.

NUR 131: Nursing of the Childbearing Family .....3 credit hours
Prerequisite(s): 2nd semester Nursing courses
Corequisite(s): NUR 132
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 6, 16

This course introduces basic nursing care of the family during the childbearing process, including antepartum, intrapartum, postpartum and normal newborn period. Topics of family structure and adaptation, fertility and infertility, and deviations from the normal maternity and newborn cycle will be addressed.

NUR 132: Nursing of the Childbearing Family - Clinical Practice .....2 credit hours
Prerequisite(s): 2nd semester Nursing courses
Corequisite(s): NUR 131
0 lecture, 0 lab, 90 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9

Students use the nursing process to provide care for families in the childbearing cycle within the hospital setting. Use of family and wellness diagnoses is introduced. Emphasis is on health teaching to assist the family in adapting to parenting and recovery from childbirth. Some experience with high-risk mothers and newborns is provided.

NUR 201: Transition for LPNs .....2 credit hours
Prerequisite(s): LPN Admission to Advance Standing Program and consent
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is limited to licensed practical nurses. The course content and competencies selected are those required for the first three semesters of the nursing program which are not generally covered in a practical nursing program. Guided laboratory experience will provide opportunity to demonstrate mastery of psychomotor skills with emphasis on physical assessment and application of the nursing process. Note: The English, Biology and Computer Science requirements in the nursing program must either be taken before or concurrently with NUR 201.

NUR 205: Introduction to Professional Nursing: Societal Dimensions.....3 credit hours
Prerequisite(s): none
Corequisite(s): BIO 237, PSY 100
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The purpose of this course is to provide students with a foundation in the scientific and social dimensions of nursing as a discipline and a health profession. Students examine the historical development of nursing and assess the impact of that development on contemporary nursing. Cultural variables and personal values are examined by students. Finally, the social context within which nursing is practiced is reviewed, providing students with an appreciation of the health care system, with particular emphasis on legal and ethical frameworks.

NUR 222: Health Assessment Throughout the Lifespan.....4 credit hours
Prerequisite(s): 1st, 2nd semester BSN Transfer, RN License, 4th semester ADN
Corequisite(s): BIO 111, HSC 147
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

This course provides the beginning knowledge needed to assess the health status of individuals from infancy through old age, including physical, developmental, psychological, cultural and spiritual dimensions. The laboratory experience provides students the opportunity for skill acquisition in history taking, assessment skills, and documentation of findings, focused on the adult client.

NUR 223: Acute Care Nursing II .....3 credit hours
Prerequisite(s): 3rd semester courses or1st semester Advance Standing Program
Corequisite(s): NUR 224
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 16

This course builds on principles and skills learned in NUR 123: Acute Care Nursing I in the areas of fluid and electrolyte balance, biologic defense mechanisms, metabolism/nutrition and elimination patterns. Additional principles introduced include disturbances in the functional patterns of activity/exercise, cognitive/perceptual and sexual/reproduction. Students learn holistic care of individuals with complex medical/surgical problems. The nursing process is used as the integrating framework.

NUR 224: Acute Care Nursing II - Clinical Practice .....2 credit hours
Prerequisite(s): Admission to Nursing Program, completion of 3rd semester
Corequisite(s): NUR 223
0 lecture, 0 lab, 90 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8, 9, 16, 18

This course builds on and supports skills learned in NUR 124: Acute Care Nursing I - Clinical Practice with emphasis on progressive development of technical skills. Students learn to care for clients/patients with complex medical-surgical problems in the acute care setting. Nursing process focuses on individualized care planning and evaluation.

NUR 231: Nursing of Children .....3 credit hours

Prerequisite(s): NUR 223, NUR 224, NUR 255, NUR 256
Corequisite(s): NUR 232
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course focuses on the care of children and their families during health and illness. Concepts learned in the previous semesters are applied to develop nursing interventions to care for this population. Principles of nursing care for children of all age groups experiencing health deviations and their adaptation to the stressors of hospitalization are addressed. Promoting health and fostering normal growth and development are emphasized.

NUR 232: Nursing of Children - Clinical Practice .....2 credit hours

Prerequisite(s): NUR 223, NUR 224, NUR 255, NUR 256
Corequisite(s): NUR 231
0 lecture, 0 lab, 90 clinical, 0 practicum hours
Fulfills Core Elements: none

Clinical experience focuses on care of hospitalized children and support of their families in the acute care setting. Using the nursing process as a framework, students focus on incorporating growth and development assessment, as well as response to illness, into the development of nursing interventions appropriate for the specific child and family. Opportunity for interaction with the well child in community settings also is provided.

NUR 255: Mental Health Nursing .....3 credit hours

Prerequisite(s): NUR 123, NUR 124, NUR 131, NUR 132, HSC 128, HSC 220
Corequisite(s): NUR 256
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13, 21

This course develops an understanding of common mental health problems and skills necessary to provide basic mental health nursing care to selected clients in hospital or community settings. The central focus is to help the student become more sensitive to human behavior and to use him/herself in a therapeutic manner. Prevention of mental illness and maintenance and restoration of mental health are discussed.

NUR 256: Mental Health Nursing - Clinical Practice .....2 credit hours

Prerequisite(s): 3rd semester courses
Corequisite(s): NUR 255
0 lecture, 0 lab, 90 clinical, 0 practicum hours
Fulfills Core Elements: 9, 13, 21

This is the clinical component of Mental Health Nursing and should be taken concurrently with NUR 255. Mental health nursing concepts are applied in hospital and community situations. Students gain experience with current methods of prevention, maintenance and treatment.

NUR 261: Transition to Graduate Nurse Role .....1 credit hour

Prerequisite(s): NUR 223, NUR 224, NUR 255, NUR 256
Corequisite(s): NUR 262
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course assists students in planning the transition from the classroom to employment. Principles of management, including delegation, quality assurance, cost effectiveness and risk management are emphasized. Information useful in securing employment, membership in professional organizations and continuing education also is presented.

NUR 262: Transition to Graduate Nurse Role - Clinical Practice .....4 credit hours

Prerequisite(s): NUR 223, NUR 224, NUR 255, NUR 256
Corequisite(s): NUR 261
0 lecture, 0 lab, 180 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is intended to integrate students into the working role. Experience is provided for each student to function cooperatively with staff nurses and other members of the health team. Attendance at one continuing education program is required. An observation in an intensive care unit will be included.

Pharmacy Technology PHT

PHT 100: Introduction to Pharmacy and Health Care Systems .....4 credit hours

Prerequisite(s): Admission to program
Corequisite(s): PHT 101, PHT 103
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

In this course students become familiar with health care systems and various pharmacy systems provided within those systems. The role of the pharmacist and technician in providing pharmaceutical care is studied. Students gain an understanding of the interrelationships between pharmacy and technological advances, pharmacy business practices and the clinical applications of pharmaceuticals in patient care. Discussion includes legal and ethical responsibilities.

PHT 101: Pharmacology for Pharmacy Technicians .....4 credit hours

Prerequisite(s): Admission to program
Corequisite(s): PHT 100, PHT 103
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

Students learn the purposes, actions, side effects, precautions and significant interactions of major drug classes with special attention on dosage forms and commonly used drug names. The student learns to describe the use of these agents in the management of disease states and their effects on body systems.

PHT 103: Pharmaceutical Calculations .....2 credit hours

Prerequisite(s): Admission to program, MTH 097 or equivalent
Corequisite(s): PHT 100, PHT 101
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5

Applications of pharmaceutical dosage calculation are presented in this course. Accuracy of calculations is stressed to assure that the patient receives the correct dose. This course prepares students for second semester laboratory course work.

PHT 140: Pharmacy Prescription Processing .....2 credit hours

Prerequisite(s): PHT 100, PHT 101, PHT 103
Corequisite(s): PHT 150, PHT 198
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11

This course is an introduction to the operation of a pharmacy dispensing system. Students participate in practical exercises pertaining to prescription processing on a computer, relative to the pharmacy environment.

PHT 150: Pharmacy Operations and Compounding .....3 credit hours

Prerequisite(s): PHT 100, PHT 101, PHT 103
Corequisite(s): PHT 140, PHT 198
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 8

In this course, students gain knowledge and experience in ambulatory pharmacy prescription processing, nonsterile compound product preparation and institutional pharmacy prescription processing. Discussion includes drug information resources, telephone communication skill, and parenteral and enteral nutrition. Emphasis is on aseptic technique and parenteral product preparation where students develop skills in manipulation of parenteral drug products.

PHT 174: PHT Co-op Education I .....1 - 3 credit hours

Prerequisite(s): 20 PHT credit hours and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course students gain skills from a new experience in an approved, compensated, position related to their chosen field of study. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences courses.

PHT 198: Pharmacy Experience .....4 credit hours

Prerequisite(s): PHT 100, PHT 101, PHT 103
Corequisite(s): PHT 140, PHT 150
0 lecture, 0 lab, 360 clinical, 0 practicum hours
Fulfills Core Elements: none

Skills and knowledge acquired in the first semester of the Pharmacy Technology program are applied in pharmacy practice settings. All experience is under the supervision of a registered pharmacist. Students obtain experience with ambulatory care and acute care pharmacy skills that can be applied to a wide variety of pharmacy practice.

PHT 274: PHT Co-op Education II .....1 - 3 credit hours

Prerequisite(s): PHT 174, 20 PHT credit hours and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, the student gains skills from a new experience in an approved, compensated, position related to the chosen field of study. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two possible co-op experiences.

Philosophy PHL

PHL 101: Introduction to Philosophy .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 10, 14

The course introduces the general nature of philosophical thought, its basic methods, problems and goals. It includes representative philosophers and such classic philosophical problems as the meaning of existence, the nature of reality, criteria of morality and the nature of the human mind. The class also uses philosophical concepts to help understand oneself, other people and the world around us, and focuses on formulating and defending individual viewpoints and developing personal skills in abstract thinking. An honors section is available for this course.

PHL 120: Philosophy of Work .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 10, 13, 14, 22

The purpose of this course is to help students to explore all the philosophical dimensions of 'work;' to cultivate critical thinking about a number of work-related concepts; to lead students to an understanding of a myriad of traditional, contemporary, and challenging perspectives on the nature, meaning, origin, and value of work; and finally to help students to form their own work-related beliefs with which they can lead more meaningful lives.

PHL 123: Critical Thinking.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 10

This course focuses on the practical side of logic and critical thinking. Students are expected to develop the ability to recognize and construct arguments of all kinds, and to identify and then correct errors in their reasoning. If some formal logic is included, it is used primarily as a tool for critical thinking in everyday life. Other topics include: the difference between thinking objectively and subjectively (and between thinking and feeling), overcoming prejudices, and learning how to learn.

PHL 200: Existentialism.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 8, 9, 10, 13, 14

A general introduction to the existentialist tradition of philosophy is provided as it is presented in the works of such representative thinkers as Nietzche, Kierkegaard, Heidegger, Sartre and Camus. Special attention is paid to major existentialist themes; for example, authentic existence, integrity, freedom, anxiety, non-being, melancholy, death, guilt, conscience and values.

PHL 205: Ethics.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 8, 9, 10, 14, 22

An introduction to the analysis of value behaviors is provided. The course deals with social values and aesthetic values. Some writing is required in which students give evidence of their increased capacity to make distinctions in these areas.

PHL 250: Logic.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 8, 9, 10, 15

This course offers an introduction to the nature of logical reasoning, especially as found in examples of everyday thought, and studies the role of language in reasoning and communication, the influence of emotions on logical thinking and the nature of inductive as well as deductive reasoning. Emphasis is on developing habits of good reasoning, as well as the ability to recognize and avoid bad reasoning.

Photography PHO

PHO 090: General Photography.....2 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a course for students wishing to understand basic photography and its processes. Primary emphasis is on understanding and using the camera and related equipment, picture taking, composition, lighting, film, etc. Students should own or have the use of some type of camera. No darkroom work is included in this course.

PHO 101: Photography and Environment .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a study of the methods of documenting various types of environments with the camera. This includes the recording of current environmental situations as well as presenting suggestions for improving undesirable conditions. Students must have their own 35mm or roll film camera and previous photo experience.

PHO 103: History of Photography .....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 13, 14, 20

This course studies the chronology of photographic processes, the progression of social uses of the medium, and the history of photography as a technology and an art form.

PHO 111: Photography I .....4 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13

This is a first-term course in basic photography including darkroom work. Areas of study include: camera and meter usage, film, lighting and composition, laboratory equipment and procedures, chemical mixing and handling, black and white film and print processing, etc. Students must have an adjustable camera.

PHO 115: Photo Retouching.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

In this course students explore manual and digital photographic retouching. Areas of investigation include black and white and color spotting, hand coloring, and digital photo restoration. Students will produce a variety of images including conventional darkroom printing of a digitally restored image.

PHO 116: Studio Portraits .....3 credit hours
Prerequisite(s): PHO 117
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13

This course is the study of basic lighting and posing techniques used to create studio portraits. Areas of investigation include photographic equipment used in a portrait studio, traditional and non-traditional lighting techniques, and business concerns for portrait photographers.

PHO 117: Introduction to the Studio.....3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a thorough introduction to photographic studio equipment and procedures. Through hands on exercises using 35mm color slide film, each students learn a variety of artificial lighting techniques. Emphasis is be placed on the safe and effective handling of studio equipment. Students are required to purchase a hand held light meter.

PHO 122: Photography II .....4 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course builds on skills acquired in Photography I. Areas of study include medium format camera operation, advanced black and white film processing and printing techniques, and further investigation and control of lighting conditions. Emphasis is placed on using advanced photographic techniques for visual problem solving. Students will need to purchase film, paper, and other supplies.

PHO 124: Color Photography.....4 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This class provides a thorough exploration of color photography. Areas of investigation include color theory, color photographic materials and equipment, color film processing and color printing. Particular attention is paid to the ways in which photographers use color as a tool in a variety of photographic applications.

PHO 127: Digital Photo Imaging.....4 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 12, 18, 19

This course is designed to provide photography majors with a thorough introduction to current digital imaging technology as it relates to the production of photographic imagery. Through the use of digital cameras, scanners, printers and photo imaging software, students explore the world of the electronic darkroom. Prior computer experience is recommended but not required. Students must purchase printing and data storage materials. This course is required of photography majors.

PHO 174: PHO Co-op Education I.....1 - 3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none
Students are placed in an approved industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and the employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experiences.

PHO 210: Alternative Processes.....3 credit hours
Prerequisite(s): PHO 122
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 13
This course is an investigation of alternative processes and new technologies currently in use by commercial and artistic photographers. Students employ a variety of traditional and non-traditional darkroom techniques including digital image manipulation, to create new and exciting photographs. Emphasis is placed on the exploration of new techniques to develop a broad sense of options in visual problem solving. Students are required to purchase photographic supplies.

PHO 211: Large Format Photography.....3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5
This course introduces students to monorail and flatbed cameras in both 8x10 and 4x5 formats. Students learn to process the film in deep tanks, and to load and process Polaroid film. Other topics include the use of perspective and depth of field controls, correctly using shutter and aperture of a large format lens, the darkcloth, magnifier, film holder, tripod and filters. Also included is a discussion of color negative and positive films. Students are required to purchase a photographic loupe, film and paper.

PHO 212: Large Format Photography II .....3 credit hours
Prerequisite(s): PHO 211
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:
This course continues the exploration of large format photography. Topics include formats other than 4x5 roll film, contact printing, advanced methods of focus and perspective control, zone system controls, and various film types. Students are expected to pursue individual projects.

PHO 216: Environmental Portraiture.....3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
Through a variety of location shooting assignments students learn to photograph people outside the photographic studio. Techniques using natural and artificial lighting for portraiture on location will be explored.

PHO 219: Photographic Design .....3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 13
This is an intensive review of photographic composition and design techniques with emphasis on design in the photographic image through lecture, demonstration, critique, and darkroom practices. Included is a survey of contemporary photographers and new directions in modern photographic images and design.

PHO 220: Commercial Product Photography.....3 credit hours
Prerequisite(s): PHO 117
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9
A detailed study of the various types of cameras and their uses. This course emphasizes roll and sheet film cameras, as well as the more unusual applications of the medium format camera. Color film use is stressed.

PHO 225: Digital Studio Photography .....3 credit hours
Prerequisite(s): PHO 117, PHO 127
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 11, 18, 19
In this course students explore the digital realm of commercial photography. Emphasis is placed on the ways in which photographers working in traditional studio genres such as commercial product and portrait photography are now using digital photographic technologies. Class time is split between the studio and the digital imaging lab. Areas of investigation include the use of digital cameras in the studio, advanced methods of digital manipulation, and marketing considerations for digital studio photography.

PHO 227: Photojournalism.....3 credit hours
Prerequisite(s): PHO 111
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
In this course students receive a variety of photographic assignments involving newsworthy events, contemporary social issues, and human interest stories. Students work with black and white negative and color transparency films. An introduction to digital imaging technologies as they relate to photojournalism is included in the course. Students must own a manual electronic flash.

PHO 228: Digital Photo Imaging II .....3 credit hours
Prerequisite(s): PHO 127 or consent
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:
This course provides an advanced level of investigation into digital photographic tools and techniques. Students expand their understanding of digital input devices, photo imaging software, and output devices. Students are encouraged to work toward developing their own creative style.

PHO 230: Specialized Studies in Photography.....3 credit hours
Prerequisite(s): Consent
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 8
This course offers students the opportunity to work independently with faculty consultation in major areas of photography.

PHO 231: Portfolio Seminar .....4 credit hours
Prerequisite(s): PHO 122, PHO 127, PHO 211 or consent
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students who are nearing completion of the program will develop a professional portfolio, resume, and query letter in this course. Contact is made with a potential employer, client or transfer school. Professional critiques will be conducted on individual portfolios.

PHO 274: PHO Co-op Education II .....1 - 3 credit hours
Prerequisite(s): PHO 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Physical Education Activities PEA

PEA 102: Cardiovascular Training .....1 credit hour
Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The purpose of this course is to develop a basic understanding of the equipment and physical requirements necessary for improved cardiovascular endurance and body fat reduction (caloric expenditure). Students are provided with an exercise recommendation based upon American College of Sports Medicine (ACSM) guidelines. Equipment includes treadmills, stairmasters, nordic tracks, rowing ergometers, airdynes, bicycle ergometers, and elliptical machines.

PEA 103: Beginning Golf .....1 credit hour
Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for the beginning player who wants to learn the basics of golf. Priority is given to the general golf swing, chipping, putting, and course management. Students are given information on what type of equipment to sue and how to use it, including proper warm up and stretches.

PEA 105: Weight Training-Cybex/Free Weights .....2 credit hours
Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The purpose of this course is to develop basic weight training skills. Using Cybex and free weight equipment, students develop an understanding of the basic weight training exercises associated with each major muscle group. Emphasis is placed on understanding the proper form and technique necessary to train safely and effectively. (Free weight training is optional.)

PEA 109: Beginning Tennis .....1 credit hour
Prerequisite(s): none
Corequisite(s): none
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The purpose of this course is to introduce students to the game of tennis. The fundamentals of the game are taught in a progressive learning experience. Students are instructed in the areas of skill development and scoring. A tennis racquet and tennis shoes are required.

Physics PHY

PHY 059: Fundamentals of Physics.....3 credit hours
Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a basic course for students with no previous background in Physics. Fundamental concepts of Physics are taught, but the emphasis is on acquiring the elementary skills necessary to succeed in later courses. These skills include units, conversions, measurement, graphing, and problem solving techniques. Physics topics include heat, energy, motion, force, basic electricity, and the collection (with analysis) of experimental data. Students wishing to improve their Physics background before taking 100 level Physics courses, or students desiring an exposure to Physics should take this course.

PHY 105: Conceptual Physics .....4 credit hours
Prerequisite(s): MTH 090
Corequisite(s): PHY 105
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 15, 17, 18

Designed for both transfer and vocational students with no physics experience, but desiring a working knowledge of physics, PHY 105 surveys the major topics of motion, heat, waves, electricity, magnetism, light, and atomic energy using a conceptual approach with a minimum of mathematics.

PHY 110: Applied Physics .....4 credit hours
Prerequisite(s): MTH 090
Corequisite(s): none
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15, 18

Technical-Vocational students with no previous experience with physics should take this course to fulfill their program requirements. Topics covered are: properties of matter, motion, force, energy, machines, fluids, and heat. Laboratory exercises give students an opportunity to test theoretical principles.

PHY 111: General Physics I .....4 credit hours
Prerequisite(s): MTH 169
Corequisite(s): MTH 177, PHY 111
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11, 15, 18

The topics of mechanics, wave motion and heat are presented to pre-professional and liberal arts students using algebra and trigonometry. Open Physics Laboratory exercises supplement students' understanding of the topics covered. PHY 111 usually represents the first part of a two-semester sequence in algebra-based physics required by many programs.

PHY 122: General Physics II.....4 credit hours

Prerequisite(s): PHY 111
Corequisite(s): PHY 122
45 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 11, 15, 18

As the second part of a two-semester sequence in algebra-based physics, PHY 122 includes the topics of electricity, magnetism, light, and atomic physics. Open Physics Laboratory exercises are included to assist students' understanding of these topics.

PHY 211: Analytical Physics I .....5 credit hours

Prerequisite(s): MTH 191, PHY 105 or PHY 111 or high school physics
Corequisite(s): none
60 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 9, 15, 17

The first of a two-course sequence in calculus-based physics for students intending to major in science or engineering, PHY 211 develops the concepts of mechanics, heat, and wave motion. Laboratory exercises are included to assist students' understanding of these topics.

PHY 222: Analytical Physics II.....5 credit hours

Prerequisite(s): PHY 211
Corequisite(s): PHY 222
60 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 15, 18

This second part of a two-course sequence in calculus-based physics covers the concepts of electromagnetism, light, and modern physics extending the student's knowledge of physics learned in PHY 211.

Political Science PLS

PLS 112: Introduction to American Government .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 8, 9, 10, 21, 22, 23, 24

This class studies the forms and functions of American government with emphasis on national government. The decision-making process in Congress, the Presidency and the federal court system are studied. The course also examines the relationship of political parties and public opinion to the electoral process. This course is also taught as a television course using the program series "Government by Consent."

PLS 150: State and Local Government and Politics .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 8, 10, 21, 22, 23, 24

In the current political environment, many functions formerly performed by the national government are being shifted to the state and local governments examined in this course. Special emphasis on the governments of Michigan and Washtenaw County provide for an investigation of the challenges of making decisions and governing a society in response to the immediate needs of its citizens in a global society.

PLS 211: Introduction to Comparative Government .....3 credit hours

Prerequisite(s): 1 Social Science course or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 21, 22, 23, 24

This class surveys the political systems of Great Britain, France, Italy, Germany, the former Soviet Union, and China.

Psychology PSY

PSY 100: Introductory Psychology.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 15, 16, 21

This class provides an introduction to the scientific study and interpretation of human behavior surveying such topics as psychological development, learning, thinking, motivation, emotion, perception, intelligence, aptitudes and personality. Basic principles and their practical application are discussed. This course also is taught as a television course using the program series "Understanding Human Behavior."

PSY 107: Black Psychology .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 21

This course is organized around the premise that there is a distinctive Afro-American psychological frame of reference that is evident in the behavior and lifestyles of Black Americans. This is an attempt to build a conceptual model to help understand and explain the psychosocial behavior of Black Americans.

PSY 114: Learning To Learn .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 2, 7, 8, 9

This is a course in applied psychology. Emphasis is placed on learning styles and learning strategies. Students are provided with a variety of techniques for analyzing their learning style. Next, they are given information on learning strategies and practice in developing and using various strategies.

PSY 130: Alcoholism: Its Effects, Impact and Treatment.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 21

This course is a presentation of information concerning most aspects of alcoholism and how it affects the afflicted physically, socially, psychologically, vocationally and spiritually. Also, its effect on the significant others in his/her life is discussed.

PSY 200: Child Psychology.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 7, 16, 21

This course stresses the child as an individual, his or her original nature and temperament and position as part of the group. Introduction of social raw materials is considered. In addition, such topics as the conditioning and reconditioning of behavior patterns and the individuality and similarity of responses are developed.

PSY 209: Psychology of Adjustment.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 21

This course is a study of the processes involved in the adjustment of the individual to the problems of everyday living. Emphasis is given to the study of the development of techniques or adjustment to meet conflict situations in the social environment. It includes consideration of adjustment mechanisms of major societal institutions.

PSY 257: Abnormal Psychology .....3 credit hours

Prerequisite(s): PSY 100
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 15, 16, 21, 23

This is a course dealing with the abnormalities of certain types of personalities, their origin, symptoms, developments and treatment, short of psychiatric competence. Main topics include: simple maladjustment; disturbances of emotional nature, of perception, memory, judgment, thought, disorders of mobility, speech, etc.; early symptoms of schizophrenia.

PSY 260: Introduction to Human Sexuality.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 15, 16, 21, 23

This course provides a survey of the psychological research concerned with human sexuality. Areas presented include: research, anatomy, dysfunctions and their treatment, family planning methods, sexual communication, sexually transmitted diseases and sexual variation.

Quality Control Technology QCT

QCT 093: Introduction to SPC Charting Techniques.....1 credit hour

Prerequisite(s): MTH 039 or consent
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course introduces the student to control charts, analysis of normal variation, and capability analysis. Examples from Industrial practice is used.

QCT 100: Charting Techniques.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements:

This is an introductory course in statistical process control charting techniques. Control charts, analysis of normal variation, and capability analysis are covered.

QCT 101: Process Quality Control.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The concepts of variation and methods of measuring, evaluating and interpreting industrial data are discussed. An in-depth working knowledge of process control is imparted through the use of capability analysis and statistical control charts. Industrial applications are presented and class participation is used extensively in workshops.

QCT 122: Sampling Quality Control .....3 credit hours

Prerequisite(s): MTH 169 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course involves the theory of probability and basic concepts of statistical sampling; the development of sampling plans, the effect of sample size and acceptance number on the probability of acceptance, and the use of interpretation and of sampling acceptance plans are discussed. Military 105D, sequential and variable sampling are introduced and their effectiveness and industrial applications are analyzed.

QCT 174: QCT Co-op Education I.....1 - 3 credit hours

Prerequisite(s): QCT 101, QCT 122, and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

Students are placed in approved an industrial work experience to gain skills and knowledge offered by the employer. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

QCT 201: Quality Of Service.....3 credit hours

Prerequisite(s): QCT 101 or equivalent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 6, 7, 8

The total quality control concept in planning, organizing and implementing a quality system for the service industry is the focus of this course. Topics include the application of the tools of quality to the business of service. This course examines the means for establishing a manageable quality system, improve customer satisfaction, reduce waste/cost and monitor improvement.

QCT 213: Quality Control by Statistical Methods ..... credit hours

Prerequisite(s): QCT 101, QCT 122
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is an introduction to statistical testing for differences in sample means, variability and fraction defectives. The concepts of linear correlation and regression analysis are introduced. Practical problems encountered in industrial quality control are solved in the classroom to illustrate the techniques presented.

QCT 224: Quality Control Problem Solving ...3 credit hours

Prerequisite(s): QCT 213, Algebra
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides students with a synopsis of the material presented in the previous three courses (Process, Sampling, and Statistical Methods). The material is developed with a minimal amount of mathematical jargon which often does more to confuse than clarify. Course work stresses how to perform specific studies or techniques and does not merely inform the student. Generally, it provides a simplified procedure for applying the statistical tools which are most often used by the quality control practitioner.

QCT 225: Quality Control Management .....3 credit hours

Prerequisite(s): QCT 101 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The total quality control concept in planning, organizing and implementing an effective system is the focus of this course. Details of how to plan a quality system, set up the organizational structure, integrate support activities, install controls and measure results are discussed. The work of quality information equipment engineering is outlined. The main jobs of quality control are defined in terms of design control, material control, product control and special studies such as GMP manual development and compliance.

QCT 226: Dimensional Metrology and Testing .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a general introduction to important aspects of precision measurement related to inspection and quality control. Included are the scientific techniques and instrument applications used in determining dimensional measurement as practiced by skilled tradesmen, inspectors and quality control technicians.

QCT 274: QCT Co-op Education II .....1 - 3 credit hours

Prerequisite(s): QCT 174
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Radiography RAD

RAD 100: Introduction to Radiography .....2 credit hours

Prerequisite(s): Admission to RAD program
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

This course includes the history of radiography, medical specialties, health care delivery, organizational structure of a radiology department, professional development and ethics. It is an introductory course for the beginning radiographer with emphasis on acquainting students with the goals, philosophies and organizations of the radiography program and radiology department.

RAD 101: Methods in Patient Care .....2 credit hours

Prerequisite(s): Admission to RAD Program
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to teach the radiographer how to interact with the patient, to provide for his or her physical and emotional needs and how to assist in moving patients by using various transfer methods. Included is some lab practice in basic techniques such as taking vital signs, blood pressure, venipuncture, and airway management.

RAD 110: Clinical Education .....2 credit hours

Prerequisite(s): Admission to program
Corequisite(s): RAD 112
0 lecture, 0 lab, 240 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper extremity, chest and abdomen, trunk, spine and selected contrast studies, and the demonstration of knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography.

RAD 111: Fundamentals of Radiography.....2 credit hours

Prerequisite(s): RAD 100
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 19

Imaging is the key to the primary responsibility of a radiographer. The intent of this course is to describe the various imaging modalities so that application of principles to produce optimum diagnostic radiographic images are understood.

RAD 112: Radiographic Positioning I.....2 credit hours

Prerequisite(s): none
Corequisite(s): RAD 110
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course includes pertinent nomenclature for radiographic positioning, preliminary steps in radiography, operation of the radiographic control panel, processing the radiograph and positioning of the chest, abdomen and upper extremity.

RAD 113: Radiographic Processing.....2 credit hours

Prerequisite(s): RAD 111
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18, 19

This course covers the principles of processing including discussion on darkroom design, radiographic film characteristics, processing chemistry, trouble shooting, maintenance, evaluation of radiographic films to determine diagnostic inadequacies resulting from artifacts and to correct or compensate for the cause.

RAD 120: Clinical Education .....2 credit hours

Prerequisite(s): RAD 110
Corequisite(s): RAD 123
0 lecture, 0 lab, 240 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application of knowledge and skill in positioning the upper and lower extremities, chest, abdomen, trunk, spine and selected contrast studies, and the demonstration of knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography.

RAD 123: Radiographic Positioning II .....2 credit hours

Prerequisite(s): RAD 112
Corequisite(s): RAD 120
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers proper positions for radiography of the lower extremity, trunk and spine. Critiques on positioning and the anatomical appearance of structures on the radiograph are an essential function of the course.

RAD 124: Principles of Radiographic Exposure .....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 15, 19

This course includes a comprehensive study of radiographic exposure techniques, radiographic quality, the use of radiographic accessories and how to select and apply this equipment to various situations.

RAD 125: Radiographic Procedures and Related Anatomy .....3 credit hours

Prerequisite(s): BIO 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers radiographic procedures in which a contrast medium is used for demonstrating structures which are not well visualized on routine radiographs.

RAD 127: Principles of Radiographic Exposure Laboratory .....1 credit hour

Prerequisite(s): none
Corequisite(s): RAD 124
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

This course provides structured laboratory experience designed to illustrate film response to various exposure techniques. Emphasis is on evaluation of exposure techniques used in obtaining diagnostic information on x-ray film.

RAD 135: Pathology for Radiographers .....2 credit hours

Prerequisite(s): none
Corequisite(s): RAD 200, RAD 225
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

This course is a survey of basic pathology and includes a study of the disease process and how various diseases alter the appearance and function of human organisms, including infectious diseases, tumors, chemical injuries and the conditions of illness involving the systems of the body.

RAD 150: Clinical Education .....4 credit hours

Prerequisite(s): RAD 120
Corequisite(s): none
0 lecture, 0 lab, 360 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper extremity, chest and abdomen, trunk, spine and selected contrast studies. Students demonstrate knowledge in the design and operational characteristics of equipment and accessories in general radiographic rooms.

RAD 200: Physical Foundations of Radiography .....3 credit hours

Prerequisite(s): MTH 116
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 15

This course covers the theoretical and practical application of radiation physics with an emphasis on electromagnetic radiation, electricity, magnetism, x-ray circuitry, radiation production, and radiation's interaction with matter.

RAD 215: Radiography of the Skull .....2 credit hours

Prerequisite(s): none
Corequisite(s): RAD 217
15 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

Anatomy and radiography of the skull are studied so that students can correlate the relationship of external landmarks and positioning lines to specific internal structures. The course includes laboratory experience in skull positioning.

RAD 217: Clinical Education .....3 credit hours

Prerequisite(s): RAD 150
Corequisite(s): RAD 215
0 lecture, 0 lab, 360 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper and lower extremities, chest, abdomen, spinal column, contrast studies, and skull. Students will demonstrate their knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography. Students will participate in surgical procedures that require diagnostic imaging and demonstrate competency in operating portable radiography units.

RAD 218: Radiation Biology and Protection.....4 credit hours

Prerequisite(s): Admission to program or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 17, 20

This course is designed to acquaint students with the effects of ionizing radiation on the cells that form human tissue. The interaction of radiation with matter and the effect of exposure factors on radiation dose, biological effects, unit of measurement, dose limiting recommendations and exposure monitoring are covered.

RAD 220: Management of Radiological Environment.....2 credit hours

Prerequisite(s): Admission to program or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 21

Designed to acquaint students with various aspects of managing the modern radiology department, this course includes: department organization and operations, equipment specifications, quality assurance guidelines, patient education, planning and design.

RAD 221: Ethics & Legal Issues for Radiographers.....2 credit hours

Prerequisite(s): Admission to program
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to provide a firm foundation in legal theory, behavior, ethical dilemmas; legal responsibilities; and patient consent. Special issues are covered such as the impaired colleague and special patient populations, including the terminally ill patient and the patient with an infectious disease.

RAD 225: Clinical Education .....3 credit hours

Prerequisite(s): RAD 217
Corequisite(s): RAD 135, RAD 200
0 lecture, 0 lab, 360 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application and knowledge and skill sin positioning the upper extremity, chest and abdomen, trunk, spine, skull and selected contrast studies, and the demonstration of knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography.

RAD 240: Clinical Education .....2 credit hours

Prerequisite(s): RAD 225
Corequisite(s): none
0 lecture, 0 lab, 225 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course provides structured clinical experience in the application of knowledge and skills in positioning the upper extremity, chest and abdomen, trunk, spine, skull and selected contrast studies, and the demonstration of knowledge in the design and operational characteristics of equipment and accessories in diagnostic radiography.

RAD 260: CT Cross-sectional Anatomy.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, lab, clinical, practicum hours
Fulfills Core Elements: none

This course covers the study of cross-sectional anatomy of the pelvis, abdomen, thorax and great vessels, neck, maxillofacial region, brain and vertebral column. Related diseases, indications for CT imaging, patient preparation and scanning technique are discussed.

RAD 280: Radiographic Critique.....2 credit hours

Prerequisite(s): RAD 112, RAD 123, RAD 124, RAD 127
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course identifies and examines the technical factors that contribute to the formation of the radiographic image. Through discussion and demonstration, student learn how to critically analyze a radiograph and to determine how to modify the technical factors used in order to improve the quality of the radiograph.

Real Estate RES

RES 100: Real Estate Principles and Prelicensure .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 11

This is an introductory survey course in real estate principles, practices, and concepts. Students see a broad overview of the real estate field including varieties of residential and commercial brokerage, property financing, appraisal, investment, property management, land planning, property description, legal documents and contracts, title insurance, construction, condominiums, fair housing, civil rights, Board of Realtor functions, and State licensure and regulation. The course can begin an academic foundation in real estate, provide information to homeowners and investors, determine a career interest in real estate, or meet the State course prerequisite to taking the State of Michigan exam for a Real Estate Salesperson's license. This course is approved by the State of Michigan.

RES 120: Real Estate Finance .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

This course covers methods of financing residential, commercial, and income properties. Includes sources of funds, affordability issues, applications for loans, lender processing and risk analysis, creative financing, government programs, tax considerations, and secondary marketing. This course can help satisfy the State of Michigan course requirements for Real Estate Brokers.

RES 130: Real Estate Appraisal .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

This course covers the nature of value, foundations of appraisal, valuation processes (including cost, market, income approaches, capitalization theory, and discounted cash flow). Also covered are appraisal ethics and reporting, and uses of the computer in residential and commercial appraising and valuation consulting. This course helps satisfy the State of Michigan course requirements for Real Estate Broker and Real Estate Appraiser licenses.

RES 140: Real Estate Law .....3 credit hours

Prerequisite(s): RES 100 or BMG 111
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 22

This course covers the laws and legal principles involved in residential and commercial real estate. Topics include evidence of title, deeds, financing, sale contracts, legal position of brokers, leases, zoning, fair housing and real estate taxes. This course helps satisfy the State of Michigan requirements for Real Estate Appraiser and Real Estate Broker licenses.

RES 150: Real Estate Investment .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers investment in and development of land, homes, apartments, office buildings retail centers, warehouses and hotels. Examples from the community and other states are used to illustrate the course objectives. Topics include financing, taxation and exchanges. This course may be used to partially satisfy the Real Estate Broker education prelicensure requirement. It is recommended but not required that RES 100 be taken before the course.

RES 160: Real Estate Property Management .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides an introduction to all the subfields of real estate property management including apartments, office, retail, and warehouse management. Materials used in this course are from the Institute for Real Estate Management (IREM), which is part of the National Association of Realtors (NAR) and other sources. This course may be used to partially satisfy the State of Michigan Real Estate Broker education prelicensure requirement. It is recommended but not required that RES 100 be taken before this course.

RES 190: Real Estate Continuing Education .....0.5 credit hours

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is the annual continuing education course required by the State of Michigan for Real Estate Brokers and Salespersons to renew their professional licenses. Content in the course changes each year based on topic selections assigned or approved by the State Department of Commerce. Completion on either credit or audit basis satisfies the state requirement for license renewal. One hundred percent attendance is required for license renewal. It is recommended but not required that RES 100 be taken before this course.

Respiratory Therapy RTH

RTH 101: Electrocardiography .....1 credit hour

Prerequisite(s): Admission into any health program
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 18

This course is designed to introduce health career students to EKG. This will include basic cardiac anatomy, conductive system, and basic arrhythmia/ interpretation. This course is designed to provide basic knowledge of EKG, including lead placement and arrhythmia recognition. This basic course makes the student more marketable by providing knowledge of an additional modality.

RTH 120: Introduction to Respiratory Therapy .....3 credit hours

Prerequisite(s): Admission to program
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 15

This course is an introduction to health care delivery, professional development & ethics. Cardiopulmonary anatomy and physiology is also included.

RTH 121: Basic Equipment and Procedures .....4 credit hours

Prerequisite(s): Admission to program
Corequisite(s): none
45 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7

This lecture/lab course covers the theory of operation of basic equipment, indications, contraindications, advantages and disadvantages. Lab experiences consist of problem solving, clinical simulations and procedures used by respiratory therapists in setting up equipment. Oxygen therapy, humidity & aerosol therapy, IPPB and alternative therapy are covered.

RTH 122: Respiratory Physiology.....3 credit hours

Prerequisite(s): RTH 120, RTH 121
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 16

This lecture course is an in-depth study of the cardiopulmonary system. Anatomy, ventilation, pulmonary function, diffusion, pulmonary vascular system, hemodynamics, V/Q relationships, control of ventilation, renal function, electrolytes and the aging process on the lungs are covered.

RTH 123: Respiratory Pathophysiology .....3 credit hours
Prerequisite(s): RTH 120, RTH 121
Corequisite(s): RTH 122
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16
This lecture course covers the causes, treatment and assessment of common pulmonary disorders.

RTH 148: Pharmacology for Respiratory Therapists .....2 credit hours
Prerequisite(s): BIO 111
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
The course provides a survey of drugs used to treat disease, with emphasis on drugs commonly used to treat cardiopulmonary disorders.

RTH 149: Respiratory Pathology.....2 credit hours
Prerequisite(s): RTH 120, RTH 121
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course provides a survey of anatomical pathology including inflammation, infection, tumors and cardiovascular disease.

RTH 198: General Clinical Practice I.....1.5 credit hours
Prerequisite(s): RTH 120, RTH 121, BIO 111, HSC 101
Corequisite(s): none
0 lecture, 0 lab, 135 clinical, 0 practicum hours
Fulfills Core Elements: none
This course provides clinical experience in basic bedside respiratory therapy techniques and procedures. The class meets at a clinical affiliate for 2 eight hour sessions per week. Grading for this course is on a pass/no pass basis.

RTH 199: General Clinical Practice II .....3 credit hours
Prerequisite(s): 1st, 2nd, 3rd semester courses
Corequisite(s): RTH 212
0 lecture, 0 lab, 240 clinical, 0 practicum hours
Fulfills Core Elements: 1, 2, 7, 8, 9, 18, 19, 20
This course provides a continuation of bedside respiratory therapy techniques and procedures acquired in general clinical I and exposure to the ICU. There are two 8 hour sessions per week at a clinical affiliate.

RTH 200: Advanced Clinical Practice .....4 credit hours
Prerequisite(s): HSC 220, RTH 199, RTH 212, qualifying exam
Corequisite(s): none
0 lecture, 0 lab, 240 clinical, 0 practicum hours
Fulfills Core Elements: none
Structured, at-the-bedside, practice of respiratory therapy techniques involved with the care of acutely ill patients and patients with chronic obstructive pulmonary disease is provided. Students are assigned to intensive care units of cooperating hospitals. Two eight-hour sessions per week are involved. Grading for this course is on a pass/no pass basis.

RTH 201: Specialty Clinical Practice.....2 credit hours
Prerequisite(s): RTH 200, RTH 214, RTH 219, RTH 222
Corequisite(s): none
0 lecture, 0 lab, 120 clinical, 0 practicum hours
Fulfills Core Elements: 7
Students are to select an area of special interest in which to specialize such as: management, teaching, cardiodiagnostics, burn medicine, home care, research, pulmonary function testing, etc. Two 8 hour sessions at a clinical office. This course is graded on a pass/no pass basis.

RTH 202: Pediatric Clinical Practice .....2 credit hours
Prerequisite(s): RTH 200, RTH 212, RTH 219
Corequisite(s): none
0 lecture, 0 lab, 120 clinical, 0 practicum hours
Fulfills Core Elements: 18
Structured, at the bedside, practice of respiratory therapy is provided in the neonatal intensive care unit and pediatric units. Grading for this course is on a pass/no pass basis.

RTH 212: Ventilators.....5 credit hours
Prerequisite(s): RTH 122, RTH 123, RTH 148, RTH 198
Corequisite(s): RTH 199
60 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9, 18, 19
This course gives an in-depth study of the use, classification, operation, advantages and disadvantages, modifications, troubleshooting, and clinical simulation case studies of managing a patient on a volume ventilator. Both adult and pediatric ventilators are taught in this class.

RTH 214: Cardiodiagnostics.....3 credit hours
Prerequisite(s): HSC 220, RTH 199, RTH 212 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16, 18, 19
An in-depth look at the cardiac profile, hemodynamic measurements, Swan-Ganz catherization advantages and disadvantages, basic ECG interpretation and echocardiography. This course is open to other students with permission of the instructor.

RTH 217: Seminar in Respiratory Therapy....2 credit hours
Prerequisite(s): Completion of all RTH courses
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9
This course is designed to help students who are in their last semester prepare for the national exams required after graduation. Students are assessed on the Entry Level Exam, Written Registry Exam, and the Clinical Simulation Exam. Mock exam fees are approximately $90 for this course.

RTH 219: Pediatric Respiratory Therapy.....3 credit hours
Prerequisite(s): RTH 200, ICU qualifying exam
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none
This course provides an in-depth study of the anatomy and physiology of the newborn, diseases common to neonates, infants and the older pediatric patient, as well as the respiratory care management of these patients.

RTH 221: Pulmonary Rehabilitation.....1 credit hour

Prerequisite(s): RTH 212
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is an overview of the pulmonary rehabilitation of people with chronic lung disease. Major topic areas to be addressed are pulmonary exercise testing, patient education, pulmonary rehabilitation techniques, organization of a pulmonary rehabilitation program, home oxygen, ventilator and infant respiratory care. In addition, several aspects of respiratory home care are reviewed. It is taken in the same semester as RTH 222.

RTH 222: Pulmonary Function Testing.....1 credit hour

Prerequisite(s): 3rd semester courses
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course presents principles of lung function testing as currently practiced in hospitals and clinics. In addition to other areas of respiratory therapy, students learn to interpret spirometry and diffusion studies.

Robotics ROB

ROB 111: CIM Fundamentals.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 5, 11, 12, 18, 19, 20

The purpose of this course is to provide an overview of the various components which make up CIM (Computer Integrated Manufacturing) systems. Students experience guided laboratory exercises in CNC (Computer Numerical Control), CAD (Computer Aided Design), CAM (Computer Aided Manufacturing), robotics, and simulation software. Topics of discussion also include manufacturing planning and processes.

ROB 121: Robotics I.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 10, 18, 19

This is an elementary course exposing students to hands-on programming of industrial robots. Emphasis is placed on application of flexible automation, types of programming, sensors, and feedback devices. Field trips to local users or manufacturers of robotic equipment are an integral part of this course.

ROB 174: ROB Co-op Education I.....1 - 3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the first of two possible co-op experiences.

ROB 212: Robotics II.....4 credit hours

Prerequisite(s): ROB 111 or ROB 121
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18, 19

This class concentrates on programming techniques. Students learn to program different types of robots incorporating inputs and outputs into their programs. The course is based on a series of student projects that, step by step, introduce each new command or concept. Students spend most of the class time in the lab and are expected to spend extra hours during scheduled open labs.

ROB 223: Robotics III.....4 credit hours

Prerequisite(s): ROB 212
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9, 11, 18

Students learn to work with peripheral devices in various robotic workcells. Experiments include part recognition, counting, distance measuring, sorting, and palletizing. Programmable controllers are interfaced with robots in an integrated manufacturing cell. The students are introduced to robotic simulation, vision systems, and bar coding.

ROB 224: Robotics IV.....4 credit hours

Prerequisite(s): ROB 223
Corequisite(s): none
30 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 11, 12, 18, 19

This course involved advanced programming of robots and programmable controllers in an integrated workcell. Problems related to maintenance and trouble-shooting constitute a major segment of the course. A group project involving the design and construction of a workcell that simulates some industrial process is an enjoyable conclusion to this program.

ROB 274: ROB Co-op Education II.....1 - 3 credit hours

Prerequisite(s): ROB 174 and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two Co-op courses.

Russian RUS

RUS 111: First Year Russian I.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a beginning and transferable course in Russian which emphasizes the aural-oral approach. Classroom work and language laboratory sessions assist the student in establishing and perfecting basic conversational tools in the language.

RUS 120: Conversational Russian.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

Designed to be a short term, seven week, non-sequential conversational course. This course is intended for those interested in basic and essential aspects of the Russian language and culture for the purpose of travel and enjoyment. The writing system, useful everyday expressions, and current topical informational items are studied.

RUS 121: Intermediate Conversational Russian.....2 credit hours

Prerequisite(s): RUS 120 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is a continuation of RUS 120. It is conversational in nature, designed mainly for those interested in travel and the cultural aspects of the Soviet Union. Basic and necessary expressions and vocabulary relevant to present day situations are emphasized.

RUS 122: First Year Russian II .....4 credit hours

Prerequisite(s): RUS 111 or consent
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a continuation of RUS 111. Continuing classroom work and language laboratory sessions help the student to acquire basic conversational tools of the language as well as basic informational aspects of the culture.

Science SCI

SCI 100: Introduction to Natural Sciences .....1 credit hour

Prerequisite(s): none
Corequisite(s): none
7.5 lecture, 22.5 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 15, 16, 17, 18

This course is designed to allow students to acquire an appreciation of the importance of the Natural Sciences to everyday life, including facts and familiarity with general concepts of how science works. The focus is on physical and biological aspects of science. Students who take this course discover that scientists are people and that science can be fun. The course is designed primarily for students in technology programs and includes directed study in the experimental sciences.

SCI 101: The Nature of Science .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 15, 16, 17, 18

This course is designed to allow students to acquire an appreciation of the importance of the Natural Sciences to everyday life, including facts and familiarity with general concepts of how science works. The focus is on physical and biological aspects of science. Students who take this course discover that scientists are people and that science can be fun. The course is designed primarily for students in technology programs and includes directed study in the experimental sciences. The course offered using Interactive Television.

Sociology SOC

SOC 100: Principles of Sociology .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 10, 15, 20, 21, 23, 24

This course examines human interaction and the products of that interaction which include social structure and institutions, culture, social order, conflict and change. Emphasis is placed on the connection between self and society: that we think, feel and act as we do largely because of social forces that pressure us to conform or to deviate from social expectations. This course is also taught as a television course using the series "Sociology in a Changing World."

SOC 201: Medical Sociology .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 9, 10, 15, 20, 21, 23, 24

This course examines social and behavioral factors that account for the social differences in getting sick, getting care, getting well and staying well. Emphasis is placed on the socio-cultural definitions and distributions of illness, lifestyle, stress and illness, taking the sick role, seeking and using health care services, socialization of health workers, consumer-provider interaction, organization and distribution of services. Some issues which are examined pertain to the cost of care and health insurance, prevention, self-help movement, under-served groups, bio-medical technology and the quality of life.

SOC 202: Criminology .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 21, 23

An examination is provided of the theories that attempt to explain criminal behavior. Punishment versus rehabilitation schools of thought is dealt with as well as capital punishment. Attention is also given to the functioning of police and court systems.

SOC 203: Aging & Society .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 8, 10, 21, 24

This course examines social and social-psychological principles, practices, and problems of the aging process. Topics include the social and personal attitudes toward aging, ageism, role changes in mid-life to later life, and adaptive challenges of retirement: needs and problems relevant to housing, health care, finances, social support systems, and community services. Other issues such as political activity and cross-cultural differences are addressed.

SOC 205: Race & Ethnic Relations.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 10, 21, 22

This course provides an examination of the basic concepts of racial and ethnic relations and the concept of race. It examines and analyzes the course of oppression and suppression, superiority and inferiority, majorities and minorities in racial subgroups.

SOC 207: Social Problems .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 6, 7, 9, 10, 15, 21, 23, 24

This course examines how social forces can create and maintain or prevent major social problems that result from people's efforts to meet their growth and survival needs. Emphasis is placed on the structural, institutional, technological and social-psychological causes, consequences, and solutions of problems relevant to inequality, institutional crises, deviance and social control, population pressures and ecological problems.

SOC 230: Marriage and Family .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 8, 9, 10, 15, 20, 21, 23, 24

This course examines the principles, practices, and problems of mate selection, marriage, family and singleness. Emphasis is placed on how Socio-cultural changes are reshaping lifestyle, choices, parenting, communication building and maintaining relationships.

SOC 250: Juvenile Delinquency.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 21

The growing-up process of late childhood and adolescence from a sociological and cultural viewpoint is a focus of this class. Problems of the individual in his/her social environment, group forces which lead to maladjustment and sociological principles for working with youth from the viewpoint of parent, teacher, police and youth organization leader are analyzed.

Spanish SPN

SPN 111: First Year Spanish I.....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a beginning course in Spanish using the conversational approach. Spoken language is mastered through classroom and laboratory practice. Cultural aspects of Spain and Latin America are highlighted.

SPN 112: Spanish Laboratory I .....1 credit hour

Prerequisite(s): none
Corequisite(s): SPN 111
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is intended to augment SPN 111. Students work in a supervised language lab with taped materials that correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

SPN 119: Spanish Language Adventures ....Variable credit

Prerequisite(s): none
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course of independent study can be undertaken during any of the college field trip "Adventures" to Spanish-speaking countries. Students live in the host country for the duration of the Adventure, visit and study firsthand the outstanding cultural attractions, and have the opportunity to practice Spanish throughout their stay.

SPN 120: Beginning Conversational Spanish - Level I.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

Conversational in approach, this course assumes no previous knowledge of the language. It is designed for students interested in practicing the fundamentals of spoken Spanish to enhance their travel enjoyment in Spain and Latin America as well as to promote an appreciation of the Hispanic world. This course may be taken as a basic review of the first half of SPN 111.

SPN 121: Beginning Conversational Spanish - Level II.....2 credit hours

Prerequisite(s): SPN 120 or equivalent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

A continuation of SPN 120. This course is designed to further develop the skills acquired in Spanish 120. It is for students interested in expanding their speaking and comprehension skills, and their knowledge of Spanish grammar and Hispanic culture. Successful completion of this course satisfies the prerequisite for SPN 122. SPN 121 may be taken as a basic review of the second half of SPN 111.

SPN 122: First Year Spanish II .....4 credit hours

Prerequisite(s): SPN 111 or SPN 121
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

A continuation of SPN 111. Emphasis is on the spoken form and on the cultures of Latin American countries and Spain.

SPN 123: Spanish Laboratory II .....1 credit hour

Prerequisite(s): none
Corequisite(s): SPN 122
0 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This course is intended to augment SPN 122. Students work in a supervised language lab with taped materials that correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

SPN 211: Intermediate Conversational Spanish.....2 credit hours

Prerequisite(s): SPN 121 or equivalent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This flexibly-structured course provides vocabulary expansion and cultural insights through total student involvement in the conversation practice sessions.

SPN 213: Second Year Spanish I .....3 credit hours

Prerequisite(s): SPN 122 or equivalent or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is an intermediate course in Spanish that covers all of the basic grammar. Emphasis is on the written form through composition.

SPN 224: Second Year Spanish II.....3 credit hours

Prerequisite(s): SPN 213 or equivalent or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 13, 14, 24

This is a continuation of SPN 213 with special attention to reading and translating modern Latin American short stories.

SPN 225: Introduction to Business Spanish.....3 credit hours

Prerequisite(s): SPN 213 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to introduce students to business concepts and vocabulary through both written and oral forms. Students write business letters in Spanish and apply Spanish conversational skills to discussion of and participation in various business situations.

Student Services STS

STS 100: Career Planning Seminar .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course is designed for persons undecided about a career goal or program of study or interested in making a career change. Students complete a self-assessment of interests, work values, skills, and abilities through exercises and vocational inventories. They also learn how to research careers and become more knowledgeable of careers, career alternatives, and employment trends. Other topics include decision-making skills, time management, and job hunting techniques (resumes, job interviews, job leads, correspondence). Students complete a personal career plan at the end of the course.

STS 102: Independent Study - Career Planning.....1 credit hour

Prerequisite(s): none
Corequisite(s): none
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

The Independent Study in Career Planning is designed for those undecided about their career and life goals and unable to come to campus regularly for a group course (see STS 100). At their own pace, participants complete a series of exercises, activities, and vocational tests. With these tools, they learn about their goals, interests, values, skills, and abilities, and they research occupations and learn decision-making techniques. Participants write a summary career plan upon completion and meet for consultation with the instructor during the period of independent study. (Hours are arranged on an individual basis with the instructor; an initial course orientation is held on campus; students should notify the instructor after enrolling in the class).

Surgical Technology SUR

SUR 097: Sterile Processing and Distribution Theory .....4 credit hours

Prerequisite(s): minimum age of 18 years
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This lecture/lab course provides students with the knowledge and techniques used to complete the cycle from decontamination to sterility of instruments and equipment used within a medical facility. Students are taught basic anatomy, infection control practices, safety hazards, instrumentation, inventory control and distribution systems. Professional preparation is addressed with resume writing, interviewing skills, and career mobility.

SUR 098: Sterile Processing and Distribution - Clinical .....2 credit hours

Prerequisite(s): minimum age of 18 years
Corequisite(s): none
0 lecture, 0 lab, 160 clinical, 0 practicum hours
Fulfills Core Elements: none

This course complements the theory course. Students are provided hands-on experience at the clinical site in the areas of decontamination, preparation and packaging, operation of specialized sterilization equipment, measuring chemicals, inventory control and supply distribution systems.

SUR 100: Surgical Technology I Theory.....3 credit hours

Prerequisite(s): Admission to program, high school algebra with grade of C, high school chemistry with grade of C
Corequisite(s): SUR 105
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides the theoretical foundation for other surgical technology courses. The role of the surgical technologist, history of the profession, surgical services organization, preparation and maintenance of a sterile environment, case preparation, and ethical and legal issues are studied.

SUR 105: Surgical Technology I Lab .....1 credit hour

Prerequisite(s): Admission to program, high school algebra grade of C, high school chemistry grade of C
Corequisite(s): SUR 100
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides clinical simulation during a structured laboratory experience. The student practices and demonstrates skills in the areas of preparation and maintenance of a sterile field, scrubbing technique, patient care, and instrumentation. During the latter portion of the course, the student will be assigned to a local area operating room to observe and assist the surgical services personnel in a non-scrubbed role.

SUR 120: Surgical Technology II.....3 credit hours

Prerequisite(s): SUR 100, BIO 111, BIO 237
Corequisite(s): SUR 125, SUR 135
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7

This course builds on the information covered in Surgical Technology I. Students become more familiar with the surgical technologist's role. Basic operative procedures, emergency situations, operating room records, communication skills, and specialized supplies and equipment are stressed.

SUR 125: Surgical Technology II Lab.....1 credit hour

Prerequisite(s): SUR 100, SUR 105, BIO 111 or BIO 102, BIO 237
Corequisite(s): SUR 120, SUR 135
0 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course supplements the Surgical Technology II Theory course. It provides the student with structured laboratory practice that supports the lecture topics. The lab focus is on setting up basic cases, handling emergency situations, completing records, using specialized equipment and supplies, and communication in the OR environment.

SUR 135: Surgical Technology II Clinical .....2.5 credit hours

Prerequisite(s): SUR 100, SUR 105, BIO 237, BIO 111 or BIO 102
Corequisite(s): SUR 120, SUR 125
0 lecture, 0 lab, 225 clinical, 0 practicum hours
Fulfills Core Elements: 9, 16

This course complements the Surgical Technology II theory and lab courses. Students develop their technical skills through participation in a variety of basic surgical procedures at an assigned hospital operating room.

SUR 140: Surgical Technology Pharmacology.....2 credit hours

Prerequisite(s): SUR 100, BIO 111, BIO 237
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5

This course acquaints students with common principles of pharmacology, allowing an understanding of the types, usage, and effects of various medications (agents) commonly used in the operating environment. Measurement, terminology, proper handling, responsibility of the surgical technologist, usage, and anesthesia will be covered.

SUR 150: Surgical Technology III Theory .....3 credit hours

Prerequisite(s): SUR 120, SUR 125, SUR 135, SUR 140
Corequisite(s): SUR 155, SUR 160
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 16, 18

In this course, advanced principles of the surgical technologist's role are discussed. Students learn advanced surgical procedures. Also addressed are patient's rights and concerns; ethical, moral, and legal issues; job application; and graduate certification.

SUR 155: Surgical Technology III Clinical Practice .....4 credit hours

Prerequisite(s): SUR 120, SUR 125, SUR 135, SUR 140
Corequisite(s): SUR 150, SUR 160
0 lecture, 0 lab, 360 clinical, 0 practicum hours
Fulfills Core Elements: 9

This course complements the Surgical Technology III Theory course. Students gain experience in the surgical technologist role by practicing in the scrub capacity in hospitals on a variety of cases. All surgical specialties are addressed with mastery of general cases and familiarity with more complicated cases expected.

SUR 160: Surgical Technology Seminar .....1 credit hour

Prerequisite(s): SUR 120, SUR 125, SUR 135, SUR 140
Corequisite(s): SUR 150, SUR 155
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course assists the student in planning for employment in the field of surgical technology. Current topics in surgical technology are covered and the mock national certification exam is administered.

Tax TAX

TAX 101: Federal Income Taxes for Individuals and Small Business .....3 credit hours

Prerequisite(s): MTH 163 or consent
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 9, 11

This is a beginning course in Federal Income Tax Return preparation for individuals, (including sole proprietorship businesses). Students receive practical experience in preparation of tax returns, both manually and on the computer. The course is best suited for business owners wishing to prepare their own returns or those seeking employment as a paraprofessional in the tax field.

TAX 121: Business Income Tax Basics .....2 credit hours

Prerequisite(s): TAX 101 or consent
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course provides a theoretical foundation for handling business issues. Students receive practical experience in preparation of Federal and Michigan tax returns (including the Michigan SBT) for the sole proprietor, both manually on the computer. The course is best suited for business owners wishing to prepare their own tax returns or those seeking employment as paraprofessionals in the tax field.

TAX 123: Income Tax for Partnerships.....0.5 credit hours

Prerequisite(s): TAX 121 or consent
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers basic Federal and Michigan income tax returns for businesses operating as partnerships. Students receive practical experience in the preparation of these Federal and Michigan tax returns, both manually and on the computer. The course is best suited for business owners wishing to prepare their own tax returns or those seeking employment as a paraprofessional in the tax field.

TAX 124: Income Tax for Corporations .....1 credit hour

Prerequisite(s): none
Corequisite(s): TAX 121
15 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers basic Federal and Michigan income tax returns for businesses operating as corporations. Students receive practical experience in preparation of these Federal and Michigan tax returns, both manually and on the computer. The course is best suited for business owners wishing to prepare their own tax returns or those seeking employment as paraprofessionals in the tax field.

TAX 125: Income Tax for Sub S Corporations.....0.5 credit hours

Prerequisite(s): TAX 124 or consent
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers basic Federal and Michigan income tax returns for businesses operating as Sub Chapter S corporations. Students receive practical experience in preparation of these Federal and Michigan tax returns, both manually and on the computer. The course is best suited for business owners wishing to prepare their own tax returns or those seeking employment as paraprofessionals in the tax field.

TAX 190: Tax Practice .....0.5 credit hours

Prerequisite(s): TAX 101, TAX 121, TAX 124 or consent
Corequisite(s): TAX 123, TAX 125
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed for those intending to work as paraprofessionals in the tax field. The importance of maintaining a professional image with clients is explored as well as various issues that frequently occur in the audit of client returns. Students are given an opportunity to build a portfolio that will assist them in demonstrating their proficiency in preparing tax returns to prospective employers. This is a capstone course designed for students who will seek employment as a tax preparer.

TAX 210: Advanced Issues in Individual Taxes.....0.5 credit hours

Prerequisite(s): TAX 101, TAX 121 or consent
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers advanced issues in individual taxation involving deferred income, fringe benefits, and employment related deductions. It also covers advanced issues involving portfolio and passive income, and itemized deductions. The course is best suited for the professional who is seeking advanced training.

TAX 220: The Michigan SBT .....0.5 credit hours

Prerequisite(s): TAX 109 or consent
Corequisite(s): none
7.5 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course covers advanced issues in the Michigan Small Business Tax, including adjustments and apportionments. The course is best suited for the tax professional who is seeking advanced training.

Trade Related Instruction TRI

TRI 092: Review for Apprentice Test .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to help students pass the Apprentice test. Students must have a working knowledge of math skills necessary for normal function in the trades. Topics include how to convert from 3-dimension objects to 2-dimension pictures. Students get an understanding of machine workings and mechanical advantage. They learn easier ways of taking tests and hopefully lose any fears of test taking.

TRI 099: Skilled Trades Industrial Safety.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is designed to provide the industrial skilled trades persons with knowledge of safety fundamentals and practices, accident causes, impact and prevention, safety organization in the plant, the need for safety rules, mechanical safeguards, and lockout procedures. Health and hygiene, industrial housekeeping and fire safety are included, as well as a study of hazards and safety rules associated with energy sources, hand, power and machine tools, ladders, scaffolds, hazardous materials, hoists, cranes, conveyors, ropes, chains, slings, and operation of powered trucks.

TRI 103: Sheet Metal Blueprint Reading and Layout.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Elementary sheet metal layout with emphasis placed on developing sheet metal patterns by standard short cut methods is the focus of this course. Hands-on experience fabricating the patterns into actual sheet metal locks, seams, clips, connectors, ducts, elbows, tees and offsets takes place in the sheet metal shop.

TRI 105: Advanced Sheet Metal Layout.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Advanced sheet metal layout teaches the actual development of more difficult sheet metal fittings, triangulation and parallel line methods of development. The development and fabrication of the fittings most often needed in today's modern heating, ventilating and air conditioning systems is emphasized.

TRI 111: Introduction to Code Enforcement .....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This lecture/discussion/lab course covers legal authority, codes format, code fundamentals, plan review, permit processing and inspection procedures.

TRI 115: Blueprint Facilities Maintenance .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

A basic course in reading engineering plans and drawings. Understanding electrical, mechanical, and fluid power systems through the use of schematic diagrams. Major units covered are elements of machine drawings, hydraulic and pneumatics, building drawings, electrical drawings, sheet metal drawings, piping drawings, and welding processes and symbols.

TRI 140: Millwright Theory .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 7, 9

This course includes millwright practices encompassing major units such as millwright fundamentals, fiber and steel rope, hoisting, structural woods and steels, scaffolding, strengths of timber and metal beams, cranes and derricks, rigging, transporting heavy shop equipment, accident prevention, standards, laws and codes. Maintenance of bearings, belts, chain drives and conveyors included.

TRI 174: TRI Co-op Education I.....1 - 3 credit hours

Prerequisite(s): 1st semester courses and consent
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience.

TRI 201: Plumbing and Pipefitting I .....3 credit hours

Prerequisite(s): MTH 039
Corequisite(s): none
45 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This is a practical study of plumbing and pipefitting fundamentals as well as the classifications and functions of boilers, steam and hot water heating systems. Heating code is included.

TRI 202: Plumbing and Pipefitting II.....4 credit hours

Prerequisite(s): TRI 201
Corequisite(s): none
60 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

This course is a continuation of TRI 201 involving the study of water supply, waste disposal, drainage, venting, unit sanitation equipment and plumbing codes.

TRI 240: Plant Layout and Material Handling Systems .....4 credit hours

Prerequisite(s): IND 100
Corequisite(s): none
0 lecture, 60 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 9

This class includes blueprint reading and simplified drawing of typical free and power type conveyor systems as well as plant layout drawing of machinery, foundations, exhaust systems, heat treat furnaces, hoists, catwalks and platforms.

TRI 274: TRI Co-op Education II .....1 - 3 credit hours

Prerequisite(s): TRI 174
Corequisite(s): none
0 lecture, 0 lab, 0 clinical, 120 practicum hours
Fulfills Core Elements: none

In this course, students gain skills from a new experience in an approved, compensated, industry-related position. Together with the instructor and employer, students set up work assignments and learning objectives to connect classroom learning with career-related work experience. This is the second of two co-op courses.

Welding & Fabrication WAF

WAF 100: Fundamentals of Welding.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17, 18, 19

This is a basic combination welding course dealing with oxy-acetylene and arc welding designed to meet the needs of students enrolled in Auto Body Repair, Auto Mechanics, Detailer Draftsman, etc. Typical applications are made in a laboratory setting.

WAF 101: Acetylene Welding .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 18, 19

Designed for students who need a knowledge of oxy-acetylene welding and a degree of skill required by industry. Primarily for students whose occupations are associated with welding.

WAF 102: Basic ARC Welding .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17, 18, 19

This introductory course in arc welding covers theory and practice, and proper procedures for various welding positions. Topics include A.C. and D.C. welding, electrode identification, classification and proper applications to typical operations.

WAF 103: Heli-ARC Welding.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17, 18, 19

Instruction is given in tungsten, inert gas, and shielded arc welding. Manually operated torches are used on such metals as aluminum, stainless and mild steels; includes theory directly related to the composition and properties of these metals.

WAF 104: Soldering & Brazing.....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 5, 7, 17, 18, 19

This course is designed to provide basic knowledge of soft soldering, brazing, silver soldering, copper tubing and fittings, brazing of steel, silver soldering of copper and stainless. Practical application included.

WAF 105: Fundamental Welding for Art/Engineering Schools .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 5, 18, 19

This is a basic welding class. No welding experience is necessary. Oxyacetylene (welding and cutting), arc welding and soldering and brazing are explored with hands-on training provided. Students work on class competencies, at their own pace, beginning with safety practices and set-up in each area. The welding lab has individual work stations for a no waiting to work and a safe atmosphere. Students are given personalized instruction on every class objective to help with their mastery of the art of welding.

WAF 106: Blueprint Reading for Welders.....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5

This class is designed for the welders who are responsible for properly locating weld on the weldment and determining weld size, contour, length, type of filler metal and any applicable welding procedures.

WAF 111: Welding I Oxy-Acetylene .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17, 18, 19

This course focuses on the use of oxy-acetylene equipment to perform such operations as butt, lap, and fillet welds using filler rods; flame cutting, brazing and silver soldering. Safety procedures and practices of gas welding are emphasized.

WAF 112: Welding II Basic ARC .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 17, 18, 19

This course involves the use of arc welding equipment both A.C. and D.C. to perform such operations as butt, lap and fillet welds using bare and shielded electrodes, all-purpose and special electrodes. Study of electrical welding, power supplies and electrodes is included. Safety procedures are stressed.

WAF 123: Welding III Advanced OAW.....4 credit hours

Prerequisite(s): WAF 111
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 1, 5, 7, 18, 19

Advanced instruction is provided in oxy-acetylene welding with emphasis on out of position welded joints. Procedures are covered and put in practice for fabricated welded joints on steel plate and pipe. Related theory is included.

WAF 124: Welding IV Advanced SMAW .....4 credit hours

Prerequisite(s): WAF 112
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 17, 18, 19

Advanced instruction is provided in arc welding using both A.C. and D.C. arc welding equipment. Emphasis is on out of position welded joints in mild steel, alloy steels and procedures covered for cutting, beveling and fabricating various welded joints. Related theory, codes and standards are included.

WAF 200: Layout Theory Welding .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
15 lecture, 45 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 18, 19

This course involves layout problem solving for the welder including techniques using layout die, combination squares, protractors, center heads, trammel points, dividers, and straightedges. Template making for pipe cutting and joining is emphasized. A basic math review and the properties of a circle such as radius, chords, and degrees of angularity for jobs done in the field are included.

WAF 210: Welding Metallurgy .....3 credit hours

Prerequisite(s): none
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 18, 19

This course focuses on metal properties and identification properties through testing, effects of alloying element, specification use and application of mild steel, low steel alloys, stainless steels, principles of electricity as they apply to different welding applications' heat treatment of metals.

WAF 215: Welding V Advanced GTAW & GMAW .....4 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 18, 19

This course involves tungsten-inert gas shield arc welding with manually operated torch on such metals as aluminum, mild steel and stainless steel. Technical theory directly related to T.I.G. welding including the composition and properties of metals.

WAF 226: Specialized Welding Procedures .....4 credit hours

Prerequisite(s): Consent
Corequisite(s): none
30 lecture, 90 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 5, 7, 18, 19

This course involves specialized oxy-acetylene welding, inert gas-shield arc and consumable carbon dioxide welding. Emphasis is given to aluminum, stainless steel, high alloy steels and cast iron. Procedures for welding of the exotic metals such as titanium, columbium, zirconium, and molybdenum are included.

WAF 227: Basic Fabrication.....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
30 lecture, 30 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 4, 5, 7, 18, 19

For advanced welders planning to use their welding skills in manufacturing, this class teaches the skills necessary to design, cut and fit pieces to be welded. Welders are trained in the use of modern machines for bending, punching, cutting and shaping. Each student takes a self-chosen project and carries it through from blueprints to actual assembly. Estimation of material and labor costs is included.

WAF 229: Shape Cutting Operations.....3 credit hours

Prerequisite(s): Consent
Corequisite(s): none
45 lecture, 15 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: none

Students learn the shape-cutting process with oxy-acetylene and plasma cutting torches. With the use of the optical eye and Burny IV N.C. control, students learn how to cut mild steel, aluminum and stainless steel parts.

Yoga YOG

YOG 101: Introduction to Hatha Yoga .....2 credit hours

Prerequisite(s): none
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 16

This course provides an introduction to the philosophy and practice of Hatha Yoga.

YOG 102: Philosophy and Practice of Yoga .....2 credit hours

Prerequisite(s): YOG 101
Corequisite(s): none
30 lecture, 0 lab, 0 clinical, 0 practicum hours
Fulfills Core Elements: 14, 16, 21

This course is a continuation of Yoga 101, Introduction to Hatha Yoga.

Course Changes: Code, Title, and Credit Changes

OLD Course Code, Title, and Credit		NEW Course Code, Title, and Credit	
ABR 114	Applied Auto Body Welding 1	ABR 114	Applied Auto Body Welding 2
ACS 040	Vocabulary and Comprehension Skills I 4	ACS 040	Vocabulary and Comprehension Skills I ..... 4 - 8
ACS 107	Speed Reading 3	ACS 107	College Study Skills and Speed Reading 3
BMG 209	Home/Small Business Planning 2	BMG 209	Writing the Business Plan 2
BMG 230	Supervisory Management 3	BMG 230	First Line Management 3
BMG 272	Problem Solving 0.5	BMG 272	Problem Solving 2
BMG 273	Understanding the Organization: Systems Perspective 0.5	BMG 273	Understanding the Organization: Systems Perspective 3
CIS 107	Spreadsheet Software 2	BOS 110	Spreadsheet Software 2
CIS 108	Software Tools 2	BOS 108	Software Tools 2
CIS 109	Database Software 2	BOS 109	Database Software 2
CIS 118	MS DOS for Technicians 2	ELE 118	MS DOS for Technicians 2
CIS 152	Introduction to Excel 2	BOS 183	Introduction to Excel 2
CIS 160	Exploring the Internet 2	CIS 160	Introduction to the Internet 2
CIS 182	Introduction to Microsoft Access 2	BOS 182	Introduction to Microsoft Access 2
CIS 265A	HTML Short Course 1	CIS 165	Basic HTML 2
CIS 292	Developing Applications with Oracle 4	CIS 292	Introduction to Oracle Developer 3
CJT 221	Law Enforcement Training 16	CJT 221A	Law Enforcement Investigations 13
		CJT 221B	Law Enforcement Skill Areas 13
		CJT 221C	Community Policing and Communication 4
CUL 250	Advanced Service Techniques 3	CUL 250	Principles of Beverage Service 3
DPP 117	Introduction to Printing 4	DPP 117	Printing Essentials for Digital Prepress 4
ENG 030	ESL IV 3	ENG 030	Intemediate ESL Grammar 3
ENG 031	ESL V 3	ENG 060	Advanced ESL Grammar 4
ENG 040	Basic Writing - ESL 8	ENG 063	Advanced ESL Written Communication 8
GDT 101	Design Survey 3	GDT 101	History of Graphic Design 3
GDT 200	Design and Publishing on the Internet 4	GDT 200	Design and Publishing on the Internet 3
GDT 230	Professional Practices 2	GDT 230	Professional Practices 4
GDT 252	Advanced Digital Studio 3	GDT 252	Advanced Digital Studio 4
MTT 100	Machine Shop Theory 3	MTT 100	Machine Shop Theory 4
MTT 101A	Blueprint Reading for Manufacturing A 3	MTT 101A	Special Topics in Print Reading 1
MUS 142	Music Theory I 3	MUS 142	Music Theory 3
PEA 105	Weight Training-Nautilus/Free Weights 2	PEA 105	Weight Training-Cybex/Free Weights 2
RTH 212	Ventilators 4	RTH 212	Ventilators 5
SUR 100	Surgical Technology 3	SUR 100	Surgical Technology I Theory 3
SUR 125	Surgical Technology II Lab/Clinical 3	SUR 125	Surgical Technology II Lab 1
SUR 155	Surgical Technology III Practice 4	SUR 155	Surgical Technology III Clinical Practice 4
WAF 111	Welding (Basic Oxy-Acetylene) 4	WAF 111	Welding I Oxy-Acetylene 4
WAF 112	Welding (Basic ARC) 4	WAF 112	Welding II Basic ARC 4
WAF 123	Welding (Adv. Oxy-Acetylene) 4	WAF 123	Welding III Advanced OAW 4
WAF 124	Advanced ARC Welding 4	WAF 124	Welding IV Advanced SMAW 4
WAF 215	Advanced TIG and MIG Welding 4	WAF 215	Welding V Advanced GTAW & GMAW 4
YOG 101	Philosophy & Practice of Yoga I 3	YOG 101	Introduction to Hatha Yoga 2
YOG 102	Philosophy & Practice of Yoga II 3	YOG 102	Philosophy & Practice of Hatha Yoga 2

New Courses (Full Approval)

3Code	Title	Credit
ACC 220	Financial Planning, Budget, and Control	3
ACC 230	Financial Statement Analysis for Non-Accountants	1
ASV 156	Electrical Systems Recertification	1
ASV 177	Recertification in Brakes	1
BIO 174	Biology Co-op I	1-3
BMG 106	Legal Basics in Business	3
BOS 224	Medical Office Insurance and Billing	4
CCP 104	The Basics of Child Care	1
CCP 132	Child Development Practicum I	1-3
CCP 133	Child Development Practicum II	1-3
CCP 134	Child Development Practicum III	1
CIS 291	Introduction to Oracle SQL and PL/SQL	4
CIS 293	Advanced Oracle Developer	4
DEN 230	Alternative Dental Assistant Education Project (ADAEP)	9
DRA 170	Stratford Theatre Festival	2
EET 231	Electronic Communications	3

Code	Title	Credit
ELE 104	Electronic Soldering	1
FRN 112	French Laboratory I	1
FRN 123	French Laboratory II	1
GDT 214	Advanced Photoshop	3
HST 230	History of the Holocaust	3
MET 221	Computer Aided Mechanical Design	3
NCT 249	Mastercam CNC Programming	4
NUR 222	Health Assessment Throughout the Lifespan	4
PHO 212	Large Format Photography II	3
RAD 221	Ethics & Legal Issues for Radiographers	2
RAD 262	Principles of Computed Tomography	2
SUR 105	Surgical Technology I Lab	1
SUR 135	Surgical Technology II Clinical	2.5
SUR 160	Surgical Technology Seminar	1
TRI 220	Electrical Grounding	3
TRI 222	Electrical Wiring Industrial	3

New Courses (Conditional Approval Only)

Code	Title	Credit
ASV 141	Automotive Mechanics I	4
ASV 142	Automotive Mechanics II	4
ASV 143	Automotive Mechanics III	4
ASV 144	Automotive Mechanics IV	4
ASV 145	Automotive Mechanics V	4
BMG 265	Business Statistics	3
BMG 279	Performance Management	3
BMG 287	Managerial Leadership	3
BMG 291	First Line Leadership Capstone	3
BMG 292	Small Business and Entrepeneurship Capstone	2
CAD 280	Basics of Parts Modeling	3
CAD 282	Constructing Assemblies	2
CAD 284	Part Modeling II	3
CAD 286	Part Modeling III	2
CAD 290	Detailing	2
AD 292	Free Form Surfacing	2
CIS 283	Databases and the Web	4
CIS 287	Internet Security	4
CIS 291	Introduction to Oracle SQL and PL/SQL	4
CJT 112	Constitutional Law for CJ	3
CNT 200	Networking Fundamentals	4
CNT 210	Netware Administration	3
CNT 211	Administering Microsoft Windows NT	3

Code	Title	Credit
CNT 215	Structured Cabling Systems	4
CNT 220	Advanced Netware Administration	3
CNT 221	Supporting MS Windows NT Core Technologies	3
CNT 225	Introduction to Routers	4
CNT 230	Netware Service and Support	4
CNT 231	MS Windows NT Enterprise Technologies	3
CNT 235	Advanced Local Area Networking	4
CNT 240	Novell Directory Services	3
CNT 241	Internetworking Microsoft TCP/IP	3
CNT 245	Introduction to Wide Area Networks	4
CNT 250	Integrating MS Windows NT into a Novell Network	3
CNT 251	Microsoft Internet Information Server	3
CNT 255	Heterogenous Networks	4
CNT 265	Network Design	4
CON 104	Construction I	5
CON 105	Construction II	5
CON 115	Construction Site Safety	3
CON 204	Construction III	4
CON 205	Construction IV	4
CUL 114	Baking I	3
CUL 115	Pastry I	3
CUL 124	Baking II	3
CUL 125	Pastry II	3

Code	Title	Credit
CUL 130	Beginning Cake Decorating	1
CUL 131	Wedding Cake Design	1
CUL 140	Bakery Management and Merchandising	2
DRA 160	Movement for Actors	3
ELE 220	Modems, Peripherals, and Introduction to Networking	4
ENG 037	Intermediate ESL Writing	4
ENG 065	Advanced ESL Speaking and Listening	3
ENG 104	Special Topics Seminar for ESL Students	1
ENG 105	Bridge ESL Written Communication	8
GLG 219	Field Studies in Geology	2
GDT 143	Imaging for the Web	3
HVA 101	Heating, Ventilating, and Air Conditioning (HVAC) I	5
HVA 103	Heating, Ventilating, and Air Conditioning (HVAC) II	5
HVA 105	Heating, Ventilating, and Air Conditioning (HVAC) III	5
HVA 107	Heating, Ventilating, and Air Conditioning (HVAC) IV	5
IND 114	Industrial Drafting II	4
INP 230	Advanced Web I	3
INP 240	Advanced Imaging for the Web	3
INP 250	Audio and Video for the Web	3
INP 255	Animation on the Web	3
INP 260	Advanced Web II	3
MET 110	Statics	3
MET 221	Computer Aided Mechanical Design	3
MET 278	Finite Element Modeling Fundamentals	3
MET 296	Introduction to Internal Combustion Engine Theory	3
PHO 228	Digital Photo Imaging II	3
QCT 100	Charting Techniques	2
SUR 097	Sterile Processing and Distribution Theory	4
SUR 098	Sterile Processing and Distribution Clinical	2

Discontinued Courses

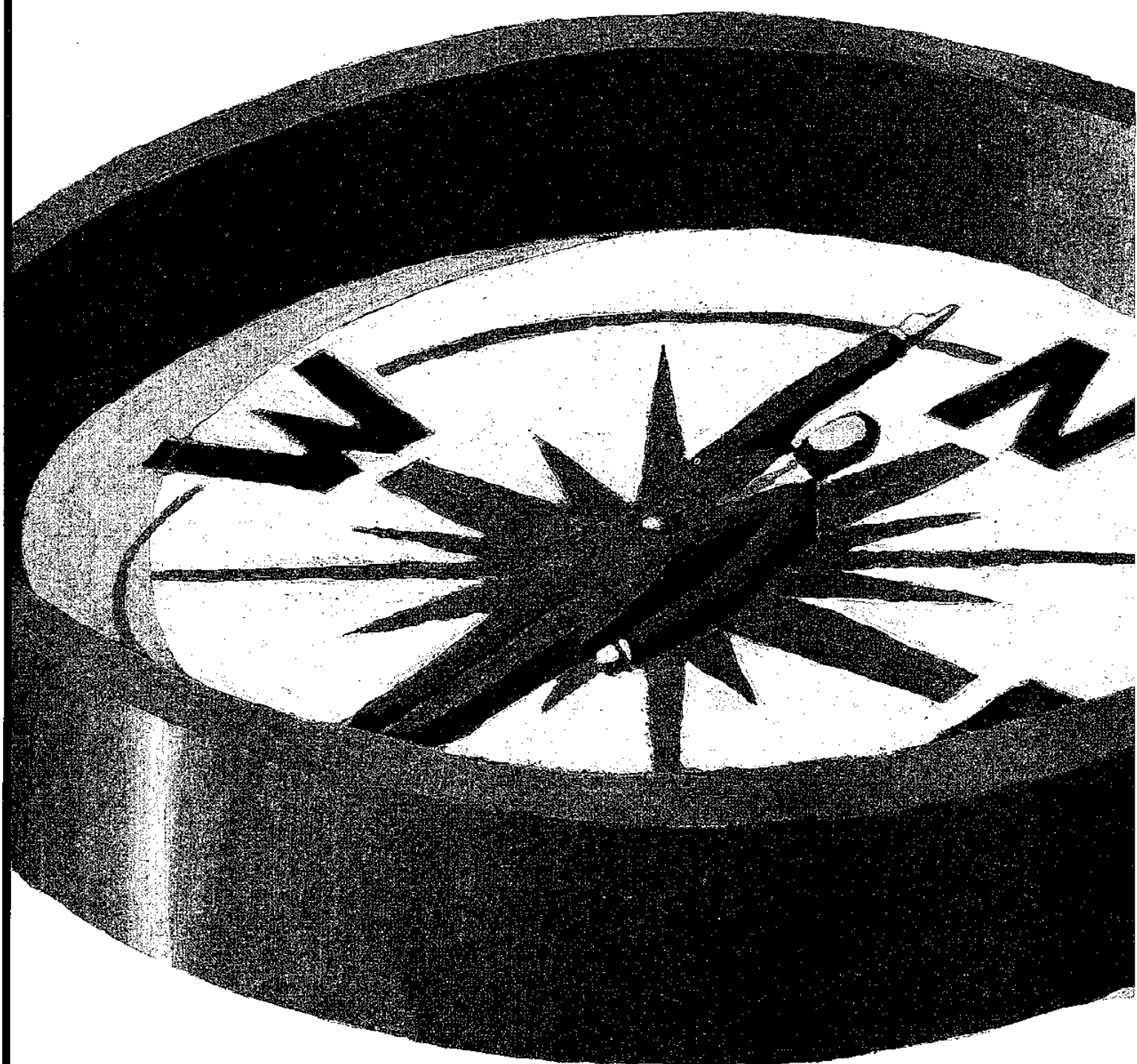
Code	Title	Credit
ACC 200	Tax Preparation: Personal and Small Business	3
ACS 071	ESL Vocabulary and Comprehension Skills III	4
ACS 103	Study Skills	3
CIS 265A	HTML Short Course	1
CJT 122	Introduction to Corrections	3
CON 102	Construction Theory and Practice I	4
CON 202	Construction Theory and Practice II	4
DAN 126	Country Western Dance	1
DAN 130	Beginning Clogging	1
DAN 224	Dance Exercise III	1
ECO 111	Consumer Economics	3
ELE 139B	Microprocessors B	2
GDT 103	Perspective Drawing	4
GDT 234	Planning and Finishing for Printing	2
GEO 212	Geography of the United States and Canada	3
HTG 111	Heating Fundamentals	3
HTG 122	Heating Systems	3
HTG 213	Heating Controls	3
IND 105	Pictorial Drawing	2
IND 107	Mechanisms	4
MTH 115	Selected Topics for Industry	Var
MUS 183	Music and Culture of Africa and the African-Americ	3
PLS 108	Government and Society	3
PSY 095	Seminar: Psychology of Patient Management	1
PSY 150	Industrial Psychology	3
PSY 160	Coping With Stress	3
RAC 111	Refrigeration I	5
RAC 122	Refrigeration II	5
RAC 123	Refrigeration and Air Conditioning Systems Lab I	5
RAC 124	Basic Controls	5
RAC 212	Refrigeration and Air Conditioning Systems Lab II	3
RAC 213	Air Conditioning	5
RAC 214	Control Systems	5
RAC 215	Troubleshooting Controls	3
RAC 216	Refrigeration and Air Conditioning Systems Laboratory III	5
ROB 260	CIM Applications	4
TAX 102	Federal Income Taxes for Individuals and Small Business Owners	3
TAX 103	Michigan and Local Taxes for Individuals and Small Business	3

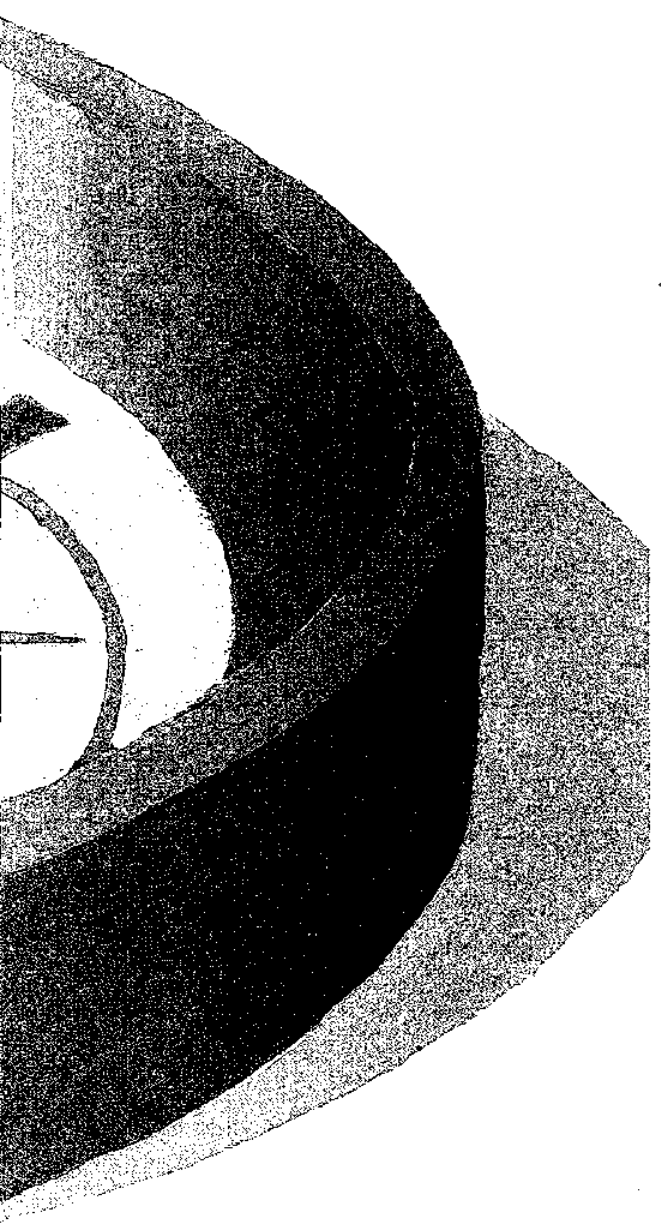
New Programs for 1999

Automotive Technology Achievement Certificate (ATC)
Baking and Pastry Mastery Certificate (BAKP)
Business Associate in Science Degree (BAS)
Child Development Achievement Certificate (CDA)
Computer Information Systems Transfer Associate in Science Degree (CIST)
Computer Networking Technology I Advanced Certificate (CNT)
Computer Networking Technology II Advanced Certificate (CNTA)
Computer Software Specialty Achievement Certificate (CSSC)
First Line Management Mastery Certificate (FLMC)
First Line Management Associate in Applied Science Degree (FLMD)
Heating, Ventilating, & Air Conditioning Achievement Certificate (HVAC)
Humanities and Social Sciences Associate in Arts Degree (HSAA)
Human Resource Management Achievement Certificate (HRSC)
Internet Professional Mastery Certificate (INPC)
Internet Professional Associate in Applied Science Degree (INPD)
Machine Tool Technology Advanced Certificate (MTTA)
Math and Science Associate in Science Degree (MSAS)
Mechanical Design Advanced Certificate (MDES)
Medical Transcription Achievement Certificate (MTR)
Numerical Control Programming Advanced Certificate (NCP)
Residential Construction Technology Achievement Certificate (RTC)
Sterile Processing and Distribution Achievement Certificate (SPDC)
Welding Achievement Certificate (WLDC)

Discontinued Programs for 1999

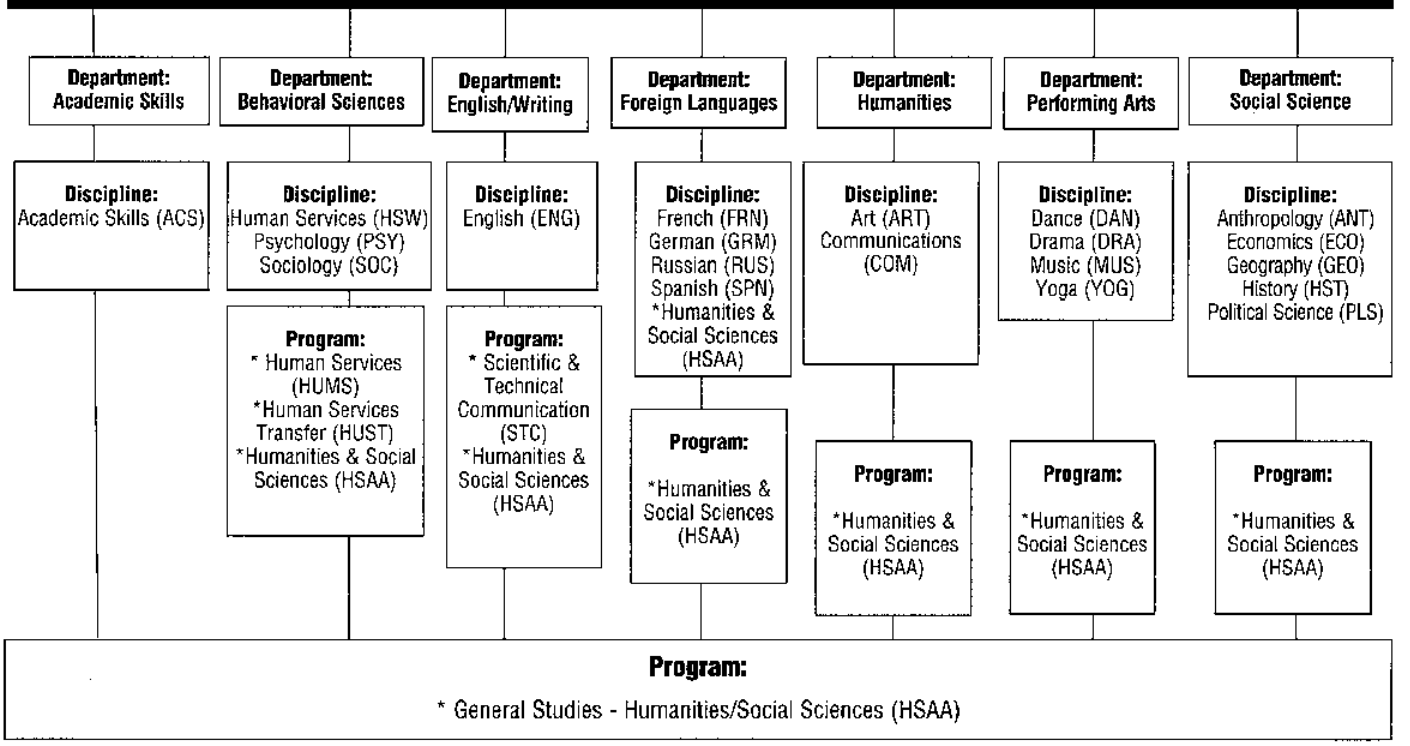
Business Marketing (BMKT)
Computer Science Transfer (CST)
Information Processing IP
Small Business and Entrepeneurship (SBEC)
Liberal Arts Transfer-Hum/Soc Sci (LAHS)
Liberal Arts Transfer-Biology/Pre-Medicine (BIOM)
Liberal Arts Trans-Chemistry/Pre-Med (CEMP)
Liberal Arts Transfer-Math and Natural Science (LAMN)
Industrial Drafting (IDT)
Refrigeration and Air Conditioning (RAC)





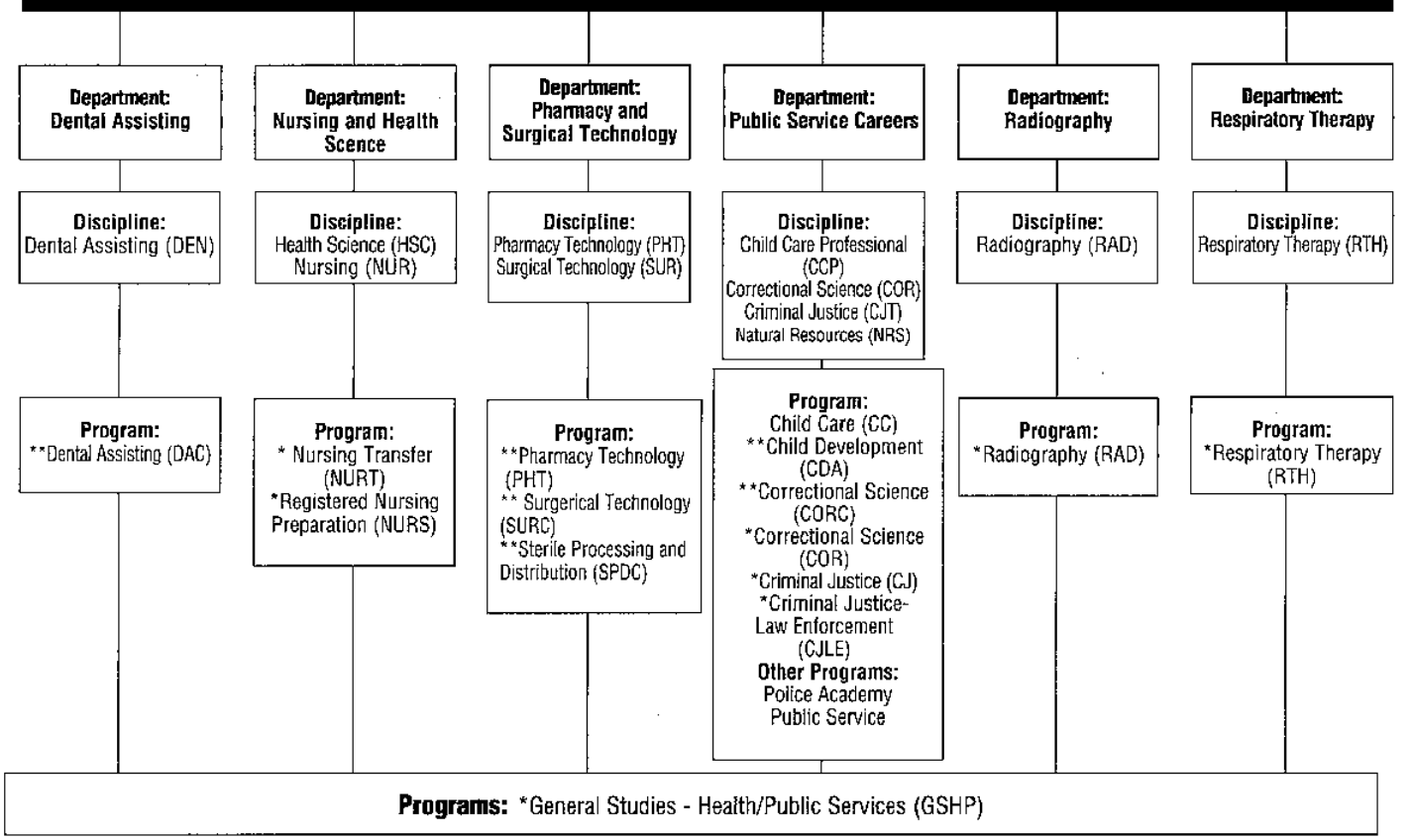
Curriculum Organization

Humanities and Social Sciences



*Degree Program

Health and Public Services



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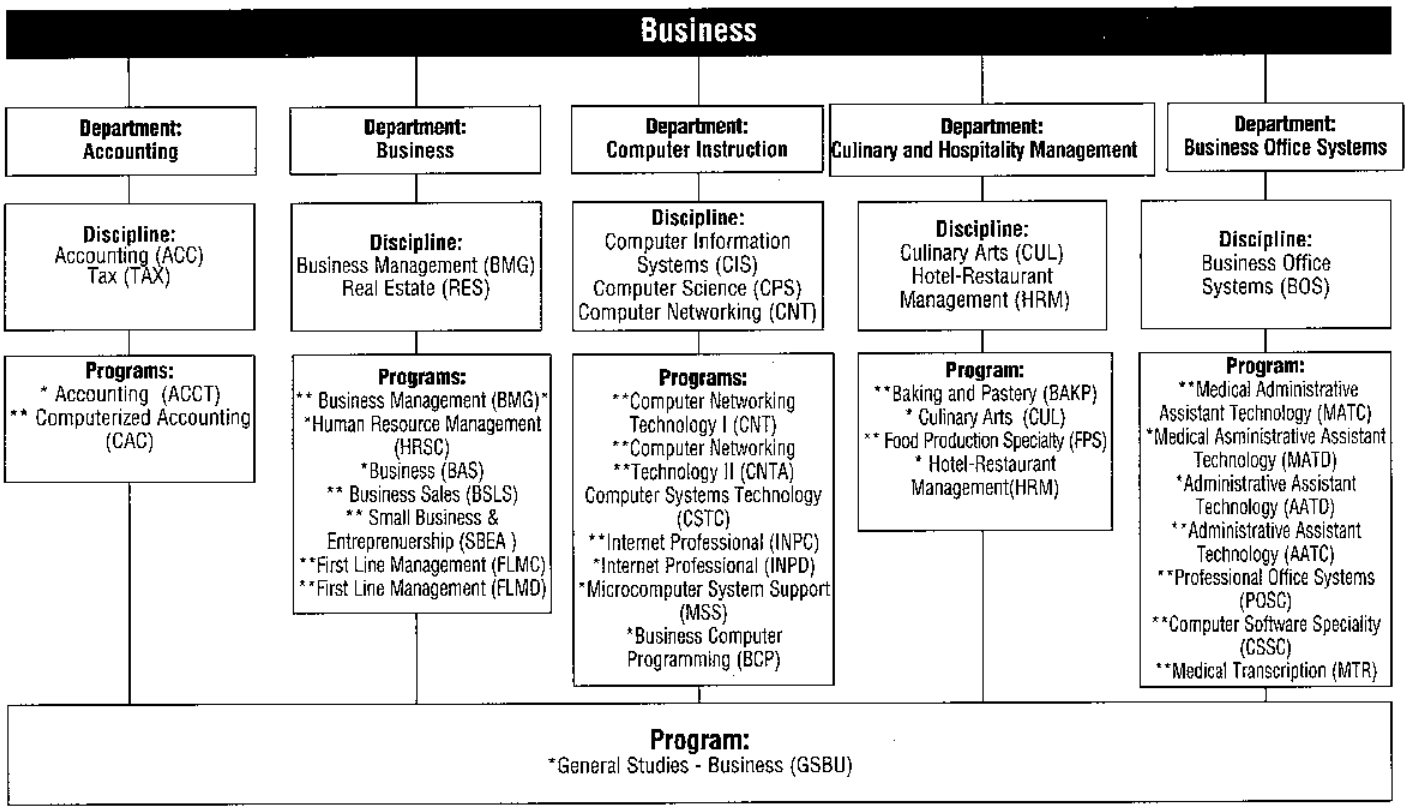
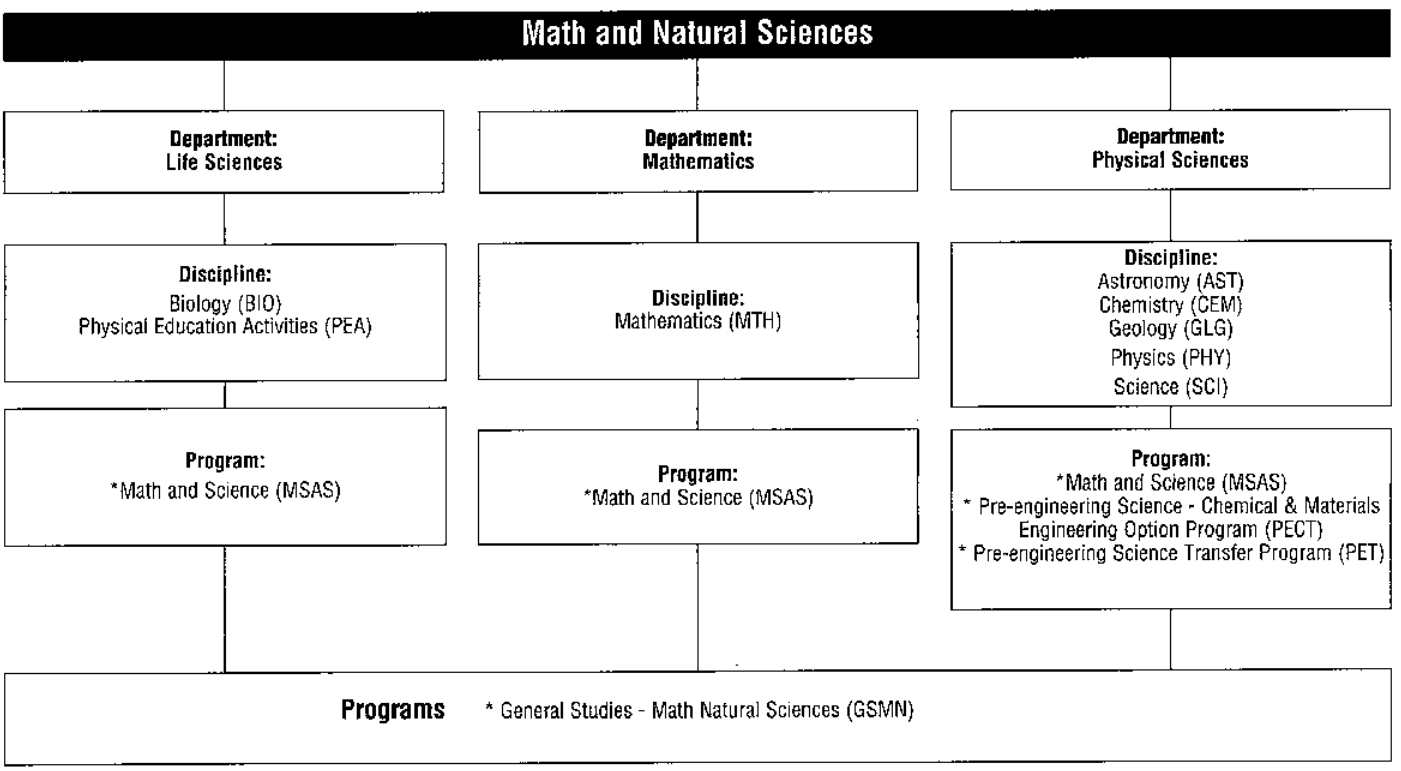
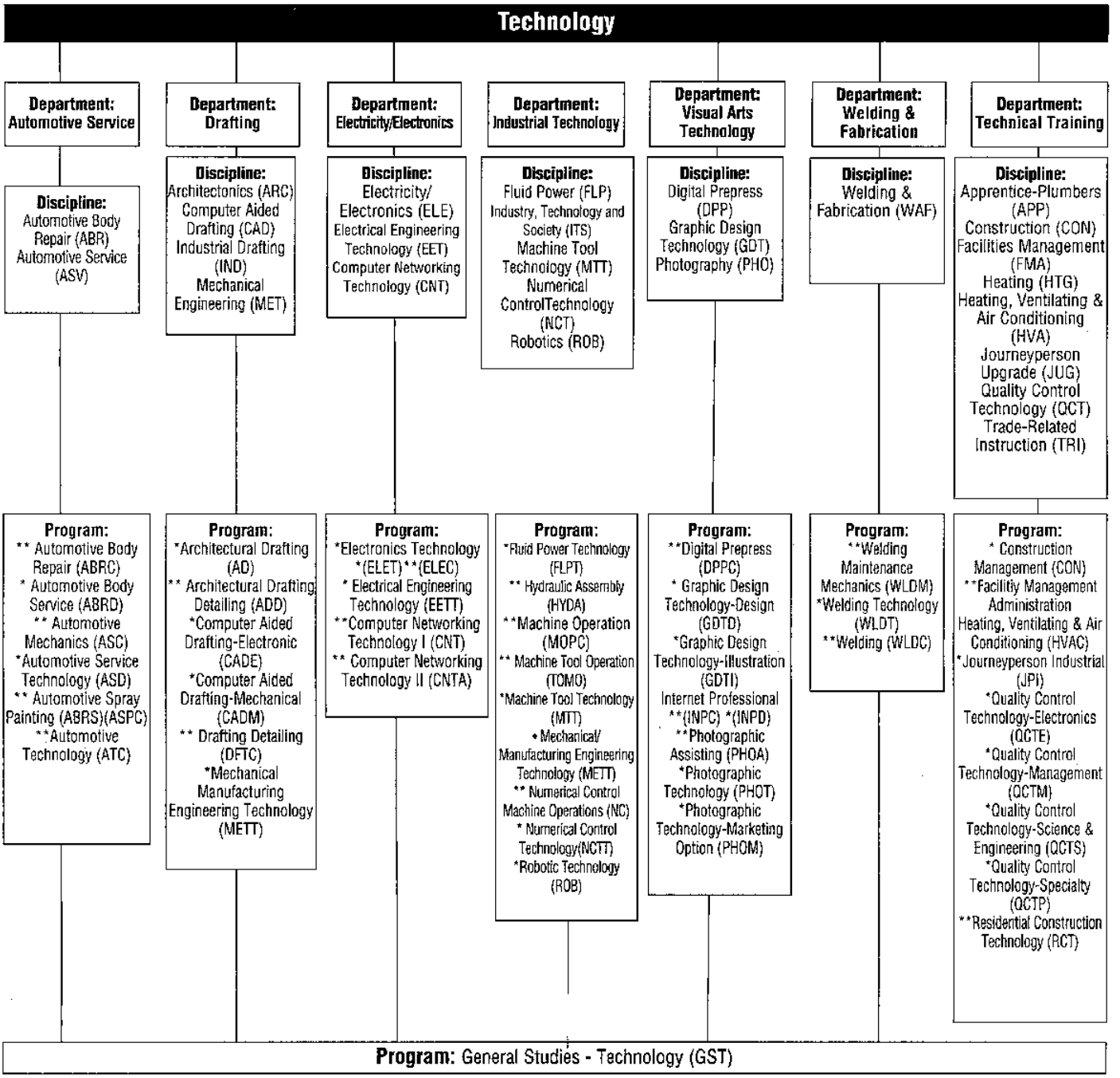
**Certificate Program



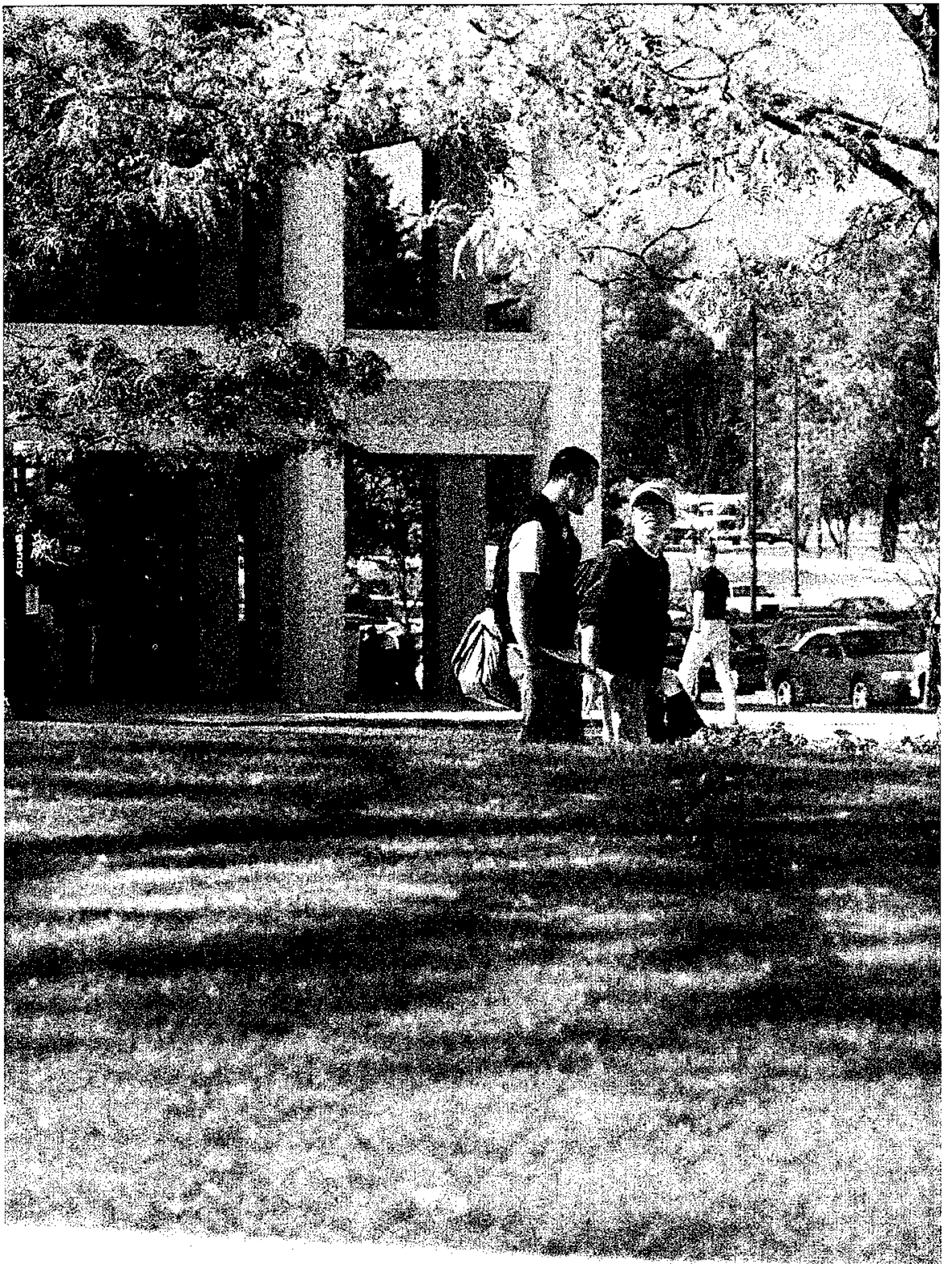
* Degree Program
** Certificate Program

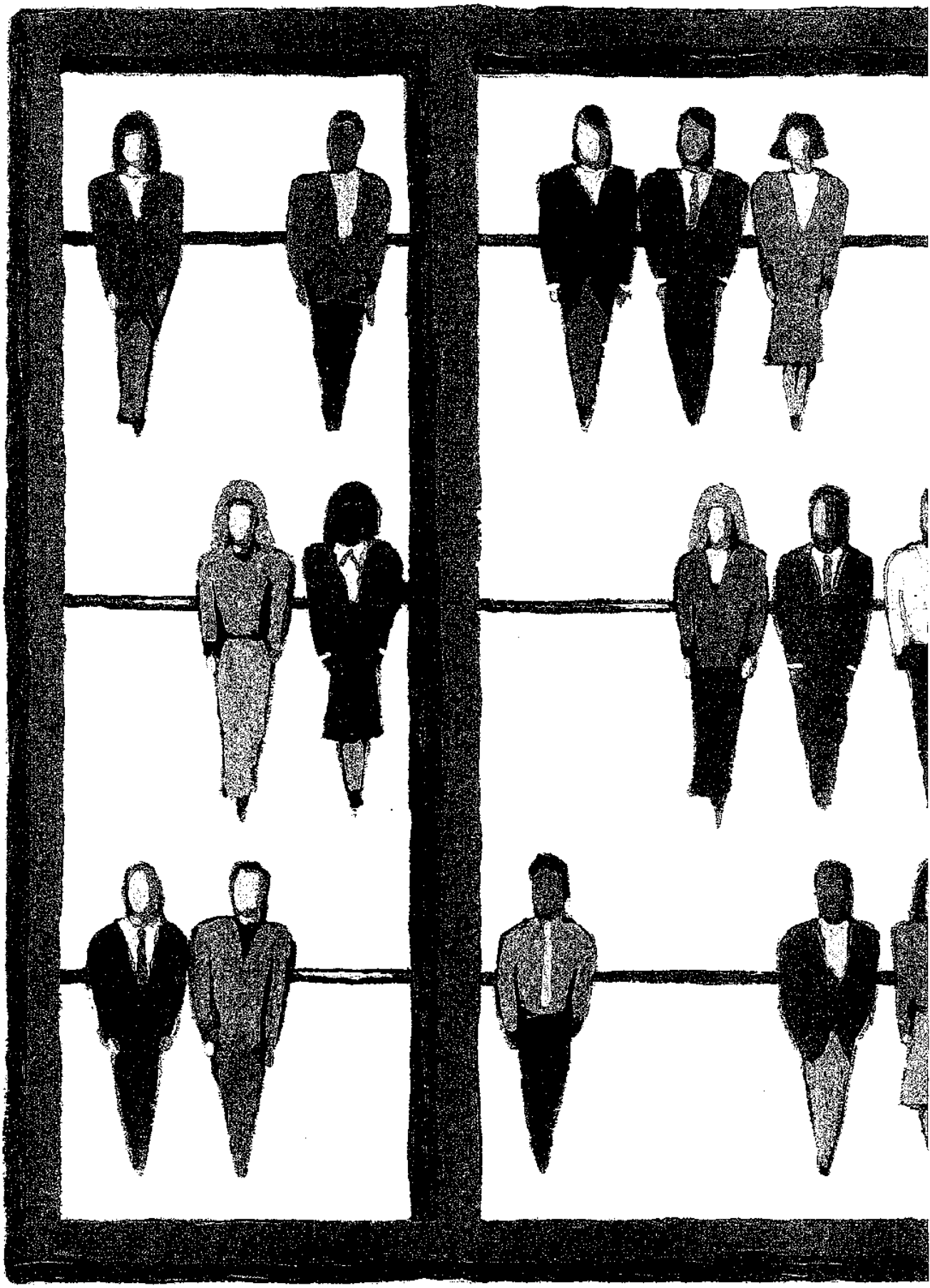


*Degree Program



* Degree Program
** Certificate Program





Personnel

Board of Trustees

Member	Term Expires
Richard W. Bailey, Chair	December 31, 2002
David Rutledge, Vice Chair	December 31, 2002
Diana McKnight-Morton, Secretary	December 31, 2000
Harry Konschuh, Treasurer	December 31, 2002
Mary Branch, Trustee	December 31, 2004
R. Griffith McDonald	December 31, 2000
Mary Schroer, Trustee	December 31, 2004

Executive Officers

Whitworth, Larry L. 1998
President
B.A. - Adrian College
M.B.A. - Duquesne University
Ed.D. - University of Pittsburgh

Altieri, Guy 1987
Vice President of Instruction and Student Services
B.A. - Glassboro State College
M.A. - Glassboro State College
M.A. - West Chester University
M.A. - Columbia University
Ed.D. - Columbia University

Brand, Patricia A. 1998
Vice President of Administration and Finance
B.S. -Michigan State University
M.S.F. - Walsh College

Flowers, Damon 1994
Associate Vice President of Facilities Development/Operations
B.S. - Lawrence Technological University
M.S. - Central Michigan University

Williams, Calvin 1969
Associate Vice President of Student Services
A.B.- Western Michigan University
A.M. - The University of Michigan
Ph.D. - The University of Michigan

Academic Deans

Bertoia, Roger R. 1966
Dean of Technology
B.S.E. - The University of Michigan
M.S. - The University of Michigan

Blain, Adella M. 1975
Dean of Learning Resources
B.A. - The University of Michigan
M.A.L.S. - The University of Michigan

Blakey, Linda S. 1988
Dean of Enrollment Services
B.S - The University of Michigan
M.S. - The University of Nevada at Las Vegas

Galant, Richard L. 1978
Dean of Humanities and Social Sciences
A.B. - The University of Michigan
A.M. - The University of Michigan
Ph.D. - The University of Michigan

Griswold, George 1966
Dean of Math and Natural Sciences
B.A. - College of Wooster
M.S. - Eastern Michigan University

Grzegorczyk, Phyllis 1978
Dean of Health and Public Services
B.S. - The University of Michigan
M.S. - The University of Michigan
S.A. - The University of Michigan
Ph.D. - The University of Michigan

Jacques, Edith N. 1976
Dean of Alternative Education
B.A. - D'Yonville College
M.A. - The University of Michigan
Ph.D. - The University of Michigan

Parker, Bella 1989
Dean of Business
B.S. - St. Augustine College
M.S. - The University of Michigan
Ph.D. - The University of Michigan

Many faculty and administrative staff hold specialized certificates and licenses in various areas of expertise. However, only college and university formal degrees are listed.

The date following each name indicates the individual's first full-time employment with Washtenaw Community College.

Faculty and Professional Staff

Abernethy, Bill 1993
Faculty: English/Writing
B.A. - University of Oregon
M.A. - University of Oregon
Ph.D. - University of Wisconsin

Abrams, Terry 1990
Faculty/Department Chair: Visual Arts
E.D.M. - Boston University
B.F.A. - Maryland Institute College of Art and Design
Certificate - Agfa-Gevaert

Adler, Sally 1993
Faculty: Public Service Careers
B.S. - Pennsylvania State University
M.S. - Pennsylvania State University
Certificate - PA Dept of Education

Aeilts, Larry 1999
Assistant Registrar Student Records Services
B.B.A. - Cleary College
M.S. - Walsh College

Allison, Lynn M. 1988
Faculty: Business Office Systems
A.D. - Washtenaw Community College
B.B.A. - Eastern Michigan University
M.B.E. - Eastern Michigan University

Anders, Derek F 1999
Help Desk Support Specialist
Certificate - Washtenaw Community College
A.D. - Livonia Career Center

Anderson, Christine 1997
Director, Web Services
B.A. - University of Michigan

Anderson, Laurice A. 1998
Faculty: Performing Arts
B.A. - Butler University
M.F.A. - Uninversity of Michigan

Andi, Kimberly M 1995
Health/Public Services Program Coordinator
A.D. - Washtenaw Community College
B.A. - Eastern Michigan University

Atkinson, John H 1997
Faculty: Public Service Training
J.D. - Detroit College of Law
M.P.A. - Eastern Michigan University

Avery, Dean 1981
Faculty: Industrial Technology
B.S. - Ferris State College
M.S. - Wayne State University

Avinger, Charles 1992
Faculty: English / Writing
B.S. - University of Alabama
M.A. - University of Alabama

Babcock, H. Lind 1994
Faculty: Visual Arts Technology
B.F.A. - Michigan State University
M.A. - Central Michigan University
M.F.A. - Kent State University

Baier, Randal E. 1997
Director: Learning Technologies
B.S. - Vermont State Colleges
M.A. - Wesleyan University
M.I.L.S. - The University of Michigan

Baker, Gerald A. 1975
Faculty/Department Chair: Radiography
A.A.S. - Wayne County Community College
B.S. - Ferris State University
R.T. - The American Registry of Radiologic Technologists
M.Ed. - The University of Michigan

Baker, Jennifer L. 1995
Faculty: Visual Arts Technology
A.D. - Washtenaw Community College
A.B. - University of Michigan
M.F.A. - Rhode Island School of Design

Baker, Mark E. 1994
Firearms Range Master: Public Service Training
A.D. - Henry Ford Community College

Batell, Mark F. 1984
Faculty: Mathematics
B.A. - Knox College
M.A. - The University of Michigan
M.A. - The University of Michigan

Bayer, Deborah K. 1994
Faculty: English/Writing
B.A. - Michigan State University
M.A. - Michigan State University

Beauchamp, Jillaine 1976
Faculty: Foods and Hospitality
B.S. - Eastern Michigan University
M.S. - The University of Michigan

Bellers, Clifford 1968
Faculty/Department Chair: Accounting
B.B.A. - Eastern Michigan University
M.A. - Eastern Michigan University

Bellers, Bob 1968
Laboratory Assistant: Electricity/Electronics
A.D. - Washtenaw Community College
License - Federal Communications Commission
B.S. - Eastern Michigan University

Biederman, Rosalyn L. 1967
Faculty/Department Chair: Foreign Languages
B.A. - Ohio State University
M.A. - Ohio State University

Bieszk, Rita C. 1994
Financial Systems Specialist: Financial Services

Bila, Dennis W. 1969
Faculty: Mathematics
B.S. - Central Michigan University
M.A. - Wayne State University

Bledsoe, Tammy K. 1999
HRM Associate: Human Resources Management

Blodgett, Elizabeth 1979
Other Funds Accountant: Financial Services
B.A. - Wayne State University
M.B.A. - Eastern Michigan University

Bogue, Robert A. 1984
Instructional Lab Assistant – Automotive Services
A.D. - Washtenaw Community College
Certificate - State of Michigan
B.S.Ed. - The University of Michigan
Certificate - A.S.E.

Brandenburg, Elaine M 1997
Database Specialist: Community and Business Relations
B.S. - Michigan State University

Bressler, Allan 1980
Computer Operator II: Information Services

Brown, Bonita 1981
Technician: Security/EMT
EMT Certificate - State of Michigan

Brown, Kathie M 1988
Specialist: Student Resources/Women's Center
A.D. - Washtenaw Community College

Bruenger, John A. 1994
Coordinator, Multimedia Design: Learning Technologies
B.A. - Concordia College
M.A. - Eastern Michigan University

Bundra, Carol 1987
Coordinator: Open Computer Labs/Network
A.D. - Washtenaw Community College

Burgen, Clarence 1997
Manager: Mechanical Systems

Butcher, Kathleen 1989
Faculty/Department Chair: Physical Science
B.S. - St. Mary's College
M.S. - Wayne State University

Bylsma, Donald, Jr. 1966
Faculty: Behavioral Science
B.S. - Wayne State University
M.S. - Wayne State University
Ph.D. - The University of Michigan

Chambers, JoAnn 1983
Office Manager/Executive Assistant: Human Resources Management
A.D. - Washtenaw Community College

Charlton, Eleanor 1966
Faculty: Business Office Systems
B.S. - Central Michigan University
M.A. - Central Michigan University

Chisholm, Arnett 1988
Associate Counselor: Counseling, Career Planning and Placement
B.S. - The University of Michigan
M.A. - Eastern Michigan University

Clark, Diana 1989
Counselor: Counseling, Career Planning and Placement
A.D. - Washtenaw Community College
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Clark, William G. 1968
Counselor: Counseling, Career Planning and Placement
B.R.E. - Grand Rapids Baptist College
M.A. - Western Michigan University

Cleary, William T., Jr. 1983
Faculty: Electricity/Electronics
A.S.E.E.T. - University of Maine
B.E.E.T. - University of Maine
M.B.A. - University of Maine

Crean, Patricia K 1996
Director: Business and Community Services
M.A. - Michigan State University
B.A. - Western Michigan University

Croake, Edith M. 1966
Faculty: English/Writing
B.A. - The University of Michigan
M.A.T. - Northwestern University
M.A. - Northwestern University
D.A. - The University of Michigan

Crudder, Donna H. 1992
Director: Education/Work Partnership
B.A. - The University of Michigan

Cullen, Kathy A. 1996
Director: Customized Training Projects
B.A. - State University of New York, Albany

Culver, Rosalyn 1989
Faculty/Department Chair: Business Office Systems
B.S. - Michigan State University
M.A. - Michigan State University

Cygnar, Patricia 1989
Director: Curriculum and Articulation Services
B.F.A. - University of Illinois
M.Ed. - University of Illinois

Daniels, Cheryl 1990
Employment Specialist: Human Resources Management
A.A. - Schoolcraft College

DeCamp, JoAnna 1996
Director: Cool Project
M.S.W. - University of Michigan
B.A. - Brooklyn College

Dedhia, Hiralal 1987
Clinical Instructor: Respiratory Therapy
A.D. - Washtenaw Community College
B.S. - University of Poona
M.S. - Madonna College

DeMerrill, Diane J. 1990
Coordinator, Eastern Extension Center: Adult Transitions

Dick, Roger 1979
Faculty: Industrial Technology
A.S. - Ferris State College
B.S. - Western Michigan University
M.A. - Eastern Michigan University

Dixon, Barton 1995
Security Patrol Officer: Campus Security
A.D. - Washtenaw Community College

Dolan, Michael J. 1993
Module Systems Analyst: Information Systems
B.S. - The University of Washington
B.S. - Wayne State University

Donahey, Jeffrey 1984
Faculty: Industrial Technology
B.S. - The University of Michigan

Donia, Richard L. 1999
Faculty: Automotive Services
B.S. - Western Michigan University

Downen, Gary W. 1983
Faculty: Electricity/Electronics
B.G.S. - The University of Michigan
M.A. - Eastern Michigan University

Downey, Patrick 1994
Specialist: Conference Services

Dries, Cathie 1989
Director: Non-credit Programs
A.A. - Delta Community College
B.A. - Michigan State University
M.A. - Central Michigan University

Eby, David 1999
Information Technology Support Specialist
A.S. - Northwestern Michigan College
B.S. - Lake Superior State University

Egan, James 1989
Faculty/Department Chair: Mathematics
B.A. - Case Western Reserve University
B.S. - Case Western Reserve University
M.S. - The University of Michigan
M.S. - The University of Michigan

Ellen, Kim 1998
Coordinator, Northern Extension Center: Regional Services
B.A. - Michigan State University

Ennes, Steven M. 1987
Faculty: Business
A.A.S. - Macomb Community College
B.S. - Western Michigan University

Everin, William J. 1997
Research Analyst: Institutional Research
B.S. - Northwestern University
M.S. - Purdue University

Farrackand, Jamall 1997
Security Patrol Officer: Campus Security
A.D. - Washtenaw Community College

Faulkner, Mary K. 1983
Administrative Assistant to the President
A.D. - Washtenaw Community College

Fauri, Greta 1977
Student Advisor: Children's Center
B.A. - Adrian College

Ferguson, Steven D 1997
Microcomputer Support Specialist: Business Division
A.D. - Washtenaw Community College

Figg, William 1972
Faculty/Department Chair: Welding and Fabrication
A.D. - Washtenaw Community College

Finkbeiner, Betty Ladley 1969
Faculty/Department Chair: Dental Assisting
A.A. - Grand Rapids Junior College
C.D.A. - Dental Assistance National Board
R.D.A. - Mich State Board of Dentistry
B.S. - The University of Michigan
M.S. - The University of Michigan

Finkbeiner, Charles A. 1975
Faculty: Computer Information Systems
A.D. - Washtenaw Community College
B.S. - The University of Michigan
M.S. - The University of Michigan

Fish, Judith R. 1991
Faculty: Physical Science
B.S. - State University of New York, Albany
M.S. - State University of New York, Albany
Ph.D. - Oakland University

Fitzpatrick, David J. 1996
Faculty: Social Science
Ph.D - The University of Michigan
A.M. - The University of Michigan
B.S. - United States Military Academy

Flack Jr., Joseph L. 1990
Faculty: Business
B.A. - Eastern Michigan University
M.B.A. - University of Detroit
J.D. - Detroit College of Law

Foster, Brenda 1997
Faculty: Mathematics
A.A. - Seattle Central Community College
B.A. - The University of Washington
M.A. - The University of California

Foster, Connie S. 1990
Faculty: Radiography
A.D. - Washtenaw Community College
B.S. - Central Michigan University
M.A. - Eastern Michigan University

Frye, Iota H. 1975
Counselor: Counseling, Career Planning and Placement
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Galea, Michael 1998
Faculty: Computer Information Systems
B.S. - Wayne State University
M.A. - Wayne State University

Galvin, Ralph H. 1984
Director: Public Service Training
B.S. - Nazareth College

Garrett, Don L. 1975
Faculty/Department Chair: Foods and Hospitality
A.D. - Washtenaw Community College
Certificate - American Culinary Federation
B.S. - Mercy College of Detroit

Gatewood, David 1997
Budget Director: Financial Services
B.A. - Oregon State University
M.A. - Southern Methodist University
M.B.A. - Southern Methodist University

Gerlitz, Frank 1991
Faculty: Drafting
B.S. - University of Wisconsin
M.S. - University of Wisconsin
Ph.D. - University of Wisconsin

Geyer, Philip 1998
Faculty: Computer Information Systems
B.S. - University of Michigan
M.S. - Univeristy of Michigan

Ghrist, William 1996
Manager: Maintenance
A.D. - Washtenaw Community College

Gibson, Maxine 1990
Faculty: English/Writing
B.S. - Eastern Michigan University
M.A. - The University of Michigan

Gilgenbach, Catharine H. 1998
Specialist: Student Resources/Women's Center
B.S. - Wisconsin State University
M.A. - Eastern Michigan University

Glass, Michael K. 1991
Student Services Advisor: Club Sports
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
M.S. - Eastern Michigan University

Glowski, Susan K. 1988
Faculty: English/Writing
B.A. - Beloit College
M.A. - San Francisco State University

Glushyn, Diana R. 1992
Supervisor: Clerical Services

Goldberg, David 1977
Faculty: Mathematics
B.S. - The University of Michigan

Golembieski, Thomas F. 1997
Supervisor: Campus Security Services
M.A. - Central Michigan University
B.S. - Madonna College

Goodkin, Barbara H. 1975
Faculty: Nursing
B.S.N. - The University of Michigan
M.S. - The University of Michigan

Gordon, Anaruth 1997
Coordinator of Enrollment Technology: Admissions
B.A. - Wayne State University
M.A.T. - Oakland University
Ph.D. - University of Michigan

Gracie, Cheryl D. 1989
Faculty: Business
B.B.A. - Eastern Michigan University
M.B.A. - Eastern Michigan University
J.D. - University of Oregon
C.P.A. - The State of Michigan

Greashaber, Anne L 1997
Professional Services Instructor:Adult Transitions
B.A. - University of Michigan
M.A. - University of Michigan

Greenman, Carole L. 1996
Specialist: Conference Services
B.S. - Eastern Michigan University

Grimes, William L. 1991
Faculty: Business
B.A. - University of Southern California
M.A. - The University of Michigan
M.B.A. - University of California - L.A.

Grossman, Esta 1975
Faculty: Life Sciences
B.A. - Pembroke College in Brown University
M.A. - The City College New York
M.S.W. - The University of Michigan

Grotrian, Paulette 1980
Faculty: Humanities
B.A. - Valparaiso University
M.A. - Valparaiso University
M.A. - Eastern Michigan University

Guastella, C. Dennis 1980
Faculty: Visual Arts Technology
A.A. - Macomb County Community College
B.F.A. - Wayne State University
M.F.A. - Eastern Michigan University

Gyuk, Drin S. 1998
Micro Lab Supervisor/Technician: Learning Resource Center
A.B. - University of Virginia
M.S.O.E. - University of Michigan

Hackman, Bruce 1999
Faculty: Humanities
Certificate - Pennsylvania Department of Education
B.A. - Adrian College

Hagen, Laura A. 1997
Facilities Planner: Facilities Management
B.A.R.C.H. - Virginia Polytechnic Institute
License - Board of Architects

Haglund, Richard 1987
Campus Security Officer: Security Services

Hagood, Robert M. 1997
Faculty: Physical Science
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University

Hall, Clyde 1978
Faculty: Welding and Fabrication
A.D. - Washtenaw Community College
B.S. - The University of Michigan
A.W.S. - Certified Welding Inspector

Halliday, Geoffrey B 1997
Microcomp Hardware Support Specialist: Information Systems
A.D. - Washtenaw Community College

Hammond, Linda.....1987
Director: Institute for Workforce Development
B.A - The University of Michigan
M.A. - The University of Michigan

Hann, David F......1986
Director of Accounting Services: Financial Services
B.S. - Brigham Young University
M.A. - Eastern Michigan University

Harris, Sally D......1981
Associate Counselor: Student Resources/ Women's Center
A.D. - Washtenaw Community College
B.A. - Concordia College
M.A. - Eastern Michigan University

Hatcher, Ruth.....1981
Faculty/Department Chair: English/Writing
A.B. - Earlham College
M.A. - The University of Michigan

Hawkins, Janet L......1977
Coordinator, Public Information: Promotional Services
A.D. - Washtenaw Community College
B.B.A. - Eastern Michigan University

Heator, Martin G......1985
Director: Promotional Services
B.S. - Eastern Michigan University
M. A. - Eastern Michigan University

Heidebrink, Gregg S......1995
Faculty: Social Science
B.A. - Iowa State University
M.A. - Southern Methodist University

Heise, Anne E......1993
Faculty: Life Sciences
B.A. - Swarthmore College
M.S. - University of Vermont

Hemsteger, Thomas.....1991
Faculty: Automotive Services
A.A.S.- Ferris State University
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Henry, Mioshia D......1994
Manager: Custodial Services
A.D. - Washtenaw Community College

Hill, Birgitte.....1986
Accountant for Cash Management: Financial Services
B.A. - The University of Michigan
CCM - Treasury Management Association

Hill, Keith L......1998
Associate Counselor: Adult Transitions
B.A. - Ohio Wesleyan University
M.S. - Wright State University
M.R.C. - Wright State University

Hinds, Dwight D......1968
Faculty: Physical Science
B.S. - Eastern Michigan University
M.S. - Michigan State University

Holmes, Nan.....1995
Faculty: Behavioral Sciences
A.B. - Bryn Mawr
M.A. - Bryn Mawr
Ph.D. - Bryn Mawr

Holmes, William H......1990
Executive Director: Community and Business Relations
M.Div. - Methodist Theological School
B.A. - West Virginia Wesleyan College

Hommel, Judith C......1992
Executive Associate to the President
A.A. - Cottey Jr. College
B.S. - University of Oklahoma
B.F.A. - Eastern Michigan University

Horne, Beth.....1997
Laboratory Assistant: Foods & Hospitality
A.A.B. - University of Toledo
Certificate - University of Toledo

Horowitz, Frederick A......1968
Faculty: Humanities
B.A. - Yale University
B.F.A. - Yale University
M.F.A. - The University of Michigan

Hoth, Bradley.....1987
Student Advisor: Admissions
A.A. - Henry Ford Community College
B.A. - Michigan State University
M.A. - Eastern Michigan University

Hower, Guy W......1966
Director: Financial Aid
B.B.A. - The University of Michigan
M.A. - The University of Michigan

Hunt, Barbara.....1968
Faculty: English/Writing
B.A. - University of Toledo
M.A. - The University of Michigan
D.A. - The University of Michigan

Hussey, Brian 1998
Web Developer: Learning Resource Center
A.B. University of Michigan
License - State of Michigan

Iler, Joanne L. 1994
Coordinator: Financial Aid
A.A. - Concordia College
B.A. - Concordia College
M. Ed. - University of Toledo

Jackson, Lawrence 1998
Laboratory Instructor, Public Service Department
Certificate - State of Michigan
B.S. - Wayne State University

James, William E. 1994
Faculty: English/Writing
B.A. - The University of Michigan
M.A. - Wayne State University

Jett, Sukanya J. 1992
International Student Specialist: Admissions
A.A. - Cottey College
B.A. - Radford University

Jindal, Usha R. 1982
Faculty: Computer Information Systems
B.S. - Delhi University
B.S. - Pennsylvania State University
M.S. - Pennsylvania State University

Johnson, Charles 1998
Faculty: Humanities
B.A. - Oakland University
M.A. - Michigan State University
Ph.D. - Michigan State University

Johnson, Nina M 1997
Employment Manager: Human Resources Management
A.B. - University of Michigan
M.S. - Central Michigan University

Johnston, John P. 1996
Coordinator of Media Services: Learning Technologies
B.S. - Eastern Michigan University

Johnston, Mark 1990
Faculty: Accounting
B.B.A. - Eastern Michigan University
M.S. - Walsh College

Jones, Katherine L. 1992
Director: Business Education Speical Services
B.F.A. - Denison University

Jordan, Cole L. 1978
Director: Employment and Human Resource Development
A.D. - Washtenaw Community College
B.A. - Wayne State University
M.A. - Eastern Michigan University

Jordan, Leland P. 1999
Security Patrol Officer: Campus Sercurity Services

Jordan, Lester 1979
Faculty: Automotive Services
B.A. - Eastern Michigan University
M.Ed. - Wayne State University

Jozwik, Deborah L. 1998
Support Specialist: Information Systems
A.D. - Washtenaw Community College

Kapp, George 1970
Faculty: Physical Science
A.D. - Washtenaw Community College
B.S.E. - The University of Michigan

Kasischke, Laura 1992
Faculty: English/Writing
B.A. - The University of Michigan
M.F.A. - The University of Michigan

Kerans, Ellen 1991
Director of Development: WCC Foundation
B.A. - The University of Michigan

Kerr, John 1993
Faculty: Social Science
B.S.Ed. - Central Michigan University
M.A. - Western Michigan University
M.A. - Western Michigan University

Kibens, Maija 1976
Faculty: Humanities
B.A. - Mount Holyoke College
M.A. - The University of Michigan
Ph.D. - The University of Michigan

King, Linda 1998
Director: Adult Transitions
A.B. - University of Michigan
A.M. - University of Michigan

King, Richard 1998
Regional Director: Michigan Small Business Development Ctr.
A.B. - Lawrence University
MBA - Dartmouth

Kinney, Nancy 1995
Faculty: Social Science
B.A. - University of Maine
M.A. - University of Maine
M.A. - The University of Michigan

Kirkland, Robert W. 1988
Faculty: Humanities
B.A. - The University of Michigan
M.A. - The University of Michigan

Kollen, Michael 1969
Faculty/Department Chair: Behavioral Sciences
B.A. - Knox College
M.S. - New Mexico Highlands University
M.A. - The University of Michigan

Komarmy, Tracy L. 1993
Faculty/Department Chair: Performing Arts
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Kotrba, Connie J. 1978
Customized Training Project Director
B.S. Central Michigan University
M.A. Eastern Michigan University

Kramer, Lawrence 1977
Faculty: Electricity/Electronics
B.S.E.E. - The University of Michigan

Krantz - Fischer, Carrie 1992
Faculty: English/Writing
B.S.- Edinboro University Pennsylvania
M.A.- Bowling Green State University

Krieg, Laurence J. 1983
Faculty: Computer Information Systems
B.A. - College of Wooster
M.A. - The University of Michigan
Ph.D. - The University of Michigan

Ladha, Aminmohamed J. 1995
Director of Enterpirse Systems/Network: Information Systems
B.S. - Eastern Michigan University
M.L.S. - Eastern Michigan University

LaHote, Randy 1992
Faculty/Department Chair: Social Science
B.A. - University of Toledo
M.A. - University of Toledo

Lee, Granville W. 1990
Faculty/Department Chair: Business
B.S. - New York University
M.B.A. - University of Dayton

Lee, Michael N. 1998
Computer Labs Coordinator: Business Devision
A.A. - Washtenaw Community College

Lee, Sherry S. 1994
Faculty: Nursing
B.S.N. - The University of Michigan
M.S.N. - Wayne State University
D.I.P. - Henry Ford Hospital School of Nursing

Leonard, Timothy R. 1998
Coordinator, Grants/Resources: Grant/Contracts Development Administration
A.B. - University of Michigan
M.A. - University of Michigan
M.B.A. - University of Michigan - Flint

Levy, Mary L. 1981
Systems Deveopment Manger: Information Systems
B.A. - College of Wooster
M.A. - The University of Michigan

Lippens, Joan 1993
Faculty: Academic Skills
B.A. - Queen's University, Kingston
B. Ed - Queen's University, Kingston
M.A. - Eastern Michigan University

Little, Patrick J. 1986
Director: Campus Security Services
A.D. - Washtenaw Community College
B.A. - Concordia College
Lic - State of Michigan
Graduate – FBI National Academy

Liu, Victor 1991
Director of Technical Services: Learning Resources Center
B.A. - University of South Carolina
M.A. - Michigan State University
M.I.L.S. - The University of Michigan

Lockard, Jon M. 1970
Faculty: Humanities

Longino, Charlene 1994
Director: Children's Center
B.A. - Northern Illinois University
M.A. - Eastern Michigan University

Lowe, Burton C. 1968
Faculty: Industrial Technology

Lu, Yin 1994
Faculty: Mathematics
B.S. - National Taiwan University
M.S. - National Taiwan Normal University
Ph.D. - State University of New York, Buffalo

Lutz, Geoffrey A. 1986
Module Systems Analyst: Information Systems
B.S. - The University of Michigan

MacDonald, Janet G. 1967
Faculty: Mathematics
B.A. - The University of Michigan
M.A. - Cornell University

Mann, John B. 1971
Faculty/Department Chair: Automotive Service
B.S. - Eastern Michigan University
M.A. - The University of Michigan
A.S.E. - National Auto Technical Certification

Mattingly, Lenae D. 1997
Compensation/Benefits Analyst: Human Resource Management
B.A. - Michigan State University

McCarthy, Sandra 1999
Associate Librarian: Learning Technologies
B.A. - Wayne State University
M.S. - Wayne State University
M.A. - Mercy College of Detroit

McGill, John B. 1966
Faculty: Mathematics
B.S. - Eastern Michigan University

McGraw, Michael 1993
Faculty: Drafting
A.D. - Washtenaw Community College
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University

McGuire, Belinda G. 1988
Faculty: Drafting
A.S. - Monroe County Community College
B.F.A. - Eastern Michigan University
M.Ed. - The University of Toledo

McPherson, Paul D. 1990
Faculty: Foods and Hospitality
B.A. - Madonna College
M.S.A. - Central Michigan University

Meade, Roland 1990
Faculty/Department Chair: Computer Information Systems
B.S. - Northern Michigan University
M.A. - Western Michigan University
Ph.D. - Western Michigan University

Miin, Jong-Mann P. 1998
Database Analyst: Information Systems
B.S.- FuJen University
M.S.- Eastern Michigan University

Miller, Jean 1989
Faculty: English/Writing
B.A. - Marygrove College
M.A. - University of Tulsa

Minock, Daniel W. 1983
Faculty: English/Writing
A.B. - University of Detroit
M.A. - University of Detroit
Ph.D. - Ohio State University

Morrison, Julie A. 1997
Coordinator, Entry Assessment/Academic Standards
B.M. - The University of Michigan
M.M. - Northwestern University
Ph.D.. - Northwestern University

Moulton, Maxine 1989
Faculty: Nursing
B.S.N. - The University of Michigan
REGIS - State of Michigan
M.S.N. - Eastern Michigan University

Mourad, Roger 1996
Director: Institutional Research
B.A. - The University of Michigan
J.D. - The University of Michigan
M.S. - The University of Michigan
Ph.D. - The University of Michigan

Moy, William 1968
Faculty: Behavioral Sciences
B.A. - Valparaiso University

Mullen, Marjorie 1980
Payroll Supervisor: Financial Services

Murphy, Vivian A. 1993
Faculty/Department Chair: Pharmacy and Surgical Technology
A.S. - Clark State College
B.S. - Oakland University

Murray, Nancy J. 1983
Contract Training Associate: Institute for Workforce Development
Certificate - Strautzenberger Business College

Naylor, Michael L. 1994
Faculty: Performing Arts
B.M. - The University of Miami
M.M. - The University of Miami
M.A. - The University of Michigan
Ph.D. - University of Michigan

Nelson, William H. 1992
Clinical Instructor: Radiography
A.D. - Washtenaw Community College
B.S. - Western Michigan University
M.A. - The University of Michigan

Nestorak, Theresa 1989
Faculty: Nursing
B.S.N. - The University of Michigan
REGIS - State of Michigan
M.S.N. - Eastern Michigan University

Nevers, William B. 1975
Faculty: Life Sciences
B.S. - Wayne State University
D.D.S. - The University of Michigan School of Dentistry

Norwood, Mimi Y. 1993
Faculty/Department Chair: Respiratory Therapy
A.D. - Washtenaw Community College
B.S. - Wayne State University
M.S.W. - The University of Michigan
M.A. - Morehead State University

Ong, Boon Neo Julianna 1992
Module Systems Analyst: Information Systems
B.B.A. - Eastern Michigan University
M.B.A. - Eastern Michigan University

O'Rear, Katherine 1988
Faculty: English/Writing
B.A. - Washington State University
M.A. - Eastern Michigan University

Ortega-Trudel, Maria 1992
Faculty: Behavioral Sciences
B.S. - Central Michigan University
M.A. - Michigan State University

Paas, Cecilia 1998
Associate Counselor: Counseling/Career Planning and Placement
A.D. - Washtenaw Community College
License - State of Michigan
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Palay, Roger M. 1975
Faculty: Mathematics
B.S. - University of Chicago
M.S. - University of Wisconsin

Parker, Karen J. 1975
Supervisor of Student Accounting; Financial Services
A.D. - Washtenaw Community College

Pauris, Jr., Jean-Claude 1997
Security Patrol Officer: Campus Security Services

Pawloski, Judith A. 1994
Faculty: Nursing
B.S.N. - Wayne State University
M.S.N. - Wayne State University
D.I.P. - Mercy School of Nursing - Detroit

Peck, Joshua P. 1996
Hardware Network Specialist: Technology Administration
A.D. - Washtenaw Community College
A.D. - Washtenaw Community College

Perez, Laura 1993
Faculty: Mathematics
B.S. - Bowling Green State University
M.A. - Bowling Green State University

Peters-Golden, Holly 1998
Faculty: Social Science
A.B. - Franklin and Marshall College
M.A. - University of North Carolina
Ph.D. - University of North Carolina

Peterson, Michele L. 1997
Faculty: Social Science
B.S. - Washington and Jefferson College
M.A. - The University of Pittsburgh
Ph.D. - The University of Pittsburgh

Petty, Dale 1994
Faculty: Electricity/Electronics
B.S.E.E. - State University of New York at Buffalo
MS.C.E. - Case Western Reserve

Phibbs, John 1969
Manager: Reprographics
A.D. - Washtenaw Community College
B.B.A. - Eastern Michigan University

Phillips, Robert J. 1998
Information Technologies Support Specialist: Information Systems
A.D. - Washtenaw Community College

Pierce, L. E. 1984
Director: Technical Job Training Programs
A.A. - Polk Community College
B.A. - University of Florida-Gainesville
B.A.E. - University of Florida-Gainesville
M.Ed. - University of Florida-Gainesville

Pinchock, Sally 1996
Small Business Development Specialist: Washtenaw County Small Business Development Center
M.A. - Siena Heights College

Placey, David.....1992
Director: Admissions
B.A. - The University of Michigan
M.A. - Eastern Michigan University

Pobursky, Joel E......1993
Campus Safety Officer: Campus Security Services
A.D. - Washtenaw Community College

Pogliano, Michael F......1969
Faculty/Department Chair: Drafting
B. Arch. - The University of Michigan

Pratt, Brian V......1999
Information Technologies Support Leader: Computer Labs - Business Division
A.A. - Concordia College
B.S. - Eastern Michigan University

Quail Michael E......1994
Faculty: Mathematics
B.A. - Wayne State University
M.A. - Eastern Michigan University
M.S.W. - The University of Michigan

Rader, Rosemary.....1994
Faculty: Physical Science
B.S. - The University of Wisconsin-Oshkosh
Ph.D. - Purdue University

Redick, Martin.....1978
Faculty: Respiratory Therapy
B.S. - The University of Michigan
M.S. - The University of Michigan

Redondo, Juan C......1994
Faculty: Humanities
M.A. - University Complutense - Madrid
M.A. - University of California at Berkeley
M.A. - The University of Wisconsin

Reeves, Robert A......1968
Associate Vice President: Human Resources Management
B.A. - Eastern Michigan University
M.A. - Eastern Michigan University

Reiter, Susan.....1991
Director: Teaching and Learning Support Services
B.A. - University of Michigan
M.A. - University of Minnesota
Ph.D. - The University of Michigan

Remen, Janet M......1982
Faculty: Mathematics
B.Sc. - University of Durham
M.S. - The University of Michigan

Rice, Sheila J......1997
Director of Access Services: Learning Resource Center
A.M.L.S. - The University of Michigan
B.A. - The University of Michigan

Rinke, John.....1992
Director of Counseling: Career Planning and Placement
B.S.Ed. - Central Michigan University
M.A. - Michigan State University
Ed.S. - Central Michigan University
Ed.D. - Western Michigan University

Rinn, John.....1980
Faculty: Computer Information Systems
A.A. - Port Huron Junior College
A.B. - The University of Michigan
M.S. - The University of Michigan

Ripepe, Suzette D......1997
Faculty: Pharmacy Technology
Regis - Board of Pharmacy
B.S. - Ferris State University
M.S. - Wayne State University
J.D. - Wayne State University

Robinson, Todd.....1996
Supervisor: Custodial Services
Certificate - U.S. Air Force

Rose, Barbara C......1997
Specialist: Educational Services
B.A. - Southern Connecticut State College

Schultz, Gary L......1984
Faculty/Department Chair: Industrial Technology
A.D. - Washtenaw Community College
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University

Schuster, William.....1989
Faculty: Automotive Services
B.A. - Wayne State University
M.A. - Eastern Michigan University

Scott, Kathleen.....1971
Librarian: Learning Resource Center
B.A. - University of Iowa
M.A. - University of Iowa

Shah, Paresh M......1998
Certified Network Administrator: Information Systems
C.N.A. - Novell
A.B. - Augustana College

Shier, David.....1990
Faculty/Department Chair: Life Sciences
B.S. - Cornell University
Ph.D. - The University of Michigan

Shoemaker, Jeffrey A. 1997
Security Patrol Officer: Campus Security Services
A.A.S - Ferris State University

Showalter, Martha 1980
Faculty: Mathematics
B.S. - Ohio State University
B.A. - Ohio State University
M.Ed. - University of Houston

Siehl, Chris 1995
Faculty: Behavioral Sciences
B.A. - Wittenburg University
M.A. - Northwestern University
M.S.W. - Michigan State University

Sinclair, Starlett 1992
Director of Compensation/Benefits: Human Resources Management
B.S. - Wayne State University

Stadtfeld, Kathleen A. 1982
Director: Educational Services
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Stanford, Adrian 1987
Student Advisor: Admissions
B.S. - Eastern Michigan University

Stegall, Patricia 1997
Coordinator: Technical Education and Construction Institute
A.D. - Washtenaw Community College
J.M.N. - United States Department of Labor
B.A. - Concordia College

Stevenson, Kathleen M. 1987
Specialist: Human Resources Management
A.D. - Washtenaw Community College

Stitt, Sarah J. 1999
General Counsel/Labor Relations: Human Resources Management
License - State of Texas
License - State of Michigan
B.A. Rhodes College
M.T.S. - Harvard University
J.D. - Florida State College of Law

Straub, Cynthia A. 1993
Coordinator of Curriculum Development Services
B.A. - Ohio State University
M.A. - Ohio State University
Ph.D. - Ohio State University

Strayer, Ross 1989
Faculty: Life Sciences
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University

Strnad, Kathleen B. 1998
Associate Counselor: Adult Transitions
A.B. - Mercy College of Detroit
M.A. - The Fielding Institute
M.A. - Goddard College

Susnick, Stuart B. 1969
Faculty/ Social Science
B.A. - Brooklyn College, CUNY

Swan, Barry 1994
Faculty: Drafting
A.A.S. - Oakland Community College
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Swan, Judith 1989
Director: Extension Services and Distance Learning
B.A. - Eastern Michigan University
M.A. - Eastern Michigan University

Talley, Dana L. 1993
Associate: Human Resources Management

Tanguay-Hoover, Julie 1994
Graphic Services Coordinator: Promotional Services
B.A. - Center for Creative Studies

Teevens, James 1989
Faculty: Drafting
A.A.S. - Schoolcraft College
B.Arch. - University of Detroit
M.Ind.Ed. - Eastern Michigan University

Tew, Bonnie E. 1994
Faculty: Humanities
A.A. - Kellogg Community College
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

Thoburn, Elisabeth 1995
Faculty/Department Chair: Humanities
B.A. - The University of Michigan
M.A. - The University of Michigan

Thomas, David 1980
Faculty: Physical Sciences
A.S. - Macomb Community College
B.S. - Eastern Michigan University
M.S. - Eastern Michigan University

Thomas, Julianne 1997
Contract Training Associate
B.A. - Alma College

Thomas, Martin 1995
Manager: Plant Services

Thompson, Doreen 1975
Faculty: Behavioral Sciences
A.B. - Atlantic Union College
Licence es Lettres - University of Paris
M.Ph. - The University of Michigan

Thompson, Dosye 1993
Faculty: Business Office Systems
B.S. - Wayne State University
M.B.E. - Eastern Michigan University

Tom, Kimberly 1988
Manager, User Technical Support Services: Information Systems
A.D. - Washtenaw Community College
B.A. - The University of Michigan

Townsend, Henry 1991
Faculty: Public Service Careers
B.A. - The University of Michigan, Flint
M.A. - Eastern Michigan University

Trame, John 1989
Faculty/Department Chair: Electricity/Electronics
B.S. - University of Houston
M.S. - University of Houston
Sp.A. - Eastern Michigan University

Tran, Michael D. 1998
Information Technologies Support Specialist: Information Systems
B.B.A - Eastern Michigan University

Trapp, Lori J. 1996
Specialist: Financial Aid
B.A. - Michigan State University

Trosch, Diane J. 1997
Assoicate Counselor: Counseling/ Career Planning and Placement
B.A. - Concordia College
M.A. - Eastern Michigan University

Turner, Spring J. 1997
Contract Training Associate: Extension Services Distance Learning
B.B.A. - Cleary College
M.A. - Marygrove College

VanderVeen, Sister Judith 1976
Faculty: Nursing
S.A. - Wayne State University
S.A. - University of Michigan
Diploma - Mercy Central School of Nursing
REGIS - State of Michigan
B.S.N. - Mercy College of Detroit
M.A. - The University of Michigan

VanGenderen, Gary L. 1982
Faculty: Physical Sciences
B.S. - The University of Michigan
M.S. - Eastern Michigan University

Vaughn Walker, Debra D. 1990
Specialist: Student Resources/Women's Center
B.A. - Concordia College

Veasey, Lisa K 1999
Faculty: English/Writing
B.A. - Eastern Michigan University
M.L.S. - Eastern Michigan University

Velarde, Gloria A. 1990
FacultyDepartment Chair: Nursing
B.S.N. - Eastern Michigan University
M.S.N. - Wayne State University

Wagner, Catherine W. 1992
Faculty: Electricity/Electronics
E.E.T. - USAF Cryptographic School
B.S. - The University of Michigan
M.S. - The University of Michigan

Wagner, Robin L. 1995
Financial Systems Analyst: Financial Services
B.A. - Siena Heights College

Wagner, Sandra L. 1997
User Support Specialist: Information Systems
Certificate - Washtenaw Community College
Certificate - Brockton Institute

Walline, Cynthia 1987
Student Advisor: Orientation
B.A. - Eastern Michigan University

Walsh, Ruth Anne 1987
Faculty/Department Chair: Public Service Careers
B.A. - University of Toledo
J.D. - University of Toledo

Warner, Elizabeth 1988
Faculty/Department Chair: Academic Skills
B.A. - The University of Michigan
M.A. - San Francisco State University

Warsinske, Thomas G. 1998
Database Analyst/Administrator: Information Services
B.S. - University of Michigan
B.S. - Eastern Michigan University

Webster, Brenda J. 1987
Clinical Instructor: Nursing
B.S. - The University of Michigan

Wegrzyn, Nancy D.....1985
Purchasing Coordinator/Buyer: Purchasing/Auxiliary Services
B.S. - Eastern Michigan University

Welch, Daniel J.....1997
Distance Learning Instructional Design - Learning Technologies
B.A. - University of Detroit
M.Ed - Wayne State University

Wenger, Valerie S.....1994
Specialist: Administration and Finance
A.D. - Washtenaw Community College
A.A.S. - Washtenaw Community College

Westcott, Richard....1984
Manager: Grounds

Westrick, James H. 1997
Supervisor: Campus Security Services
Certificate - Northwestern University

Wilkins, Barry L. 1982
Assistant Director: Facilities Management
A.D. - Washtenaw Community College

Wilson, Charles 1997
Facilities Project Coordinator: Facilities Management
A.D. - Washtenaw Community College

Wilson, Rosemary....1986
Faculty: Business
B.S. - Milligan College
M.B.A. - University of Notre Dame

Wirbel, Johanna V. 1968
Faculty: Mathematics
B.A. - Kent State University
M.A. - The University of Michigan
A.M. - The University of Michigan

Woehlke, Laura A.....1993
Director: Purchasing and Auxiliary Services:
A.D. - Davenport College of Business
B.S. - Aquinas College
M.S. - Ferris State University

Wojnowski, Judith L. 1978
Controller: Financial Services
B.S. - Canisius College
C.P.A. - State of Michigan

Wood, John D. 1984
Student Advisor: Career Development
B.S. - Michigan State University

Worrell, Sandra M.....1998
Associate Professional Services Faculty: Workplace Learning Center
B.S. - New York State University
M.Ed. - Northeastern University

Wurster, Allen J.....1995
Associate: Testing Center
A.D. - Washtenaw Community College

Young, Colette....1987
Faculty: Business
B.A. - Michigan State University
M.A. - Michigan State University

Young, Mary E. 1975
Counselor: Counseling, Career Planning and Placement
B.R.E. - Detroit Bible College
B.A. - Eastern Kentucky University
M.A. - Eastern Kentucky University

Zaremba, Ernest....1969
Faculty: Behavioral Sciences
B.A. - The University of Michigan
M.A. - The University of Michigan
Ph.D. - The University of Michigan

Zeeb, Ronald E. 1968
Faculty: Business
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University

The following is a list of retired WCC faculty who have been awarded emeritus teaching status and have taught during the last two years.

Emeritus Teaching Faculty 1997-99

Devereaux, William T. .....Speech
B.A. - Michigan State University
M.A. - Michigan State University
Ed.D. - Laurence University

Hanson, Charlotte .....Speech
A.B. - The University of Michigan
M.A. - The University of Michigan

Mickelson Gaughan, Joan .....Social Science
B.A. - St. Theresa College
M.A. - Eastern Michigan University
Ph.D. - The University of Michigan

Program Advisory Committees

Working closely with the faculty to improve the curriculum, keeping instructors current on market trends, and providing advice for updating equipment and facilities are some of the major contributions of program advisory committees. Members of advisory committees, all local community volunteers, represent a wide and diverse spectrum of the business, industry, professional and educational agencies of the region. The College depends on the advice and assistance of these representatives to continually maintain the highest quality educational programs, courses, and services. Deans and department chairs are ex officio members of committees in their areas.

Program Advisory Committees 1999-2000

Academic Skills Advisory Committee

Pamela Bogart	Washtenaw Literacy
Dale Brethower	Western Michigan University
Margaret Collinge	St. Joseph Mercy Hospital
Stephen Engle	Hostess Cake
Gil Gilden	Eastern Michigan University
Don Grogan	Defense Contract Audit Agency
Jane Heineken	Student, Washtenaw Community College
Geraldine Markel, Ph.D	University of Michigan
Joey Massengale	Pioneer High School
Rosemarie Nagel	Emeritus Faculty, Washtenaw Community College
Deborah Rumple	University Microfilms Inc.
Pamela Scurlock	Student, Washtenaw Community College
Laurie Walker	Eastern Michigan University
Rowena Wilhelm, Ph.D	University of Michigan
Leslie Williams	Eastern Michigan University

Accounting Advisory Committee

Ann Black	Arthur Anderson & Company
Crystal Davidson	Applied Intelligent Systems, Inc.
Kathy Gram	ESI Vision Products Division
Steve Schneider	St. John Raham Weidmayer
Judy Walker	Ann Arbor Chamber of Commerce
Alan Young	Alan Young & Associates

Adult Transitions Advisory Committee

Daniel Bartok	Augusta Township
Karyn Goven	Willow Run Community Schools
Mayme Johnson	Ypsilanti Charter Township
William McFarlane	Superior Charter Township
Diana McKnight-Morton	Washtenaw Community College Board of Trustees
Ruth Moorman	Community Representative/former Washtenaw Community College Trustee
Greg Peoples	Lincoln Consolidated Schools
Paster Garther Roberson	Mt. Olive Baptist Church
David Rutledge	Washtenaw Community College Board of Trustees
Clifford Smith	Willow Run Public Schools
Pastor Ronald Warlick	Friendship Baptist Church
Al Widner	Lincoln Consolidated Schools
Dr. David Zahlke	Ypsilanti Public Schools

Architectonics Advisory Committee

Glenn Brightman	Student, Washtenaw Community College
Brian Carter	Univeristy of Michigan
Dan Foren	Student, Washtenaw Community College
Terry Furst	Pioneer High School
Jesse Gutierez	University of Michigan
John Hinkley	Hobbs & Black Associates Inc.
Barb Johnson	Student, Washtenaw Community College
Edward Kelly	Kelly Tinker Architects
Hardy Richardson	Student, Washtenaw Community College
Kirk Waterbury	University of Michigan
Brian Winkle	Student, Washtenaw Community College
Lee Yaros	Henry Ford Community College
Ray Zawacki	Huron High School

Assessors Education Advisory Committee

Majorie Bixby	Washtenaw County Assessor
Elke Doom	City of Southfield
Bob Lupi	Ford World Headquarters
Jim Rushton	City of Ann Arbor Assessor
Dick Steffans	Washtenaw County Equalization
Dwight Sunday	Ypsilanti Township Assessor

Auto-Body Repair Services Advisory Committee

Bill Burnette	Regional Career Tech Center
Tim Cosgrove	North Brother's Ford, Inc.
Christopher Diroff	Krug Lincoln Mercury Collison
Geoff Hawkins	Hawkins Auto Body Restorations
Scott Heim	William D. Ford Career Tech Center
David Hollinger	Oakland Tech Center SE
Bill Kerns	Manchester Collision Inc.
Richard Kramer	Don's Body Shop and Towing
Joel Posegay	Precision Collision
Jake Richter	A & L Paint
Jerry Shank	Heritage Collision
Jim Sly	A & L Parts, Inc.
Scott Sobbry	City Body Shop

Biology Advisory Committee

Dr. Lewis Kleinsmith	Univeristy of Michigan
Dr. Richard Dyer	Warner Lambert-Parke Davis
Dr. Kathy Rhodes	University of Michigan
David Mastie	Pioneer High School

Business Management Advisory Committee

Kathleen Boyle	Center for Empowerment and Economic Development
Sara Ford	Milan Area Chamber of Commerce
Paul Ganz	MichCon
Joyce Girdis	Xycom
Sylvia Gucken	Ideal Steel
Pan Irish	University of Michigan
Rodney McGirt	Bentley's Mobile Auto Detailing
Larry Oakes	Mercy Health Plan
Michelle Richards	Center for Empowerment and Economic Development
Donna Shirilla	Washtenaw Development Council
Sherri Swanson	NSK Corporation

Business Office Systems Advisory Committee

Stephanie Bowens	University of Michigan Hospitals
Susan Carlson	Manpower Temporary Services
Phyllis Carr	Parke-Davis Pharmaceutical Research
Sandy Henkel	University of Michigan
Frank Hildebrandt	Catherine McAuley Health System
Wendy Knutsen	Student, Washtenaw Community College
Charlotte Stewart	Ann Arbor Police Department
Barbara Tebbutt	Ann Arbor Public Schools
Robert Trevino	Ford Motor Company
Darcelle White	Eastern Michigan University
Sandy Worrell	Washtenaw Community College

Child Care Advisory Committee

Leslie Fry	Child Care Connection and Honey Creek School
Gretchen Preston	Gretchen's House Child Care
Beth Shaneyfelt	Preschool Teacher
Kathleen Wright	Kat's Cradle

Computer Information Systems Advisory Committee

Alan Augustine	University of Michigan
Daniel Bethuy	Booth Computer Division
Kathie Gourlay	CText Inc.
Peter Gray	Arbor Partners
Cindy Heilveil	Former student, Washtenaw Community College
Joet Reoma	Chelsea Hospital
Pat Schumaker	Schumaker & Co.
Dan Waltz	Chelsea Hospital

Construction Code Advisory Committee

Sue Dodson	Building Official, Sterling Heights
Jack Donaldson	DJD Associates
Harry Hutchinson	Building Official, City of Ypsilanti
Tom Miller	Building Official, City of Ann Arbor
Larry Pickel	Building Official, City of Ann Arbor
Jack Williams	Building and Zoning Administrator, Pittsfield Township
Thomas Yurkunas	Fire Marshall, Ypsilanti Township

Construction Management Advisory Committee

John Birke	Instructor
Tom Ceo	O'Neal Construction, Inc.
Angela Edwards	Student, Washtenaw Community College
William Foster	Atwell-Hicks, Inc.
Patricia Harroun	Cardea Construction Co.
Lois Mayfield	PSI
Rob Norris	Norris Construction, Inc.
Robert Pieknik	Fingerle Lumber Co.
Margaret Sloan	Home Builders Association
Gretchen Walters	Washtenaw Contractors Association
John A. Weeks	Eastern Michigan University

Corrections Advisory Committee

Peggy Bourne	Adrian Temporary Facility
Andrew Jackson	Huron Valley Men's Correctional Facility
Michael Johnson	Washtenaw County Sheriff's Office
Joseph J. Gonzalez	Michigan Department of Corrections

Culinary and Hospitality Management Committee

David Balla	Gandy Dancer Restaurant
Jim Bitzinger	Dalhmann Campus Inn
Tony Cortez	Ypsilanti Marriott
Andy Dahlmann	Bell Tower Hotel
Sandee French	Cady's Grill
Bob Hacker	Comfort Inn
Kim Hawkins	Crown Plaza Hotel
Kevin Hill	Howell High School
Mohamad Hlayhel	Paesano's Restaurant
Virginia Kingsley	Ypsilanti Convention & Visitors Bureau
Tim Patino	Real Seafood Company/Main Street Ventures
Judy Radant	Saline High School
Tom Recinella	University of Michigan
Dave Rensi	Cousins Heritage Inn
Laura Ridella	Ann Arbor Convention & Visitors Bureau
Steve Rossi	Outback Steakhouse
Scott Storbeck	Tecumseh Country Club
Ann Tirapani	Pregional Career Technical Center
Ben Vermeylen	Chelsea Community Hospital
Tammie Watson	Student, Washtenaw Community College
Pam Winstead	Pioneer High School
Bill Wright	Student, Washtenaw Community College
Janna Wyrick	Wendy's Restaurant

Dental Assistant Advisory Committee

Robert Bagramian, DDS	University of Michigan
Daniel H. Cox, DDS	Private Practice
John Fleszar, DDS	Private Practice
Carola Gerigh, DDS	Private Practice
Jed Jacobson, DDS	University of Michigan
Holly Potter, CDA, RDA	Richard Charlick, DDS
Thomas A. Slade, DDS, PC	Private Practice
Carl T. Woolley, DDS	Private Practice

Digital Prepress Advisory Committee

Roger Mateer	Braun-Brumfield, Inc.
John Murrel	Malloy Lithographing
John Pagels	Brighton High School
Michael Reister	Huron High School
Clara Trent	Allegra Print and Imaging
Christina White	MedStat Group
Tim Wicks	White Pine Printers, Inc.

Drafting Advisory Committee

Matt Belford	Federal Mogul
Rick Clute	General Motors Powertrain
John Cosman	Uniloy Milacron
Venkatesh Iyer	R & B Machine Tool Co.
Russ Rhoton	West Side Design
Dave Tratar	Unisys

Human Services Advisory Committee

Jasmin Delongchamp	Student, Washtenaw Community College
Donald M. Leppnow, Ph.D	Eastern Michigan University
James E. Pendorf, Ph.D	Veteran's Administration Medical Center
Kathleen Reynolds	Community Mental Health
Nancy Riley	Community Corrections
Marvin Tuarianen	Washtenaw Council on Alcoholism
Cassandra Wallace	
Marjorie Zifert	Eastern Michigan University

Industrial Technology Advisory Committee

Dave Braun	Ford Motor Company
Nick Miller	H.R. Carbide Tools
Loren Morehouse	Deneb Robotics
Jamie Nash	Orbital Engine Co.
Tom Penird	Phillips Display Components
Roger White	R & B Machine Tool Co.
Chuck Wiley	Saline Ford

Nursing Advisory Committee

Ruth Churley-Strom, RN	St. Joseph Hospital
Lisa Drager	Saline Evangelical Home
Lynn Enos, RN	Student, Washtenaw Community College
Denise Epp, RN	Saline Hospital
Kathleen Fischer, RN	U of M Medical Center
Deborah Hannah, RN	Student, Washtenaw Community College
Caron Hoyes, RN	Olsen-Kimberly Health Care
Lindy Lorenz, RN	U of M School of Nursing
Claudia Moore, Ph.D.	U of M School of Nursing
Valerie Mossman, RN	Glacier Hills
Rachel Rush, RN, BSN	Saline Hospital
Joyce Sodergren, RN	Veteran's Administration Medical Center

Pharmacy Technology Committee

Cheryl Bengry	Veteran's Administration Medical Center
Jamie Curry	McKesson Pharmacy Systems
Dennis Delonnay	Veteran's Administration Medical Center
Diane Gaul	U of M Pharmacy Services
Kathy Goldberg	St. Joseph Hospital
Ron Lukasiewicz	St. Joseph Hospital
Cari Marshall	U of M Pharmacy Services
Chuck Myers	McPherson Hospital
James Schultz	University of Michigan Hospital
Leza Taylor	U of M Hospital
Beth Weaver	McKesson Pharmacy Systems

Photography Program Advisory Committee

Christie Badger	Student, Washtenaw Community College
Bob Foran	Photographer
Dean Hully	Foto 1 Photographic & Digital Imaging
Randy Mascharka	Photographery
Eva McDonough	Student, Washtenaw Community College
Ken Owen	Jobo Fototechnic, Inc.
Lynne Smith	U of M Pathology Dept.
James Wesley	Eastman Kodak Company

Police Academy Advisory Committee

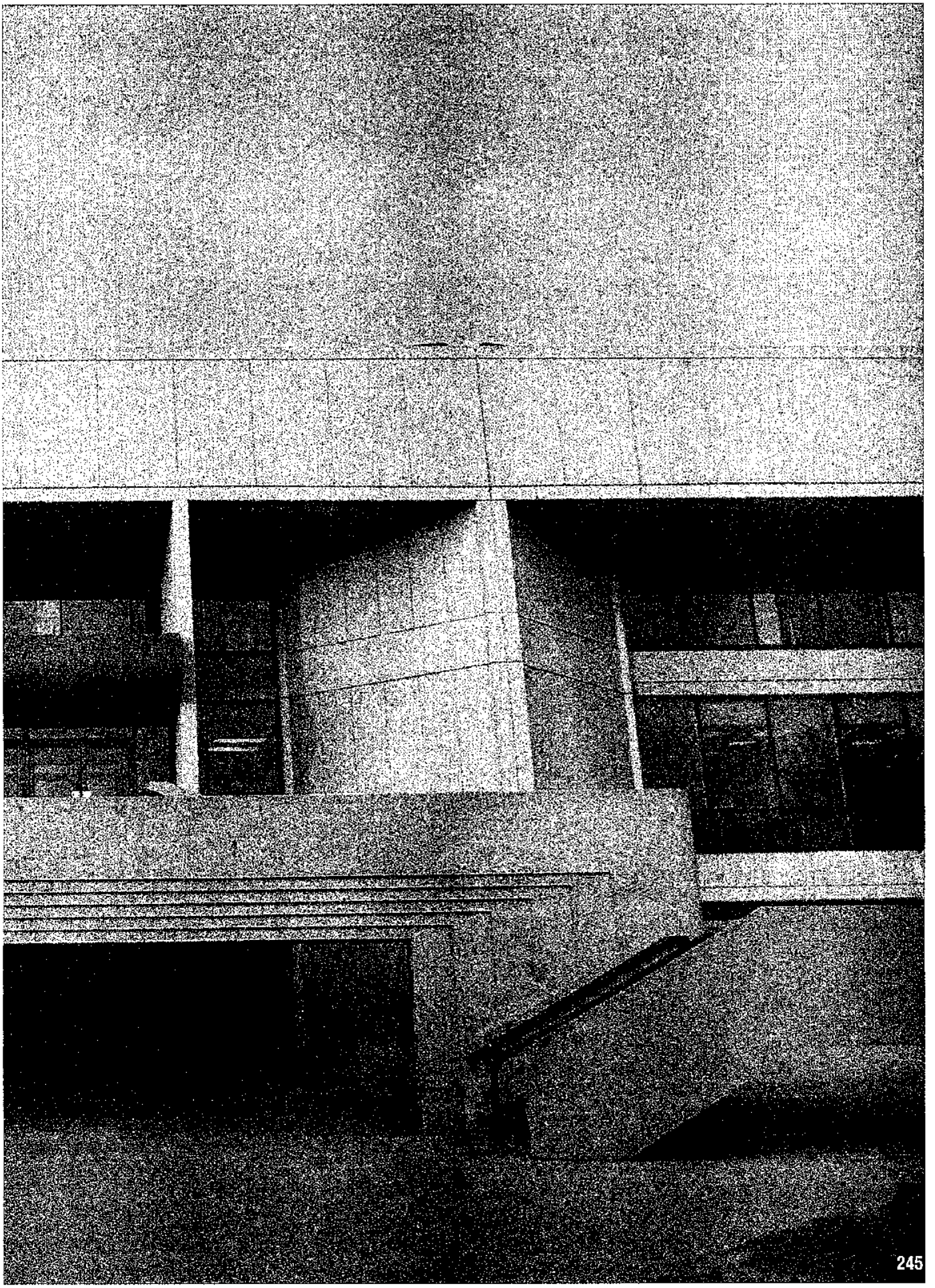
Carl Ent	Ann Arbor Police Department
Paul Bunten	Saline Police Department
Brian Mackie	Washtenaw County
John Phillips	Pittsfield Township Department of Public Safety
Ronald J. Schebil	Washtenaw County Sheriff's Department
James Smiley	Pittsfield Dept of Public Safety
Leonard Supenski	Ypsilanti Police Department

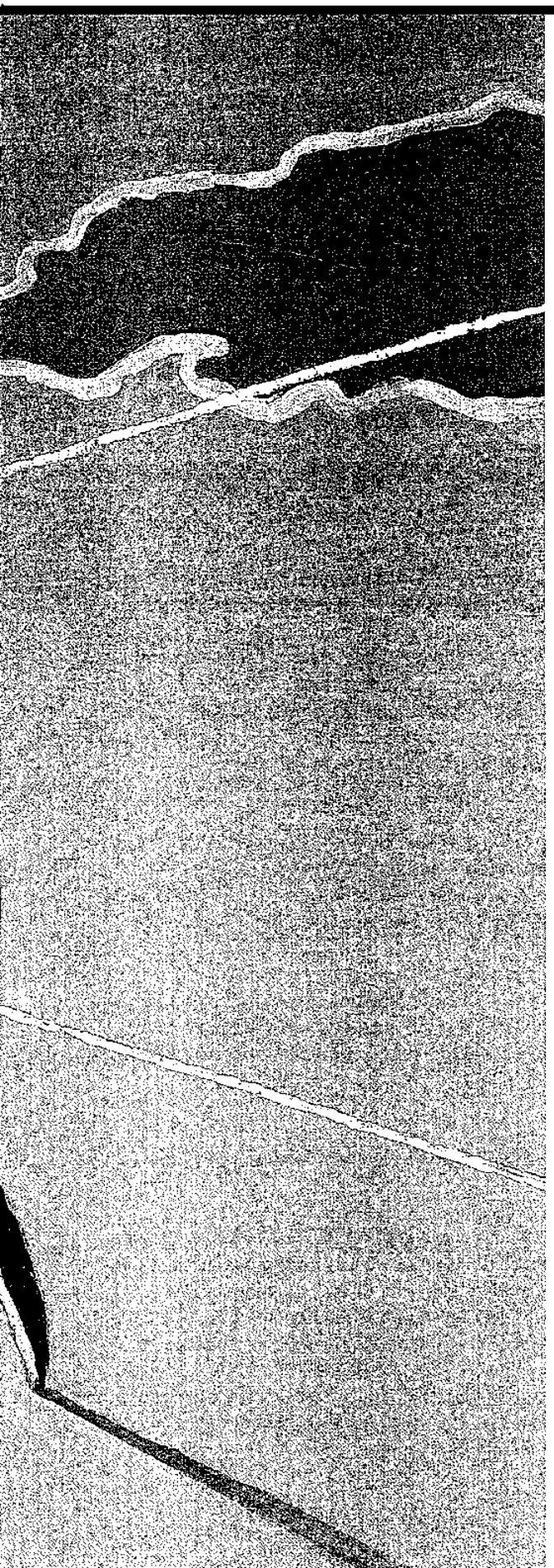
Respiratory Therapy Advisory Committe

Mark Kerwin	Veteran's Administration Medical Center
John Klepetka	St. Joseph Mercy Hospital
Randy Merren	Foote Hospital
Olla Mopkins	Veteran's Administration Hospital
Rita Peterson	Children's Hospital of Michigan
Jerry Zohn	Bixby Medical Center

Surgical Technology Advisory Committee

Elaine Abbondanza, RN	Mott Children's Hospital
Pennie Anderson	
Janice Campbell, CST	University of Michigan Hospital
Catherine Crane, RN	University of Michigan
Michelle Diepenhorst, RN	St. Joseph Mercy Hospital
Lottie Finnegan, RN	Herrick Memorial Hospital
Jane Gay, RN	Veteran's Administration Medical Center
Fiona Jubenville, RN	Henry Ford Hospital
Kathy Lanava, RN	University of Michigan
Terri Mitchell	Beyer Hospital
Sue Weir, RN	McPhereson Hospital





Glossary

Glossary of terms used at WCC

Academic Honors
Honors bestowed upon a student who has achieved a high level of academic success. Honors may be based upon performance over one or more semesters (Dean's Honor Roll) or for cumulative performance at the time of graduation (Graduation Honors).

Accreditation
Recognition that the College or a College program has met standards or requirements set up by a governing organization.

Admission
Acceptance of an applicant for enrollment in the College.

Articulation
The process of arranging instructional programs so that students may progress from high school programs to WCC programs or from WCC to four year college or university programs.

Assessment
The process of determining a student's interests or level of competence.

Associate Degree
A degree issued to a student who has completed a prescribed curriculum/program of courses totaling a minimum of 60 semester hours of credit.

Audit
To enroll in a College academic credit-bearing course on a non-credit basis. Such credits as the course normally carries are included as part of the total credit load and tuition assessed accordingly. An auditor ("AU") grade is issued.

College Certificate
A certificate issued to a student who has completed a prescribed curriculum/program of courses totaling a minimum of 30 semester hours of credit.

College Withdrawal
The process by which a student discontinues enrollment in all courses.

College Workstudy
An award of employment (i.e., an opportunity to work for paid wages on the campus) given to a student based on financial need.

Continuing Education Units (CEU's)
A nationally recognized recording device for substantive non-credit learning experiences. One CEU is defined as ten contact hours of participation in an organized continuing education experience with responsible sponsorship, capable direction, and qualified instruction.

Core Curriculum
A body of learning areas which are incorporated into every WCC degree program of study. The learning areas include communication, mathematics, critical thinking, computer literacy, arts and humanities, natural sciences, technology, and social sciences.

Corequisite
An additional course or instructional experience which is required to be taken during the same semester with certain courses. For example, a section of Writing Lab is required with certain English courses.

Course Load/Overload
The total number of credit hours a student is officially registered for in a given semester. A Full-time Student is one who enrolls in 12 or more credit hours per semester; a Part-time Student is one who enrolls in less than 12 credit hours per semester; a Half-time Student is a Part-time student enrolled in at least 6 credit hours per semester. Students enrolling in more than 18 credit hours per semester (or more than 6 spring or summer sessions) are considered to be carrying a Course Overload.

Credit Hours
The number of hours of credit granted for a particular course. The number of credit hours is normally equal to the number of lecture hours that a class meets each week e.g., a 3 credit hour class will meet for 3 hours each week for a 15-week semester.

Cumulative Grade-Point Average
A measure of a student's scholastic success which includes all coursework attempted at the College. The average is obtained by dividing the total grade points by semester hours of credit attempted.

Curriculum
A group of courses, sequences of subjects, or planned experiences.

Educational Intent
A student's statement of the goal he/she intends to achieve by attending WCC. Educational intents include the following: to obtain a College Certificate; to obtain an Associate Degree; to obtain an Associate Degree for transfer to a four-year institution; to obtain credit hours for transfer to a four-year institution; to obtain new or improve existing job skills; to fulfill apprenticeship, journeyperson, or other trade-related instruction coursework; to attend classes for personal interest/development; or other goals.

Elective Course

A course which a student may choose to take from a number of alternative courses in order to fulfill a program requirement (see Open Elective and Restricted Elective).

Emeritus Program

A program for county residents who are at least sixty–five years of age which offers tuition-free participation in WCC credit and credit-free courses, workshops and seminars.

Fees

Charges assessed to students other than tuition charges.

Financial Hold

A student is placed on financial hold when he/she has not met their financial obligations to the College. Students placed on financial hold are not allowed to register for courses, cannot receive their College Certificate or Associate Degree, and are not eligible to receive College services of any kind.

Freshman/First Year Student
A student who has completed fewer than 28 credit hours.

GED Examination
The General Education Development examination is a comprehensive test used to appraise the educational development of adults who have not completed a high school education. By achieving satisfactory scores on the GED adults may earn a high school equivalency certificate.

Grade Point Average
The number of grade points earned divided by the semester hours of credit attempted. The grade point scale is: A=4.0, B=3.0, C=2.0, D=1.0.

Grant
An award of money given to a student based on financial need. Grants do not need to be repaid.

Loan
An award of money given to a student based on financial need. Loans must be repaid once a student leaves the College or does not continue at college on at least a half-time basis.

Open Elective
A course that may be chosen from any course offered at WCC and applied to a program of study. The credit hours for elective courses will be counted toward the total hours required for program or certificate completion.

Orientation
A presentation for new WCC students to acquaint them with College facilities, programs, services and procedures.

Postsecondary Education
Education beyond the high school level.

Prerequisite
Requirements that must be met or courses which must be successfully completed prior to enrolling in a specific course or program.

Program
A planned curriculum in a field of study which includes a list of specific requirements.

Registration
The process of officially enrolling in a course (or courses) and paying tuition. Upon registering, the course(s) are entered onto the student's permanent record.

Residency
The official home address of a student which is used to determine the tuition rate charged and, if applicable, program admission priority. Residency classificationsb are In-District, Out-District, Out-State, and Out-of-Country.

Restricted Elective
A course that must be chosen from a specific list or a specific discipline in order to fulfill program requirements. The credit hours for elective courses will be counted toward the total hours required for program or certificate completion.

Self-paced Instruction
Instruction using a workbook, textbook, or mechanical and/or electronic device which helps the student attain a specified level of performance. Students proceed at their own pace through a series of steps, working with the instructor as he/she finds necessary.

Scholarship
An award of money and/or special recognition given to a student for certain types of proficiency, such as academic, or because of financial need. Scholarship monies do not need to be repaid.

Sophomore/Second Year Student
A student who has completed 28 or more credit hours but has not received an Associate Degree or has not qualified for upper division classification in a four-year college or university.

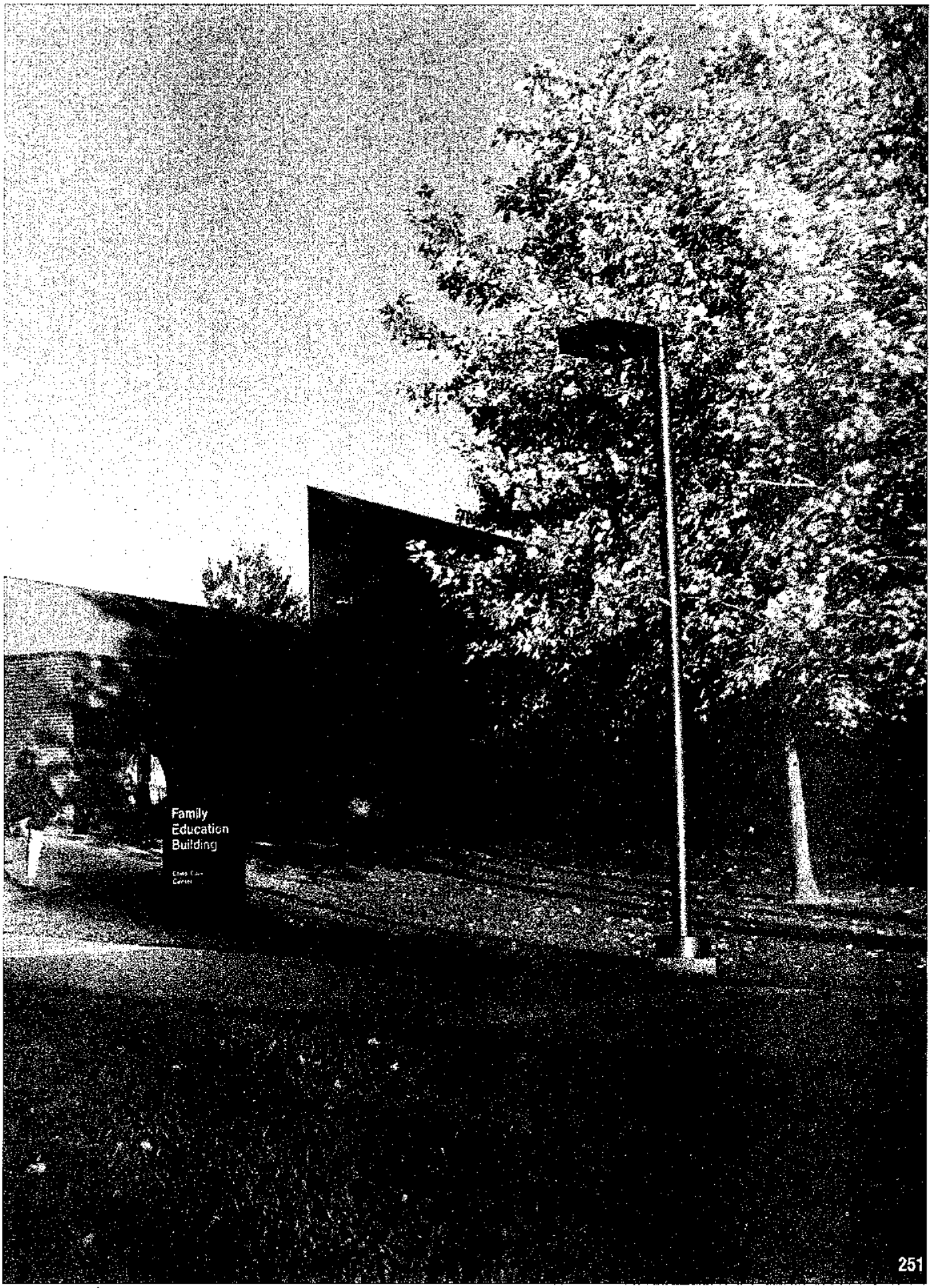
Transfer Agreements
Written agreements between WCC and four-year institutions which specify transferring of WCC earned credits to the specific four-year institution.

Transfer Credit
Credit that has been taken at another accredited academic institution that is accepted by the College for use toward a College Certificate or Associate Degree.

Transcript
A transcript lists all courses taken by a student, showing the final grade received for each course. The official transcript is housed in the Student Records Office.

Tuition
The monetary charge a student must pay at the time of registration for each semester hour of academic credit. The tuition rate is based on the student's residency classification.

Undergraduate
A student in a higher education institution who has not yet achieved the Bachelor's, or first professional, degree in a field of study.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Education
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Appendix and Index

Appendix A

Articulations and Transfer Agreements

Michigan Association of Collegiate Registrars and Admission Officers (MACRAO) Agreement

An Agreement between Michigan's two- and four-year colleges and universities has been developed to assist students who complete an associate degree at a Michigan public community college in transferring credit to a four-year institution. The agreement insures that students receiving Associate Degrees at Washtenaw Community College and meeting the requirements indicated below, will have satisfied the basic first two-year requirements of Michigan four-year institutions which have signed this agreement. Students should check with the college to which they plan to transfer to determine if the MACRAO agreement is honored.

Basic Requirements of Agreement:

The basic requirements are designed to provide students with a broad intellectual experience in the major fields of knowledge. Basic two-year requirements include English Composition and the broad categories of Social Science, Natural Science, and Humanities. Specific courses in each category are determined by the institution offering the courses. Courses which may not be transferable, i.e., developmental and some technical or occupational courses, are not included in the basic requirement.

I. English Composition (6-7 credits)

English Composition ..... ENG 111, 122, 225

II. Social Science (8 credits in more than one discipline)

Anthropology ..... ANT 201, 202
Economics ..... ECO 111, 211, 222, 280
Geography ..... GEO 100, 103, 212
History ..... HST 121, 122, 123, 150, 160, 200, 201, 202, 215, 216
Political Science ..... PLS 112, 150
Psychology ..... PSY 100, 107, 114, 130, 150, 160, 200, 209, 222, 257, 260
Sociology ..... SOC 100, 201, 202, 203, 205, 207, 230, 250

III. Natural Science (8 credits in more than one disicipline, one must be a laboratory course)

Biology ..... BIO 101, 102, 103, 107, 137, 200, 208, 215, 216, 220, 227, 228, 237
Chemistry ..... CEM 105, 111, 122, 140, 211, 218, 222
Physics ..... PHY 105, 111, 122, 211, 222
Geology ..... GLG 100, 103, 109, 110, 114, 125
Mathematics ..... MTH 160, 169, 179, 181, 182, 191, 192, 197, 293, 295

IV. Humanities (8 credits in more than one discipline)

Art ..... ART 101, 111, 112, 114, 120, 122, 125, 130143, 150
Communications ..... COM 101, 102, 130, 142, 183
Drama ..... DRA 152, 153, 167
French ..... FRN 111, 120, 122, 213, 224
German ..... GRM 111, 122
Humanities ..... HUM 101, 102, 145, 160
Literature ..... ENG 160, 170, 181, 200, 211, 212, 213, 214, 222, 223, 224
Music ..... MUS 142, 143, 180, 183
Philosophy ..... PHL 101, 120, 123, 200, 205, 250
Russian ..... RUS 111, 122
Spanish ..... SPN 111, 122, 213, 224

Public School Articulations

Articulation agreements currently exist between WCC and 18 public school districts, whereby students may receive college credit for successful completion of certain high school courses and/or programs. As stipulated in all current agreements, students must be recommended by their high school instructor in order to receive credit. Student must apply for articulated credit within two years of high school graduation.

Copies of specific Articulation Agreements are available at the WCC Student Records Office.

College and University Articulation Agreements

Articulation agreements exist between WCC and seven four year colleges and universities. These agreements allow WCC students in specific programs to apply some or all of their credits earned towards a bachelor's degree. Information on specific articulation agreements available at the Placement and Transfer Center.

Transfer Guides

Transfer guides are helpful in listing WCC courses and/or recommended programs of study that transfer to various colleges and universities in Michigan and regionally. The Placement and Transfer Center and the Counseling Center have alphabetical files of transfer guides to all the major four year institutions in Michigan.

Articulation Agreements with Other Educational Agencies

While most of the articulation programs enable students to transfer WCC courses to other colleges, two agreements allow for courses taken at other colleges to transfer to WCC. These agreements are with the Specs Howard School of Broadcasting and The Michigan Institute of Aeronautics. Please check with a counselor at both WCC and the articulating institution for specific requirements.

Appendix B

Selected National Institutional College Memberships

ACCI/League for Innovation
American Association of Higher Education
American Association of Community Colleges
American Association of Community College Trustees
American Council on Education
American Library Association
Community College Leadership Institute
Continuous Quality Improvement Network
Council of North Central Community and Junior Colleges
Michigan Community College Association
Michigan Community College Consortium
Michigan Community College Virtual Learning Collaborative
Michigan Library Association
Michigan Technology Council
National Association of Industrial Technology
The National Institute for Staff and Organizational Development
North Central Association of Colleges and Secondary Schools

Disclaimers

a. This document is for informational purposes only and is not to be construed as a binding offer or contract between the College and the student. This document was prepared in July, 1998 and is subject to change without prior notice.

b. This document is intended to be used with the Academic Class Schedule, which provides the latest information on courses offered for each semester and academic calendars for future semester.

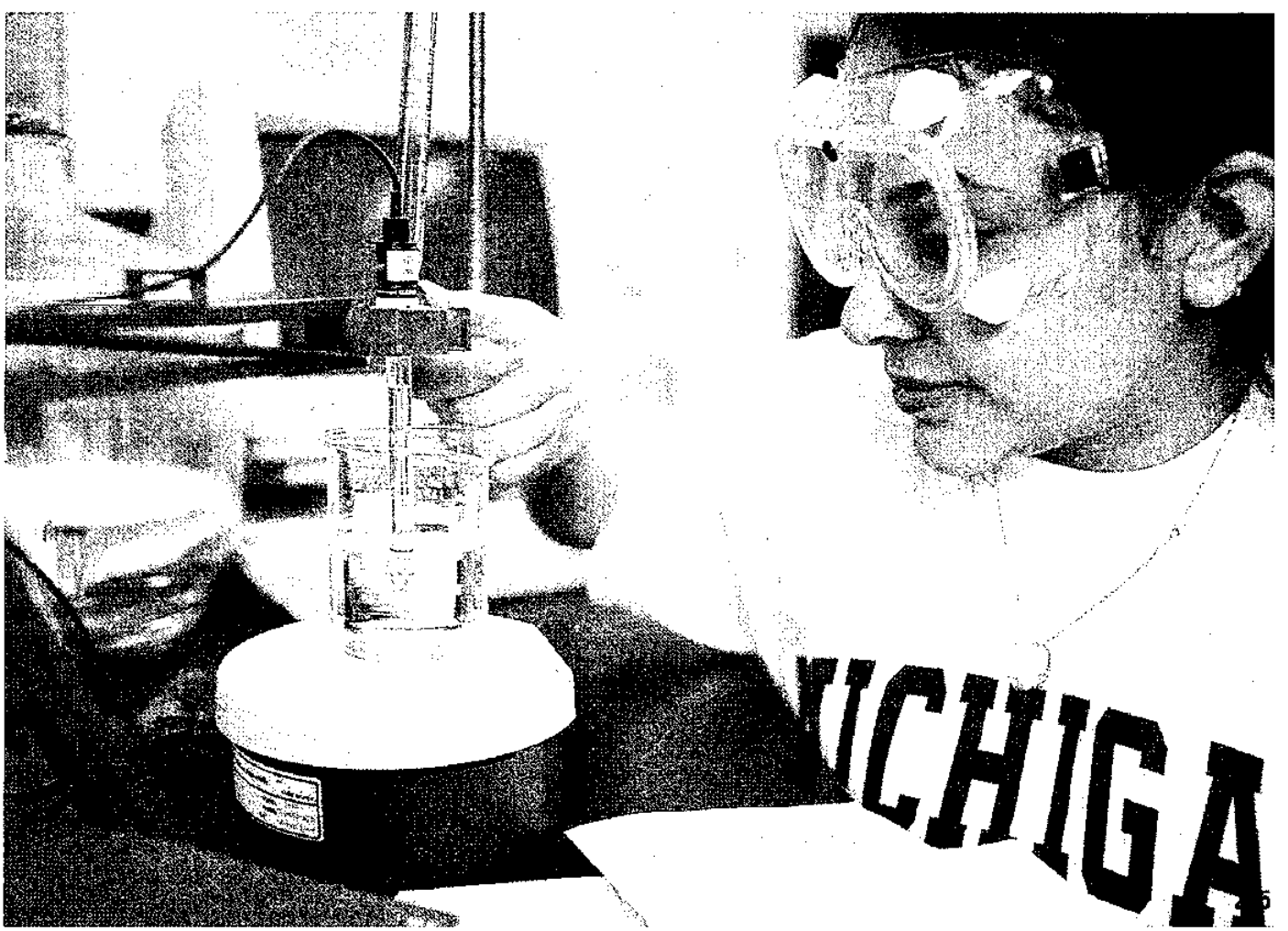
ADA/EEO/Title IX/Section 504 Compliance Statements

Washtenaw Community College does not discriminate on the basis of race, sex, color, religion, national origin, age, disability, height, weight, marital status, or veteran status in provision of its educational programs and services or in employment opportunities and benefits. WCC is committed to compliance in all of its activities and services with the requirements of Title IX of the Educational Amendments of 1972, Public Act 453, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964 as amended, Public Act 220, and the Americans with Disabilities Act of 1990.

Inquiries concerning programs and services under Title IX and Section 504, and the Americans with Disabilities Act should be directed to the Office of the Dean of Student Services; Room 225A, Student Center Building, (734) 973-3536. Inquiries regarding compliance in employment should be directed to the College Affirmative Action Officer in the Office of Human Resource Management, Room 120, Buisness and Education Building, (734) 973-3497. Inquiries concerning access to facilities should be directed to the Director of Plant Operations, Plant Operations Building, (734) 677-5300.

Title II Student Right to Know and Campus Security Act Compliance Statement

The Student Right to Know and Campus Security Act of 1990 is a federal law that mandates the disclosure by all institutions of higher education of the rates of graduation, the number of incidents of certain criminal offenses, and the default rate for student loans. The law also mandates that information be provided on the type of security provided on campus, the pertinent policies regarding security on campus, and policies that record and deal with alcohol and drug abuse. Washtenaw Community College is in full compliance with these provisions and provides the required information annually through college publications. Inquiries concerning the Student Right to Know and Campus Security Act should be directed to Washtenaw Community College, Office of the Dean of Student Services, Room 221B, Student Center Building, Ann Arbor, MI 48106 (telephone (734) 973-3536.



Index

D

E

F

G

H

I

J

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Washtenaw Community College
4900 East Huron River Drive
P.O. Box D-1
Ann Arbor, Michigan 48106-1610