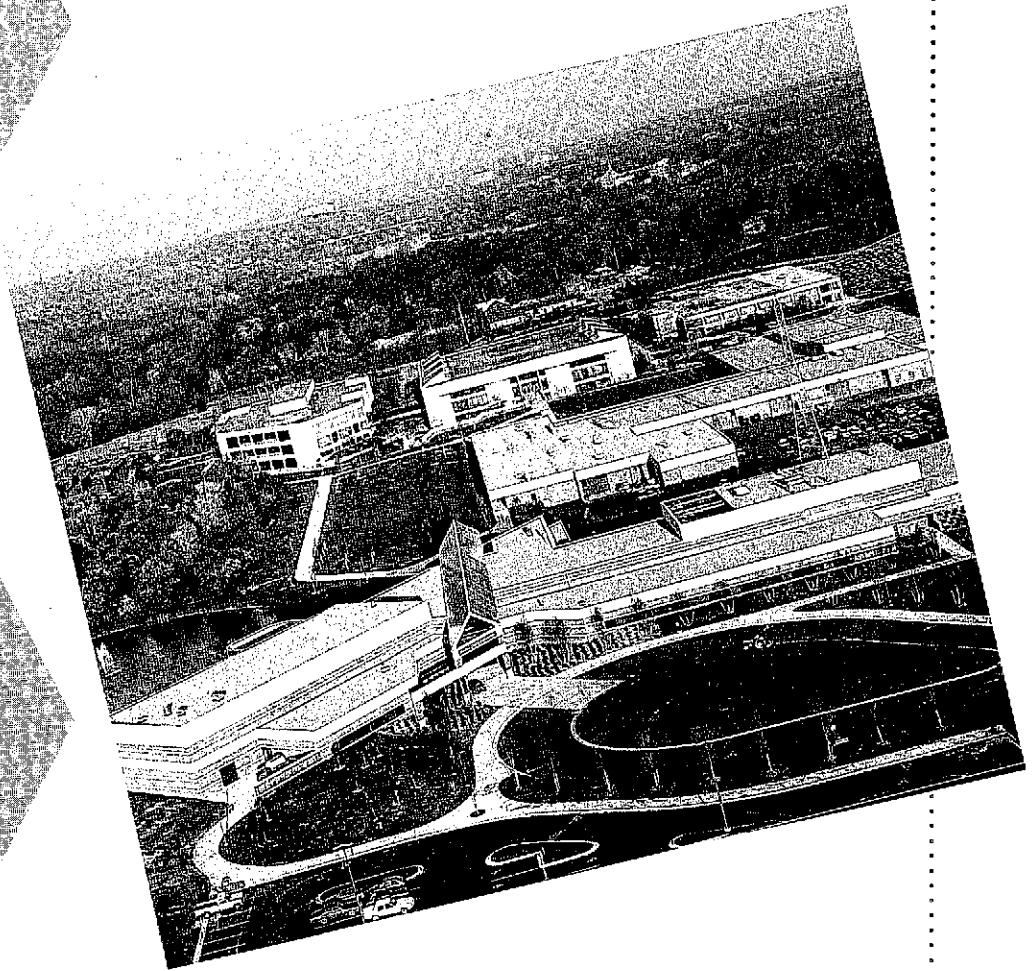


VOLUME 20

1992-93

Catalog



Washtenaw Community College

CAMPUS TELEPHONE/OFFICE DIRECTORY

Admissions	SC 221	973-3543
Adult Resources Center	SC 227	973-3528
Alumni Association	SC 207	973-3631
Apprenticeship and Trade Related Programs	OE 112	973-3533
Bookstore (Ulrich's)	SC 142	973-3594
Business and Industry Center	JS 104	677-5016
Career Development	SC 106	973-3421
Cashier	SC 2nd floor	973-3485
Children's Center	FEB	973-3538
Continuing Education Services	JS 104	677-5027
Counseling Office	SC 227	973-3464
Dean of Business	LA 148	973-3724
Dean of Cont. Ed./Comm. Svcs.	JS 104	677-5003
Dean of Health/Public Services	OE 102	973-3474
Dean of Humanities/Social Sciences	LA 100	973-3356
Dean of Learning Resources	SC 325	973-3379
Dean of Math/Natural Sciences	LA 102	973-3722
Dean of Technology	TI 205	973-3441
Dental Clinic	LA 325	973-3337
Eastern Regional Center	1625 Holmes Rd, Ypsilanti	487-5650
Extension Programs	JS 104	677-5028
Financial Aid	SC 223	973-3524
Industrial Extension Centers	JS 104	677-5013
Information Center	SC 225	973-3622
Job Training School	JS 104	677-5006
Learning Resource Center	SC 3rd floor	973-3429
Lost and Found	PO	973-3502
Math Center	LA 320	973-3392
Northern Regional Center		229-1419
Placement Services	SC 106	973-3421
Public Service Training Program	JS 106	677-5024
Reading Center	SC 301	973-3301
Registration	SC 221	973-3548
Security	PO	973-3411
Southern Regional Center	601 Woodland Dr., Saline	429-8153
Student Activities	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 Regional Center 134 Middle St., Chelsea		475-5935
Writing Center	SC 315	973-3647

Building Abbreviations

CE — Campus Events Building
 FE — Family Education Building
 LA — Liberal Arts/Sciences Building
 JS — Job Skills Building

OE — Occupational Education Building
 PO — Plant Operations
 SC — Student Center Building
 TI — Technical and Industrial Building

1992-93

Catalog

**FOR TOMORROW,
START TODAY...**



Washtenaw Community College

GREETINGS FROM PRESIDENT GUNDER MYRAN



Excellent teaching is the heart of Washtenaw Community College. All staff members — faculty, administrators, clerical staff, and custodial/maintenance staff — are dedicated to the achievement of student and community success through excellent teaching and outstanding service. We recognize the accomplishments of those who have given shape to the College's teaching mission since its establishment in 1965. Through their dedication, a community college has been created for the citizens of the Washtenaw County area which is comprehensive, community-based, student-oriented. Staff members and citizens together have created a caring, responsive, high quality college which is a vital educational resource for the communities it serves.

Ernest Boyer, a foremost American educator, has said that it is in the authentic blending of memory and vision that the College finds its pulse. Even as we celebrate WCC's past, we look ahead to the year 2000 and beyond. It is my vision that, during the decade of the 1990's, WCC will build on the foundation created in the past to create vibrant learning communities both within the College itself and throughout its service area. There will be a sense of community — of partnership — among faculty and students, groups of students coming together from diverse backgrounds, and various staff groups. Learning communities will also involve many of the community groups with which WCC collaborates to achieve student and community success. Examples of external learning communities will include WCC's collaboration with area colleges and universities to assure successful university transfer of WCC graduates, cooperation with area public schools to provide for successful articulation to the community college, and coalitions with business, labor, and government groups to assure a highly trained workforce for the decade of the 1990's.

The focus of these learning communities will be the content, methodology, and outcomes of teaching. The center of conversations about teaching and learning will be the success of our students whether their goals are career preparation or advancement, job retraining, university transfer, or personal enrichment. We will be "democracy's college" in the Washtenaw County area. Through our emphasis on excellent teaching and the building of learning communities, we will empower persons from all walks of life to achieve their career and life goals through education.

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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 1, 1992 and is subject to change without notice. This Catalog is intended to be used with the Time Schedule, published each term, which provides more recent information on program requirements, courses, and College and Academic policies and procedures.

ACCREDITATIONS

Approved by the STATE DEPARTMENT OF EDUCATION, STATE OF MICHIGAN

Accredited Member of the NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS

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 COUNCIL ON DENTAL EDUCATION, AMERICAN DENTAL ASSOCIATION

Law Enforcement Basic/ Preservice Program Approved by MICHIGAN LAW ENFORCEMENT OFFICERS TRAINING COUNCIL

Nursing - Associate Degree Program Approved by MICHIGAN DEPARTMENT OF LICENSING AND REGULATION Board of Nursing

Nursing - Practical Nursing Program Approved by MICHIGAN DEPARTMENT OF LICENSING AND REGULATION Board of Nursing

Radiography Program Accredited by COMMITTEE ON ALLIED HEALTH, COUNCIL OF MEDICAL EDUCATION, AMERICAN MEDICAL ASSOCIATION

Respiratory Therapy Program Accredited by COMMITTEE ON ALLIED HEALTH, COUNCIL ON MEDICAL EDUCATION AMERICAN MEDICAL ASSOCIATION

An Affirmative Action/Equal Opportunity Institution

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

1992-93 ACADEMIC CALENDAR

FALL SEMESTER 1992

September 3 Classes Begin

September 7 Labor Day (no classes)

November 26-29 Thanksgiving Recess

December 21 Fall Classes End

WINTER SEMESTER 1993

January 7 Classes Begin

January 18 M.L. King Holiday (no classes)

March 17-19 Spring Recess

April 27 Winter Classes End

SPRING/SUMMER SEMESTER 1993

May 3 Classes Begin

May 31 Memorial Day (no classes)

June 23 7½ Week Spring Classes End

July 5 Independence Day Holiday (no classes)

July 13 10 Week Spring Classes End

August 17 15 Week Semester Classes End

SUMMER SESSION 1993

June 14 10 Week Summer Classes Begin

June 24 7½ Week Summer Classes Begin

July 5 Independence Day Holiday (no classes)

August 17 7½ Week Summer Classes End

August 21 10 Week Summer Classes End

STATEMENT OF MISSION & 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 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 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. 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, tutor assistance, 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.



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 nation-wide 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 and the Liberal Arts and Sciences Buildings. Today, more than 17,000 students are enrolled annually in credit courses and an additional 3,500 are enrolled in credit-free offerings each year.

PROFILE OF WASHTENAW COMMUNITY COLLEGE

WCC schedules courses on a semester calendar, and had approximately 11,000 students enroll for the Fall 1991 semester. The college employs 170 full-time faculty and more than 450 part-time faculty throughout the academic year. College credit programs of study cover 73 areas in Business, Health and Public Services, Humanities and Social Sciences, Math and Natural Sciences, and Technology. More than 50% 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 by the college to more than 600 students.

COLLEGE GOVERNANCE

In an effort to create a college governance system which emphasizes greater participation, promotes increased collaboration, and leads to shared decision making on key college developments and operations, Washtenaw Community College has developed a collaborative and participative governance

system. The central governance committee is the College Council and consists of members who represent the leadership and membership of all groups of the college community. The council makes recommendations on all major institutional issues particularly mission, strategic planning, and resource allocation. The council is supported by eleven committees, all of mixed representation. Two of these have global tasks closely related to the business of the council: the Ways and Means Committee, which refers issues and shares information, and the Governance Committee, whose task it is to monitor and evaluate the entire system. The other nine committees are standing committees which provide recommendations to the council or responsible administrators on specific issues. The full committee structure of the governance system is as follows:

- ▶ Academic Standards and Practices
- ▶ Administrative Procedures and Operations
- ▶ Budget and Finance
- ▶ College Staff Planning, Development, and Evaluation
- ▶ Community Affairs and College Development
- ▶ Ways and Means
- ▶ Curriculum Development and Review
- ▶ Governance Committee
- ▶ Institutional Research and Effectiveness
- ▶ Instructional Methods, Technology and Resources
- ▶ Student Affairs

Each governance committee is headed by one administrator and one faculty member who serve as co-chairs. Membership on the committees ranges from 6 to 17 members and includes students, office professionals, custodial workers, faculty and administrators. Committee members use governance processes and procedures developed by the Collaboration Project Steering Committee. Members of all committees are governed by a Code of Trust and the committees operate by consensus.

ALL-COMMUNITIES PROGRAM/REGIONAL CENTERS

In 1986, WCC launched a major new initiative with the introduction of the All-Communities Program, an educational outreach concept, in response to the changing trends in the external environment of the college. The All-Communities Program provides a continuing and consistent WCC presence in each community. Factors such as population growth trends, economic change, technological development, a stronger demand for post-secondary education in the communities served by the

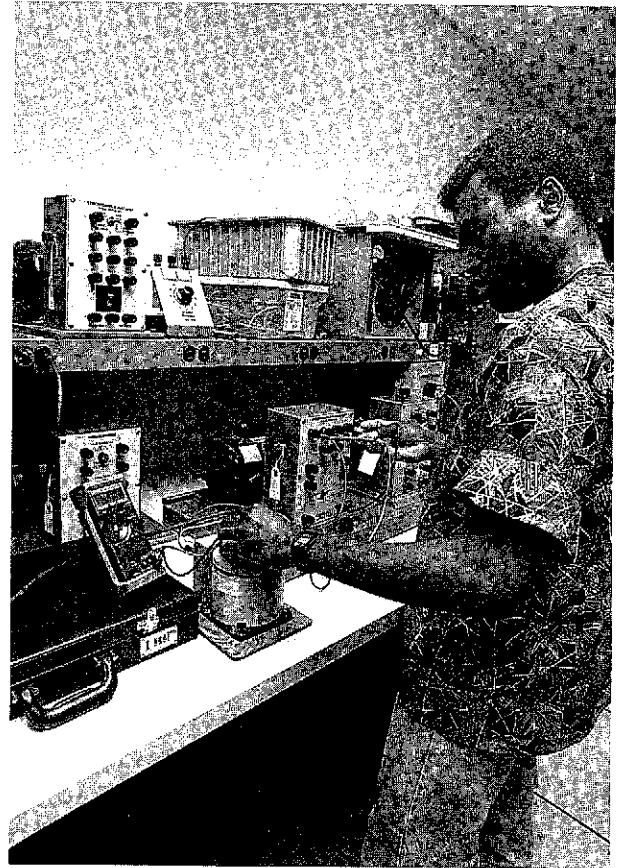
college and competition from other colleges have shaped the concept of the All-Communities Program.

A network of four regional centers has been established to implement the All-Communities concept and to provide a consistent college presence in four of the regional areas - Chelsea, Saline, Ypsilanti and Brighton. These centers have been actively involved in course offerings, student counseling, registration, student recruitment, and community contacts. This college presence in the regional areas has been widely appreciated by local community residents and groups. College penetration into local communities is becoming deeper and wider in terms of marketing as well as student enrollment. In the fall of 1991, approximately 1,600 students participated in credit courses offered through regional centers. Classes are held at the regional center facilities, public school buildings and other community buildings through cooperative arrangements.

CURRENT FACILITIES

Today, the WCC main campus includes three buildings dedicated entirely to instructional activities: the Liberal Arts and Sciences Building, the Occupational Education Building, and the Technical and Industrial Building. The Student Center Building houses a large 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 located in the Family Education Building.

The 75,000 square foot Job Skills and Campus Events Building includes classrooms; an auditorium; exhibition space; and instructional space for Art, Drama, Music, Speech, the Police Academy and Public Service Training.



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 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 Business and Industry Center, programs include employee training and skills upgrading classes tailored for specific businesses and industries. The Job Training School 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 Continuing Education Services and Extension Programs Office offers credit, credit-free and televised class instruction.

PROGRAMS OF STUDY

2-year associate degree and 1-year certificate programs. See the Academic Policies section of this catalog for an explanation of the various degree designations.

ASSOCIATE IN APPLIED SCIENCE

Accounting
Business Computer Programming
Business Management
Business Marketing
Child Care
Construction Management
Criminal Justice – Law Enforcement Certification
(Police Academy)
Culinary Arts Technology
Fire Protection
Hotel-Restaurant Management
Information Processing Specialty
Medical Secretarial Technology
Microcomputer Business Technology
Nursing
Radiography
Respiratory Therapy
Scientific and Technical Communication
Executive Secretarial Technology

ASSOCIATE IN ARTS

Correctional Science
Criminal Justice
Liberal Arts Transfer – H/SS

ASSOCIATE IN SCIENCE

Computer Science – Transfer
Liberal Arts Transfer – M/NS
Liberal Arts Transfer Biology/Pre-Medicine
Liberal Arts – Transfer Chemistry/Pre-Medicine
Pre-Engineering Science – Transfer
Pre-Engineering Science - Chemical and Materials
Option– Transfer

ASSOCIATE IN TECHNICAL STUDIES

Architectural Drafting
Automotive Body Service
Automotive Service Technology
Computer Aided Drafting – Electronic
Computer Aided Drafting – Mechanical
Computer Aided Manufacturing Technology
Digital Equipment Technology
Electro-Mechanical Technology
Electronic Control Systems Technology
Fluid Power Technology
Graphic Design Technology – Design
Graphic Design Technology – Illustration
Graphic Design Technology - Printing
Industrial Drafting Technology
Journeyman Industrial
Mechanical Engineering Technology
Photographic Technology
Photographic Technology – Marketing Option
Refrigeration and Air Conditioning
Robotic Technology
Statistical Process Control – Electronics Option
Statistical Process Control – Management Option
Statistical Process Control – Science and Engineering Option
Statistical Process Control – Specialty Option
Telecommunication Technology
Welding Technology

ASSOCIATE IN GENERAL STUDIES

Business
Health/Public Services
Humanities/Social Sciences
Math/Natural Sciences
Technology

CERTIFICATE PROGRAMS

Architectural Drafting Detailing
Automotive Body Repair
Automotive Mechanics
Automotive Spray Painting
Business Sales
Computer Systems Operations
Correctional Science
Dental Assisting
Drafting Detailing
Food Production Specialty
General Office Specialty
Hydraulic Assembly
Information Processing
Medical Secretarial Technology
Numerical Control Machine Operations
Pharmacy Technology
Photographic Assisting
Secretarial Technology
Surgical Technology
Toolroom Machine Operation
Welding Maintenance Mechanics



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 specific needs of the agencies. The courses 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 Degree in Criminal Justice — Law Enforcement Certification.

TECHNICAL TRAINING

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. The Trade-Related Instruction program is approved by both the Bureau of Apprenticeship and Training and the Michigan State Department of Education.

Admissions



ADMISSIONS

WCC is open to all individuals who can benefit from its educational and service programs. The focus is on the individual's growth and development toward academic, career and personal goals. The college seeks to create an admissions 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 student and program match.

GENERAL ADMISSION POLICY

WCC serves a wide and diverse population through its "Open Door" admissions policy. Any person who has graduated from high school or 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 must submit verification of graduation from high school, achievement of a GED, or graduation from a college program of at least two years. Students unable to provide this verification will not be excluded from enrolling! They will be required to take an assessment test and, depending on the results, may be required to take remedial courses while they are taking courses in the regular curriculum. 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 an "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.

PROGRAM ADMISSION PRIORITIES

All potential students, regardless of residency, are invited to apply to the college. Admission to the college does not guarantee admission to all programs. In those few cases where enrollment in a particular program is oversubscribed, the follow-

ing priorities apply to those meeting individual program entry requirements:

- Priority 1: Legal residents of Washtenaw Community College district.
- Priority 2: Legal residents of counties adjacent to the college district.
- Priority 3: Legal residents of all counties of the State of Michigan other than those included in Priority 2.
- Priority 4: Persons whose legal residence is outside the State of Michigan, but within the United States.
- Priority 5: Persons whose residence is a foreign country.

In those instances where enrollment demands for a particular program at one of the above priority levels exceeds the capacity, the date of application to the program serves as the determining factor on which students receive program admission. This provision applies to the date that the Admissions Office receives the application from the student.

ADMISSION PROCEDURES

New Student Admission

All new students are required to complete an admissions application and pay the one-time, non-refundable 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 can provide. Individual assessment for appropriate course/program planning and selection is required for all new students.

Former Student Re-admission

Former students who have not registered for classes at the college for one full semester (spring and summer sessions excluded) must reactivate their files at the Student Records Office by filling out a new application form. Students reactivating their files are encouraged to see a counselor or advisor prior to registering for classes. Individual assessment also may be recommended.

High School Student Admission

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. Application for admission must be supported by a letter from the high school principal or counselor forwarded to the College Admissions Office. Students under 18 years of age also must have the written approval of their parent or guardian unless they possess an "emancipated" legal status.

Guest Students From Other Colleges

Students of other colleges and universities may attend WCC on a guest student status. 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 Admissions Office. A new Guest Application must be submitted each semester.

Transfer Student Admission

Transfer students from other colleges are to 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 Student Records Office for evaluation. The coursework may be evaluated, at the student's request, after the student has completed at least six credits at WCC. At the time coursework is evaluated, students are notified of the transfer credit that will be accepted toward program requirements at WCC.

International or Foreign Student Admission

The college welcomes qualified non-immigrant students including those who are government and agency sponsored.

1. Washtenaw Community College F-1 Students

Those with F-1 Student Visas must attend full-time (12 credits each semester) to comply with immigration requirements. Tuition is assessed at the out-country rate. International students must meet the following requirements in addition to the general admission criteria:

- a) Complete a notarized financial statement or affidavit of support reflecting student's ability to meet all tuition, fees, and living expenses while attending WCC (approximately \$10,000 per year).
- b) Forward original certified transcripts (in English) of all previous high school and post-secondary work to the Admissions Office.
- c) Forward proof of English language proficiency shown by a minimum score of 500 on the Test of English as a Foreign Language (TOEFL) or 75% on the Michigan Language Test to the Admissions Office.
- d) Complete an interview with a Student Services staff person.
- e) Verify visa status with the Admissions Office.

2. F-1 Guest Students (from other colleges)

International students admitted and enrolled at other U.S. colleges may take courses at WCC on a part-time basis. The following criteria apply:

- a) Guest status students may be admitted only after all counseling, advising, and any financial arrangements are completed by the "home" institution.
- b) International guest students must provide written documentation attesting to their acceptable student status at another U.S. college.
- c) No WCC certification of attendance is made other than transcript of record.
- d) International guest students are assessed the out-country tuition.
- e) International guest students are required to take the ASSET test upon entry to WCC and, depending on the results, may be required to take developmental courses along with their chosen courses.

Emeritus Student Admission

Individuals who are 60 years of age or older and who reside within Washtenaw County may participate in the educational and cultural programs without tuition costs. However, these students must follow the general admissions criteria of the college and pay the \$18.00 registration fee each semester.

Health Career Students — Special Admission Requirements

Applicants to the Health Career programs (e.g. Nursing, Dental Assisting, Pharmacy Technology, Radiography, and Respiratory Therapy) must meet specific admission requirements. Generally these are:

1. Compliance with published application deadline for each program.
2. Graduation from high school or G.E.D.
3. Completion of specific required 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.

RESIDENCY

Aspects of Residency

1. Students are required to provide verification of legal residency by submitting photocopies of two or more of the following documents to the Admissions Office with their

application: voter registration card, Secretary of State personal identification card, driver's license, place of residence property tax receipt, or valid and current lease agreement.

2. Students whose families move out of the college district or out of Michigan during the time they are students may retain their current residency status as long as they are continuously enrolled in successive fall and winter semesters.
3. In-district students do not lose residency by marrying an out-district or out-state resident during the time they are continuously enrolled at the college for successive fall and winter semesters.
4. The residency of minors (under 18) shall follow that of their parents or legal guardian. 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.
5. 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.
6. Students who move into the district and work full-time for 30 days immediately prior to enrollment qualify for in-district rates for that semester. Appropriate documentation should substantiate that the person worked full-time for 30 or more days prior to enrollment and must be supplied at the beginning of each semester. Spouse and dependents also qualify for in-district rates. After working full-time for 60 days for out-district students (or six months for out-state students), the residency status can be changed by supplying proof of full-time employment and legal residence.
7. Students who live outside 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 sponsoring company at the beginning of each semester before the eighth day of classes. Such documentation should substantiate that the student is currently employed full-time for 30 or more days prior to enrollment. However, 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.
8. Those who are transferred to the county by their employer or the military must present appropriate documentation to qualify for immediate in-district tuition.
9. Veterans whose induction address was within the college district who return to the college within six months after discharge are considered in-district students.

10. To officially change residency status, it is required that evidence of residency and, in some cases, full-time employment verification be submitted to the Student Records Office. Any residency change after the eighth day of classes is effective the next semester in attendance.

Residency Classifications

In-District Students are:

- ▶ Independent applicants who have resided for 60 days immediately prior to enrollment if previous residency was within Michigan.
- ▶ Applicants who live with and whose spouse has resided for 60 days immediately prior to enrollment if previous residency was within Michigan.
- ▶ Applicants who live with and are dependent on parents or a legal guardian who has resided in the WCC District for a minimum of 60 days immediately prior to enrollment if previous residency was within Michigan.

Or

- ▶ 6 months immediately prior to 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 resident.

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.

Required Student Orientation and Program Planning

Orientation/assessment sessions, scheduled prior to each semester, are required for new students. During these sessions, students take the ASSET test, which measures their English, math and reading skills. Counselors and advisors then assist students in selecting and scheduling courses. These 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:

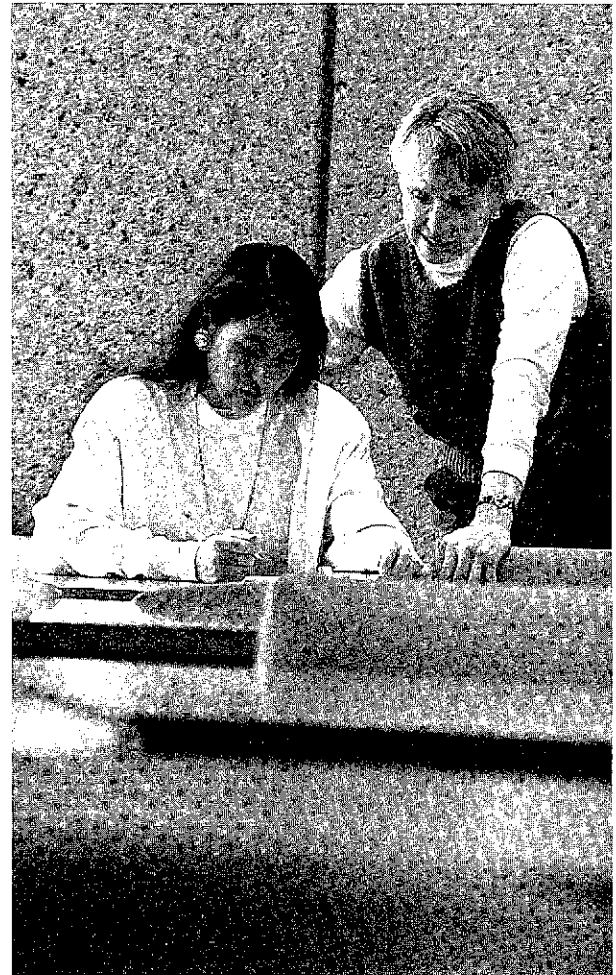
- ▶ Student has verified completion of a degree (an associate degree or higher) from an English-speaking college or university (60 semester credits that are fully applicable toward a bachelor's degree will qualify).

- ▶ 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 of college academic course work with a cumulative GPA of at least "C" (2.0).
- ▶ Student has completed the assessment test at a prior orientation and can produce a copy of the results.
- ▶ Student is enrolling only in credit-free courses or courses-for-audit.
- ▶ Student has both completed a guest student application approved by college personnel at the home institution, and verified graduation from an English-speaking high school or achievement of a GED.

NOTE: Some health-related programs have an additional screening process.

NOTE: Physically handicapped students who need readers or writers to help them take the ASSET test should contact the Special Needs Office for assistance (973-3342).

NOTE: Foreign-born students who have not already taken and passed the TOEFL or Michigan Language Test may be required to attend a special Foreign Student Orientation, which includes an English Placement Test, instead of or prior to attending the College Orientation.





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. Registration is official only when all fees have been paid.

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 Financial Aid Office.

All course registrations must be approved by a counselor or faculty advisor. Students enrolling in 18 or more credits in a semester must have their schedule approved by the Dean of Student Services before their registration may be processed.

Adding and Dropping Courses

During the official add and 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 drop and add period, students must have an instructor's signature for adding classes or changing sections. Students are encouraged to discuss changes, drops and adds with their instructors or counselors. Students should retain copies of any transaction until final grades or refunds are received.

A student is not registered in a class until the Add Card has been accepted in the Student Records Office and the appropriate fees paid.

Students adding courses must present a copy of the student's class schedule to the instructor as evidence of registration.

Drops are only accepted in the Student Records Office up to the date (approximately two weeks before the end of the term) published in the class schedule for each semester. After this date, students must obtain approval of the instructor to drop. A student is not officially dropped from the class until an official

Drop Card is processed in the Student Records Office. Courses dropped after the 100% refund deadline will be listed on the student's transcript with a grade of 'W'.

Changing Sections

Students changing from one section to another of the same course must complete the process in the Student Records Office. 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 grade-point averages. 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 a grade of 'AU'. Students may change from credit to audit status or vice versa through the refund period for a course (4 weeks for a 15 week course).

WITHDRAWAL FROM COLLEGE

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

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

Students who leave the college during a semester 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 Student Records Office. 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 Student Records Office. Copies of transcripts are available to students upon their written request and payment of a small fee. Associate degrees and/or college certificates earned at WCC are indicated 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 home address unless the student has a financial obligation to the college.

VETERAN CERTIFICATION

All veterans receiving educational benefits must see a counselor or advisor before registering. Any drops or changes made by veteran students are to be reported to the Veteran Certification Clerk in the Student Records Office immediately.

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 Certification Clerk in the Student Records Office after registering for classes. Students should bring certified copies of DD-214, marriage license, and birth certificates of dependent children, if applicable.

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 with a copy of their paid registration receipt to the Veteran Certification Clerk in the Student Records Office. DD-214 and transcripts from colleges or universities where the student has completed previous training must accompany the application.

Previously Enrolled Veterans

Students must turn in a completed certification card after registering for classes every semester to insure 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 Student Records Office.

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 Certification Clerk at each enrollment.





Financial Information

STUDENT FINANCIAL INFORMATION

TUITION*

Residents of the College District	\$ 42.00 per credit hour
Non-Resident/In-State	\$ 62.00 per credit hour
Non-Resident/Out-State	\$ 80.00 per credit hour
Credit Courses Offered at Livingston County Centers	\$ 58.00 per credit hour

FEES

Application Fee (one time only)	\$ 15.00
Registration Fee (each semester)	\$ 18.00
Late Registration Fee	\$ 10.00
Transcript Fee	\$ 2.00
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 \$100 per semester, but may range from \$50 to \$300 or more.

REFUNDS

All refunds must be initiated by the student, including cancelled classes and all residency changes. If classes are officially dropped, students are eligible for a refund of fees as follows:

Courses lasting 12 or more weeks:

- 100% refund if an official drop is filed prior to or during the add/drop period (first five days) in the semester.
- 75% refund if an official drop is filed during the next five days of the semester.
- 50% refund if an official drop is filed after the tenth day and before the twentieth day of the semester.
- No refunds are issued for drops filed after the twentieth day of the semester.

Courses lasting 7 - 11 weeks:

- 100% refund if an official drop is filed prior to or during the add/drop period (first three days) of the semester.
- 75% refund if an official drop is filed during the 4th or 5th day of the semester.

- 50% refund if an official drop is filed during the second week of the semester.
- No refunds are issued for drops filed after the second week of the semester.

Courses lasting less than 7 weeks:

- Refunds for these courses are on a prorated basis, as determined by the Director of Student Records.

Students dropping and adding after the official drop-add period (100% refund) must pay the "difference" if they wish to add classes (classes added are charged at full tuition rate even though classes dropped may refund only 50%-75%, depending on the withdrawal date). There is no "difference" charge for drops and adds from cancelled classes, or an instructor adjustment of students' schedules.

In the case of complete withdrawal prior to the beginning of the semester or during the 100% refund period, the student may claim 100% refund less a processing fee of \$10.

Upon written approval of the Director of Student Records, a full refund of all tuition may be given upon official withdrawal at any time during the first two thirds of the semester, in the following circumstances:

1. Induction of the student into the U.S. Armed Forces.
2. Death of a spouse, child, parent or legal guardian of a student.
3. Death of a student.
4. Verifiable error on the part of the college.
5. Verifiable incapacity, illness, or injury which prevents the student from returning to school for the remainder of the semester.

No refund is made if withdrawal occurs after two thirds of the semester has transpired, regardless of circumstances. No refund shall be given for any other fees (i.e., application, registration, or late registration).

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 honor students and are awarded on the basis of student achievement or merit. For additional information about specific program requirements, contact the Financial Aid Office, 2nd floor, Student Center Building or call 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* - awarded on the basis of need and requires work for paid wages. Usually referred to as College Work Study.
- ▶ *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 G.E.D. must achieve minimal passing scores on the ASSET Test (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

In order to perform a needs analysis, students must complete the following forms:

1. WCC Financial Aid Application - Complete and return in order to receive other applications.
2. Financial Aid Form - Complete and mail to the College Scholarship Services. They process it and return it to WCC.
3. Statements of Financial Aid History - Must be completed if financial assistance has been received from other institutions.
4. Additional documentation of student resources or status of family resources, such as IRS 1040 statements, are required for evaluation of aid application.

Upon receipt of all applications and additional necessary information, applications are evaluated and a written notice of the

action taken is sent to the student. Financial aid awards are made in June and July prior to the beginning of the fall semester. Students who wish maximum consideration for financial aid should have all applications in the Financial Aid Office 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 Financial Aid Office requires that all students receiving aid maintain at least a 2.0 grade point average and earn at least six credit hours per semester. Students failing to meet this minimum requirement are placed on probation and allowed one additional semester to meet this requirement. Failure to complete at least six credit hours with at least a 2.0 grade point average during the probationary semester results in termination of all 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.

Academic progress policy for Stafford loan (formerly GSL) 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 50 percent of the courses taken in the two terms mentioned in item three.

Financial Aid Refund Policy

If a student withdraws from school during the college refund period and the student has received Title IV Federal Financial Aid monies, the following procedure is implemented. The refund is applied to the programs which have paid the tuition in the following order if tuition was paid from more than one Title IV source: 1) SEOG, 2) GSL, 3) Pell.

All refunds for students on financial aid follow the policies and procedures detailed in Student Financial Information - Refunds section.

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. Pell | 4. MEOG |
| 2. SEOG | 5. Trustee Awards |
| 3. MAPTG | 6. Many Scholarship Funds |

Stafford Loans, SLS, and PLUS Loans are distributed to students as they are received from the lending institution. Students are notified by mail that the check has arrived. There are three options available to students regarding the distribution of the monies:

1. Students may endorse the loan check at the cashier's window; WCC deposits the check, pays tuition from the loan and issues students a check for the balance of the loan.
2. Students may pay tuition from their own funds and pick up the entire amount of the loan check on or after the first day of class.
3. If a student does not owe the college any monies, WCC endorses the check and gives it to the student.



Student Support Services

STUDENT SUPPORT SERVICES

ADULT RESOURCE 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 Adult Resource Center has information on qualifications for financial assistance. Assistance also may be available for books, tools, transportation and child care.

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

ALUMNI ASSOCIATION

The college stays in contact with former students through the Alumni Association. All former students are eligible to join. Inquiries should be directed to the office located in SC 207 or by calling 973-3631.

BOOKSTORE

Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. The WCC bookstore accepts VISA and MasterCard and personal checks with proper identification.

The WCC bookstore is located on the lower level of the Student Center Building and is open during the following hours:

M-T	8:30 a.m.-7:00 p.m.
W-Th	8:30 a.m.-5:00 p.m.
F	8:30 a.m.-3:00 p.m.
S	9:30 a.m.-1:00 p.m.

CAREER PLANNING, PLACEMENT & COOPERATIVE EDUCATION CENTER

The CPPCE Center is located on the first floor of the Student Center Building. It offers comprehensive services to assist students in career advising, career preparation and job placement.

Within the Center is 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 an interactive computerized career guidance program.

Listings of job openings are maintained in the Center, including full and part-time jobs, on-campus opportunities, off-campus postings and placement for graduates. Center staff also will work with students and academic departments to identify appropriate cooperative education assignments. Workshops on resume preparation, interviewing, job search techniques and other related topics are offered throughout each semester.

CHILDREN'S CENTER

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 self 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. Special care is also offered by senior aides 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, or other information.

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 sched-

ules, 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.

There are faculty members referred to as student advisors who are located in the Counseling Center and other offices within the Student Services Division who 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 an academic advisor for certain certificate and degree programs. Consult divisional offices for more specific information.

Students intending to transfer to a four-year college or university should contact the Counseling Office 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 Advising

Counselors are available to help students make career changes and career decisions. For more specific information see the Career Planning, Placement and Cooperative Education Center information above.

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.

SPECIAL NEEDS PROGRAM

The Special Needs Office provides services to differently abled, economically disadvantaged, limited English speaking and refugee students. These services include tutors, interpreters for the deaf, readers for the blind, and other assistance to help students successfully complete their programs. For additional information on eligibility for services contact the Counseling or Special Needs Office.

STUDENT ACTIVITIES

The Student Advisory Council (SAC) consists of 45 to 50 student members who represent the various constituencies of WCC students. Membership is voluntary and the SAC coordinates student involvement in the following areas: 1) Governance: participation in the college-wide governance structure and responsibility for development of the SAC's bylaws and recommendations; 2) Student Activities: the planning and implementation of events such as dances, food drives, and concerts; 3) Communication: the generation of all internal and external SAC communications and public relations activities; and 4) Budget: maintenance of SAC budget records, advisement of the SAC steering committee on budget requests, and recommendation to the college administration of annual budget needs for student activities. David Beaumont is the staff advisor for the SAC and can be reached at 973-3397.

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:

AASA (African-American Student Association)

Advisor: Iota Frye, 973-3484

Access Network

Advisor: Marjorie Cash, 973-3342

Al-anon Seekers

Advisor: Nora Gessert, 973-3469

Alcoholics Anonymous

Advisor: Nora Gessert, 973-3469

Adult Children of Alcoholics and Other Dysfunctional Families

Advisor: Cindy Kleinsmith, 973-3690

ADAPT (Alcohol and other Drug Awareness and Prevention Training)

Advisor: Nora Gessert, 973-3469

BASIC (Brothers and Sisters in Christ)

Advisor: Paul Zenian, 973-3309

BPA (Business Professionals of America)

Advisor: Rosalyn Culver, 973-3577

Criminal Justice Club

Advisor: Ruth A. Walsh, 973-3689

DEC (Delta Epsilon Chi)

Advisor: Steve Ennes, 973-3388

Data Mates (Chapter of Data Processing Management Association)

Advisor: Usha Jindal, 973-3603

DOC (Disciples Of Christ)

Advisor: David Beaumont, 973-3397

Earth Awareness Society

Advisor: Barbara Dyko, 973-3405

Forensics

Advisor: James Hodak, 973-3465

Gay, Lesbian and Bi-Sexual Student Association

Advisor: Cindy Kleinsmith, 973-3690

HOPES (Health Occupations Peer Education Support)

Advisor: Brenda Webster, 973-3614

Intercessions

Advisor: Sylvester Johnson, 973-3707

Kappa Omega Electricity/Electronics

Advisor: Arlene Paup, 973-3604

MACRO (Mi Amiga Computer Resource Organization)

Advisor: Michael Lee, 973-3437

Overcoming Math Anxiety

Advisor: Janet Hastings, 973-3328

Student Support Group

Advisor: Cindy Kleinsmith, 973-3690

Student Advisory Council

Advisor: David Beaumont, 973-3397

Radiography Club

Advisor: Robert Nelson, 973-3333

Rainbow Orientation Committee

Advisor: Pat Blakes, 973-3664

Toastmasters

Advisor: Granville Lee, 973-3569

WCC Culinary Arts Team

Advisor: Paul McPherson, 973-3583

WCCISA (WCC International Student Association)

Advisor: Mary Romine, 973-3315

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*, designed specifically for students, includes dedicated space for news items and stories written by students.

STUDENT CONDUCT

Suspension or Dismissal from College

The college maintains a code of conduct for students. Serious breaches of this code may result in a student being suspended or expelled from the college. Copies of the student conduct policy may be secured from the Dean of Student Services Office.

Student Involvement in College Governance

The college Governance System is a series of committees charged with researching, discussing, and making recommendations to the college administration regarding virtually all aspects of the college. Committees address issues such as instructional equipment, grading policy, community relations, student needs, course development, financial resources and long-term planning. The committees consist of students, faculty, office professionals, custodians and administrators who all have an equal voice within the committee structure.

The system consists of 12 committees with 21 seats designated for student representation. Students interested in serving on a governance committee may contact the Student Advisory Council through the Office of Student Initiatives or the Governance Office.

SUBSTANCE ABUSE

Alcohol and Drug Prohibition 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 drug use. The department 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 in 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 973-3469.

Student Assistance Services

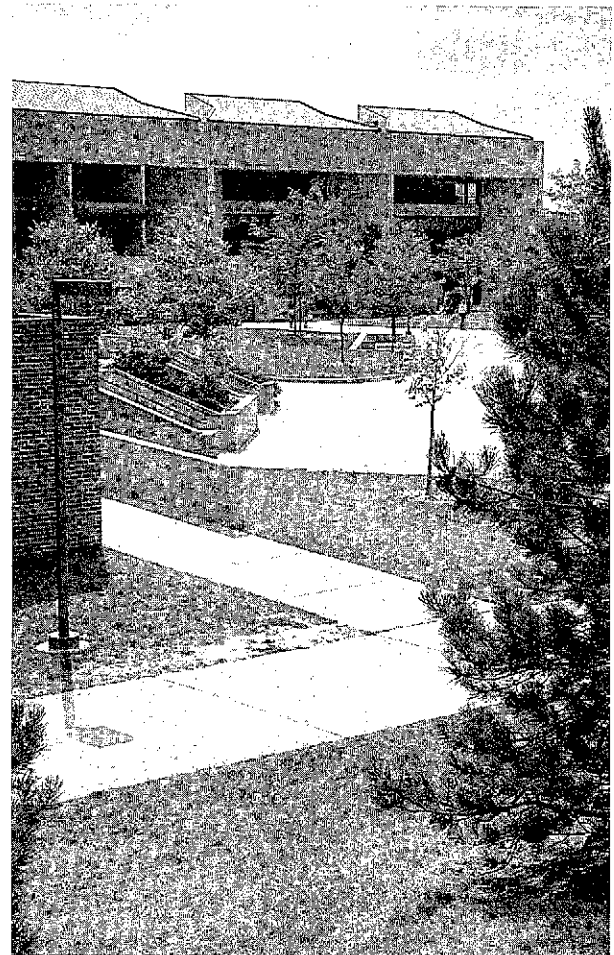
Washtenaw Community College is committed to providing short-term help and referral services for students with drug problems. If students feel the need to discuss their situation, they are encouraged to call 973-3469 during office hours (8 a.m. to 5 p.m.) to make an appointment. Of course, all telephone and in-person transactions will be conducted with confidentiality.

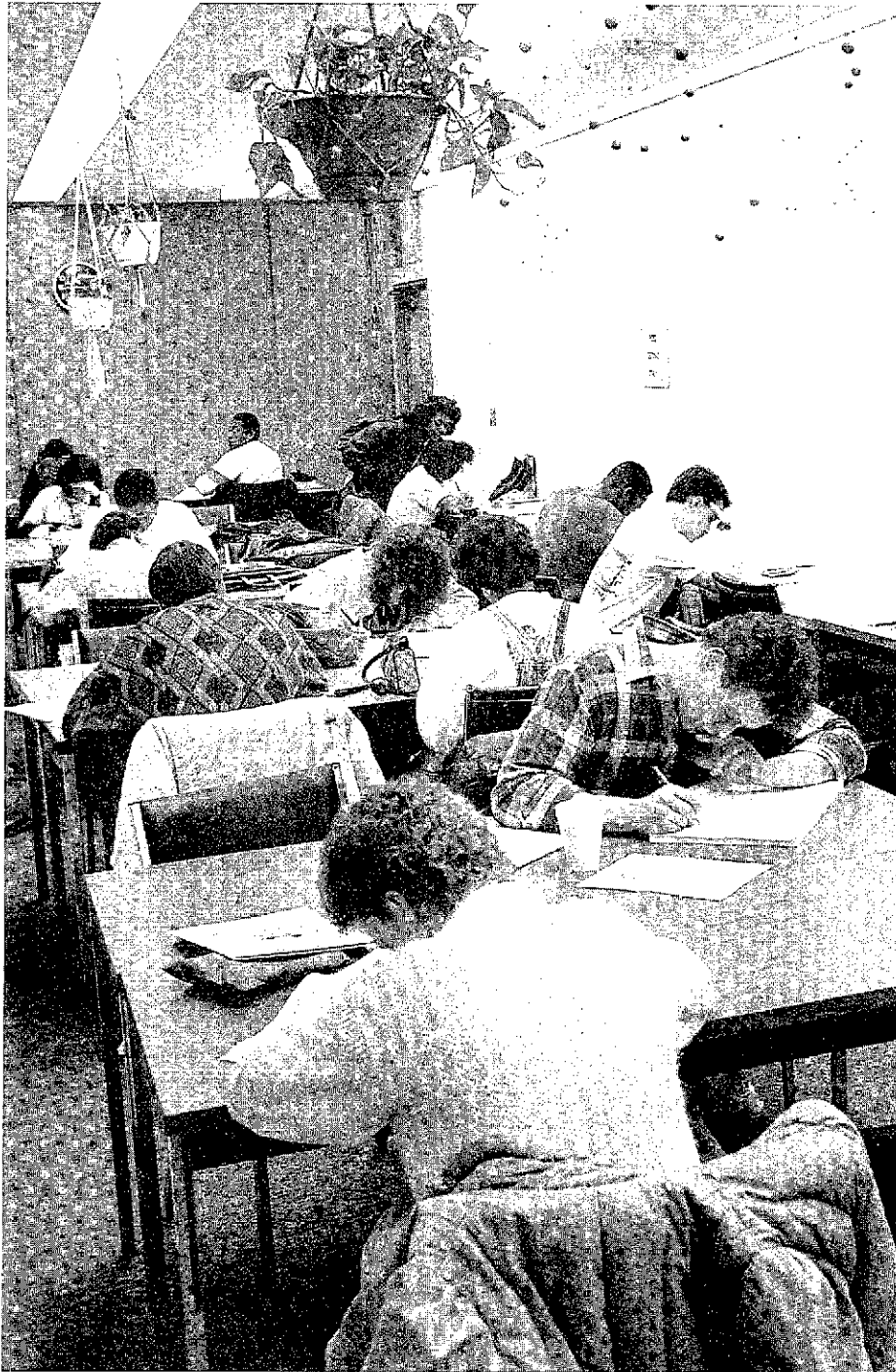
TUTORIAL SERVICES

See Learning Support Resources - Tutorial Program section

WOMEN'S RESOURCES

See Student Support Services - Adult Resource Center section





Learning Support Resources

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 and faculty.

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, 555 magazines and 20 newspapers. Micro-publications, career materials, corporate annual reports, and pamphlet collections also are available. A growing collection of media software such as audio and video tapes, films, recordings, slides, video disks 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 to 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 Professional Collection, a small collection of books and ERIC documents on higher education topics, is developed and maintained for faculty use. The LRC actively participates in OCLC and other interlibrary loan programs to provide other libraries' resources to faculty and students.

The LRC facility includes small seminar rooms, traditional study tables, informal lounge seating, and carrels specially equipped for the use of tapes, slides, 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. 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.

Instructional Media

The Instructional Media (IM) area of the Learning Resource Center maintains instructional hardware and software for classroom use on campus and at regional sites. In addition, a variety of production techniques are used to accommodate college requests concerning signs, transparencies, slides, audio tapes and video programs. The IM prepares non-broadcast, educational videotapes that support classroom instruction and also provides off-air taping and teleconferencing services to faculty and staff.

The IM and LRC support the telecourse instructional program by providing tapes of the telecourses which may be viewed in the Center.

COMPUTER LABS

A microcomputer lab housing microcomputers for use by students is located in the Learning Resource Center. Microcomputer lab staff provide assistance to users in the operation of hardware and software. A collection of computer software is cataloged and available for use in the lab. Software supporting instruction is housed in the Reserve collection and is located, with the cataloged software, at the circulation counter in the LRC. The microcomputer lab is open for operation during regular LRC hours.

In addition, TI 108 is maintained as an open lab for students who have been given a user code by their instructor. This room contains IBM-compatible microcomputers for use in various kinds of coursework.

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

LA 131, 133	Business Office Systems and Business
OE 124	Graphic Design Technology
SC 315	English/Writing
TI 102, 104	Graphic Design Technology
TI 110, 112, 114	Computer Instruction
TI 127A	Industrial Technology
TI 223, 225, 227	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.

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, 090, 097A, 097B, 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, policies, schedules and program requirements is readily available. Some faculty members have their students utilize the Center's available microcomputers as an alternative learning method.

READING CENTER

The Reading Center is a learning area where students may improve their reading skills. Students enrolled in Reading classes are encouraged to use this facility regularly during the semester. Questions related to reading skills may be answered by calling the Reading Center Office.

TESTING CENTER

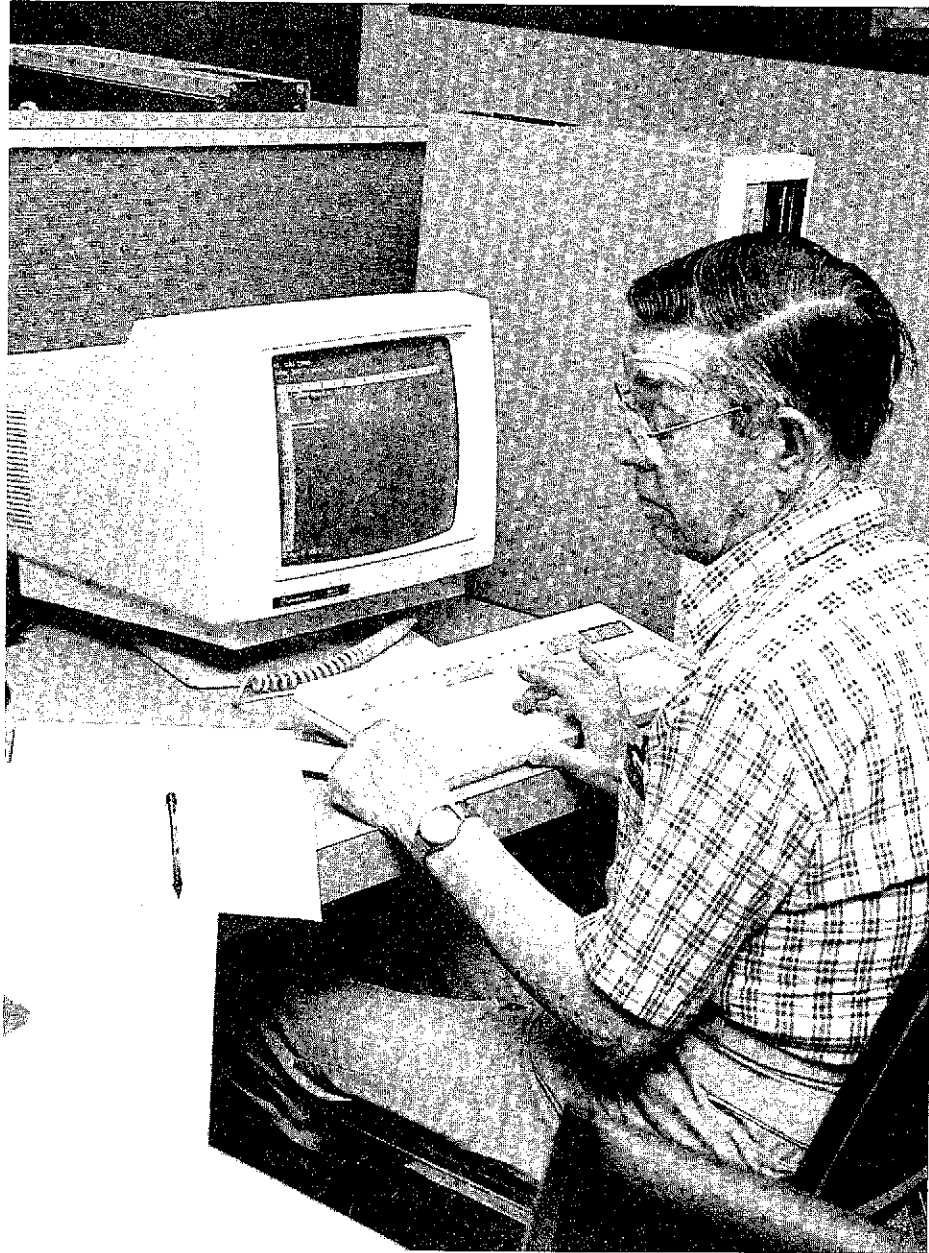
The Testing Center is a facility for the convenience of students, to provide flexibility and reduce the stress of test-taking. Tests for TV courses, make-up tests, tests for self-paced instruction and other specialized types of tests are given in the Testing Center at the request of faculty and Student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

TUTORIAL PROGRAM

The college offers an extensive program in Peer Tutoring. Students in need of a tutor may complete a request form in the Counseling Office. Students who wish to apply for tutoring positions should also contact the Counseling Office.

WRITING CENTER

The Writing Center provides services for students enrolled in English 050, 051, 091, 100, and 111. Writing Center personnel also assist students in completing writing assignments for any course at the college. Students can work with Center staff on any aspect of a writing project, from deciding on a topic, writing a thesis and organizing ideas, to reviewing a rough draft or proofreading a final copy. Apple computers are available so students may word process their papers. Check a copy of *Writing Center News*, available in the Center, for hours of operation.



Continuing Education/Community Services

CONTINUING EDUCATION AND COMMUNITY SERVICES

The Continuing Education Department extends the resources, facilities and services of the college to the community through many innovative practices and programs developed by the offices of Continuing Education and Extension Programs (CEEP), The Business-Industry Center (BIC), and the Job Training School (JTS). Programs and services including educational partnerships with public schools and local employers, programs for senior citizens, televised instruction, and courses held in Regional Centers have been developed by the CE/CS offices to meet the needs and interests of the community.

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. Continuing Education Units (CEUs) are offered for some non-credit programs, courses, or workshops as a measurement of completion.

REGIONAL CENTERS/EXTENSION PROGRAM

WCC offers a variety of credit courses in various regions throughout its Washtenaw/Livingston County service area at convenient locations and times. This extension program is coordinated and managed through a network of regional centers:

The Western Regional Center (313-475-5935) is located in Chelsea. Classes are held at the Chelsea and Dexter High School buildings, and at the Western Regional Center.

The Southern Regional Center (313-429-8153) is located in Saline. Classes are held at the Saline High School and the Southern Regional Center (in the UAW Building).

The Eastern Regional Center (313-487-5650) is located in Ypsilanti Township. Classes are held in the Eastern Regional Center and frequently at the Perry School on the south side of Ypsilanti.

The Northern Regional Center (313-229-1419) is located in Brighton. Classes are held at Brighton, Hartland and Pinckney School District buildings.

There is no regional center in the Ann Arbor area. Classes are held at the Ann Arbor "Y" and Briarwood Mall.

A limited number of credit-free short courses, seminars or workshops also are being offered at some of 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, contact (313) 677-5030 or (313) 677-5027.

CONTINUING EDUCATION UNITS (CEU'S)

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 non-credit learning experiences entered into by the part-time adult student. 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 non-credit 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.

SERVICE TO TARGETED POPULATIONS

Business-Industry Center

The Business-Industry Center coordinates education training to clients in 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 Business-Industry Center extends the program offerings of the college beyond the traditional associates degree curriculum by providing customized training, seminars and workshops for businesses, labor and governmental organizations.

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.

Community Organizations and Professional Groups

Professional and community organizations and individual entrepreneurs also benefit from the resources and facilities of WCC.

Customized, company/organization-specific training, semester-long courses, and shorter seminars and workshops are designed and provided at the work site or on campus. Credit or credit-free training, licensing or certification programs may be tailored to meet community needs.

Emeritus Program

Special opportunities are provided by WCC for county residents who are at least 60 years of age. At various retirement facilities and nutrition sites throughout Washtenaw County, credit and credit-free courses, workshops and seminars are provided with tuition waived. Registration is conducted on site.

Evening and Weekend Degree Programming

The Evening and Weekend Degree Programming is designed to assist students pursuing education on a part-time basis. A special slate of courses is offered Monday through Thursday evenings and Saturday morning. The student support services of Washtenaw Community College are accessible to evening and weekend students. The programming arrangement is flexible and students may complete an associates degree in three years.

Job Training School

Established to meet two specific purposes, the WCC Job Training School assists new and existing businesses with locating and training qualified employees and provides unemployed or about to be unemployed residents with training to increase and/or update their skills leading to gainful employment. Training for employees is designed and tailored to meet employer specifications.

Telecourses

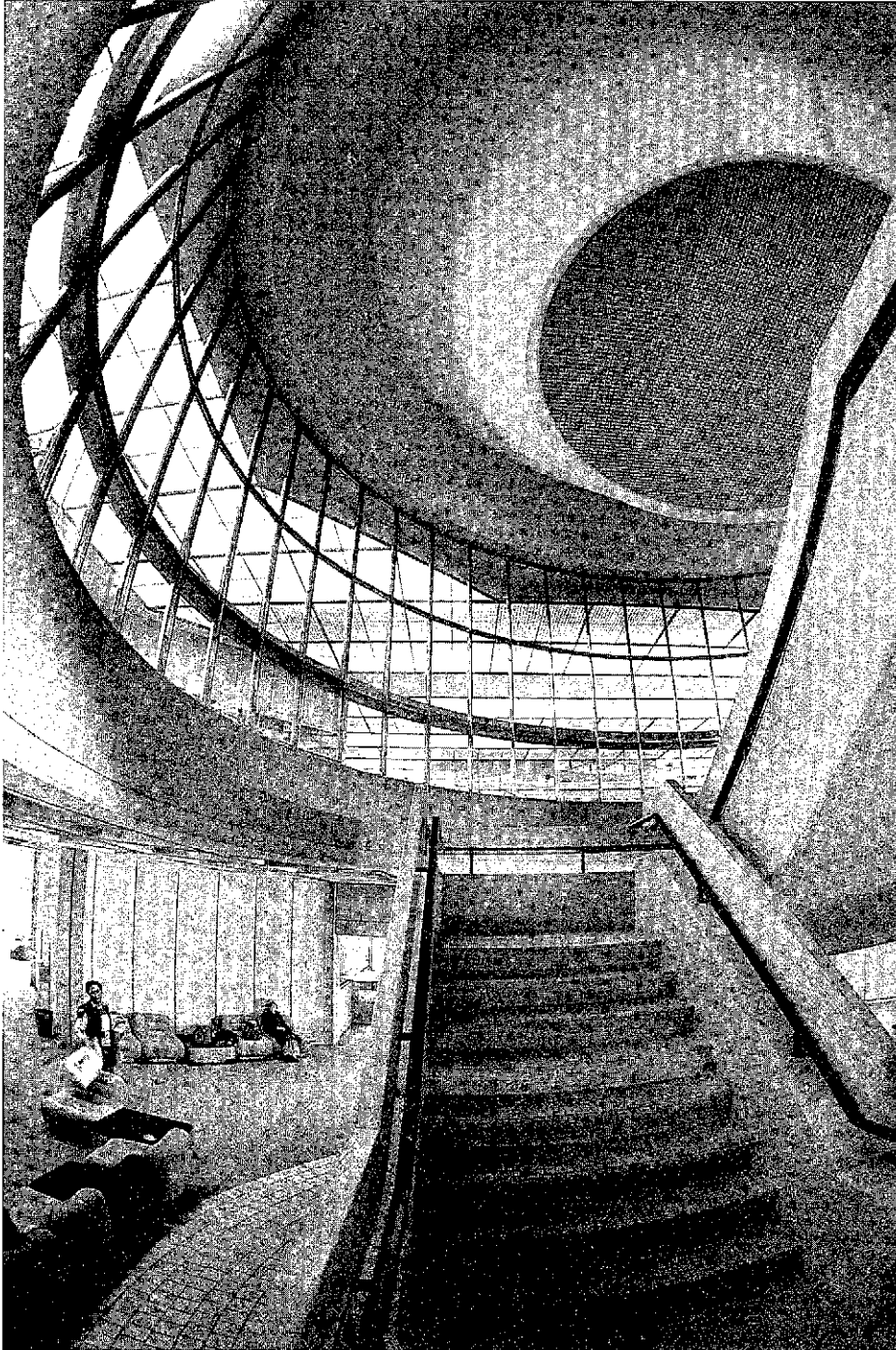
The college offers credit courses on television to be viewed at home. Telecourses are aired over public television stations and area cable network stations. Registration for telecourses is completed in the same manner as all other academic credit classes. Students enrolled in telecourses are required to attend an on-campus orientation session/first class meeting. This meeting covers information on how to contact faculty, assignments, testing requirements, textbook and study guide information. There are also periodic on-campus meetings arranged with instructors. Further information is available by calling the Telecourse Hotline.

Women's Studies

In order to meet the changing educational and occupational needs of the increasing numbers of adult women students, several WCC units have cooperated with Continuing Education/Community Services to offer a variety of courses, workshops, seminars and special events. These offerings are designed to assist women in achieving success in all phases of their lives — educationally, professionally and personally. Students may register for credit course offerings by following the normal registration procedures. Non-credit offerings are handled by Continuing Education Services.

Also see the Student Support Services - Adult Resource Center section.





Academic Policies

ACADEMIC POLICIES

ACADEMIC HONORS

The Dean's Honor Roll honors students in the college completing 12 or more credits during the fall or winter semester with a minimum 3.5 grade point average, and students attending on a part-time basis who, over the previous three semesters (Spring/Summer count as one semester), have accumulated at least 15 credits and earned a minimum 3.7 grade point average. Students are honored at either a spring or winter honor's ceremony.

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.

ASSOCIATE DEGREES

Beginning in the Fall 1992 semester, WCC will institute an associate degree structure made up of five degree titles which will replace the one degree title of "Associate Degree" which has been offered since 1966. The five new degree titles will more accurately reflect students' chosen programs of study and will be awarded to students who enter a WCC program in or after Fall 1992. Under this new degree structure, the degree title and specific program title will appear on the diploma. Students completing general study programs will 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 by all humanities and social science programs.
- ▶ Associate in Science (A.S.): primarily a transfer degree, used by programs carrying large math and science requirements. Most math and natural science programs will use this designation. Additionally, some transfer programs in health, technology, and business will use the A.S. degree title.
- ▶ Associate in Applied Science (A.A.S.): the standard career-entry degree. The designation 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. It is used primarily by the technology programs.
- ▶ Associate in General Studies (A.G.S.): for student personal interest or customized programs. The A.G.S. will be provided for in all divisions. Although students will have flexibility in defining a program, all core requirements for an associate degree must be met.

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

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 if 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 non-credit (audit) basis with the appropriate tuition and fees paid.**

CANCELLATION OF CLASSES

The college may cancel course offerings due to low enrollment, lack of instructor, or any other reason deemed viable by the Instructional Vice President. 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 Student Records Office.

CORE CURRICULUM

In response to the expectations and demands of employers and four-year universities, Washtenaw Community College has developed a "core curriculum" that will be instituted in September 1993. The new curriculum will more effectively prepare students to enter the work force, transfer to four-year institutions, and be well-educated members of the community. Students entering degree programs at WCC in September 1993 and after will be required to complete this "core of common learnings" which consists of 24 learning areas. These areas include communication, mathematics, critical thinking, computer literacy, arts and humanities, natural sciences, technology, and social sciences.

All programs and courses are being reviewed and modified as needed to meet the core requirements. However, the course content of most associate degree programs will not change dramatically. Students seeking associate degrees in general studies should consult a counselor or advisor for assistance in selecting courses which meet the core requirements. Students who began programs before Fall 1993 may follow the program requirements in effect at the time of their entry into those programs.

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 the Dean of Students before their registration may be processed.

CREDIT-GRANTING POLICIES

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 or better
Mathematics	421 or better
Humanities	421 or better
Natural Sciences	421 or better
Social Sciences and History	421 or better

Students who have earned 30 or more credits are not eligible to take any of the general examinations. Students who have earned six or more credits in any one of the general examination subject areas are not eligible to take 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 Student Records Office 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.

Continuing Education Units (CEUs)

Normally, courses for which CEU's are awarded are not eligible for college credit. However, under special circumstances CEUs may be evaluated for college credit as "non-traditional credits."

Correspondence Courses

Only correspondence courses from accredited colleges and universities are acceptable.

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 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 and for requesting that official score reports be sent directly to the Student Records Office. Credit by examination does not count as part of a student's credit load for any given semester nor are they computed into the grade point average. Students are allowed to attempt only one credit by examination per course.

Military Training and Schools

College credit for military training is generally awarded as "non-traditional 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. In the case 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 are 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*.

Non-Traditional Credits

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 Student Records office 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 all official documents and specific information on the length, content, and 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 six credits at WCC. Credit earned from non-traditional sources may not apply toward satisfying the minimum 15 credits in residence required for graduation.

The American Council on Education (ACE), through its Program on Non-collegiate Sponsored Instruction, is WCC's central source of guidance in the processing of student petitions for the evaluation of non-traditional education.

Proprietary Schools

Credits are accepted only from proprietary schools accredited by North Central Association of Colleges and Secondary Schools. (Some specialized business and technical accreditations may be acceptable.) Students must provide course descriptions or catalogs along with an official transcript.

Public School Articulations

Articulation agreements exist between WCC and more than 11 local area public school districts. The purpose of the articulation agreements is to coordinate curriculum to eliminate duplication, cover omissions, and to make for 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. Students should check with the WCC Student Records Office or their high school guidance counselor for more detailed information.

Transfer Credit from Other Colleges and Universities

Applicants must submit an official transcript from all colleges previously attended. 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 six credits 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*. A maximum of 45 transfer credits may be accepted toward any associate degree; a maximum of 21 transfer credits may be accepted toward any college certificate.

USAFI/DANTES

Credit is granted for college level courses by self-study, group study, class instruction, examination, or correspondence. WCC accepts credit by American Council of Education recommendations only.

DECLARING EDUCATIONAL INTENT

In order to assist students with the development and achievement of their educational plan, students are asked to declare their primary educational goal and program of study upon application to the college. This information is verified and updated during each subsequent registration period.

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
W* – Withdrawal	0
DF* – Deferred	0
N* – Non-Attendance	0
AU* – Auditor	0

NOTE: Any grade having 0 grade points may be treated by other educational institutions as an "F".

* EXPLANATION OF GRADE:

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

Incomplete Grade 'I' — Credit Withheld: If the student, as determined by the instructor, 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 'I' grade will change to a grade that has been preset by the instructor. 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 as a deficiency and is not figured into credits attempted in determining a student's GPA.

Deferred Grade 'DF' — Credit Withheld: In certain designated courses, students may be unable to complete the required work until the following semester. If, in the opinion of the instructor, students are 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 as 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 students who have only attended class once or twice.

Auditor 'AU' — No Credit: Students may enroll in credit courses on a non-credit (audit) basis. The number of credits the course normally carries are 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 the close of the refund period. Credit is not earned in courses taken as an auditor.

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.

GRADUATION

Requirements

Requirements for all Associate Degrees:

1. Completion of a minimum of 60 credit hours including the specific course requirements in the selected program (see the Program Requirements section below). Certain programs may require more than the minimum of 60 credit hours.
2. Completion of a minimum of 15 residence credits (credits completed at Washtenaw Community College) for each degree pursued. Credit by exam and non-traditional credit may not be used as residence credit.
3. Credits in courses numbered 051 and below do not count toward graduation.
- 4.* Completion of three credit hours of English (091, 100, 107, 111 or 122).
- 5.* Completion of three credit hours of Political Science (108, 112 or 150).
6. A minimum earned cumulative GPA at WCC of 2.0.
7. Completion and filing of an Application for Graduation form at least four months prior to the expected date of graduation. This form is available in the Student Records Office. The date of graduation that will appear on the student's diploma and transcript is the last month of the semester in which all requirements for graduation are completed.

NOTE: A second associate degree in an additional program area may be earned by the completion of at least 15 additional credit hours, including all specific course requirements in the selected program. An associate degree in general studies and a specific program area may not be granted in the same semester.

*Students who enter the college on or after September 1993 will not necessarily have these institutional curriculum requirements. At that time, a "core curriculum" will be in place in which a core of "common learnings" will be integrated into all programs of study.

College Certificate Requirements:

1. Completion of a minimum of 30 credit hours including the specific course requirements in the selected program (see the Program Requirements section below). Certain programs may require more than the minimum of 30 credit hours.
2. Completion of a minimum of 15 residence credits (credits completed at Washtenaw Community College) for each certificate pursued. Credit by exam and non-traditional credit may not be used as residence credit.
3. Credits in courses numbered 051 and below do not count toward graduation.
4. Completion of three credit hours in speech (CMT 101 or 102) or three credit hours in English (ENG 091 or above).
5. A minimum earned cumulative GPA at WCC of 2.0.
6. Completion and filing of an Application for Graduation form at least four months prior to the expected date of graduation. This form is available from the Student Records office. The date of graduation that will appear on the student's diploma and transcript is the last month of the semester in which all requirements for graduation are completed.
7. Students must apply for and receive their college certificate at least one semester prior to applying for and receiving their associate degree in the same program area.

NOTE: Students must meet all financial and library obligations to the college before their diploma or certificate is issued.

Commencement

Commencement ceremonies for August and December graduates are held in December. The commencement exercises for April and June graduates are held in May. The conferring of associate degrees, college certificates, and the giving of honors highlight the commencement exercises. Students receiving associate degrees or college certificates are expected to participate in the commencement. A hold will be applied to the graduation of students who have overdue payments, fines, or other obligations to the college.

GRADE APPEAL PROCEDURE

A student may appeal any letter 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 (5) months of the mailing of the grade.
3. After discussion with the student and/or the instructor, the Department Chair may suggest to the student either that there is no basis for appeal, or that 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 (6) months of the mailing of the grade.

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

See the Student Complaint Procedure below.

GUARANTEE OF STUDENT SUCCESS POLICY

WCC is committed to assuring that all its degree graduates demonstrate the knowledge and performance skills that are specified in their program major. This assurance extends beyond the students' graduation at WCC to include their performance in the occupational area they studied or in successfully transferring into a similar or compatible major at a four-year college or university. Contact the Dean of Student Services for further details and/or a copy of the full policy.

PROGRAM REQUIREMENTS

In meeting program requirements, students may select either those requirements that were in effect the year in which they initially enrolled at WCC or those in effect the year they complete the program. 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 in consultation with the Director of Student Records. A Course Substitution form must be filed with the Student Records Office.

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 Student Records Office.

RELEASE OF STUDENT INFORMATION POLICY

It is the purpose of the Board of Trustees Policy on Release of Student Information to assure 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 Student Records Office.

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 or session, a petition for exemption with the Student Records Office. 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 thirty 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.

STUDENT 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 are 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 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 for Instruction and Student Services. (see Grade Appeal Procedure above)

STUDENT 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's open door policy provides students with immediate acceptance into the college, 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.

STUDENT CLASSIFICATIONS

Freshman/

First Year Student One who has completed fewer than
28 credit hours.

Sophomore/

Second Year Student One 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.

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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.

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.

EMERGENCY COLLEGE CLOSING

Occasionally extreme weather conditions or other unforeseen events necessitate closing the college either before or after classes have begun for the day. In such cases, a pre-recorded message will be available at the college switchboard giving details of the college closing and reopening. Local radio stations will also announce college closing information.

EMERGENCY NOTIFICATION OF STUDENTS

If an emergency call for a student is received by the Office of Campus Security, the Office will contact the Student Records Office for the class schedule of the student to be notified. If the Security guard is unable to locate/notify the student, the caller requesting notification will be informed. No other information concerning the student or his/her schedule will be released to the caller.

FOOD SERVICES

Food service is available on the first floor of the Student Center Building in the cafeteria and vending machine area. 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 Hospitality Management 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 or offer other assistance. The Information Center can be reached at (313) 973-3622.

LOST AND FOUND

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

MEDICAL EMERGENCY PROCEDURES

In the event of a medical emergency, the college switchboard operator should be notified. The operator will then notify Campus Security, the Emergency Medical Technician or other appropriate personnel.

MEETING ROOMS

Organized student or community groups may secure rooms for meetings by calling the Office of Conference Services at (313) 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. See back cover for parking areas map.

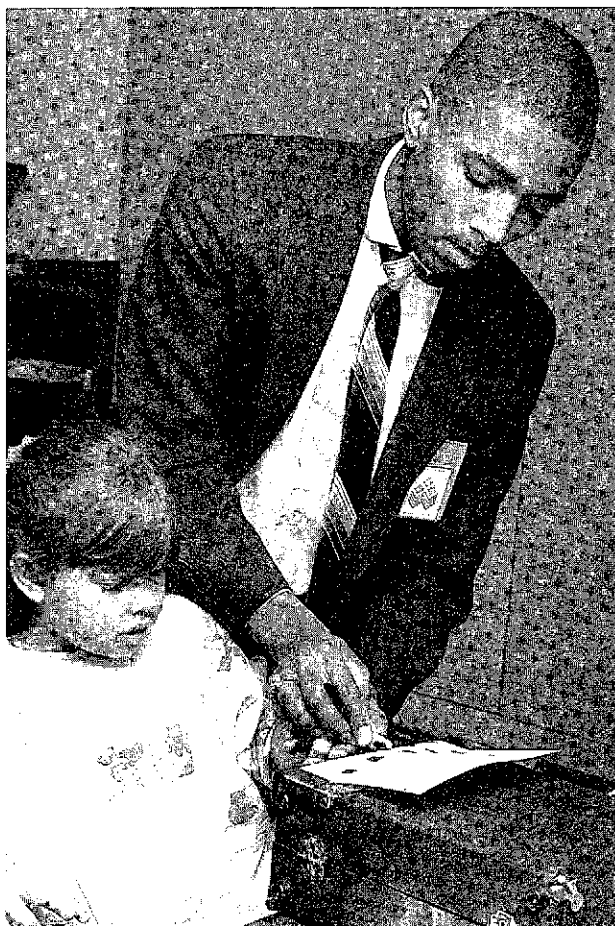
SECURITY SERVICES

The Office of Campus Security is designed to ensure the safety and security of the college community. This includes nighttime "escort services" for students who would like accompaniment to

their cars. The Security Office is located in the Plant Operations Building and has a security guard on duty twenty-four hours a day.

Five emergency telephones are available on campus. These telephones are connected directly to the Security Office and will ring when the receiver is picked up. Locations are:

- ▶ 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
- ▶ Lot A Annex near the connecting road

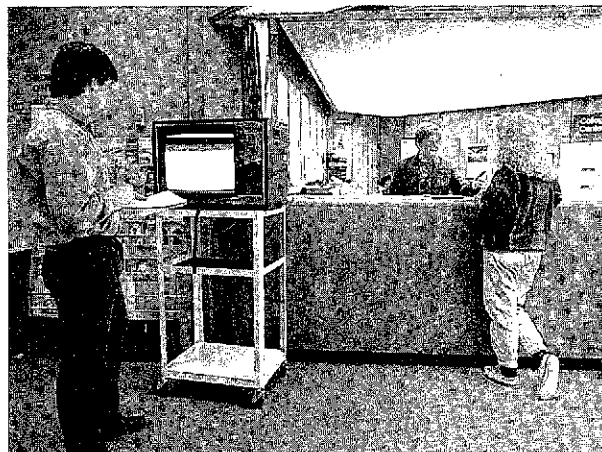


SMOKING

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.

THEFT, VANDALISM REPORTING

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





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Business Computer Program	58	Chemistry/Pre-Medicine	79
Business Management	52	Humanities/Social Sciences	74
Business Marketing	53	Math/Natural Sciences	80
Business Sales	54	Mechanical-Engineering Technology	94
Child Care	66	Medical Secretarial Technology (A.A.S.)	57
Computer Aided Drafting (CAD) —		Medical Secretarial Technology (Certificate)	56
Electronic	87	Microcomputer Business Technology	59
Mechanical	88	Numerical Control Machine Operations	94
Computer Aided Manufacturing Technology (CAM)	91	Nursing	65
Computer Science — Transfer Program	78	Pharmacy Technology	66
Computer Systems Operations	59	Photographic Assisting	99
Construction Management	104	Photographic Technology	98
Correctional Science	67	Photographic Technology - Marketing	99
Criminal Justice	68	Pre-Engineering Science	81
Criminal Justice —		Chemical and Materials Engineering Option	81
Law Enforcement Certification		Radiography	70
(Police Academy)	68	Refrigeration and Air Conditioning	102
Culinary Arts Technology	60	Respiratory Therapy	71
Dental Assisting	64	Robotic Technology	95
Digital Equipment Technology	89	Scientific & Technical Comm.	74
Drafting Detailing	88	Secretarial Technology	57
Electro-Mechanical Technology	92	Statistical Process Control:	
Electronic Control Systems Technology	90	Electronics Option	102
Executive Secretarial Technology	57	Management Option	103
Fire Protection	69	Science and Engineering Option	103
Fluid Power Technology	93	Specialty Option	103
Food Production Specialty	61	Surgical Technology	72
General Office Specialty	55	Telecommunication Technology	91
Graphic Design Technology:		Toolroom Machine Operation	96
Design	96	Welding Maintenance Mechanics	100
Illustration	97	Welding Technology	100
Printing	98		

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**DIVISION OF
BUSINESS
PROGRAMS**
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ACCOUNTING

ACCOUNTING

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE ACCT

Advisors: Cliff Bellers, Mark Johnston, Myran Thomas

This Associate Degree program provides career training as an accounting technician. Accounting technicians perform routine duties such as those assigned to beginning accountants. For example, they verify additions; check audits, postings and vouchers; analyze accounts, and prepare financial statements. Performance of these tasks is usually under direct supervision. Objectives of the accounting program are to develop knowledge, skills and insights into the area of accounting and its relationship to the total business system and to develop techniques essential to the performance of the basic accounting supportive functions of business and industry.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	ACC 111	Principles of Accounting	3
1	BMG 140	Introduction to Business	3
2	CIS 111	Computer Concepts	3
2	CIS 112	Computer Functions	3
1	MTH 163	Business Mathematics or	
	MTH 181	Mathematical Analysis I or	
		Higher Mathematics Elective	3-4
			<u>15-16</u>
Second Semester			
2	ACC 122	Principles of Accounting	3
3	ACC 131	Computerized Accounting	3
4	CMT 101	Fundamentals of Speaking	3
2	ENG 111	Composition I	4
6	PLS	Restricted PLS Requirement	
		(108, 112 or 150)	3
			<u>16</u>
Third Semester			
3	ACC 213	Intermediate Accounting	3
5	BMG 111	Business Law I	3
7	BMG 230	Supervisory Management	3
4	ECO 211	Principles of Economics I	3
3	ENG 122	Composition II	3
			<u>15</u>

Fourth Semester

4	ACC 225	Managerial Cost Accounting	3
6	BMG 200	Human Relations in Business	
		and Industry	3
5	BMG 207	Business Communication	3
7	BMG 220	Principles of Finance	3
5	ECO 222	Principles of Economics II	3
7	Elective	Restricted Business Elective	3
			<u>18</u>

Total credit hours for program: 64-65

Restricted Electives

ACC 200	Tax Preparation	3
BMG 122	Business Law II	3
BMG 299	Internship-Externship	3-6
	Any CIS course above CIS 112	

BUSINESS

BUSINESS MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE BMG

Advisor: Joseph Flack

Business Management, an Associate Degree program, provides career training in general management. It also prepares current non-managerial employees for management level responsibility in their existing job concentrations. The program provides students with knowledge and skills essential for leadership in business operations, supervision and other fundamental requirements of business administration and management. Such skills as planning, decision making, problem recognition and solution, and human resources management are discussed. Students acquire managerial skills from the study of management theory: its concepts and practices. Business communications, computer familiarization, marketing, accounting, and business law are all part of the Business Management program.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
3	ACC 091	Fundamentals of Accounting I or	
	ACC 111	Principles of Accounting	3
1	BMG 140	Introduction to Business	3
2	BMG 160	Principles of Sales	3
1	ENG 111	Composition I	4
1	MTH 163	Business Mathematics or Higher Mathematics Elective	3
			<u>16</u>
Second Semester			
4	ACC 092	Fundamentals of Accounting II or	
	ACC 122	Principles of Accounting	3
3	BMG 111	Business Law I	3
2	BMG 208	Principles of Management	3
4	CIS 100	Introduction to Computers or	
	CIS 111	Computer Concepts	3
3	CMT 101	Fundamentals of Speaking	3
2	ENG 122	Composition II	3
			<u>18</u>
Third Semester			
5	BMG 150	Labor-Management Relations	3
4	BMG 207	Business Communication	3
5	ECO 211	Principles of Economics I	3
6	PLS	Restricted PLS Requirement (108, 112 or 150)	3
7	Elective	Restricted Business Elective	2-3
			<u>14-15</u>
Fourth Semester			
5	BMG 200	Human Relations in Business and Industry	3
7	BMG 220	Principles of Finance	3
6	BMG 240	Human Resources Management	3
7	BMG 250	Principles of Marketing	3
6	ECO 222	Principles of Economics II	3
			<u>15</u>
Total credit hours for program: 63-64			
Restricted Business Electives			
	ACC 225	Managerial Cost Accounting	3
	BMG 122	Business Law II	3
	BMG 230	Supervisory Management	3
	BMG 235	Women in Management	3
	BMG 255	Marketing and Management Career Development	2
	BMG 299	Internship-Externship	2-6

NOTE: All students seeking a Business associate degree must demonstrate keyboarding proficiency either by successfully completing one of the following courses: BOS 030, BOS 101, BOS 102, or BOS 103; or by passing a keyboarding proficiency test.

BUSINESS MARKETING

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE BMKT

Advisor: Joseph Flack

Business Marketing, an Associate Degree program, prepares students for career opportunities in the field of marketing. These positions may be in any one of the marketing activities that involves the moving of products and services from producer to consumer, including the concepts and methods marketers use to identify and solve marketing problems and identify business opportunities through target market, product, price, distribution and promotion strategies. The program emphasizes such skills as sales technique, advertising concepts, sales management, human relations, market research, customer contact, product placement, administrative and record management. Business communications, computer familiarization, management and accounting are also stressed in this program.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	BMG 140	Introduction to Business	3
1	BMG 160	Principles of Sales	3
2	CMT 101	Fundamentals of Speaking	3
3	ENG 111	Composition I	4
1	MTH 163	Business Mathematics or Higher Mathematics Elective	3
			<u>16</u>
Second Semester			
3	BMG 111	Business Law I	3
3	BMG 250	Principles of Marketing	3
2	CIS 111	Computer Concepts	3
2	CIS 112	Computer Functions	3
4	ENG 122	Composition II	3
			<u>15</u>
Third Semester			
4	ACC 091	Fundamentals of Accounting I or	
	ACC 111	Principles of Accounting	3
5	BMG 150	Labor Management Relations	3
5	BMG 200	Human Relations in Business and Industry	3
4	BMG 208	Principles of Management	3
6	ECO 211	Principles of Economics I	3
			<u>15</u>

Fourth Semester

5	ACC 092	Fundamentals of Accounting II or ACC 122 Principles of Accounting	3
6	BMG 207	Business Communication	3
6	BMG 270	Advertising Principles	3
7	ECO 222	Principles of Economics II	3
7	PLS	Restricted PLS Requirement (108, 112 or 150)	3
7	Elective	Restricted Business Elective	2-3
			<u>17-18</u>

Total credit hours for program: 63-64

Restricted Business Electives

BMG 122	Business Law II	3
BMG 225	Public Relations	3
BMG 230	Supervisory Management	3
BMG 235	Women in Management	3
BMG 255	Marketing & Management Career Development	2
BMG 299	Internship-Externship	2-6

NOTE: All students seeking a Business associate degree must demonstrate keyboarding proficiency either by successfully completing one of the following courses: BOS 030, BOS 101, BOS 102, or BOS 103; or by passing a keyboarding proficiency test.



BUSINESS SALES

COLLEGE CERTIFICATE PROGRAM: CODE BSLS

Advisor: Joseph Flack

This College Certificate program offers a wide range of beginning career opportunities primarily in the field of sales. The program provides marketing skills in sales presentation, negotiation and customer service. Additional areas of concentration include display preparation, inventory analysis and basic market research.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	BMG 140	Introduction to Business	3
3	CMT 101	Fundamentals of Speaking	3
2	ENG 100	Communication Skills or ENG 111 Composition I	4
1	MTH 163	Business Mathematics or Mathematics Elective	3
4	PSY 100	Introductory Psychology	3
			<u>16</u>
Second Semester			
2	ACC 091	Fundamentals of Accounting I or ACC 111 Principles of Accounting	3
5	BMG 111	Business Law I	3
3	BMG 160	Principles of Sales	3
5	BMG 200	Human Relations in Business and Industry	3
4	BMG 250	Principles of Marketing	3
6	Elective	Restricted Business Elective	2-3
			<u>17-18</u>

Total credit hours for program: 33-34

Restricted Business Electives

BMG 255	Marketing & Management Career Development	2
BMG 270	Advertising Principles	3
BMG 299	Internship-Externship	2-3
CIS 100	Introduction to Computers	3

NOTE: All students seeking a Business associate degree must demonstrate keyboarding proficiency either by successfully completing one of the following courses: BOS 030, BOS 101, BOS 102, or BOS 103; or by passing a keyboarding proficiency test.

BUSINESS OFFICE SYSTEMS

The Business Office Systems Department is accredited by the Association of Collegiate Business Schools and Programs. It offers four one-year programs leading to the College Certificate: General Office Specialty, Secretarial, Medical Secretarial, and Information Processing. These one-year programs train students for entry-level positions. For those students wishing a broader background with options for greater job opportunities, the following two-year programs leading to the Associate in Applied Science Degree are also offered: Executive Secretarial, Medical Secretarial, and Information Processing.

GENERAL OFFICE SPECIALTY

COLLEGE CERTIFICATE PROGRAM: CODE GOS

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Marie Juster

This program trains people to perform clerical/receptionist duties of moderate difficulty. Duties may consist of typing; inputting data; and keyboarding letters, reports, and tabulations. The general office worker often files, sorts and processes mail, answers the telephone, and helps with payroll.

Full-Time Sequence*	Course Title	Credit Hours
First Semester		
BOS 101	Beginning Typewriting or	
BOS 102	Intermediate Typewriting	3
BOS 130	Business Machines	3
BOS 151	Info Processing Principles and Applications	4
ENG 100	Communication Skills or	
CMT 102	Interpersonal Communication	3-4
MTH 163	Business Mathematics	3
		16-17
Second Semester		
BOS 102	Intermediate Typewriting or	
BOS 204	Keyboarding/Speedbuilding	2-3
BOS 107	Clerical Methods and Procedures	4
BOS 152	Computerized Transcription Skills	3
BOS 155	Word Processing (or BOS 156, 157 or 158)	2
BOS 255	Word Processing (or BOS 256, 257 or 258)	2
		13-14

Total credit hours for program: 30-31

*An advisor or counselor can suggest a part-time sequence.

INFORMATION PROCESSING TECHNOLOGY

COLLEGE CERTIFICATE PROGRAM: CODE IP

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Marie Juster

This one-year certificate program prepares students for entry-level positions as word/information processing operators. Word/information processing specialists operate text-editing systems on computers, generate documents accurately and efficiently using systems to store and revise information. They also must be acquainted with graphics, spreadsheets, databases, and telecommunications.

Full-Time Sequence	Course Title	Credit Hours
First Semester		
BOS 102	Intermediate Typewriting	3
BOS 130	Business Machines	3
BOS 151	Information Processing Principles and Applications	4
BOS 155	Word Processing Applications (or 156, 157 or 158)	2
BOS 255	Word Processing Applications (or 256, 257, or 258)	2
BOS 256	W/P WordPerfect, Level II	2
MTH 163	Business Mathematics	3
		19
Second Semester		
BOS 107	Clerical Methods and Procedures	4
BOS 152	Computerized Transcription Skills	3
BOS 204	Keyboarding/Speedbuilding	3
BOS 215	Integrated Computer Software MS Works	3
ENG 100	Communication Skills or	
CMT 102	Interpersonal Communication	3-4
		16-17
Total credit hours for one-year program: 32-33		

INFORMATION PROCESSING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE IPS

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Marie Juster

This additional year of training will provide a broader background for students and will equip them to consider options for greater job opportunities. The word/information processing professional must be able to think logically, organize, proofread, transcribe, work with and supervise others. The completion of this additional year leads to an Associate in Applied Science Degree.

Full-Time Sequence*	Course Title	Credit Hours
Third Semester		
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
BMG 140	Introduction to Business	3
BOS 155	Word Processing Applications (or 156, 157 or 158)	2
BOS 225	Information Processing Systems and Procedures	3
BOS 255	Word Processing Applications (or 256, 257, or 258)	2
PLS 108	Government and Society	3
		16
Fourth Semester		
BOS 250	Administrative Office Systems	4
BMG 200	Human Relations in Business and Industry	3
BMG 299	Internship/Externship or	
Elective	Restricted Business-Related Elective	3
CMT 101	Fundamentals of Speaking	3
		13
Total credit hours for two-year program: 61-62		
Restricted Business-Related Electives		
BMG	Any BMG class above 100	3
BOS	Any BOS Class	3
CIS	Any CIS class above 100	3
RDG 115	Medical Terminology	3

* An area advisor or counselor can suggest a part-time sequence.

MEDICAL SECRETARIAL TECHNOLOGY

COLLEGE CERTIFICATE PROGRAM: CODE MS

Advisors: Lynn Allison, Eleanor Charlton, Rosalyn Culver, Marie Juster

This one-year certificate program provides students with skills for preparing, analyzing and retrieving health information. The program trains for entry-level positions in a doctor's office, a clinic, a hospital, a pharmaceutical or insurance company, or a public health facility. In addition to the duties of secretary and receptionist, medical secretaries prepare medical charts and reports, bill patients, work with insurance companies, and may carry out such technical duties as sterilizing instruments or taking temperatures.

Full-Time Sequence	Course Title	Credit Hours
First Semester		
BOS 101	Beginning Typewriting	3
BOS 151	Information Processing Principles and Applications	4
BIO 102	Human Biology or	
BIO 111	Anatomy and Physiology	4-5
HSC 113	Introduction to Medical Science	2
RDG 115	Medical Terminology	2
		15-16
Second Semester		
BOS 102	Intermediate Typewriting	2-3
BOS 155	Word Processing Applications (or 156, 157 or 158)	2
BOS 223	Medical Office Procedures	3
BOS 225	Information Processing Systems and Procedures	3
CMT 102	Interpersonal Communication	3
HSC 115	Medical Office and Laboratory Procedures	3
		15-16
Total credit hours for one-year certificate program: 30-32		

MEDICAL SECRETARIAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE MSEC

Advisors: Lynn Allison, Eleanor Charlton,
Rosalyn Culver, Marie Juster

This additional year of training will provide a broader background for students and will equip them to consider options for greater job opportunities, such as office manager. The completion of this additional year leads to an Associate in Applied Science Degree.

Full-Time Sequence*	Course Title	Credit Hours
Third Semester		
BOS 107	Clerical Methods and Procedures	4
BOS 130	Business Machines	3
BOS 210	Medical Transcription	3
BOS 225	Information Processing Systems and Procedures	3
MTH 163	Business Mathematics	3
		16

Fourth Semester

BMG 200	Human Relations in Business and Industry	3
BOS 204	Keyboarding/Speedbuilding	2-3
BOS 250	Administrative Office Systems and Procedures	4
CMT 101	Fundamentals of Speaking	3
PLS 108	Government and Society	3
		15

Total credit hours for two-year program: 63-64

* An area advisor or counselor can suggest a part-time sequence.

SECRETARIAL TECHNOLOGY

COLLEGE CERTIFICATE PROGRAM: CODE SEC

Advisors: Lynn Allison, Eleanor Charlton,
Rosalyn Culver, Marie Juster

This one-year program prepares students for entry-level stenographic or secretarial positions in the automated business office. Professional secretaries must develop expertise on the computer for text-editing of correspondence and reports. They also must be adept in communication skills, computerized transcription, computerized filing, telecommunications, and human relations skills.

Full-Time Sequence	Course Title	Credit Hours
First Semester		
BOS 102	Intermediate Typewriting	3
BOS 130	Business Machines	3
BOS 131	Beginning Shorthand	4
BOS 151	Information Processing Principles and Applications	4
MTH 163	Business Mathematics	3
		17
Second Semester		
BOS 107	Clerical Methods and Procedures	4
BOS 132	Intermediate Shorthand	3
BOS 152	Computerized Transcription Skills	3
BOS 155	Word Processing Applications (or 156, 157 or 158)	2
BOS 225	Information Processing Systems and Procedures	3
ENG 100	Communication Skills or	
CMT 102	Interpersonal Communication	3-4
		17-18

Total credit hours for one-year certificate program: 34-35

EXECUTIVE SECRETARIAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE EXSE

Advisors: Lynn Allison, Eleanor Charlton,
Rosalyn Culver, Marie Juster

This additional year of training will provide a broader background for students and will equip them to consider options for greater job opportunities, such as administrative assistant or executive secretary, who must develop expertise in all the technical skills described in the one-year program as well as in prioritizing, time management, human relations, and supervisory management. The completion of this additional year leads to an Associate Degree in Applied Science.

Full-Time Sequence*	Course Title	Credit Hours
Third Semester		
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
BMG 140	Introduction to Business	3
BOS 204	Keyboarding/Speedbuilding	2
BOS 225	Information Processing Systems and Procedures	3
PLS 108	Government and Society	3
		14

Fourth Semester

BOS 215	Integrated Computer Software — MS Works	3
BOS 250	Administrative Office Systems and Procedures ...	4
BMG 200	Human Relations in Business and Industry	3
BMG 299	Internship/Externship or	
Elective	Business-Related Elective	3
CMT 101	Fundamentals of Speaking	3
		16

Total credit hours for two-year program: 64-65

Restricted Business-Related Electives

BMG	Any BMG class above 100	3
BOS	Any BOS Class	3
CIS	Any CIS class above 100	3
ECO 211	Principles of Economics I	3
RDG 115	Medical Terminology	3

* An area advisor or counselor can suggest a part-time sequence.

COMPUTER INSTRUCTION

BUSINESS COMPUTER PROGRAMMING

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE BCP

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

This Associate Degree program is intended to prepare students for entry-level or trainee computer programmer positions. Graduates work in an applications environment to support general, administrative and organizational information processing functions of industry, commerce, business and government service. Graduates are trained to work with a systems analyst in the programming environment.

Full-Time Sequence*	Course Title	Credit Hours
First Semester (Fall)		
ACC 111	Principles of Accounting	3
CIS 111	Computer Concepts	3
CIS 112	Computer Functions	3
ENG	Restricted ENG Requirement (100, 107 or 111)	3-4
MTH 169	Intermediate Algebra (or higher level Math course)	3-4
		15-17

Second Semester (Winter)

ACC 122	Principles of Accounting	3
CIS 115	Programming Logic	3
CIS 130	Pascal for Business and Industry	4
ENG	Restricted ENG Requirement (107, 108 or 122) ..	3
CIS 238	PC Assembly Language	3
		16

Spring Half-Semester

BMG 200	Human Relations in Business and Industry	3
CMT 101	Fundamentals of Speaking	3
		6

Third Semester (Fall)

CIS 170	COBOL I or	
CIS 275	C Programming Language	4
CIS 286	Operating Systems	4
CIS 288	Systems Analysis and Design	3
CIS	Restricted CIS Elective	4
		15

Fourth Semester (Winter)

BMG	Restricted BMG Elective (150, 208, 215, 230, 235, or 240)	3
CIS 270	COBOL II or	
CIS 276	Advanced C Programming Language or	
CIS 230	Advanced Pascal for Business and Industry	4
CIS 282	Small System Data Base	3
CIS 240	Career Practices Seminar	2
PLS	Restricted PLS Requirement (108, 112, or 150) ..	3
		15

Total credit hours for program: 67-69

Restricted Electives

CIS 103	MSDOS Commands	1
CIS 104	Advanced MSDOS	1
CIS 121	Beginning UNIX	2
CIS 125	Local Area Networks I	2
CIS 136	BASIC for Business and Industry	3
CIS 199	On-the-Job Training	3
CIS 221	UNIX Shell Programming	2
CIS 225	Local Area Networks II	2
CIS 284	Data Communications	3

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

*An advisor or counselor can suggest a part-time sequence.

COMPUTER SYSTEMS OPERATIONS

COLLEGE CERTIFICATE PROGRAM: CODE CSO

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

This program is designed to develop skills and knowledge necessary to meet the demands of computer operations in today's data processing environment. Typical operator categories include microcomputer operator, computer network operator, and console operator for small and large mainframe computer systems. The program includes both classroom and laboratory work using a mainframe and networked microcomputers.

Full-Time Sequence*	Course Title	Credit Hours
First Semester (Fall)		
CIS 111	Computer Concepts	3
CIS 112	Computer Functions	3
CIS 141	Computer Operations I	4
ENG	Restricted ENG Requirement (100, 107 or 111)	3-4
MTH 151	Technical Algebra or	
MTH 163	Business Mathematics (or higher level Math course)	3-4
		16-18

Second Semester (Winter)		
BMG 200	Human Relations in Business and Industry	3
CIS 286	Operating Systems	4
PLS	Restricted PLS Requirement (108, 112, or 150) ..	3
CIS 125	Local Area Networks I	2
CIS 121	Beginning UNIX or	
CIS 103	MSDOS Commands and	
CIS 104	Advanced MSDOS	2
CIS/ELE	Restricted CIS/ELE Elective	2-4
		16-18

Total Credit Hours for Program: 32-36

Restricted Electives

CIS 103	MSDOS Commands	1
CIS 104	Advanced MSDOS	1
CIS 121	Beginning UNIX	2
CIS 130	Pascal for Business and Industry	4
CIS 136	BASIC for Business and Industry	3
CIS 199	On-the-Job Training	3
CIS 221	UNIX Shell Programming	2
ELE 150	PC Hardware Concepts and Troubleshooting	4

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

*An advisor or counselor can suggest a part-time sequence

MICROCOMPUTER BUSINESS TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE MBT

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

This is an Associate Degree program designed to meet the special needs of expanding microcomputer applications in business. Students who complete this program will be as skilled with people as they are with machines. They will support the computer end user in hardware and software matters. They will analyze user need and identify and implement the use of application packages for business and managerial functions.

Full-Time Sequence*	Course Title	Credit Hours
First Semester (Fall)		
ACC 111	Principles of Accounting	3
CIS 111	Computer Concepts	3
CIS 112	Computer Functions	3
ENG	Restricted ENG Requirement (100, 107, or 111)	3-4
MTH 163	Business Math (or higher level Math course) ..	3-4
		15-17

Second Semester (Winter)		
BOS 255	Word Processing Microsoft Word - Level II or	
BOS 256	Word Processing Wordperfect - Level II	2
CIS 115	Programming Logic	3
CIS 130	Pascal for Business and Industry	4
ENG	Restricted ENG Requirement (107, 108, or 122)	3
CIS 103	MSDOS Commands	1
CIS 104	Advanced MSDOS Commands	1
CIS 151	Intro to Lotus 1-2-3	2
		16

Spring Half-Semester

BMG 200	Human Relations in Business and Industry	3
CMT 101	Fundamentals of Speaking	3
		6

Third Semester (Fall)

ELE 150	PC Hardware Concepts and Troubleshooting	4
CIS 240	Career Practices Seminar	2
CIS 125	Local Area Networks I	2
CIS 288	Systems Analysis and Design	3
Elective	Restricted Elective	3-4
		14-15

Fourth Semester (Winter)

BMG	Restricted BMG Elective (150, 208, 215, 230, 235, or 240)	3
CIS 290	Microcomputer Business Technician	4
CIS 282	Small System Data Base	3
Elective	Restricted Elective	3-4
PLS	Restricted PLS Requirement (108, 112, or 150)	3
		16-17

Total credit hours for program: 67-71

Restricted Electives

CIS 121	Beginning UNIX	2
CIS 199	On-the-Job Training	3
CIS 221	UNIX Shell Programming	2
CIS 225	Local Area Networks II	2
CIS 284	Data Communications	3
CIS 286	Operating Systems	4
CMT 102	Interpersonal Communication	3
GDT 102	Computer Aided Publishing	2

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

*A counselor or advisor can suggest a part-time sequence.

FOODS AND HOSPITALITY

CULINARY ARTS TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE CUL

Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

This program provides career training as a culinary arts technician. This technician supervises and coordinates activities of workers engaged in preparing, cooking, and serving food, cleaning premises, and washing dishware. He/she also plans varied menus to insure that food is appetizing and nutritionally suitable; estimates daily or weekly needs and orders food supplies and equipment; keeps records of meals served and takes inventory of supplies and equipment. The technician may participate in preparing and cooking meals and/or may choose to assume responsibilities in the front of the house (supervising food service and dining room employees). This technician may also choose to enter the field of food and equipment wholesale and retail.

Full-Time Sequence Course Title Credit Hours

First Semester (Fall)

CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation or	
CUL 150	Food Service Management	6
MTH	Restricted MTH Elective (090 or above)	3
		15

Second Semester (Winter)

CUL 111	Elementary Food Preparation or	
CUL 150	Food Service Management or	
CUL 222	Quantity Food Production	6
CUL 210	Garde Manger	4
CUL 224	Principles of Cost Controls	3
CIS	Restricted CIS Elective (100 or above)	3
		16

Third Semester (Spring/Summer)

CUL 228	Layout and Equipment	4
ENG	Restricted ENG Requirement (100, 107, 111, or 122)	3-4
		7-8

Fourth Semester (Fall)

CUL 150	Food Service Management or	
CUL 222	Quantity Food Production	6
CUL 118	Principles of Nutrition	3
CUL 219	Baking and Pastries	4
		13

Fifth Semester (Winter)

CUL 199	Internship (300 hours)	3
CUL 220	Organization and Management of Food Systems	3
CUL 225	Advanced Baking and Pastries	4
PLS	Restricted PLS Requirement (108, 112, or 150)	3
		13

Sixth Semester (Spring)

CUL 227	Advanced Culinary Techniques or	
CUL 250	Advanced Service Techniques	3-4

Total credit hours for program: 67-69

FOOD PRODUCTION SPECIALTY

COLLEGE CERTIFICATE PROGRAM: CODE FPS

Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

This program provides training as a food production specialist. The specialist works in preparing foods for hotels, restaurants, and institutional establishments. Production includes sauteing, roasting, broiling, baking, vegetable preparation and producing soups and sauces. The specialist is trained to perform all receiving, storage, and sanitation functions within the food service establishment.

Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)		
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation	6
MTH	Restricted MTH Elective (090 or above)	3
		15
Second Semester (Winter)		
CUL 150	Food Service Management	6
CUL 222	Quantity Food Production	6
CUL 210	Garde Manger or	
CUL 219	Baking and Pastries	4
		16
Third Semester (Spring/Summer)		
CUL 227	Advanced Culinary Techniques or	
CUL 250	Advanced Service Techniques	3-4
ENG	Restricted ENG Requirement (091, 100, 107, or 111)	3-4
		6-8

Total credit hours for program: 37-39

HOTEL-RESTAURANT MANAGEMENT TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE HRM

Advisors: Jill Beauchamp, Don Garrett, Paul McPherson

This program prepares students for supervisory and/or mid-management positions in the hospitality industry. Hotel Restaurant Managers are responsible for satisfying the guest as well as operating the establishment profitably. They direct the production and/or service in the kitchen, dining room and front office. Department managers work as a team to direct the flow of hospitality services within the hotel or restaurant.

Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)		
CUL 100	Introduction to Hospitality Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation or	
CUL 150	Food Service Management	6
MTH	Restricted MTH Elective (090 or above)	3
		15
Second Semester (Winter)		
CMT 101	Fundamentals of Speaking	3
CUL 111	Elementary Food Preparation or	
CUL 150	Food Service Management or	
CUL 222	Quantity Food Production	6
CUL 224	Principles of Cost Control	3
HRM 104	Front Office Procedures	3
		15
Third Semester (Spring/Summer)		
CUL 250	Advanced Service Techniques	3
ENG	Restricted ENG Requirement (100, 107, 111, or 122)	3-4
		6-7
Fourth Semester (Fall)		
CUL 150	Food Service Management or	
CUL 222	Quantity Food Production	6
HRM 222	Lodging, Marketing and Promotion	3
CIS	Restricted CIS Elective (100 or above)	3
PLS	Restricted PLS Requirement (108, 112, or 150) ..	3
		15
Fifth Semester (Winter)		
ACC	Restricted ACC Elective (091 or above)	3
BMG 122	Business Law II	3
CUL 220	Organization and Management of Food Systems ..	3
HRM 223	Internship (300 hours)	3
		12
Sixth Semester (Spring)		
PHL	Restricted PHL Elective (101 or above)	3
PSY	Restricted PSY Elective (100 or above)	3
		6

Total credit hours for program: 69-70

DIVISION OF HEALTH
AND PUBLIC SERVICES
PROGRAMS





DENTAL ASSISTING

The Dental Assisting Program offers career training in dental assisting. There are two types of dental assistants: the Certified Dental Assistant (CDA) and the Registered Dental Assistant (RDA). The CDA assists in treatment of patients and actively participates in all functions of dentistry. An examination from the Dental Assistant National Board must be passed to attain this credential. In the State of Michigan, the RDA is qualified to perform specified intra-oral functions normally performed by the dentist, such as placement and removal of rubber dams, placement and removal of temporary crowns, and oral inspection. A Michigan State Board of Dentistry examination must be passed to attain this credential. Both assistants are qualified to work in a variety of settings such as private dental offices, dental schools, the Armed Forces, dental insurance companies and many others. Successful completion of courses in dental radiography also meets the Michigan State Board of Dentistry requirement for either of these assistants to legally expose dental radiographs.

A student may enroll in this program in either a traditional (two year) or an accelerated (one year) mode. Both modes lead to Certification, Registration, and a Certificate in Dental Assisting.

A prerequisite for this program is the successful completion (with a grade of 'C' or above) of a keyboarding or computer class equivalent to BOS 030: Keyboarding. This prerequisite must be

met prior to enrolling in DEN 212. It is also recommended that students have completed a high school biology class (with a grade of 'C' or above) prior to admission to the program.

DENTAL ASSISTING

COLLEGE CERTIFICATE PROGRAM: CODE DAC

Advisors: Betty Finkbeiner, Claudia Johnson, William Nevers

Full-Time Sequence	Course Title	Credit Hours
First Semester		
DEN 102	Infection Control	1
DEN 106	Biomedical Science for Dental Assisting	2
DEN 107	Oral Anatomy	2
DEN 108	Principles of Dental Radiography	1
DEN 110	Basic Clinical Dental Assisting	4
DEN 112	Dental Materials	4
Elective	Restricted Elective	3-4
		17-18

Second Semester

DEN 120	Oral Diagnosis Theory	1
DEN 127	Dental Nutrition	2
DEN 128	Radiography Practicum	1
DEN 129	Oral Pathology and Therapeutics	1
DEN 130	Oral Diagnosis Clinical Practice	1
DEN 131	Principles of Dental Specialties	4
DEN 132	CPR and Dental Office Emergencies	1
PSY 095	Psychology of Patient Management	1
		12

Third Semester

DEN 202	Advanced Clinical Practice	3
DEN 204	Advanced Functions	3
DEN 212	Dental Practice Management	3
		9

Total Credit Hours for Certificate Program: 38-39

Restricted Electives

CMT 101	Fundamentals of Speaking	3
CMT 102	Interpersonal Communication	3
CMT 131	Radio-Television Speech	3
ENG 091	Writing Fundamentals	4
ENG 100	Communication Skills	4
ENG 107	Technical Communications	3
ENG 111	Composition I	4
ENG 122	Composition II	3

NURSING

The nursing program at Washtenaw Community College is a five-semester Associate of Applied Science degree program that prepares students for RN licensure. The curriculum also is designed to permit easy career mobility. Licensed practical nurses are accepted as advanced standing students, receiving credit for their practical nurse education. In addition, the nursing curriculum is designed to permit easy articulation with area RN-BSN completion programs. Students are admitted in both the Fall and Winter semesters.

This program has a special application procedure and limited enrollment. Priority is given to Washtenaw County residents; contact the Admissions Office for details. (Please note: high school chemistry, algebra, and biology or equivalent, with a grade of C or better, are required for admission to the nursing program.) Students admitted to the Nursing Program will be required to purchase special uniforms and supplies. In addition to general College rules, nursing 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.

Nursing courses are sequential and complemented with appropriate support courses. Therefore, all first semester courses must be successfully completed (C or better) before second semester courses are attempted, etc. Support courses marked with * may be taken ahead of admission to the nursing sequence, but not later than the scheduled semester. Some nursing or other health care experience is required to enroll in HSC 220: Pathophysiology, and HSC 244: Medical Ethics.

Advanced Standing Students (LPNs)

Provisions are made for licensed practical nurses (LPNs) to enter the Nursing Program with advanced standing status. Based upon evaluation of Practical Nursing or other college transcripts, credit may be granted for some courses in the program. Other courses may be waived if the applicant has had formal course work or experience in the course area in the last three years, and credit by examination is available for some nursing courses. Please see the Health Occupations Counselor or Counseling Department for information. A specific course of study will be planned after consultation with the assigned nursing faculty advisor and approval of the Nursing Advanced Standing Committee.

REGISTERED NURSING PREPARATION

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE PNUR

This Associate Degree program provides preparation for the registered nursing licensure examination. Associate Degree Registered Nurses work in both hospitals and nursing homes. They care for people with many kinds of health problems, but they work primarily in acute care. This care involves complicated, technical equipment; it also takes a knowledgeable, skilled and kind person. Acute care nurses often have to make quick decisions. Alertness and energy are essential.

Full-Time Sequence	Course Title	Credit Hours
First Semester		
NUR 101	Introduction to Nursing	1
BIO 111*	Anatomy and Physiology	5
HSC 147*	Growth and Development	4
ENG*	English Composition (100 or above)	4
		14
Second Semester		
NUR 102	Fundamentals of Nursing	2
NUR 103	Fundamentals of Nursing - Clinical Practice	3
NUR 104	Nursing of the Older Adult	1
NUR 105	Nursing of the Older Adult - Clinical Practice	1
NUR 112	Pharmacology	2
CIS*	Restricted CIS Elective (090 or 100)	2-3
HSC 118*	General Nutrition	2
BIO 147*	Hospital Microbiology (BIO 237 may be substituted and will transfer to 4 year institutions)	1
		14-15
Third Semester		
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
HSC 128	Therapeutic Nutrition	1
HSC 220	Pathophysiology	4
		15
Fourth Semester		
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*	Introductory Psychology	3
HSC 244	Medical Ethics	2
		15

Fifth Semester

NUR 261	Transition to Graduate Nurse Role	1
NUR 262	Transition to Graduate Nurse Role - Clinical Practice	4
NUR 231	Nursing of Children	3
NUR 232	Nursing of Children - Clinical Practice	2
PLS*	Restricted PLS Requirement (108, 112, 150)	3
		13

Total credit hours for program: 71-72

* These courses may be taken before program entry.

PHARMACY TECHNOLOGY

PHARMACY TECHNOLOGY

COLLEGE CERTIFICATE PROGRAM: CODE PHT

Advisor: William Clark

The Pharmacy Technology program combines classroom instruction with lab work and clinical experience to prepare students for technician jobs. The pharmacy technician works under the supervision of registered pharmacists in hospitals, health care agencies and retail outlets such as drugstores. This program has special application procedures; high school chemistry and algebra are required for admission. Contact the Admissions Office or Counseling Office for details. A limited number of students are accepted each year.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
3	BOS 103	Keyboarding	2
1	PHT 100	Introduction to Hospital and Community Pharmacy	3
1	PHT 103	Pharmaceutical Dosage	2
1	RDG 115	Medical Terminology	2
			9
Second Semester (Winter)			
4	CIS 100	Introduction to Computers	3
2	PHT 101	Drug Products and Nomenclature	2
5	PHT 102	Drug Distribution Systems and Procedures	3
5	PHT 105	Preparation of Medications	2
			10

Third Semester (Spring/Summer)

2	ENG/CMT Restricted ENG/CMT Requirement (ENG 091 or above, or CMT 101 or 102)	3-4
6	PHT 130 Pharmacy Seminar	1
6	PHT 198 Pharmacy Field Experience	8
		12-13

Total credit hours for program: 31-32

PUBLIC SERVICES

CHILD CARE

ASSOCIATE IN APPLIED SCIENCE DEGREE
PROGRAM: CODE CC

Advisor: Ruth A. Walsh

This program provides career training as a child-care worker. The child-care worker organizes and leads activity of pre-kindergarten children in nursery schools or in playrooms operated for patrons of such places as drop-in centers, hotels, educational institutions and day care centers; organizes and participates in games; reads to children; teaches simple painting, drawing, handiwork, songs and similar activities; directs children in eating, resting and toileting; helps children develop habits of caring for their own clothing, picking up and putting away toys and books; maintains discipline; may serve meals and refreshments to children and regulate rest periods; is involved in helping to meet needs of parents in child rearing.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	CCW 101	Child Development	3
1	CCW 105	Practicum I	3
1	CCW 108	Educational Experiences in Expressive Arts	3
2	CMT 101	Fundamentals of Speaking or CMT 102 Interpersonal Communication	3
2	ENG	Restricted ENG Requirement (100 or 111)	4
			16

Second Semester

2	CCW 103	Alternative Programs in Child Care	3
3	CCW 110	Social/Emotional Development	3
4	ENG 240	Children's Literature	3
4	PSY 200	Child Psychology	3
4	Elective	Restricted Elective	4
			<u>16</u>

Third Semester

3	CCW 106	Practicum II	3
3	CCW 107	Educational Experiences in Science and Math	3
5	CCW 200	Staff/Parent Interpersonal Relations	3
5	PLS	Restricted PLS Requirement (108 or 150)	3
5	Elective	Restricted Elective	3
			<u>15</u>

Fourth Semester

6	CCW 100	The Exceptional Child	3
6	CCW 114	Practicum III	4
6	CCW 111	Day Care Administration or CCW 116 Seminar in Infant Care	3
7	CCW 117	Childhood Nutrition	2
7	CCW 121	First Aid for the Child Care Worker	1
			<u>13</u>

Total credit hours for program: 60

Restricted Electives (Consult with advisor before selecting)

CCW 109	Language and Communication	3
ECO 111	Consumer Economics	3
HST 150	Afro-American History	3
HUM 101	Introduction to Humanities I	3
MUS 183	Afromusicology	3
PSY 100	Introductory Psychology	3
SOC 100	Principles of Sociology	3
SOC 207	Social Problems	3

CORRECTIONAL SCIENCE

Advisor: Ruth Anne Walsh

Five corrections courses are required by the State of Michigan for employment in a corrections facility. These courses are: Introduction to Corrections (COR 122), Correctional Institutions/Facilities (COR 132), Legal Issues in Corrections (COR 211), Client Relations in Corrections (COR 219) and The Correctional Client: Growth and Development (COR 228). Upon completion of the courses, students are prepared to take entry-level exams at both the county and state levels. Both a certificate and an associate degree program are offered. Individuals employed in the correctional field are assisted in career advancement. Field trips to correctional facilities are included in the program. This program is certified by the Michigan Corrections Officers Training Council.

CORRECTIONAL SCIENCE

COLLEGE CERTIFICATE PROGRAM: CODE CORC

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	COR 122	Introduction to Corrections	3
1	COR 132	Correctional Institutions	3
3	ENG	English Requirement (100 or 108) ...	3-4
4	PSY	Psychology Requirement (100, 107, 130, 200, 207, 209, or 257)	3
4	SOC	Sociology Requirement (100, 102, 202, 205, 207, 250, or CJT 223)	3
			<u>15-16</u>
Second Semester			
2	COR 211	Legal Issues in Corrections	3
2	COR 219	Client Relations in Corrections	3
3	COR 228	The Correctional Client: Growth and Development	3
5	PLS	Political Science Requirement (108 or 150)	3
5	**	Approved Elective	3
			<u>15</u>

Total Credit Hours for College Certificate: 30-31

CORRECTIONAL SCIENCE

ASSOCIATE IN ARTS DEGREE PROGRAM: CODE COR

This program requires the first and second semesters of the Correctional Science Certificate Program and the following courses:

Third Semester

6	CJT 100	Introduction to Criminal Justice	3
8	CMT	Communications Requirement (101, 102, or 140)	3
6	PSY	Psychology Requirement (100, 107, 130, 200, 207, 209, or 257)	3
7	SOC 202	Criminology or	
7	SOC 250	Juvenile Delinquency	3
7		Approved Elective *	3
			<u>15</u>

Fourth Semester

8	COR 218	Correctional Counseling	3
9	COR 227	Seminar in Corrections	3
10	PSY	Psychology Requirement (100, 107, 130, 200, 207, 209, or 257)	3
9	SOC	Sociology Requirement (100, 102, 202, 205, 207, 250, or CJT 223)	6
			<u>15</u>

Total Credit Hours for Associate Degree: 60-61

* Consult with advisor before selecting

CRIMINAL JUSTICE

**ASSOCIATE IN ARTS DEGREE PROGRAM:
CODE CJ**

Advisors: Hank Townsend, Ruth A. Walsh

This program provides career training as a criminal justice technician. Upon completion of the program, students have the groundwork to further their studies toward a bachelor's degree in criminal justice. In addition, graduates may be employed in such fields as police work, probation and parole, and juvenile work. Studies involve a combination of sociological theory and pragmatic application which is required of all those in the criminal justice system. Law enforcement, police and community relations, psychology and other aspects of criminal law are also studied.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	CJT 100	Introduction to Criminal Justice*	3
1	ENG	Restricted ENG Requirement (100, 107 or 111)	3-4
3	PLS	Restricted PLS Requirement (108 or 150)	3
2	PSY	Restricted PSY Elective (100, 107, 130, 200, 209, or 257)	3
3	SOC 100	Principles of Sociology	3
			<u>15-16</u>
Second Semester			
6	CJT 111	Police/Community Relations	3
5	COR 122	Introduction to Corrections	3
4	PSY	Restricted PSY Elective (100, 107, 130, 200, 209, or 257)	6
5	SOC 250	Juvenile Delinquency or	
	CJT 223	Juvenile Justice	3
			<u>15</u>

Third Semester

7	CJT 208	Criminal Evidence and Procedure	3
7	CJT 224	Criminal Investigation	3
4	CMT	Restricted CMT Elective (101, 102, or 140)	3
6	SOC 202	Criminology	3
	Elective	Restricted Elective	3
			<u>15</u>

Fourth Semester

7	PSY	Restricted PSY Elective (100 107, 130, 200, 209, or 257)	3
8	CJT 209	Criminal Law	3
7	CJT 210	Introduction to Criminalistics	3
8	CJT 225	Seminar in Criminal Justice	3
8	Elective	Restricted Elective	3-4
			<u>15-16</u>

Total credit hours for program: 60-62

Restricted Electives (Consult with advisor before selecting)

BMG230	Supervisory Management	3
CIS100	Introduction to Computers	3
CJT 199	On-the-Job Training	3
CJT 205	Applied PSY for Police (may be used as PSY elective)	3
ECO111	Consumer Economics	3
FPT 213	Fire Investigation and Arson	3
HUM 101	Introduction to Humanities I	3
MTH 090	Occupational Mathematics	3
MTH 160	Basic Statistics	4
PHL 101	Introduction to Philosophy	3
SPN 111	First Year Spanish I	4

* May be substituted by successful Police Academy training or background experience.

**CRIMINAL JUSTICE —
LAW ENFORCEMENT CERTIFICATION**

**ASSOCIATE IN APPLIED SCIENCE DEGREE
PROGRAM: CODE CJLE**

Advisors: Phillip A. Ludos, Ruth A. Walsh

This program is designed for students who wish to become certified by the State of Michigan for employment in law enforcement. Students entering this program are required to complete the academic program prior to entering the police academy component of the program and should follow the course of study by semester without deviation. Admission to the police academy portion 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 an associate degree in the Criminal Justice Technician Program, but will not be certified for employment. Students admitted to the Police Academy are required to purchase certain items such as gym clothes, khaki uniforms, textbooks and other supplies. In addition to the general code of conduct, academy students are required to adhere to additional rules of behavior and discipline.

Full-Time Sequence*	Course Title	Credit Hours
First Semester (Winter)		
CJT 100	Introduction to Criminal Justice	3
ENG	English Requirement (100, 107 or 111)	3-4
PLS	Political Science Requirement (108 or 150)	3
PSY	Psychology Requirement (100, 107, 130, 200, 209, or 257)	3
SOC 100	Principles of Sociology	3
		15-16
Second Semester (Spring)		
CJT 150	Criminal Justice Physical Conditioning	3
CMT	Communications Elective (101, 102, or 140)	3
		6
Third Semester (Fall)		
CJT 111	Police/Community Relations	3
PSY	Psychology Requirements (100, 107, 130, 200, 209, or 257)	6
CJT 223	Juvenile Justice or	
SOC 250	Juvenile Delinquency	3
SOC 202	Criminology	3
		15
Fourth Semester (Winter)		
CJT 122	Introduction to Corrections	3
CJT 209	Criminal Law	3
CJT 225	Seminar in Criminal Justice	3
Elective	(see advisor for approved course)	3
		12
Fifth Semester (Spring/Summer)		
CJT 221	Law Enforcement Training	16
Total Credit Hours for Program: 64-65		

* An advisor can suggest a part time sequence.

FIRE PROTECTION

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE FP

Advisor: Phillip A. Ludos. Ruth Walsh

This program provides career training as a fire protection technician. After completing the Fire Protection program, students will be familiar with the various aspects of fire protection and fire prevention. This includes studies of industrial and public buildings, homes and other properties. Factors such as water supplies and delivery are discussed. Students in this program may seek employment in both the public and private sectors involving fire protection training and other related areas. There is some training in the chemistry of combustibles.

Full-Time Sequence*	Course Title	Credit Hours
First Semester		
ENG	English Requirement (100, 107 or 111)	3-4
FPT 100	Introduction to Fire Protection	3
FPT 103	Flammable Hazardous Materials	3
FPT 111	Hydraulics	3
PSY 100	Introductory Psychology	3
		15-16
Second Semester		
CIS 100	Introduction to Computers	3
FPT 109	Incident Command	3
FPT 112	Fire Company Supervision	3
FPT 122	Fire Prevention Theory and Applications	3
PLS	Political Science Requirement (108 or 150)	3
		15
Third Semester		
FPT 116	Building Construction for Fire Service	3
FPT 209	Command and Control of Major Fires	3
FPT 210	Introduction to Fire Administration	3
FPT 213	Fire Investigation and Arson	3
Restricted Elective	3
		15
Fourth Semester		
FPT 099	Labor Relations in the Public Sector	3
FPT 216	Legal Aspects of Fire Protection	3
FPT 224	Protection Systems	3
FPT 250	Fire Protection Training Methodology	3
Restricted Elective	3
		15
Total Credit Hours for Program: 60-61		

Restricted Electives

FPT 124	Fire Protection Systems I	3
SOC 100	Principles of Sociology	3

Non-traditional elective credit may be awarded for current certification from the following recognized fire and emergency courses:

Emergency Medical Technician	6
Emergency Rescue	2
Extrication	2
F.F.T.C. - 240 Hour Course	3
Fire Company Management	3
Fire Fighter First Responder	3
Fire Officer I (State Fire Course)	3

*An advisor can suggest a part-time sequence.



RADIOGRAPHY

The Radiography program provides career training as a radiographer. This medical specialist is concerned with the proper operation of x-ray equipment and the preparation of patients for various types of diagnostic procedures. Upon the physician's request, the radiographer exposes x-ray films to produce radiographs of internal body parts. These radiographs may reveal evidence of disease, injury, or other significant medical information. The radiographer adjusts x-ray equipment to correct settings for each examination; positions the patient; determines proper voltage, current and desired exposure time for each radiograph; makes sure that equipment is in proper working order; works with the physician on procedures requiring radio-opaque mixtures which are administered to the patient so that internal organs may be clearly identified on exposed x-ray film; and may be required to operate mobile x-ray equipment at the patient's bedside or in the operating room.

Admission Criteria:

1. Application by January 15 to Admissions Office
2. High school graduation or G.E.D.
3. One year of high school biology or BIO 101 with a grade of 'C' or better
4. One year of high school algebra or MTH 097 with a grade of 'C' or better
5. One year of high school physics or PHY 059 with a grade of 'C' or better
6. Applicants are screened using the following criteria:
 - a. Completion of all pre-entry courses (Biology, Algebra and Physics) by January 1
 - b. Priority is given to Washtenaw County residents
 - c. Date of application to the program
 - d. The remaining applicants are alternates for admission and are granted priority for admission to the next class. Alternates must update their application by contacting the Admissions Office
7. Students must pass a physical examination taken at their expense not more than three months before entering the clinical training phase of the program
8. Students must maintain personal health coverage. Contact the Admissions Office or Counseling Office for details of application procedure. Limited number of students accepted each year. One entrance date — SUMMER.

RADIOGRAPHY

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE PRAD

Advisors: Gerald Baker, Robert Nelson

FIRST YEAR

Course Number	Course Title	Credit Hours
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First Semester (Summer) — 7 weeks

MTH 165	Health Science Math *	3
RAD 100	Introduction to Radiography	2
RAD 101	Methods of Patient Care	2
		<u>7</u>

Second Semester (Fall) - 15 weeks

BIO 111	Anatomy and Physiology *	5
RAD 110	Clinical Education (second 7 1/2 weeks)	1
RAD 111	Fundamentals of Radiography (first 7 1/2 weeks)	2
RAD 112	Radiographic Positioning I	2
RAD 113	Radiographic Processing (second 7 1/2 weeks)	2
RDG 115	Medical Terminology *	2
		<u>14</u>

Third Semester (Winter) — 15 weeks

ENG	Restricted ENG Requirement (100 or 111) *	4
RAD 120	Clinical Education	2
RAD 123	Radiographic Positioning II	2
RAD 124	Principles of Radiographic Exposure	3
RAD 125	Radiologic Procedures and Related Anatomy	3
RAD 127	Principles of Radiographic Exposure Laboratory	1
		<u>15</u>

Fourth Half-Semester (Spring) — 7 weeks

RAD 130	Clinical Education	2
RAD 135	Pathology for Radiographers	2
		<u>4</u>

(Summer) — 7 weeks

PLS	Restricted PLS Requirement (108, 112, or 150) *	3
RAD 140	Clinical Education	2
		<u>5</u>

SECOND YEAR

Fifth Semester (Fall) — 15 weeks

CIS	Restricted CIS Elective (100 or above) *	3
PSY 100	Introductory Psychology *	3
RAD 215	Radiography of the Skull	2
RAD 217	Clinical Education	3
RAD 218	Radiation Biology (first 7 1/2 weeks)	2
RAD 219	Radiation Protection (second 7 1/2 weeks)	2
		<u>15</u>

Sixth Semester (Winter) — 15 weeks

PHY 143	Radiologic Physics	4
RAD 220	Management of Rad. Environment	2
RAD 225	Clinical Education	3
SOC	Restricted SOC Elective (100 or above) *	3
		<u>12</u>

Seventh Semester (Spring) — 7 weeks

RAD 097	Registry Review	1
RAD 240	Clinical Education	2
		<u>3</u>

Total credit hours for program: 75

* These courses may be taken before acceptance and/or entry into the Radiography program.

RESPIRATORY THERAPY

RESPIRATORY THERAPY

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE PRTH

This Associate Degree (or technician transfer) program provides career training as a respiratory therapist. Respiratory therapists treat persons with respiratory problems. This treatment may range from giving temporary relief to patients with chronic asthma or emphysema to giving emergency care to victims of heart failure, stroke, drowning, or shock. They are among the first medical specialists called for emergency treatment of acute respiratory conditions arising from head injury or drug poisoning. They follow doctors' orders and use special equipment such as respirators and positive-pressure breathing machines to administer gas therapy, aerosol therapy, and other treatment involving respiration. They work mainly in hospital intensive care units with critically ill patients.

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, Wayne; and Children's Hospital of Michigan, Detroit.

The program has special application procedure, please contact the admissions office for details. Only forty eight students are accepted each year.

Course Number	Course Title	Credit Hours
First Semester		
BIO 111	Anatomy and Physiology	5
CEM 057	Introduction to Chemistry and	
CEM 058	Introduction to Chemistry Lab or	
CEM 105	Fundamentals of Chemistry	4
RTH 120	Introduction to Respiratory Therapy	3
RTH 121	Basic Equipment & Procedures	4
		16
Second Semester		
RTH 122	Respiratory Physiology	3
RTH 198	General Clinical Practice I	3
RTH 106	Chemistry for Respiratory Therapists	3
RTH 148	Pharmacology for Respiratory Therapists	2
RDG 115	Medical Terminology	2
		13
Third Semester		
RTH 123	Respiratory Pathophysiology	2
RTH 149	Pathology for Respiratory Therapists	3
RTH 199	General Clinical Practice II	3
RTH 212	Ventilators	3
RTH 213	Intensive Respiratory Care	4
		15
Fourth Semester		
MTH 165	Health Science Math	3
RTH 200	Advanced Clinical Practice	4
RTH 214	Cardiodiagnostics	3
RTH 219	Pediatric Respiratory Therapy	3
RTH 222	Pulmonary Function Testing	2
PLS	Restricted PLS Requirement (108, 112 or 150) ...	3
		18
Fifth Semester		
BIO 147	Hospital Microbiology or	
BIO 237	Microbiology	1-4
PHY 131	Physics for Respiratory Therapists	3
RTH 201	Specialty Clinical Practice	2
RTH 202	Pediatric Clinical Practice	2
RTH 217	Seminar - Respiratory Therapy	2
RTH 221	Pulmonary Rehabilitation	1
ENG	Restricted ENG Requirement	
	(100, 107, 111, or 122)	3-4
		14-18
Total Credit Hours for Program: 76-80		

SURGICAL TECHNOLOGY

COLLEGE CERTIFICATE PROGRAM: CODE SURC

Advisor: William Clark

Surgical Technology is a one-year certificate program that prepares students for employment as surgical technologists. The program also prepares students for the national certifying examination. Surgical technologists work primarily in the operating room performing functions and tasks that provide for a safe environment for surgical care, contribute to the efficiency of the operating room team, and support the operative surgeons and others involved in operative procedures. Admission to this program requires students to have completed the equivalent of high school Chemistry and Algebra.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
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First Semester (Fall)

1	BIO 102	Human Biology	4
2	BIO 147	Hospital Microbiology	1
3	RDG 115	Medical Terminology	2
4	SUR 100	Surgical Technology I	3
			10

Second Semester (Winter)

2	CMT 102	Interpersonal Communication	3
3	ENG	Restricted ENG Requirement (100 or 111)	4
5	SUR 120	Surgical Technology II Theory	3
5	SUR 125	Surgical Technology II Lab	3
5	SUR 140	Surgical Technology Pharmacology ...	1
			14

Third Semester (Spring/Summer)

4	HSC 244	Medical Ethics	2
6	SUR 150	Surgical Technology III Theory	3
6	SUR 155	Surgical Technology III Practice	3
			8

Total credit hours for program: 32

DIVISION OF HUMANITIES
AND SOCIAL SCIENCES
PROGRAMS



LIBERAL ARTS TRANSFER PROGRAM — HUMANITIES/SOCIAL SCIENCES OPTION

ASSOCIATE IN ARTS DEGREE PROGRAM: CODE LAHS

This Liberal Arts program of study is designed to provide a broad base of skills and methods with which to acquire knowledge. The program is intended for students planning to transfer to a baccalaureate degree-granting institution. The program also provides for the intellectual, cultural, and personal development of individuals. Programs may differ slightly from college to college. Please check with a counselor for your specific college and program.

Graduation Requirements:

To complete the program of study in Liberal Arts leading to an Associate Degree, a student must:

1. Complete a minimum of 60 college credit hours (15 must be earned at WCC) covering the course and distribution requirements as detailed below.
2. Complete seven credit hours of English Composition (ENG 111 and 122).
3. Complete three credit hours of Political Science (PLS 108, 112, or 150).
4. Complete four credit hours of Mathematics (Mathematics 169 or higher).
5. Complete 12-15 credit hours in each of two discipline groupings for a total of 27 credit hours, as follows:
 - a. Humanities (12-15 credit hours in courses number 100 or above):
Disciplines: Art, Communications and Theatre, Dance, English, French, German, Humanities, Music, Philosophy, or Spanish
 - b. Social Sciences (12-15 credit hours in courses numbered 100 or above):
Disciplines: Anthropology, Economics, Geography, History, Political Science, Psychology, or Sociology
6. Complete 19 credit hours of recommended transfer courses from the Humanities, Social Science, Math, and/or Natural Science discipline groupings.

SCIENTIFIC AND TECHNICAL COMMUNICATION

ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM: CODE STC

Advisor: Dan Minock

This associate degree program is designed to provide career training as a technical writer. In the current market setting, a technical writer must be able to convey scientific and technical information precisely, accurately, and clearly. Work settings for technical writers can be many and varied. Businesses and government use technical writers to explain new technologies and translate complex materials and concepts into clear and easy-to-understand terms. A technical writer must be computer-literate.

This program is designed so that students can specialize in a specific area of technical writing. For each semester, students should select an elective from their chosen specialty.

Business electives may be chosen from the disciplines of:

Accounting — ACC

Business — BMG and/or RES

Computer Instruction — CIS and/or CPS

Foods and Hospitality — 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 and/or CPS

Drafting — ARC, BPR and/or IND

Electricity/Electronics — ELE

Industrial Technology — FLP, INM, MET and/or NCT

Visual Arts Technology — GDT and/or PHO

Welding and Fabrication — WAF

Scientific Electives may be chosen from the disciplines of:

Life Sciences — BIO and/or PEA

Mathematics — MTH

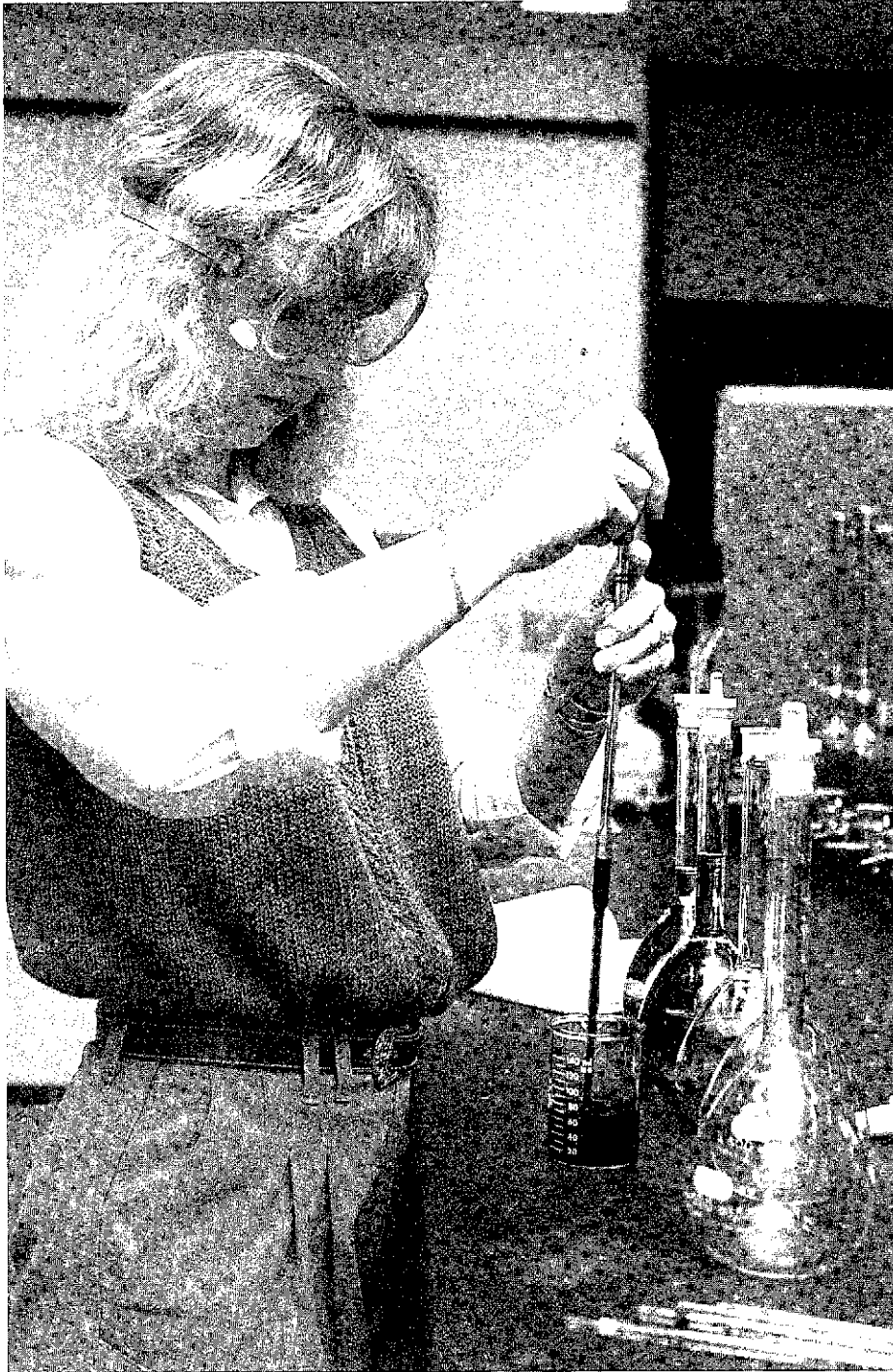
Physical Sciences — AST, CEM, GLG and/or PHY

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
1	ENG 100	Communication Skills.....	4
1	GDT 102	Computer Aided Publishing	2
2	CMT 101	Fundamentals of Speaking	3
2	Elective	Business/Technical/Scientific.....	6
			<u>15</u>
Second Semester			
3	ENG 107	Technical Communications	3
4	GDT 113	Principles of Production	4
5	GDT 217	Computer Aided Publishing II	2
5	H/SS	Restricted Elective in Humanities/Social Sciences*	3
6	Elective	Business/Technical/Scientific.....	3
			<u>15</u>
Third Semester			
7	ENG 108	Advanced Technical Communications	3
8	Elective	Business/Technical/Scientific.....	12
			<u>15</u>
Fourth Semester			
9	ENG 109	Award-Winning Documents	3
9	ENG 199	Internship	1-3
10	ENG 245	Career Practices	2
10	PLS 108	Government and Society	3
11	Elective	Business/Technical/Scientific	4-6
			<u>15-17</u>

Total credit hours for program: 60-62

* Please see advisor before selecting elective

MATH AND
NATURAL SCIENCES



COMPUTER SCIENCE TRANSFER PROGRAM

ASSOCIATE IN SCIENCE DEGREE PROGRAM: CODE CST

Advisors: Janet Remen, Marty Showalter

Students who complete this program are awarded an Associate in Science Degree. Students planning to transfer to a four-year institution should check with that school to verify that the following courses will transfer.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	CPS 186	Introduction to Pascal Programming ...	4
4	ENG 111	Composition I	4
2	MTH 191	Calculus I	5
1	Elective	Elective in Humanities	3
			<u>16</u>
Second Semester (Winter)			
2	CPS 286	Advanced Pascal Programming	4
3	MTH 192	Calculus II	4
5	PHY 211	Analytical Physics I	5
3	PSY 100	Introductory Psychology	3
			<u>16</u>
Third Semester (Fall)			
6	CPS 294	Comparative Languages	4
4	MTH 293	Calculus III	4
6	PHY 222	Analytical Physics II	5
5	PLS	Restricted PLS Requirement (PLS 108, 112 or 150)	3
			<u>16</u>
Fourth Semester (Winter)			
7	CPS 290	Program Design Methodologies	4
8	CPS 292	Assembler Language Programming ...	4
7	MTH 197	Linear Algebra	4
8	Elective	Elective in Humanities — English Composition II (ENG 122) rcmand	3
			<u>15</u>

Total credit hours for program: 63

NOTE: Students intending to transfer to the U of M College of Literature, Science and Arts must satisfy the U of M foreign language requirement.

LIBERAL ARTS TRANSFER PROGRAM — BIOLOGY/PRE-MEDICINE OPTION

ASSOCIATE IN SCIENCE DEGREE PROGRAM: CODE BIOM

Advisor: David Shier

This program is intended for students planning to transfer to a baccalaureate degree-granting institution and major in Biology or Pre-medical studies. As requirements vary, please check with a counselor for transfer information on your specific college and program.

Course Number	Course Title	Credit Hours
First Semester (Fall)		
BIO 101	Concepts of Biology	4
CEM 111	General Chemistry I	4
ENG 111	Composition I	4
Math Elective ¹	[MTH 169 Intermediate Algebra MTH 179 PreCalculus MTH 191 Calculus I]	4-5
		First Semester Total 16-17
Second Semester (Winter)		
BIO 103	General Biology II	4
CEM 122	General Chemistry II	4
ENG 122	Composition II	3
Math Elective ²	[MTH 179 Precalculus MTH 191 Calculus I MTH 192 Calculus II]	4-5
		Second Semester Total 15-16
Third Semester (Fall)		
BIO 227	Zoology	4
Biology Elective ³	[BIO 215 Cell Physiology BIO 216 Cell Physiology Laboratory BIO 237 Microbiology]	4
	CEM 211 Organic Chemistry I	3
PLS Requirement	[PLS 108 Government & Society PLS 112 Intro. to American Government PLS 150 State and Local Gov. & Politics]	3
Restricted Elective ⁵	[ANT 150 Religions of the World HST 101 Western Civilization to 1500 HUM 101 Introduction to Humanities I PHL 101 Introduction to Philosophy PHY 111 General Physics I PSY 100 Introductory Psychology]	3-4
		Third Semester Total 17-18

Fourth Semester (Winter)

BIO 228	Botany	4
BIO 208	Genetics I	4
CEM 222	Organic Chemistry II	5

Restricted Elective ⁶	ART 130 Art Appreciation	3-4
	GEO 100 Geography and Environment	
	HST 102 Western Civilization from 1500	
	HUM 102 Introduction to Humanities II	
	PHY 122 General Physics II	
	SOC 100 Principles of Sociology	

Fourth Semester Total 16-17

Total credit hours for program⁷: 64 - 68

1. If Intermediate Algebra or its equivalent have been mastered with a "C" or better, then Precalculus should be elected. However, students planning to transfer to the University of Michigan should elect Calculus I.
2. If Precalculus was elected previously, then Calculus I should be elected. If Calculus I was elected then Calculus II should be elected.
3. BIO 215 and 216 must be selected together. BIO 237 is the other option.
4. Students planning to transfer to Eastern Michigan University should elect PLS 108 or PLS 112.
5. Students planning to transfer to the University of Michigan will need one year of Physics to complete the Bachelor's Degree. This may be taken as a part of the Associate's degree, or in the Junior year after transferring. If PHY 111 is selected then PHY 122 must be selected in the following semester. If HST 101 is selected then HST 102 must be selected in the following semester. If HUM 101 is selected, then HUM 102 must be selected in the following semester.
6. See Note #5.
7. The two year foreign language requirement that exists at some institutions must be fulfilled during the junior and senior years after transferring under this program.

**LIBERAL ARTS TRANSFER PROGRAM —
CHEMISTRY/PRE-MEDICINE OPTION**

**ASSOCIATE IN SCIENCE
DEGREE PROGRAM: CODE CEMP**

Advisors: Kathy Butcher, Gary VanGenderen

This program is intended for students planning to transfer to a baccalaureate degree-granting institution and major in chemistry or pre-medical studies.

Course Number	Course Title	Credit Hours
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First Semester (Fall)

CEM 111	General Chemistry I	4
ENG 111	Composition I	4
MTH 191	Calculus I	5

Restricted Elective ¹	HST 101 Western Civilization to 1500	3
	ECO 211 Principles of Economics I	
	ENG 213 World Literature I	

First Semester Total: 16

Second Semester (Winter)

CEM 122	General Chemistry II	4
ENG 122	Composition II	3
MTH 192	Calculus II	4

Restricted Elective ¹	HUM 101 Introduction to Humanities I	3
	ART 130 Art Appreciation	
	PHL 101 Introduction to Philosophy	
	PHL 250 Logic	
	ANT 150 Religions of the World	

Restricted Elective ²	HST 102 Western Civ from 1500	3
	ECO 222 Principles of Economics	
	ENG 224 World Literature II	

Second Semester Total: 17

Third Semester (Fall)

CEM 211	Organic Chemistry I	3
PHY 211	Analytical Physics I	5

Restricted Elective ^{3,4}	CEM 218 Analytical Chemistry	4
	MTH 197 Linear Algebra	

Restricted Elective ⁵	MTH 293 Calculus II	4
	BIO 101 Concepts of Biology	

Third Semester Total: 16

Fourth Semester (Winter)

CEM 222	Organic Chemistry II	5
PHY 222	Analytical Physics II	5

PLS Require- ment	[PLS 108 Government & Society PLS 112 ntro to American Government PLS 150 State and Local Government]	3		

Restricted Elective ⁶	[MTH 295 Differential Equations BIO 227 Zoology]	4

Fourth Semester Total: 17

Total credit hours for program: 66

1. This elective must be taken as the first part of a sequence, for example: HST 101 must be followed by HST 102 in the second semester.
2. See note #1
3. MTH 197 should be taken by students with Chemistry intentions.
4. CEM 218 is not recommended for students desiring to transfer to Eastern Michigan University, or the University of Michigan in Chemistry as it is usually taken during the 5th semester at those institutions.
5. BIO 101 should be taken by students with Pre-medicine intentions.
6. BIO 227 should be taken by students with Pre-medicine intentions.

**LIBERAL ARTS TRANSFER PROGRAM —
MATH/NATURAL SCIENCES OPTION**

**ASSOCIATE IN SCIENCE
DEGREE PROGRAM: CODE LAMN**

Advisors: Judith Fish, Percy Mealing, David Shier

This Liberal Arts Transfer program is designed to provide a broad base of skills and methods with which to acquire knowledge. The program is intended for students planning to transfer to a baccalaureate degree-granting institution. The program also provides for the intellectual, cultural, and personal development of individuals.

If you have an interest in a specific college or program, a college counselor may be able to help determine its transfer requirements.

Graduation Requirements:

To complete the Program of Study in Liberal Arts leading to an Associate of Arts Degree, a student must complete a minimum of 60 college credit hours in courses numbered 100 or above (15 must be earned at WCC). The credit hours must be distributed as follows:

1. Seven credit hours of English Composition (ENG 111 and 122).
2. Three credit hours of Political Science (PLS 108, PLS 112, or PLS 150).
3. Four credit hours of Mathematics (MTH 169 or higher).
4. Twenty-seven credit hours as follows:
 - a. Mathematics (9-18 credit hours)
 - b. Natural Sciences (9-18 credit hours) from the disciplines of Astronomy, Biology, Chemistry, Geology, or Physics
5. Nineteen credit hours of Humanities, Social Science, Math, and/or Natural Science courses.

**PRE- ENGINEERING
PROGRAMS**

Pre-Engineering Associate Degree programs are for students desiring a career in engineering. Graduates of the pre-engineering program qualify to transfer into the engineering programs at four-year colleges and universities and meet the minimum requirements for placement at the junior level. As the requirements vary slightly from one engineering field to another, two curricula have been developed for the program. Students should select Curriculum I or II depending on their field of interest. Further, it is important that students meet with a program advisor in order to clarify the options available.

CURRICULUM I

PRE-ENGINEERING SCIENCE - TRANSFER

(All fields except Chemical Engineering
and Materials Engineering)

ASSOCIATE IN SCIENCE DEGREE PROGRAM: CODE PET

Advisor: George Kapp

Course Number	Course Title	Credit Hours
First Semester (Fall)		
MTH 191	Calculus I	5
CPS 187	Introduction to FORTRAN Programming	4
ENG 111	Composition I	4
CEM 111	General Chemistry I	4

First Semester Total: 17

Second Semester (Winter)

MTH 192	Calculus II	4
MTH 197	Linear Algebra	4
CEM 122	General Chemistry II	4

PLS Require- ment	[PLS 108 Government and Society]	3
		PLS 112 Intro. to American Government		
		PLS 150 State and Local Gov. and Politics		

Restricted Elective ¹	[IND 100 Technical Drawing]	3 or 4
		ENG 107* Technical Communications		
		ENG 122 Composition II		

Second Semester Total: 18-19

Third Semester (Fall)

MTH 293	Calculus III ²	4
PHY 211	Analytical Physics I	5

Restricted Elective	[PSY 100 Introductory Psychology]	3
		ECO 211 Principles of Economics I		
		HST 101 Western Civilization to 1500		

Restricted Elective	[PHL 101 Introduction to Philosophy]	3
		ENG 213* World Literature I		
		ART 130 Art Appreciation		

Third Semester Total: 15

Fourth Semester (Winter)

MTH 295	Differential Equations ³	4
PHY 222	Analytical Physics II	5

Restricted Elective	[SOC 100 Principles of Sociology]	3
		ECO 22 * Principles of Economics II		
		HST 102 Western Civilization from 1500		

Restricted Elective	[ENG 200 Shakespeare]	3
		ENG 224* World Literature II		
		HUM 101 Introduction to Humanities I		
		HUM 102 Introduction to Humanities I		

Fourth Semester Total: 15

Total credit hours for program: 65-66

¹ 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 Chemical, Civil, Materials, 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 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.

CURRICULUM II

PRE-ENGINEERING SCIENCE-TRANSFER CHEMICAL AND MATERIALS ENGINEERING OPTION

ASSOCIATE IN SCIENCE DEGREE PROGRAM: CODE PECT

Advisor: George Kapp

Course Number	Course Title	Credit Hours
First Semester (Fall)		
MTH 191	Calculus I	5
CPS 187	Introduction to FORTRAN Programming	4
ENG 111	Composition I	4
CEM 111	General Chemistry I	4

First Semester Total: 17

Second Semester (Winter)

MTH 192	Calculus II	4
MTH 197	Linear Algebra	4
CEM 122	General Chemistry II	4
ECO 211	Principles of Economics I ⁴	3

PLS Require- ment	[PLS 108 Government and Society]	3
		PLS 112 Intro to American Government		
		PLS 150 State and Local Gov. and Politics		

Second Semester Total: 18

Third Semester (Fall)

MTH 293	Calculus III ⁵	4
PHY 211	Analytical Physics I	5
CEM 211	Organic Chemistry I	3

Restricted Elective	[PHL 101 Introduction to Philosophy]	3
		ENG 213* World Literature I		
		ART 130 Art Appreciation		

Third Semester Total: 15

Fourth Semester (Winter)

MTH 295	Differential Equations ⁵	4
PHY 222	Analytical Physics II	5
CEM 222	Organic Chemistry II	5

Restricted Elective	[ENG 200 Shakespeare]	3
		ENG 224* World Literature II		
		HUM 101 Introduction to Humanities I		
		HUM 102 Introduction to Humanities II		

Fourth Semester Total: 17

Total credit hours for program: 67

* Recommended elective.

4. 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.
5. It is recommended to 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.

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**DIVISION OF
TECHNOLOGY**



AUTOMOTIVE SERVICE

AUTOMOTIVE BODY REPAIR

COLLEGE CERTIFICATE PROGRAM: CODE ABRC

This program provides career training as an auto body repair technician. Auto body repairers are the workers who straighten bent frames, remove dents, and replace damaged parts that are beyond repair. Usually they can fix all types of vehicles, but most repairers work mainly on cars and small trucks. They receive instruction from their supervisors who have determined which parts are to be restored or replaced and how much time the job should take. They use special machines to align damaged frames and body sections, and tools such as a pneumatic metal-cutting gun, acetylene torch, welding equipment, hydraulic jack, hand prying bar, and pneumatic hammer. They also do filling of dents with plastic or solder, then file, grind, smooth and shape for painting.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ABR 111	Auto Body Repair Fundamentals	4
2	ABR 112	Auto Refinishing Fundamentals	4
1	ABR 113	Light Body Service (7½ wks)	1
1	ABR 114	Applied Auto Body Welding (7½ wks)	1
5	ABR 126	Fundamentals of Frame & Body Alignment.	2
2	MTH 090	Occupational Mathematics	3
			15
Second Semester (Winter)			
3	ABR 123	Auto Body Repair Applications	4
4	ABR 124	Auto Refinishing Applications	4
5	ABR 125	Flat Rate Estimating	2
3	ABR 127	Major Repair Fundamentals	2
3	ENG 100	Communication Skills	4
			16

Total credit hours for program: 31

AUTOMOTIVE BODY SERVICE

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE ABRD

This program provides career training as an auto body service technician. This program is a combination of the auto body repairer and automobile spray painter programs. Upon completion of the program one becomes a master technician.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ABR 111	Auto Body Repair Fundamentals	4
2	ABR 112	Auto Refinishing Fundamentals	4
1	ABR 113	Light Body Service (7½ wks)	1
1	ABR 114	Applied Auto Body Welding (7½ wks)	1
2	MTH 090	Occupational Mathematics	3
1	WAF 101	Acetylene Welding	2
			15
Second Semester (Winter)			
3	ABR 123	Body Repair Applications	4
3	ABR 124	Auto Refinishing Applications	4
5	ABR 125	Flat Rate Estimating	2
4	ABR 127	Major Repair Fundamentals	2
4	ASV 124	Wheel Balance and Alignment	2
			14
Third Semester (Fall)			
5	ABR 126	Fund. of Frame & Body Alignment*	2
6	ABR 219	Major Repair Procedures	4
7	ABR 220	Enamel Refinishing Practices	4
7	ASV 214	Steering and Suspension Systems	2
6	ENG 100	Communication Skills	4
			16
Fourth Semester (Winter)			
9	ABR 199	On-The-Job Training**	4
8	ABR 230	Specialized Study	4
8	ASV 227	Heating and Air Conditioning	2
9	PLS 108	Government and Society	3
		Approved Elective	2
			15

Total Credit Hours: 60

* ABR 226 Unibody Structural Alignment may be substituted for ABR 126 Fundamentals of Frame and Body Alignment.

** An additional four hours of ABR 230 Specialized Study or Recommended Elective may be substituted for ABR 199 On-The-Job Training.

AUTOMOTIVE MECHANICS

COLLEGE CERTIFICATE PROGRAM: CODE ASC

This program provides career training as an auto mechanic. The mechanic must have the ability and skill to make accurate diagnosis of mechanical problems. This requires good reasoning ability as well as a thorough knowledge of automobiles. The mechanic performs minor repairs, replaces and adjusts fuel, electrical and cooling system components. Upon completion of this program, students will be prepared to take the following certification tests: engine repair, brakes, and manual drive train and axle.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ASV 111	Cylinder Head Service	2
2	ASV 113	Manual Trans. and Drivetrains	2
3	ASV 116	Automotive Electronics	2
3	ASV 118	Fuel Systems	2
1	ASV 125	Brake Systems	2
3	WAF	Welding Requirement (100 or higher) .2	
		Science Elective	3-4
			<u>15-16</u>
Second Semester (Winter)			
2	ASV 121	Engine Repair	2
7	ASV 124	Wheel Balance and Alignment.....	2
4	ASV 126	Electrical Systems	2
4	ASV 128	Fuel Injection	2
6	ASV 129	Diagnosis and Repair or	
	ASV 199	On the Job Training	2-3
	ENG	Restricted English Req. (091, 100, 107, 111, or 122)	3-4
			<u>13-15</u>
Total Credit Hours in Program: 30-31			

AUTOMOTIVE SERVICE TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE ASD

This program provides training as an automotive technician. Upon completion, students have the knowledge to pass state and national exams to become certified Master Automotive Technicians. The tests one would be prepared to take are: Engine Repair, Automotive Transmissions, Manual Drive Train and Axles, Suspension and Steering, Brakes, Electrical Systems, Heating and Air Conditioning, and Engine Performance.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ASV 111	Cylinder Head Service	2
2	ASV 113	Manual Trans. and Drivetrains	2
3	ASV 116	Automotive Electronics	2
4	ASV 118	Fuel Systems	2
5	ASV 125	Brake Systems	2
	WAF	Welding Requirement (100 or higher) .2	
	Elective	Restricted Science Elective	3-4
			<u>15-16</u>
Second Semester (Winter)			
2	ASV 121	Engine Repair	2
7	ASV 124	Wheel Balance and Alignment.....	2
4	ASV 126	Electrical Systems	2
4	ASV 128	Fuel Injection	2
6	ASV 129	Diagnosis and Repair I or	
	ASV 199	On the Job Training	2-3
	ENG	Restricted ENG Requirement (091, 100, 107, 111, or 122)	3-4
			<u>13-15</u>
Third Semester (Fall)			
9	ASV 212	Automatic Transmissions - Mechanical	2
8	ASV 214	Steering and Suspension Systems	2
7	ASV 216	Electrical Circuits	2
8	ASV 218	Engine Performance Diagnosis	2
10	ASV 250	New Car Products	2
	PLS	Restricted PLS Requirement (108, 112, or 150)	3
	Elective	Restricted General Elective	3-4
			<u>16-17</u>
Fourth Semester (Winter)			
11	ASV 215	Brake System Service (7 1/2 wks)	1
10	ASV 222	Automatic Transmission - Hydraulic Systems	2
11	ASV 234	Steering & Suspension Sys. Ser.	1
12	ASV 227	Heating and Air Conditioning	2
10	ASV 228	Driveability	2
12	ASV 239	Customer Service	2
	Elective	Restricted General Elective	3-4
			<u>13-14</u>
Total credit hours for program: 60-62			
Restricted Electives			
Science Electives:			
PHY 105	Introductory Physics (or higher PHY elective)		4
CIS 100	Introduction to Computers (or higher CIS elective)		3
CEM 111	General Chemistry (or higher CEM elective)		4

General Electives:

ASV 160	Small Engine Repair	2
BMG 160	Principles of Sales	3
BMG 209	Small Business Management Planning	3
PSY 150	Industrial Psychology	3

AUTOMOTIVE SPRAY PAINTING

COLLEGE CERTIFICATE PROGRAM: CODE ABRS

This program provides training as an automotive spray painter. This person repaints automotive vehicles, removes old paint from vehicles or damaged or repaired portions of vehicles, mixes paints to attain specified color or to match color of vehicle, and paints vehicle or portion of vehicle with spray gun.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ABR 111	Auto Body Repair Fundamentals	4
1	ABR 112	Auto Refinishing Fundamentals	4
2	ABR 113	Light Body Service	1
2	ABR 114	Applied Auto Body Welding	1
3	MTH 090	Occupational Mathematics	3
2	WAF 101	Acetylene Welding	2
			15
Second Semester (Winter)			
2	ABR 124	Auto Refinishing Applications	4
4	ABR 199	On-The-Job Training*	2
3	ABR 230	Specialized Study	4
4	ENG 100	Communication Skills	4
			14
Spring/Summer			
4	ABR 125	Flat Rate Estimating	2

Total Credit Hours for Program: 31

* An additional two hours in ABR 230 Specialized Study or Recommended elective may be substituted for ABR 199 On-The-Job Training.

DRAFTING PROGRAMS

ARCHITECTURAL DRAFTING

**ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE AD**

Advisors: Michael Pogliano, James Teevens

This program provides career training in architectural drafting. Drafters prepare detailed drawings based on rough sketches, specifications and calculations made by scientists, engineers, architects, and designers. They also calculate the strength, quality, quantity and cost of materials. Final drawings contain a detailed view of the object from all sides as well as specifications for materials to be used, procedures to be followed, and other information necessary to complete the job. In preparing drawings drafters use compasses, dividers, protractors, triangles and other drafting devices. To help solve technical problems, they also use engineering handbooks, tables and calculators.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ARC 111	Architectural Drawing I	6
1	ARC 117	Construction Materials	3
6	ENG	Restricted ENG Requirement (091 or 111)	4
5	MTH 152	Applied Geometry and Trigonometry ..	4
			17
Second Semester			
3	ARC 100	Specifications	1
2	ARC 120	Mechanical and Electrical Systems in Buildings	3
2	ARC 122	Architectural Drawing II	6
5	ARC 150	Presentation Drawings and Models	4
6	ARC 109	Site Layout	3
			17
Third Semester			
5	ARC 207	Estimating Construction Costs I	2
4	ARC 210	Structure in Architecture	2
3	ARC 213	Architectural Drawing III	6
2	ENG 100	Communication Skills	4
3	PHY 111	General Physics	4
			18
Fourth Semester			
6	ARC 208	Estimating Construction Costs II	2
4	ARC 224	Architectural Drawing IV	6
7	PLS 108	Government and Society	3
7	PSY 150	Industrial Psychology	3
			14

Total credit hours for program: 66

ARCHITECTURAL DRAFTING DETAILING

COLLEGE CERTIFICATE PROGRAM:
CODE ADD

Advisors: Michael Pogliano, James Teevens

This program provides career training as an architectural drafting detailer. Detailers perform many of the same tasks as a Drafting Technician, drawing each part shown on the layout and give dimensions, materials and other information to make the drawing clear and complete.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	ARC 111	Architectural Drawing I	6
2	ARC 117	Construction Materials	3
5	ENG	Restricted ENG Requirement (091 or 111)	4
4	MTH 169	Intermediate Algebra	4
			<u>17</u>
Second Semester			
4	ARC 100	Specifications	1
3	ARC 120	Mechanical and Electrical Systems in Buildings	3
2	ARC 122	Architectural Drawing II	6
6	ARC 150	Presentation Drawings and Models	4
5	ARC 109	Site Layout	3
			<u>17</u>

Total credit hours for program: 34

COMPUTER AIDED DRAFTING TECHNOLOGY (CAD)

The CAD programs provide career training as a CAD Operator/Technician. These technicians prepare clear, complete, and accurate working plans and detail drawings from rough sketches, specifications, and calculations of engineers and designers to be used for engineering and manufacturing purposes. Technician's drawings usually provide a number of different views of the object, must be exact and include information concerning the materials to be used. Technicians in this occupation often specialize in a particular field such as the electronic or mechanical (machine drafting and related) option. Advanced operators perform product manufacturing preparation for CAM and computer integrated manufacturing.

COMPUTER AIDED DRAFTING (CAD) — ELECTRONIC OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE CADE

Advisors: Frank Gerlitz, Gary Hentz, Belinda McGuire

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
6	ENG 100	Communication Skills	4
1	IND 111	Industrial Drafting	4
1	IND 112	Descriptive Geometry	4
1	IND 216	Introduction to Computer Aided Drafting	2
1	IND 251	Fundamentals of Electronic Drafting *	3
			<u>17</u>
Second Semester (Winter)			
2	IND 105	Pictorial Drawing	2
2	IND 114	Industrial Drafting	4
2	IND 217	Introduction to 3-D CAD	2
2	ELE 137	Switching Logic *	3
6	PSY 150	Industrial Psychology	3
			<u>14</u>
Third Semester (Fall)			
4	ELE	Restricted ELE Elective	3-4
4	IND 107	Mechanisms	4
4	IND 220	CAD Application—Electronic	4
4	MTH 179	Precalculus	4
			<u>15-16</u>
Fourth Semester (Winter)			
5	CIS/CPS	Restricted CIS/CPS Programming Elective	4
5	IND 222	Introduction to Electronic Design	4
3	MET 103	Introduction to Materials	3
6	PLS 108	Government and Society	3
			<u>14</u>
Restricted Electives			
CIS 275	C	Programming Language	4
CPS 183		Intro to BASIC Programming	4
CPS 186		Intro to PASCAL Programming	4
CPS 187		Intro to FORTRAN Programming	4
ELE 101		Servicing Techniques I	2
ELE 105		Introduction to Telecommunications	3
ELE 139		Microprocessors	4

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

*Appropriate Electronic Courses or work experience may be substituted.

Total credit hours for program: 60-61

COMPUTER AIDED DRAFTING (CAD) MECHANICAL OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE CADM

Advisors: Frank Gerlitz, Gary Hentz, Belinda McGuire

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
5	ENG 100	Communication Skills	4
1	IND 111	Industrial Drafting	4
1	IND 112	Descriptive Geometry	4
1	IND 216	Introduction to Computer Aided Drafting	2
3	MET 111	Machine Shop Theory and Practice	4
			<u>18</u>
Second Semester (Winter)			
2	IND 105	Pictorial Drawing	2
2	IND 114	Industrial Drafting	4
2	IND 123	Geometric Dimensioning and Tolerancing	2
2	IND 217	Introduction to 3-D CAD	2
7	INM 111	CIM Fundamentals	4
			<u>14</u>
Third Semester (Fall)			
3	CIS/CPS	Restricted CIS/CPS Elective or NCT 111 Manufacturing Processes for CAM	4
4	IND 107	Mechanisms	4
4	IND 221	CAD Application - Mechanical	4
4	MTH 179	Precalculus	4
7	PSY 150	Industrial Psychology	3
			<u>19</u>
Fourth Semester (Winter)			
5	IND 223	Introduction to Mechanical Design	4
5	IND 230	Advanced Product Drafting	4
5	INM 260	CIM Applications	4
3	MET 103	Introduction to Materials	3
7	PLS 108	Government and Society	3
			<u>18</u>
Restricted Electives			
CIS 275	C Programming Language		4
CPS 183	Intro to BASIC Programming		4
CPS 186	Intro to PASCAL Programming		4
CPS 187	Intro to FORTRAN Programming		4

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

Total credit hours for program: 69

DRAFTING DETAILING

COLLEGE CERTIFICATE PROGRAM:
CODE DFTC

Advisors: Frank Gerlitz, Gary Hentz, Belinda McGuire, James Packard

This program provides career training as a drafter detailer. The drafter prepares clear, complete and accurate working plans and detail drawings from rough sketches, specifications and calculations for engineers and designers to be used for engineering or manufacturing purposes. The drawings usually provide a number of different views of the object, must be exact and include information concerning the materials to be used. The detailer uses a variety of instruments including protractors, compasses, triangles, squares, drawing pens and pencils. Drafting detailers make complete drawings giving dimensions, materials and any other necessary information of each part shown on the layout.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	IND 111	Industrial Drafting	4
2	IND 112	Descriptive Geometry	4
3	MET 111	Machine Shop Theory and Practice	4
4	MTH	Restricted MTH Elective	4
			<u>16</u>
Second Semester (Winter)			
4	ENG	Restricted ENG Requirement (100 or 111)	4
3	IND 105	Pictorial Drawing	2
2	IND 114	Industrial Drafting	4
4	IND 123	Geometric Dimensioning and Tolerancing	2
3	MET 103	Introduction to Materials	3
3	Elective	Restricted Technical Elective	2-4
			<u>17-19</u>

Restricted Electives

IND 100	Technical Drawing	4
IND 121	Theory of Jigs & Fixtures	2
INM 111	CIM Fundamentals	4
IND 216	Introduction to Computer-Aided Drafting	2
MTH 090	Occupational Mathematics	3
MTH 151	Technical Algebra	4
WAF 100	Fundamentals of Welding	2

If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

Total credit hours for program: 33-35

INDUSTRIAL DRAFTING TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE IDT

Advisors: Frank Gerlitz, Gary Hentz, Belinda McGuire, James Packard

This program provides training as an industrial drafting technician. This technician specializes in drafting detailed work drawings of machinery and mechanical devices indicating dimensions and tolerances, fasteners, and joining requirements and other engineering data. The technician drafts multiple-view assembly and sub-assembly drawings and documentation as required for manufacturing processes, material handling, tooling and maintenance of equipment and plant production lines. The technician may be required to perform basic CAD operations on "desk top" stations.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	IND 111	Industrial Drafting	4
1	IND 112	Descriptive Geometry	4
3	MET 111	Machine Shop Theory and Practice	4
1	MTH 151	Technical Algebra *	4
			16
Second Semester (Winter)			
2	IND 114	Industrial Drafting	4
4	IND 121	Theory of Jigs and Fixtures	2
4	IND 123	Geometric Dimensioning and Tolerancing	2
3	MET 103	Introduction to Materials	3
4	MTH 152	Technical Geometry and Trigonometry *	4
			15
Third Semester (Fall)			
5	CIS/CPS	Restricted CIS/CPS Programming Elective	4
5	ENG 100	Communication Skills	4
4	IND 107	Mechanisms	4
3	IND 216	Introduction to Computer Aided Drafting	2
5	IND 251	Fundamentals of Electronic Drafting ...	3
			17
Fourth Semester (Winter)			
2	IND 105	Pictorial Drawing	2
5	IND 217	Introduction to 3-D CAD	2
6	IND 230	Advanced Product Drafting	4
6	PLS 108	Government and Society	3
6	PSY 150	Industrial Psychology	3
	Elective	Restricted Technical Elective	2-4
			16-18

Restricted Electives

CIS 275	C Programming Language	4
CPS 183	Intro to BASIC Programming	4
CPS 186	Introduction to PASCAL Programming	4
CPS 187	Introduction to FORTRAN Programming	4
IND 100	Technical Drawing	4
IND 218A	Interactive Computer-Aided Drafting	2
INM 111	CIM Fundamentals	4
PHY 105	Conceptual Physics	4
WAF 100	Fundamentals of Welding	2

(If students choose an elective other than those listed above, they must complete a substitution form. See an advisor for details.)

* May substitute CPS 186 or 187. MTH 169A or 169B and MTH 177 may be substituted.

Total credit hours for program: 64-66

ELECTRICITY AND ELECTRONICS

DIGITAL EQUIPMENT TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE
PROGRAM: CODE DIGT

Advisors: Gary Downen, Philip Mullins, Arlene Paup

The Digital Equipment Technology program trains technicians to install, service and maintain a wide range of equipment such as digital computer systems, word processing systems, numerical control systems, security systems and instrumentation systems. Students in this program gain the basic electronic skills needed to install and service this wide range of electronic systems. A typical graduate will be employed as a field service representative for a company dealing in computer and digital electronic equipment. In addition to being technically competent, students must possess verbal, written communication and interpersonal skills in order to work successfully with customers, managers and co-workers.

Course Number	Course Title	Credit Hours
Fall Semester		
ELE 123A	Fundamentals of Electricity (A)	5
ELE 137	Switching Logic	3
ELE 140	Software Concepts	4
ENG 100	Communication Skills	4
		16

Winter Semester

ELE 101	Servicing Techniques	2
ELE 123B	Fundamentals of Electricity (B)	5
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 213	Semiconductor Applications	4
		15

Spring/Summer Semester

ELE 299	Customer Relations	1
ENG 107	Technical Communications	3
		4

Fall Semester

ELE 215	Digital Communications I	4
ELE 230	Computer System Fundamentals	4
ELE 240	Career Practices Seminar	2
ELE 241	Digital Electronics	4
	Approved Non-technical Elective	3
		17

Winter Semester

ELE 225	Digital Communications II	4
ELE 235	Computer System Troubleshooting	4
ELE 250	Microprocessor Interfacing	4
PLS 108	Government and Society	3
		15

Total Credit Hours for Program: 67

ELECTRONIC CONTROL SYSTEMS TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE ECSS

Advisors: Dean Russell, William Cleary, Lawrence Kramer, Gary Downen, Dave Weyant, Philip Mullins

This program is designed to provide career training as an industrial electronics and automation technologist. This technologist installs equipment; wires the factory; maintains motors, transformers, and switchgear; chooses wire sizes; locates equipment and ensures compliance with electrical codes and specifications. The technologist is part of a team of engineers, managers and skilled trades workers, who automate the factory. The technologist assembles and fabricates prototype equipment, installs and calibrates new equipment to manufacturer's specifications, recommends modifications to equipment, modifies both written and drawn documentation, and installs electrical and pneumatic instrumentation. The technician may work

with programmable controllers, computer systems, microprocessor controlled machines and processes, material handling systems, temperature control systems, speed and position control systems, and assembly line controls. To this end, the program graduate is well versed in technical communications, digital and analog electronics, information processing, motors and solid state controls, and systems level troubleshooting.

Course Number	Course Title	Credit Hours
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First Semester (Fall)

ELE 123A	Fundamentals of Electricity (A)	5
ELE 137	Switching Logic	3
ELE 140	Software Concepts	4
PHY 110	Applied Physics	4
		16

Winter Semester

ELE 123B	Fundamentals of Electricity (B)	5
ELE 134	Motors and Controls	4
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 213	Semiconductor Applications	4
		17

Fall Semester

ELE 204	National Electrical Code	4
ELE 224	Programmable Controllers	4
ELE 240	Career Practices Seminar	2
ENG 100	Communication Skills	4
PLS 108	Government and Society	3
		17

Winter Semester

ELE 101	Servicing Techniques	2
ELE 244	Electronic Control Systems	4
ELE 250	Microprocessor Interfacing	4
ELE 254	Programmable Controller Systems or Approved non-technical elective	4
ENG 107	Technical Communications or Approved non-technical elective	3
		17

Total Credit Hours for Program: 67

TELECOMMUNICATION TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE TELE

Advisors: William Cleary, Gary Downen,
Lawrence Kramer

The Telecommunication Technology program is designed to train entry-level technicians for the telecommunications industry. The Telecommunications Technologist is employed in companies and institutions with telephone and data communications systems. Graduates install, maintain and troubleshoot telecommunication systems after an on-the-job-training program. In addition to technical skills, the technologist must be able to communicate effectively in oral and written form to other technologists, managers and customers.

Course Number	Course Title	Credit Hours
Fall Semester		
ELE 101	Servicing Techniques I	2
ELE 105	Introduction to Telecommunications	3
ELE 123A	Fundamentals of Electricity (A)	5
ELE 137	Switching Logic	3
ENG 100	Communication Skills	4
		17
Winter Semester		
ELE 123B	Fundamentals of Electricity (B)	5
ELE 140	Software Concepts	4
ELE 150	PC Hardware Concepts and Troubleshooting	4
ELE 213	Semiconductor Applications	4
		17
Fall Semester		
ELE 205	Basic Telephony	4
ELE 215	Digital Communications I	4
ELE 240	Career Practices Seminar	2
ELE 241	Digital Electronics	4
ELE 275	Switching Systems	4
		18
Winter Semester		
ELE 225	Digital Communications II	4
ELE 245	Transmission Systems	4
ELE 250	Microprocessor Interfacing	4
PLS 108	Government and Society	3
		15
Total credit hours for program: 67		

INDUSTRIAL TECHNOLOGY

COMPUTER-AIDED MANUFACTURING
(CAM) TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE CAM

Advisors: Roger Dick, Jeffrey Donahey

This program is designed to provide career training as a Computer Aided Manufacturing Technician. CAM Technicians can be considered the link between design and actual manufacture of products by firms using computer controlled equipment. They set up and operate various types of numerical control machine tools and have the primary responsibility of writing the programs which control the machine motion required to manufacture parts. They have a working knowledge of the many N/C machine tool languages used in industry. They write programs directly in the format used by the N/C machine tool (manual programming) or by using various computer-assisted languages and software. CAM Technicians are trained in the use of Computer Aided Design (CAD) hardware and software and are able to generate tool paths on data created on CAD systems. They are also trained in machining techniques, precision measurement, blueprint interpretation and industrial processes. Often CAM Technicians are required to design and manufacture jigs and fixtures used to hold parts which have been designed using CAD software.

Course Number	Course Title	Credit Hours
First Semester (Fall)		
INM 111	CIM Fundamentals	4
MET 111	Machine Tool Theory and Practice	4
MTH 178	General Trigonometry	3
SPC 101	Process Quality Control	3
		14
Second Semester		
IND 216	Introduction to Computer Aided Drafting	2
IND 217	Introduction to 3-D CAD	2
MET 122	Machine Tool Operations and Set-Up I	4
NCT 111	Manufacturing Processes for CAM	4
NCT 125	CAM Computer Operation and Programming	3
		15
Spring/Summer Semester		
PLS 108	Government and Society	3
ENG 111	English Composition I	4
		7

Third Semester

IND 123	Geometric Dimensioning and Tolerancing	2
IND 221	3D CAD Application - Mechanical	4
NCT 121	Manual Programming and NC Tool Operation	4
NCT 236	CAM Machine Tool Programming	4
		<u>14</u>

Fourth Semester

NCT 122	Advanced Manual Prog. and NC Tool Operation .	4
NCT 247	Advanced CAM Machine Tool Programming	4
INM 260	CIM Applications	4
		<u>12</u>

Total credit hours for program: 62

ELECTRO-MECHANICAL TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE ELMT

Advisors: George Agin, Dean Avery, Gary Schultz

This program provides career training as an electro-mechanical technician. This technician's duties include: fabricating, testing, analyzing, and adjusting precision electro-mechanical devices, following blueprints and sketches using hand tools, metalworking machines and measuring and testing instruments; operating metalworking machines such as the bench lathe, milling machine, and drill press to fabricate housing, fittings, jigs and holding fixtures; verifying dimensions using micrometers and vernier calipers; assembling wiring and electrical components plus mechanical components; testing assembly line devices for circuit continuity and operational reliability; analyzing test results and repairs or adjust according to analysis; recording test results and writing reports on fabrication techniques. In many small firms this person would also perform duties previously listed under Electrical or Mechanical Maintenance.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
	3	ELE 123A Fundamentals of Electricity (A)	5
	6	ENG Restricted ENG Requirement (100 or 111)	4
	1	MET 111 Machine Shop Theory and Practice	4
	1	MTH 151 Technical Algebra	4
			<u>17</u>

Second Semester

4	ELE 123B Fundamentals of Electricity (B)	5
1	IND 111 Industrial Drafting	4
2	MET 122 Machine Tool Operations and Set-Up I	4
2	MTH 152 Technical Geometry and Trigonometry	4
		<u>17</u>

Third Semester

1	ELE 224 Introduction to PLC's	4
2	FLP 111 Fluid Power Fundamentals	4
5	MET 103 Introduction to Materials	3
2	INM 111 CIM Fundamentals	4
6	PLS 108 Government and Society	3
		<u>18</u>

Fourth Semester

5	ELE 137 Switching Logic	3
3	MET 123 Machine Tool Operations and Set-Up II	4
5	NCT 121 Manual Programming and NC Tool Operation	4
2	PHY 110 Applied Physics	4
5	WAF 100 Fundamentals of Welding	2
		<u>17</u>

Total credit hours for program: 69



FLUID POWER TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE
PROGRAM: CODE FLPT

Advisors: George Agin, Gary Schultz

This program provides career training as a fluid power technician. As a technician in this field, one might work as a laboratory technician, production supervisor, field service technician, or design and development technician. A design technician would sketch designs and prepare drawings for the development of fluid components and systems. In field service he/she installs and maintains fluid power systems or serves as a manufacturer's representative. As a fluid power technician, he/she might work at inspecting, operating, and servicing fluid power equipment in various industrial applications. As a fluid power technician, he/she might work at inside sales, outside sales, servicing and testing fluid power equipment in various industrial applications.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
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First Semester (Fall)

4	ELE 123A	Fundamentals of Electricity (A)	5
1	FLP 111	Fluid Power Fundamentals	4
1	MET 111	Machine Shop Theory and Practice	4
1	MTH 169	Intermediate Algebra	4
			<u>17</u>

Second Semester

7	CMT 101	Fundamentals of Speaking	3
2	FLP 213	Hydraulic Controls	3
2	FLP 214	Basic Hydraulic Circuits	3
2	FLP 226	Pneumatics	3
3	WAF 100	Fundamentals of Welding	2
			<u>14</u>

Third Semester

7	ENG 100	Communication Skills	4
3	FLP 122	Hydraulic Pumps and Motors	2
5	IND 100	Technical Drawing	4
2	INM 111	CIM Fundamentals	4
6	PHY 110	Applied Physics	4
			<u>18</u>

Fourth Semester

4	FLP 225	Fluid Power Instrumentation	3
6	MET 122	Machine Tool Operations and Set-Up I	4
8	PLS 108	Government and Society	3
	IND	Restricted IND Elective (100 or above)	4
8	Elective	Open Elective	3
			<u>17</u>

Total credit hours for program: 66

HYDRAULIC ASSEMBLY

COLLEGE CERTIFICATE PROGRAM:
CODE HYDA

Advisors: George Agin, Gary Schultz

This program provides career training as a hydraulic assembler. This person assembles machinery by studying blueprints to plan logical assembly sequence and positions, aligns parts, and bolts them together. Then he/she lays out hydraulic hose or piping on machine (away from moving parts) to facilitate servicing machine and connects hydraulic hose or piping to pumps and specific fittings.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	FLP 111	Fluid Power Fundamentals	4
3	MET 111	Machine Shop Theory and Practice	4
3	WAF 111	Welding (Basic Oxy-Acetylene)	4
4	MTH 151	Technical Algebra	4
			<u>16</u>

Second Semester

2	FLP 122	Hydraulic Pumps and Motors	2
1	FLP 226	Pneumatics	3
2	BPR 101	Blueprint Reading (Manufacturing)	3
2	FLP 214	Basic Hydraulic Circuits	3
4	CMT 101	Fundamentals of Speaking	3
			<u>14</u>

Total credit hours for program: 30



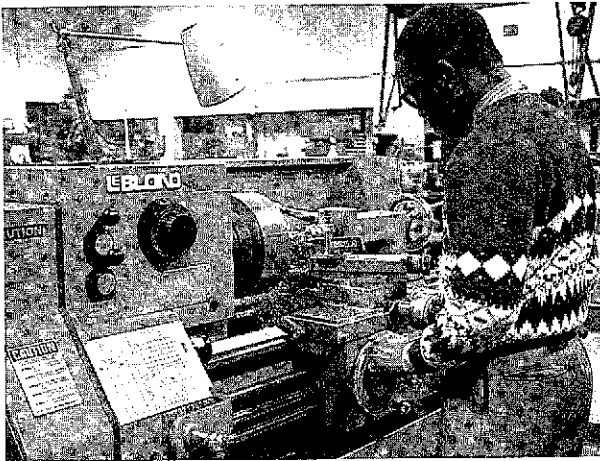
MECHANICAL ENGINEERING TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE MET

Advisors: Dean Avery, Burton Lowe

This program provides career training as a mechanical engineering technician. The technician's duties are to: apply theory and principles of mechanical engineering to develop and test machinery and equipment under the direction of an engineering staff; review project instructions and blueprints to determine test specifications, procedures, and objectives; test equipment and review problems in order to provide possible solutions; prepare detailed drawings or sketches for the drafting room for fabrication by machine, wood, or sheet metal shops; set up and conduct tests and experiments of complete units and components to investigate engineering theories regarding improvement in design or performance of equipment; analyze indicated and calculated test results against design or rated specification and objectives of tests, and modify equipment to meet specifications; record test procedures, results, and suggestions for improvement; prepare engineering drawings, charts, and graphs.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
3	ENG 100	Communication Skills or	
	ENG 111	Composition I *	4
1	BPR 101	Blueprint Reading (Manufacturing)	3
1	MET 111	Machine Shop Theory and Practice	4
1	MTH 151	Technical Algebra or	
	MTH 169	Intermediate Algebra *	4
5	PHY 110	Applied Physics	4
			<u>19</u>



Second Semester

2	IND 111	Industrial Drafting	4
2	MET 122	Machine Tool Operations and Set-Up I	4
2	MTH 152	Technical Geometry and Trigonometry or	
	MTH 177	Triangle Trigonometry *	4
4	INM 111	CIM Fundamentals	4
			<u>16</u>

Third Semester

6	ELE 123A	Fundamentals of Electricity (A)	5
4	FLP 111	Fluid Power Fundamentals	4
3	MET 103	Introduction to Materials	3
3	MET 123	Machine Tool Operations and Set-Up II	4
5	NCT 121	Manual Programming and NC Tool Operation	4
			<u>20</u>

Fourth Semester

5	FLP 214	Basic Hydraulic Circuits	3
4	MET 201	Machine Tool Technology	4
6	NCT 122	Advanced Manual Programming and NC Tool Operation	4
7	PLS 108	Government and Society	3
7	WAF 103	Heli-Arc Welding	2
			<u>16</u>

Total credit hours for program: 71

* Students planning to transfer to EMU or other four-year institutions should choose these courses.

NUMERICAL CONTROL MACHINE OPERATIONS

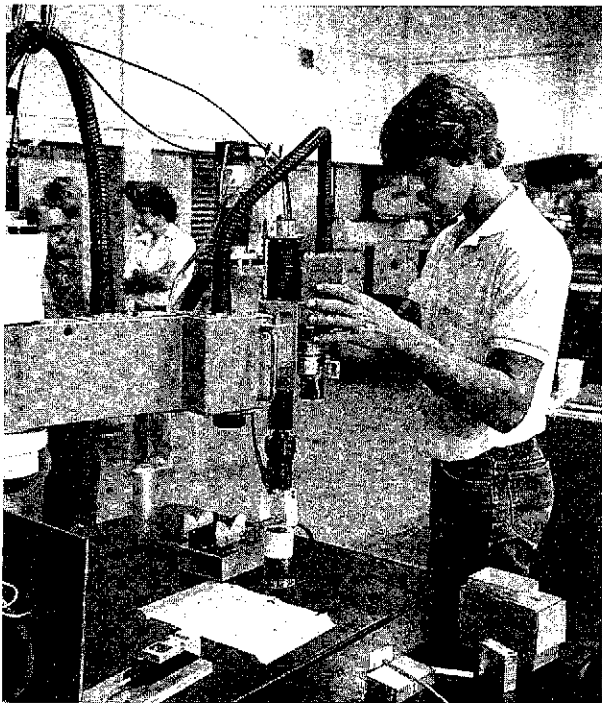
COLLEGE CERTIFICATE PROGRAM: CODE NC

Advisors: Roger Dick, Jeffrey Donahey

This College Certificate program is designed to train persons to set up and operate Numerical Controlled machine tools. CNC operators must have a working knowledge of the relationship between part programs and machine tool operation. Precision measurement, blueprint interpretation, and CNC program editing are among the specific skills presented and practiced in this program. The program can serve as an entry into the Computer-Aided Manufacturing (CAM) Technology Associate Degree program.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	BPR 101	Blueprint Reading (Manufacturing) or	
	IND 100	Technical Drawing	2-4
1	MET 111	Machine Shop Theory and Practice	4
1	MTH 151	Technical Algebra	4
2	NCT 121	Manual Programming and NC Tool Operation	4
			14-16
Second Semester			
2	ENG	Restricted ENG Requirement (100 or 111)	4
3	MET 122	Machine Tool Operations and Set-Up I	4
4	MET 123	Machine Tool Operations and Set-Up II	4
2	MTH 152	Technical Geometry and Trigonometry. or	
	MTH 177	Triangle Trigonometry	3-4
			15-16
Third Semester			
3	NCT 122	Advanced Manual Programming and NC Tool Operation	4
			4

Total credit hours for program: 33-36



ROBOTIC TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE ROB

Advisors: George Agin and Gary Schultz

This program trains automated equipment technicians in robotics to assemble, install and maintain electrical and electronic, electro-mechanical, pneumatic and hydraulic components on computer-assisted multi-purpose machinery and equipment using hand tools, electronic testing instruments, diagrams and prints. Students who complete the program will be prepared to enter the field with job entry skills. A prerequisite for entry into this program is a math level ability of MTH 151 or higher.

Course Number	Course Title	Credit Hour
First Semester (Fall)		
ELE 123A	Fundamentals of Electricity (A)	5
FLP 111	Fluid Power Fundamentals	4
IND 100	Technical Drawing	4
INM 111	CIM Fundamentals or	
INM 121	Robotics I	3-4
		16-17
Second Semester		
ELE 123B	Fundamentals of Electricity (B)	5
FLP 213	Hydraulic Controls	3
FLP 214	Basic Hydraulic Circuits	3
FLP 226	Pneumatics	3
		14
Spring Semester		
ELE 137	Switching Logic	3
INM 212	Robotics II	4
		7
Third Semester		
ELE 224	Introduction to PLC's	4
IND 107	Mechanisms	4
INM 223	Robotics III	4
PSY 150	Industrial Psychology	3
WAF 091	Welding Procedures for Robotics	1
		16
Fourth Semester		
ELE 139	Microprocessors	4
ENG 100	Communication Skills	4
INM 224	Robotics IV	4
PLS 108	Government and Society	3
		15

Total credit hours for program: 68-69

TOOLROOM MACHINE OPERATION

COLLEGE CERTIFICATE PROGRAM:
CODE TOMO

Advisors: Dean Avery, Burton Lowe

This program is designed to provide career training as a toolroom machine operator. Machine tools are stationary, power-driven machines which hold the metal that is to be cut, milled, ground or drilled. Some of the more common machine tools are engine lathes, saws, grinding machines, drilling machines, and milling machines. These tools are used to machine metal to exact dimensions. Semi-skilled workers operate machine tools on which the speeds and operation sequence have been set by a more skilled employee. They tightly secure the metal stock in the machine then check for precision through the use of measuring devices. Semi-skilled operators usually work with a single type of machine. They plan and set up the correct sequence of operation based on blueprint information. They adjust speed and other controls and select the proper cutting tools or instruments for the operation. They must also know how to use special attachments for the machine, plus be able to use precision measuring instruments.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)			
1	BPR 101	Blueprint Reading (Manufacturing)	3
3	ENG 100	Communication Skills or	
	ENG 111	Composition I *	4
3	MET 103	Introduction to Materials	3
1	MET 111	Machine Shop Theory and Practice	4
1	MTH 151	Technical Algebra or	
	MTH 169	Intermediate Algebra *	4
			18
Second Semester			
3	IND 100	Technical Drawing	4
2	MET 122	Machine Tool Operation	
		and Set-Up I	4
2	MTH 152	Technical Geometry and Trigonometry	
		or	
	MTH 177	Triangle Trigonometry *	4
2	INM 111	CIM Fundamentals	4
			16

Total credit hours for program: 34

* Students planning to transfer to four-year institutions should choose these courses.

VISUAL ARTS TECHNOLOGY

GRAPHIC DESIGN TECHNOLOGY -
DESIGN OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE GDTD

Advisors: Dennis Guastella, John Martin

This program provides career training as a graphic artist with an emphasis on design. Graphic artists work with typographers, printers, and other specialists in the graphic arts. They are artists for commerce. They work on projects and commissions with definite objectives for clients and employers to communicate, inform, instruct, or sell. They may work in package design, professional publications, book illustrations, annual reports, magazines, trade publications, desktop publishing, and in-house publications. Multi-talented individuals who can write copy, are experienced in design and art production, and understand marketing techniques are in greatest demand. A creative or artistic ability is required for these careers as well as such qualities as resourcefulness, experimentation, and inquiry. Basic skill competencies in keylining, paste-up, typography, graphic communication, knowledge of materials (paper and ink), fundamentals of design, computer graphics, and illustration evident in a portfolio are minimum prerequisites for careers in graphic design.

Course Number	Course Title	Credit Hours
First Semester (Fall)		
GDT 100	Typography I	4
GDT 101	Design Survey	3
GDT 102	Computer-Aided Publishing	2
ART 112	Basic Design I	4
ENG	Restricted ENG Requirement (100 or 111)	3-4
		16-17
Second Semester (Winter)		
GDT 113	Principles of Production	4
GDT 217	Computer Aided Publishing II	2
MTH 151	Technical Algebra	
	(or higher mathematics course)	4
GDT 112	Graphic Communication	4
GDT 215	Typography II	4
		18

Third Semester (Fall)

GDT 226	Computer Aided Publishing III	4
PHO 111	Photography	4
Elective	Restricted Elective	2-4
BMG	Restricted Business Elective	3
PLS 108	Government and Society	3
		<u>16-18</u>

Fourth Semester (Winter)

GDT 227	Intro to Printing Methods	4
GDT 230	Professional Practices	2
GDT 236	Specialized Study	2-4
GDT 238	Computer-Aided Illustration	4
PHO 219	Photographic Design	3
		<u>15-17</u>

Total credit hours for program: 65-70

Restricted Electives

GDT 116	Print Photography	2
GDT 222	Commercial Illustration	4
GDT 223	Image Assembly	2
GDT 228	Airbrush	4
BMG 209	Small Business Management Planning	3
BMG 250	Principles of Marketing	3
BMG 270	Advertising Principles	3

**GRAPHIC DESIGN TECHNOLOGY -
ILLUSTRATION OPTION**

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE GDTI

Advisor: John Martin

This program provides career training as an illustrator of commercial and technical art. Illustration requires understanding and visualizing technical information, attention to detail and an interest in precision drawing. The program places emphasis on the design and execution of a variety of subjects utilizing a variety of media and methods to produce a portfolio of finished art to present to a potential employer. Employment for the illustrator is found in medium to large manufacturing and technology-based companies that require staff to create visuals for manuals, advertising and presentation graphics. Other employers include newspaper art departments, department stores, advertising agencies, and design studios. Projects utilize meth-

ods and materials for producing posters, book illustrations, product presentations, perspective and dimensional drawings. Computer generated illustration is included in the program to keep students abreast of the latest technology in the field.

Course Number	Course Title	Credit Hours
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First Semester (Fall)

GDT 100	Typography I	4
GDT 101	Design Survey	3
ART 111	Basic Drawing I	4
ENG	Restricted ENG Requirement (100 or 111)	3-4
		<u>14-15</u>

Second Semester (Winter)

GDT 102	Computer-Aided Publishing	2
GDT 103	Perspective Drawing	4
GDT 113	Principles of Production	4
PHO 111	Photography	4
MTH 151	Technical Algebra (or higher Mathematics course)	4
		<u>18</u>

Third Semester (Fall)

GDT 201	Graphic Illustration	4
PLS 108	Government and Society	3
GDT 228	Airbrush Techniques	4
GDT 217	Computer-Aided Publishing II	2
GDT 236	Specialized Study	2-4
		<u>15-17</u>

Fourth Semester (Winter)

GDT 227	Introduction to Printing Methods	4
GDT 230	Professional Practices	2
GDT 222	Commercial Illustration	4
GDT 238	Computer-Aided Illustration	4
Elective	Restricted Elective	4
		<u>18</u>

Total credit hours for program: 65-68

Restricted Electives

ART 112	Basic Design I	4
GDT 112	Graphic Communication	4
GDT 116	Print Photography	2
GDT 215	Typography II	4
GDT 226	Computer-Aided Publishing III	4
GDT 237	Airbrush Techniques II	4
IND 216	Introduction to CAD	2

Other course considerations require Advisor consent.

GRAPHIC DESIGN TECHNOLOGY - PRINTING OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE GDTP

Advisor: Dennis Guastella

This program provides career training as a graphic artist with emphasis on printing technology. Graphic artists working in the printing industry assist graphic designers, book publishers, the general public and industry specialists in producing printed materials. These individuals may work in a variety of capacities in the printing and publishing field. The curriculum emphasizes pre-press production, offset printing, typesetting and desktop publishing, principles of management and marketing, printing estimating, planning and finishing. The Ann Arbor area has one of the largest concentrations on printing and book publishing in the country, providing many career opportunities.

Course Number	Course Title	Credit Hours
First Semester (Fall)		
GDT 100	Typography	4
GDT 101	Design Survey	3
GDT 102	Computer-Aided Publishing	2
ENG	Restricted ENG Requirement (100 or 111)	3-4
PHO 111	Photography	4
		16-17
Second Semester (Winter)		
GDT 113	Principles of Production	4
GDT 217	Computer-Aided Publishing II	2
GDT 227	Introduction to Printing Methods	4
MTH 151	Technical Algebra (or higher Mathematics course)	4
BMG	Restricted Business Elective	3
		17
Third Semester (Fall)		
GDT 116	Print Photography	2
GDT 223	Image Assembly	2
GDT 225	Offset Press Operation	4
PLS 108	Government and Society	3
Elective	Restricted Elective	4
		15
Fourth Semester (Winter)		
BMG 250	Principles of Marketing	3
GDT 236	Specialized Study	2-4
GDT 230	Professional Practices	2
GDT 233	Print Estimating	2
GDT 234	Planning and Finishing	4
		13-15

Total credit hours for program: 61-64

Restricted Electives

BMG 150	Labor-Management Relations	3
BMG 209	Small Business Management Planning	3
CIS 100	Introduction to Computers	3
ENG 107	Technical Communications	3
GDT 226	Computer-Aided Publishing III	4
PSY 150	Industrial Psychology	3

PHOTOGRAPHIC TECHNOLOGY

This program has two options which provide career training in photographic technology. The photographic technician assists the photographer in a wide variety of photographic environments and assists in the planning, designing, constructing and use of equipment and set-ups. Using photographic techniques, problems are solved through controlled procedures to meet often unusual situations. The technician must be able to operate small, medium and large-format still camera systems and be able to process and enlarge positive and negative black-and-white and color materials. The technician will have more experience and be given more photographic responsibilities than the photographic assistant.

PHOTOGRAPHIC TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES DEGREE
PROGRAM: CODE PHOT

Advisors: Terry Abrams, J. Raymond Steinbach

Full-Time Sequence	Course Title	Credit Hours
First Semester		
ENG 100	Communication Skills	4
MTH 090	Occupational Mathematics	3
PHO 111	Photography	4
PHO 103	History of Photography	2
PHO 115	Photo Retouching	2
		15

Second Semester

PHO 112	Darkroom Techniques	5
PHO 113	Studio Techniques	3
PHO 114	Basic Color Photography	3
PHO 219	Photographic Design **	3
PSY 150	Industrial Psychology	3
		<u>17</u>

Spring/Summer Semester

PHO 101	Photography and Environment	3
		<u>3</u>

Third Semester

PHO 220	Advanced Studio Techniques	3
PHO 221	Advanced Darkroom Techniques	3
PHO 222	Advanced Color Photography	3
PHO 223	Photographic Operations	3
		<u>12</u>

Fourth Semester

PHO 230	Specialized Studies in Photography	2-4
PHO 231	Portfolio Seminar	2
BMG 209	Small Business Management	3
PLS 108	Government and Society	3
Elective	Open Elective	3
		<u>13-15</u>

Total credit hours for program: 60-62

* A counselor or advisor can suggest a part-time sequence.

** ART 112 Basic Design may be substituted for PHO 219.

**PHOTOGRAPHIC TECHNOLOGY -
MARKETING OPTION**

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE PHOM

Advisors: Terry Abrams, J. Raymond Steinbach

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
4		BMG 140 Introduction to Business	3
4		ENG 100 Communication Skills *	4
1		MTH 090 Occupational Mathematics **	3
1		PHO 111 Photography	4
5		PLS 108 Government and Society	3
			<u>17</u>

Second Semester

5	ACC 091	Fundamentals of Accounting I	3
3	BMG 209	Small Business Management Planning	3
2	PHO 112	Darkroom Techniques	5
2	PHO 113	Studio Techniques	3
5	PHO 114	Basic Color Photography	3
			<u>17</u>

Third Semester

6	BMG 160	Principles of Sales	3
3	PHO 220	Advanced Studio Techniques	3
3	PHO 221	Advanced Darkroom Techniques	3
6	PHO 222	Advanced Color Photography	3
	PHO	Restricted PHO Elective	2
			<u>14</u>

Fourth Semester

7	BMG 111	Business Law I	3
7	BMG 250	Principles of Marketing	3
8	BMG 260	Sales Management	3
7	ECO 211	Principles of Economics I	3
	PHO	Restricted PHO Elective	2
			<u>14</u>

Total credit hours for program: 62

Restricted Electives

PHO 101	Photography and Environment	3
PHO 103	History of Photography	2
PHO 116	Portrait Photography	2
PHO 216	Introduction to Fashion Photography	3

*ENG 111 is recommended for students wishing to transfer to a four-year program.

**If you test out of MTH 090, take ACC 091 or 092.

PHOTOGRAPHIC ASSISTING

COLLEGE CERTIFICATE PROGRAM: CODE PHOA

Advisor: J. Raymond Steinbach

This program provides career training as a photographic assistant. The photographic assistant helps the photographer by being able to perform the following: process negatives and positives in both black-and-white and color, copy negative and prints, and perform photographic retouching. The photographic assistant must have knowledge of small and large-format camera operation and functions and must be able to use the various accessories that can be used with the camera, including electronic flash, lenses, exposure meters, and studio-type lights.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
3	ART 112	Basic Design I	4
4	ENG 100	Communication Skills	4
1	MTH 090	Occupational Mathematics	3
1	PHO 111	Photography	4
5	PLS 108	Government and Society	3
			18

Second Semester			
4	GDT 116	Print Photography	2
2	PHO 112	Darkroom Techniques	5
2	PHO 113	Studio Techniques	3
4	PHO 114	Basic Color Photography	3
3	PHO 115	Photo Retouching	2
			15

Total credit hours for program: 33

WELDING AND FABRICATION TECHNOLOGY

WELDING MAINTENANCE MECHANICS

COLLEGE CERTIFICATE PROGRAM: CODE WLDM

Advisors: William Figg and Clyde Hall

This program provides career training as a welding maintenance mechanic. Students weld metal parts together according to layouts, blueprints, or work orders using gas welding or brazing and any combination of arc-welding processes. Students perform related tasks such as frame cutting and grinding. They may also repair broken or cracked parts, fill holes and increase size of metal parts.

Part-Time Sequence	Full-Time Sequence	Course Title	Credit Hours
First Semester			
5	MTH 090	Occupational Math	3
1	WAF 111	Basic Oxy-Acetylene Welding	4
2	WAF 112	Basic Arc Welding	4
6	WAF 200	Layout For Welders	2
7	WAF 210	Welding Metallurgy	3
			16

Second Semester

10	CMT 101	Fundamentals of Speaking	3
3	WAF 123	Advanced Oxy-Acetylene Welding	4
4	WAF 124	Advanced Arc Welding	4
8	WAF 215	Advanced TIG and MIG Welding	4
9	WAF 227	Basic Fabrication	3
			18

Total credit hours for program: 34

WELDING TECHNOLOGY

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE WLDT

Advisors: William Figg and Clyde Hall

This program provides career training as a welding and fabrication technician. Persons planning careers as welders or cutters need manual dexterity, good eyesight, and good coordination. They should be able to concentrate on detailed work for long periods. These technicians position, fit, and weld fabricated, cast, and forged components to assemble structural forms such as machinery frames, tanks, pressure vessels, furnace shells, and building and bridge parts according to blueprints and knowledge of welding characteristics of metal. They also select equipment and plan layout, assembly and welding, and apply their knowledge of geometry, physical properties of metal, effects of heat, allowances for thicknesses, machining weld shrinkage, and welding techniques. They lay out, position, align, and fit components together and secure parts in position for welding. They set up equipment and welding parts using arc, gas-shielded arc, TIG and MIG, or gas-welding equipment. Assembling and repairing parts or products by using a cutting torch, straightening press and handbrake are also components of this technician's job. Upon completion of this program, students can also be foremen, sales representatives, or specialists.

Course Number	Course Title	Credit Hours
First Semester		
BPR 106	Blueprint Reading for Welders	3
ENG	Restricted ENG Requirement (091, 100 or 111) ..	4
MET 100	Machine Shop Theory	3
WAF 111	Basic Oxy-Acetylene Welding	4
WAF 112	Basic Arc Welding	4
		18

Second Semester

IND 100	Technical Drawing	4
MTH 177	Triangle Trigonometry	3
WAF 123	Advanced Oxy-Acetylene Welding	4
WAF 124	Advanced Arc Welding	4
WAF 200	Layout for Welders	2
		<hr/>
		17

Third Semester

IND 112	Descriptive Geometry	4
PSY 150	Industrial Psychology	3
WAF 210	Welding Metallurgy	3
WAF 215	Advanced TIG and MIG Welding	4
WAF 227	Basic Fabrication	3
		<hr/>
		17

Fourth Semester

FLP 111	Fluid Power Fundamentals	4
PLS 108	Government and Society	3
WAF 226	Specialized Welding Procedures	4
WAF 229	Shape Cutting Operations	3
		<hr/>
		14

Total credit hours for program: 66

TECHNICAL JOB TRAINING

TRADE RELATED INSTRUCTION APPRENTICE AND EMPLOYEE TRAINING

Apprenticeship training is on-the-job training with related instruction designed to ensure that each apprentice not only masters skilled tasks but does so with confidence and precision.

Today, apprentices are trained in more than 300 occupations.

Apprenticeships offer an alternative route to training and employment. They differ from other training methods in several ways. First, when individuals enter an apprenticeship training program they are hired in jobs for which vacancies exist and are paid a percentage of the journeyman's (a person who has completed apprenticeship training) rate, usually starting at about 50% and increasing as additional skills are mastered. Second, the apprentice is under the supervision of an individual with demonstrated ability in the tasks to be learned. Third, the formalized on-the-job training is reinforced with appropriate classroom instruction. Fourth, upward mobility is built into the concept.

MANUFACTURING AND CONSTRUCTION

The main purpose of the Trade Related Instruction Program is to provide manufacturing and construction firms with the opportunity to participate in training programs which assist their employees in becoming more skilled.

APPRENTICE TRAINING AND EMPLOYEE TRAINING

Required related instruction is provided for most apprenticeable trades. The College's Director of Technical Training works directly with the apprentice and the sponsoring firm to meet these 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 concerning individual employees who wish to participate.

PRE-APPRENTICESHIP TRAINING

Individuals who wish to enter an apprenticeship program, but who have not passed the required entrance examination, are invited to contact the College counseling staff or the Director of Technical Training. An individual pre-apprenticeship curriculum can be arranged which helps prepare for most industrial apprenticeship entrance examinations. Placement cannot be guaranteed in an apprenticeship program. Placement is at the mutual discretion of employers, employees and organizations representing the skill trades involved.

ASSOCIATE DEGREE PROGRAMS OF STUDY

JOURNEYPerson INDUSTRIAL

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE JPI

This Associate Degree can be awarded to skilled tradespersons upon earning 60 hours or more of credit and complying with other College requirements. All credits earned in Trade Related Instruction may be applied to the Journeyman Industrial Degree. Credit earned at other institutions offering trade related subjects are evaluated and may be applicable.

REFRIGERATION AND AIR CONDITIONING

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE RAC

This is primarily a trade-related instruction program. Its purpose is to upgrade persons currently employed in this industry; however, students who are not currently employed in the industry are welcome. Courses are offered in the evening only. All training materials are provided by the Refrigeration Service Engineer's Society. Students should expect to pay approximately \$110 per term in addition to tuition. RSES is a non-profit international educational organization whose sole purpose is the education and training of its members, assisting them in keeping their skills up to date; thereby offering better service to the public. The program is guided by an Advisory Committee consisting of journeymen and contractors and is offered in cooperation with the local chapter of the Refrigeration Service Engineers Society (RSES). Consent of the program advisor is required for registration.

Course Number	Course Title	Credit Hours
HTG 111	Heating Fundamentals	5
HTG 122	Heating Systems	5
HTG 213	Heating Controls	5
MTH 151	Technical Algebra or Mathematics Elective	4
RAC 111	Refrigeration I	5
RAC 122	Refrigeration II	5
RAC 123	Refrigeration and Air Conditioning Systems	5
RAC 124	Basic Controls	5
RAC 213	Air Conditioning	5
RAC 214	Control Systems	5
RAC 215	Troubleshooting Controls	5
RAC 216	Systems Laboratory	5
WAF 104	Soldering and Brazing	2
ENG	Restricted ENG Requirement (100 or 111)	4
PLS	Restricted PLS Requirement (108, 112 or 150)	3
		68

STATISTICAL PROCESS CONTROL TECHNOLOGY (QUALITY CONTROL)

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM

The function of Quality Control has changed significantly in recent years. Statistical Process Control (SPC) skills used by the Quality Control Engineer or Analyst are now essential to keep manufacturers competitive in both quality and productivity.

In today's business environment, the Quality Control professional is no longer looked upon as the "Policeman" commissioned to catch errors or defects after they occur. Instead, Quality Control is the practice of preventing defects, reducing quality defect losses, increasing productivity through more informed process management and improving quality in general.

Designed by a highly qualified Quality Control Advisory Committee, the courses offer an opportunity for specialization in this important and expanding field. A large choice of electives enables students to train for either a technical or a supervisory position.

STATISTICAL PROCESS CONTROL - ELECTRONICS OPTION

ASSOCIATE IN TECHNICAL STUDIES DEGREE PROGRAM: CODE SPCE

Course Number	Course Title	Credit Hours
CIS/CPS	Restricted CIS/CPS Electives (100 or above)	5-6
ELE 123A	Fundamentals of Electricity (A)	5
ELE 123B	Fundamentals of Electricity (B)	5
ELE 211	Basic Electronics	4
ELE	Restricted ELE Electives (100 or above)	8
ENG	Restricted ENG Requirement (100, 111 or 122)	7-8
MTH 169	Intermediate Algebra	4
PLS	Restricted PLS Requirement (108, 112 or 150)	3
	**SPC Core Courses	18
		59-61

STATISTICAL PROCESS CONTROL - MANAGEMENT OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE SPCM

Course Number	Course Title	Credit Hour
ACC 111	Principles of Accounting	3
ACC 122	Principles of Accounting	3
CIS 111	Computer Concepts	3
CIS 130	PASCAL For Business and Industry	4
CMT 101	Fundamentals of Speaking	3
CPS 186	Introduction to PASCAL Programming	4
ECO 211	Principles of Economics I	3
ECO 222	Principles of Economics II	3
ENG 111	Composition I	4
ENG 122	Composition II	3
MTH 160	Basic Statistics	4
MTH 169	Intermediate Algebra	4
PLS	Restricted PLS Requirement (108, 112 or 150) ...	3
	**SPC Core Courses	18
		<u>62</u>

STATISTICAL PROCESS CONTROL - SCIENCE AND ENGINEERING OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE SPCS

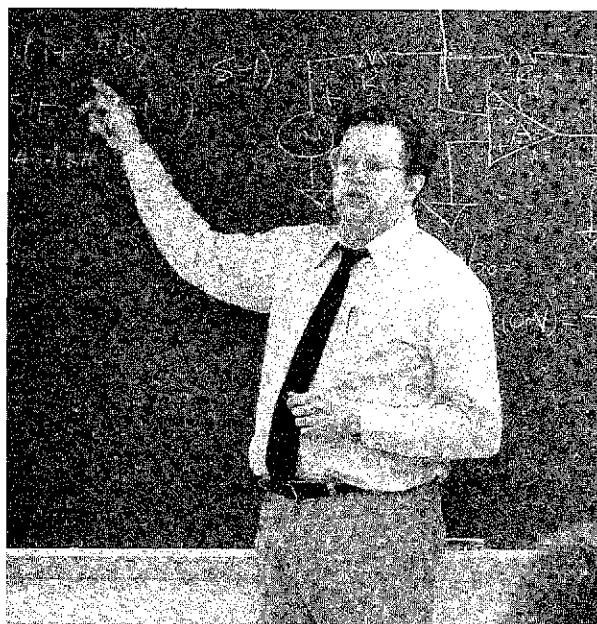
Course Number	Course Title	Credit Hour
CEM 111	General Chemistry I	4
CEM 122	General Chemistry II	4
ENG 111	Composition I	4
ENG 122	Composition II	3
MTH 169	Intermediate Algebra	4
MTH 179	Precalculus	4
MTH 191	Calculus I	5
MTH 192	Calculus II	4
PHY 111	General Physics I	4
PHY 122	General Physics II	4
PLS	Restricted PLS Requirement (108, 112 or 150) ...	3
	**SPC Core Courses	18
		<u>61</u>

STATISTICAL PROCESS CONTROL - SPECIALTY OPTION

ASSOCIATE IN TECHNICAL STUDIES
DEGREE PROGRAM: CODE SPCP

The purpose of the Specialty Option is to meet the needs of students working in diverse fields of Quality Control.

Course Number	Course Title	Credit Hour
ENG	Restricted ENG Requirement (100 or 111)	4
PLS	Restricted PLS Requirement (108, 112 or 150) ...	3
	Open Electives (see program advisor)	35
	**SPC Core Courses	18
		<u>60</u>
**Core Courses (offered evenings only)		
SPC 101	Process Quality Control	3
SPC 122	Sampling Quality Control	3
SPC 213	Quality Control by Statistical Methods	3
SPC 224	Quality Control Problem Solving	3
SPC 225	Quality Control Management	3
SPC 226	Dimensional Metrology and Testing	3
		<u>18</u>



CONSTRUCTION MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE
DEGREE PROGRAM: CODE CON

Advisors: Les Pierce, Mike Pogliano, James Teevens

This program prepares students for supervisory and/or mid-management positions in the construction industry. Construction managers are responsible for a wide range of duties including project management and supervision, estimating and bid preparation, office supervision, scheduling, jobsite supervision and material procurement. This position interfaces with owners, contractors, subcontractors, vendors and inspectors.

Full-Time Sequence	Course Title	Credit Hours
First Semester (Fall)		
ARC 111	Architectural Drawing I	6
ARC 117	Construction Materials	3
MTH 151	Technical Algebra	4
TRI 100	Construction Theory and Practice I	4
		17

Second Semester (Winter)

ARC 109	Site Layout	3
ARC 207	Estimating I	2
BMG 140	Introduction to Business	3
TRI 200	Construction Theory and Practice II	2
		10

Third Semester (Spring/Summer)

ARC 100	Specifications	1
PHY 110	Applied Physics	4
		5

Fourth Semester (Fall)

ARC 208	Estimating II	2
BMG 200	Human Relations in Business and Industry	3
ENG 100	Communication Skills	4
PLS 150	State and Local Government and Politics	3
		12

Fifth Semester (Winter)

ACC 111	Principles of Accounting	3
ARC 199	On the Job Training	2-6
HUM 101	Introduction to Humanities I	3
CIS 111	Computer Concepts	3
		11-15

Open Electives 5

Total credit hours for program: 60-64



Course Descriptions

COURSE DESCRIPTIONS

Descriptions of all credit courses offered at Washtenaw Community College follow. The number of hours each class meets per week is indicated in parentheses with the first number indicating the hours of lecture and/or discussion, and the second number indicating the hours of laboratory. This applies to a 15 week session. During short terms the number of hours per week increases.

Two courses available to students in most career programs are Study Problems and On-The-Job Training. In many cases they are not described separately for each course area.

ACCOUNTING _____ (ACC)

ACC 091. FUNDAMENTALS OF ACCOUNTING I 3 credit hours

Prerequisite or Corequisite: MTH 090
3 hours per week (3-0)

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: ACC 091
3 hours per week (3-0)

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 3 credit hours

Prerequisite or Corequisite: MTH 163 or higher
3 hours per week (3-0)

This is an introductory course in accounting principles and theory with emphasis on the accounting cycle, receivables and payables, depreciation, inventories, payroll, deferrals and ac-

cruals, systems and controls. It is required of all Accounting majors and Business Administration transfer students.

ACC 122. PRINCIPLES OF ACCOUNTING 3 credit hours

Prerequisite: ACC 111
3 hours per week (3-0)

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: ACC 092 or ACC 111
3 hours per week (3-0)

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 200. TAX PREPARATION: PERSONAL AND SMALL BUSINESS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This is an introductory course in federal and state personal income taxes, federal and state payroll taxes, and other general taxes. The course covers tax returns for individuals and unincorporated (Schedule C sole proprietorship) businesses.

ACC 213. INTERMEDIATE ACCOUNTING 3 credit hours

Prerequisite: ACC 111 and 131
3 hours per week (3-0)

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 Accounting majors and is offered in the Fall Semester only.

ACC 225. MANAGERIAL COST ACCOUNTING 3 credit hours

Prerequisite: ACC 111 and 131
3 hours per week (3-0)

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.

ANTHROPOLOGY _____ **(ANT)**

ANT 150. RELIGIONS OF THE WORLD3 credit hours
Prerequisite: None
3 hours per week (3-0)

The anthropological study of religious beliefs and practices of non-literate people as well as major religions of the world is provided in this course.

ANT 201. INTRODUCTION TO CULTURAL ANTHROPOLOGY3 credit hours
Prerequisite: None
3 hours per week (3-0)

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 ANTHROPOLOGY3 credit hours
Prerequisite: None
3 hours per week (3-0)

This course examines the emergence of the human species using materials from primate studies, archaeological findings and early humankind.

ANT 211. INTRODUCTION TO THE PHILOSOPHY AND PRACTICE OF YOGA3 credit hours
Prerequisite: None
3 hours per week (3-0)

This course provides an introduction to the system of Hatha Yoga and the philosophy of realized knowledge.

ANT 222. PHILOSOPHY AND PRACTICE OF YOGA II3 credit hours
Prerequisite: ANT 211
3 hours per week (3-0)

A continuation of Anthropology 211, relating the system of Hatha Yoga to Hindu tradition.

ARCHITECTONICS _____ **(ARC)**

ARC 100. SPECIFICATIONS 1 credit hour
Prerequisite: ARC 117
1 hour per week (1-0)

An introduction is provided to building construction specifications, stressing the organization and preparation of specifications for construction contracts.

ARC 109. SITE LAYOUT3 credit hours
Prerequisite: None
3 hours per week (1-2)

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 I6 credit hours
Prerequisite: None
9 hours per week (3-6)

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 MATERIALS3 credit hours
Prerequisite: None
3 hours per week (3-0)

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 IN BUILDINGS3 credit hours
Prerequisite: None
3 hours per week (1-2)

Drafting of mechanical and electrical systems in buildings from prepared design data is emphasized in this course. This laboratory course includes related lectures. Students must have drafting instruments.

ARC 122. ARCHITECTURAL DRAWING II 6 credit hours

Prerequisite: ARC 111
9 hours per week (2-7)

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: None
6 hours per week (2-4)

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 207. ESTIMATING CONSTRUCTION COSTS I 2 credit hours

Prerequisite: ARC 117, 120
2 hours per week (2-0)

This class provides an introduction to methods of estimating construction costs for building construction projects involving the use of quantitative survey methods of estimating materials, labor, equipment. Methods of computing overhead and profit are included.

ARC 208. ESTIMATING CONSTRUCTION COSTS II 2 credit hours

Prerequisite: ARC 207
2 hours per week (2-0)

This is an advanced course in estimating construction costs. It is intended for large scale construction projects using methods taught in ARC 207.

ARC 210. STRUCTURE IN ARCHITECTURE 2 credit hours

Prerequisite: PHY 111
2 hours per week (2-0)

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: ARC 122
9 hours per week (2-7)

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 224. ARCHITECTURAL DRAWING IV 6 credit hours

Prerequisite: ARC 213
9 hours per week (2-7)

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.

ART _____ (ART)

ART 101. DRAWING AND PAINTING 3 credit hours

Prerequisite: None
3 hours per week (1-2)

This class is for students with no previous studio work who wish to experience an introductory art course and develop individual creative expression and a clearer concept of art, its primary rules and principles. Instruction is in the fundamentals of color and composition involving basic use of art media. It is not intended to take the place of Art 111 or Art 114.

ART 111. BASIC DRAWING I 4 credit hours

Prerequisite: None
6 hours per week (1-5)

This class is an introduction to fundamentals of drawing. Through projects students are given experience in basic problems and issues of drawing. Emphasis is on training the eye and the hand. This course serves as a basis for those who wish to improve their ability to think and articulate in visual terms.



ART 112. BASIC DESIGN I4 credit hours

Prerequisite: None
6 hours per week (4-2)

Study is carried out in this class of two dimensional structures through the exploration of the elements of art: line, value, shape, texture, color. The visual recognition that the predominance of the whole constitutes the composition of its parts is stressed. Emphasis is on experimentation and imagination to arrive at visual ordering.

ART 114. PAINTING4 credit hours

Prerequisite: None
6 hours per week (0-6)

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 DRAWING4 credit hours**

Prerequisite: None
6 hours per week (0-6)

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 II4 credit hours

Prerequisite: ART 111
6 hours per week (0-6)

Complex problems of drawing are explored with greater emphasis placed on individual solutions. Several new media are introduced.

ART 123. BASIC DESIGN II4 credit hours

Prerequisite: ART 112 or consent
6 hours per week (0-6)

Three dimensional design is studied through a series of carefully conceived projects for which individual solutions are sought. Investigated is form, volume and structure with a variety of materials of different properties.

ART 125. PAINTING4 credit hours

Prerequisite: ART 114
6 hours per week (0-6)

A continuation of ART 114, with emphasis on individual development.

ART 130. ART APPRECIATION3 credit hours

Prerequisite: None
3 hours per week (3-0)

An inquiry into the ways in which art reflects, extends and shapes experience. Art of the past and the present as a statement of our human condition is emphasized through class discussion, short papers and projects.

ART 140. LIFE DRAWING4 credit hours

Prerequisite: None
6 hours per week (0-6)

This class involves drawing of the nude to develop visual acuity and self awareness. Emphasis is on, but not limited to, gesture and contour drawing as a means towards graphic, conceptual and emotional communication through figure studies.

**ART 143. ART AND CULTURE OF
AFRO-AMERICA3 credit hours**

Prerequisite: None
3 hours per week (3-0)

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.

ASTRONOMY _____ **(AST)**

AST 100. INTRODUCTORY ASTRONOMY 1 credit hour

Prerequisite: None
7 weeks, 2 hours per week (2-0)

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: None
4 hours per week (4-0)

A survey is provided 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)**

Students enrolling in the Auto Body Repair Program are required to furnish basic tool sets. They also are required during their training to add to the tool sets so they are equipped upon completion of their programs.

ABR 111. AUTO BODY REPAIR FUNDAMENTALS 4 credit hours

Prerequisite: None
8 hours per week (1-7)

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: None
8 hours per week (2-6)

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. LIGHT BODY SERVICE 1 credit hour

Prerequisite: None
7½ weeks, 4 hours per week (0-4)

Principles of alignment and servicing of body components are the focus of this class. Students are exposed to the adjustments of various designs of hinges, latches, window regulators and the problems involved in servicing body trim, hardware and the sealing of water and dust leaks. Correct fit and the function of body parts are stressed.

ABR 114. APPLIED AUTO BODY WELDING 1 credit hour

Prerequisite: None
7½ weeks, 4 hours per week (0-4)

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: ABR 111
8 hours per week (0-8)

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: ABR 112
8 hours per week (0-8)

This is a continuation of units in Auto Refinishing 112. Lab assignments on actual automobiles provide opportunity to improve skills, matching of 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: None
3 hours per week (0-3)

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: None
4 hours per week (0-4)

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: None
4 hours per week (0-4)

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: ABR 112
4 hours per week (1-3)

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, appliques, and etching are also covered.

ABR 131. ADVANCED CUSTOM PAINTING 2 credit hours

Prerequisite: ABR 130
4 hours per week (0-4)

This class is a continuation of methods and procedures used in automotive custom painting. Lab assignments on actual automobiles provide 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 219. MAJOR REPAIR PROCEDURES 4 credit hours

Prerequisite: ABR 123
8 hours per week (0-8)

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 involved to provide diversified experience on body trim and hardware, replacement and aligning various body components.

ABR 220. ENAMEL REFINISHING PRACTICES 4 credit hours

Prerequisite: ABR 112 and 124
8 hours per week (0-8)

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: None
4 hours per week (2-2)

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 Variable credit

Prerequisite: Consent

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.

AUTOMOTIVE SERVICE ————— (ASV)

Students enrolling in automotive service programs are required to furnish basic tool sets. They are also required to add to the tool sets during their period of training so they are equipped for employment upon completion of their program.

ASV 059. CONSUMER CAR CARE 1 credit hour

Prerequisite: None
7½ weeks, 4 hours per week (1-3)

This course is an introduction to the basic principles of operation and service of today's automobiles. The course includes the following: orientation, personal auto familiarization, basic automobile operation, safety, battery service, cooling system service, lubrication, oil and filter service, wheel bearing service, tire service and brake inspection.

**ASV 097. AUTOMOTIVE SERVICE
FUNDAMENTALS 2 credit hours**

Prerequisite: None
4 hours per week (1-3)

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, fuel systems and drivetrains.

ASV 111. CYLINDER HEAD SERVICE 2 credit hours

Prerequisite: None
4 hours per week (2-2)

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: None
4 hours per week (1-3)

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: None
4 hours per week (2-2)

Students are introduced to basic electricity theory and practice. Using automotive 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: None
4 hours per week (1½ - 2 ½)

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 121. ENGINE REPAIR 2 credit hours

Prerequisite: ASV 111
4 hours per week (2-2)

Using the skills developed in ASV 111, students increase their understanding of the automobile engine through study and lab activities focused on the block and its components' repair. Text, tools, comprehensive manuals and special tools aid students in complete engine disassembly, repair, reassembly and operation.

ASV 124. WHEEL BALANCE AND ALIGNMENT ... 2 credit hours

Prerequisite: None
4 hours per week (1-3)

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: None
4 hours per week (1-3)

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 SYSTEMS2 credit hours

Prerequisite: ASV 116
4 hours per week (1-3)

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 INJECTION2 credit hours

Prerequisite: ASV 118
4 hours per week (1-3)

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 I2 credit hours

Prerequisite: ASV 111, 113, 116, 118
4 hours per week (1-3)

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 160. SMALL ENGINE REPAIR2 credit hours

Prerequisite: None
4 hours per week (1-3)

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 REPAIR2 credit hours

Prerequisite: ASV 160
4 hours per week (1-3)

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 REPAIR2 credit hours

Prerequisite: ASV 161
4 hours per week (2-2)

This is an advanced course in small engine service. Laboratory work is stressed and based on concepts and skills learned in ASV 160. Work on live units is stressed.

ASV 212. AUTOMATIC TRANSMISSIONS - MECHANICAL2 credit hours

Prerequisite: ASV 113
4 hours per week (2-2)

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 SYSTEMS2 credit hours

Prerequisite: ASV 124
4 hours per week (1-3)

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 SYSTEM SERVICE1 credit hour

Prerequisite: ASV 125
7 1/2 weeks, 4 hours per week (0-4)

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 CIRCUITS2 credit hours

Prerequisite: ASV 126
4 hours per week (1-3)

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: ASV 111, 126, 128
4 hours per week (1-3)

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: ASV 212
4 hours per week (2-2)

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: None
4 hours per week (2-2)

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: ASV 218
4 hours per week (2-2)

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 250. NEW CAR PRODUCTS 2 credit hours

Prerequisite: None
4 hours per week (2-0)

Two dynamics of the modern automobile industry require constant updating of technological information. This class allows the student an opportunity to learn the new technology which is now included in courses taken earlier without repeating that course. New technology and a review of important updates are studied.

BIOLOGY (BIO)

BIO 101. CONCEPTS OF BIOLOGY 4 credit hours

Prerequisite: None
Corequisite: BIO 101L
3 hours per week (3-0)

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: None
Corequisite: BIO 102L
3 hours per week (3-0)

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: BIO 101, CEM 111 or Consent
Corequisite: CEM 122 or Consent
6 hours per week (3-3)

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. FIELD ECOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

The activities in this class stress campus wooded areas, ponds, fields and the Huron River system. Laboratory work and investigation of off-campus environmental problems are used as supplements.

BIO 111. ANATOMY AND PHYSIOLOGY 5 credit hours
Prerequisite: High School Chemistry or CEM 057
7 hours per week (4-3)

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 131-139. APPLIED PLANT SCIENCE SEQUENCE

These courses may be taken individually or in series. This series is designed to enable students to apply basic botanical information to indoor and outdoor gardening. The courses study plants of economic importance to human beings for food as well as pleasure in the home and outdoors. Practical experience is given in the College's greenhouse and gardens. This series is designed for the non-specialist with an interest in plants, their propagation, growth, maintenance, harvesting and utilization. Students are encouraged to enroll in the sequence beginning with BIO 131 in the winter semester, and continue through spring and summer semesters into the fall semester with BIO 132, 133 and 134.

BIO 132. GARDEN PLANTING 1 credit hour
Prerequisite: None
7½ weeks, 5 hours per week (5-0)

This Spring Semester course deals with seed bed and planting area preparation. Further opportunities for germination of seeds indoors for transplanting into prepared areas are available in the early weeks of the semester. Transplanting of seedlings and direct planting of selected varieties of seeds with emphasis on proper care highlight this course. Scheduling of plantings for continuous yield and plant rotation techniques are demonstrated in each student's garden area. Pest control is an item of concern.

BIO 137. ORNAMENTAL INDOOR PLANTS 2 credit hours
Prerequisite: None
2 hours per week (2-0)

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: None
5 weeks, 3 hours per week (3-0)

This class provides a survey of the morphology, physiology and immunology of pathogenic organisms with emphasis on infection, aseptic, and sterilizing procedures.

BIO 208. GENETICS I 4 credit hours
Prerequisite: BIO 101 and CEM 111
6 hours per week (3-3)

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. INTRO TO CELL PHYSIOLOGY 3 credit hours
Prerequisite: CEM 111 and BIO 101 or 128 or Consent
3 hours per week (3-0)

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
Corequisite: BIO 215
3 hours per week (0-3)

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: BIO 101 or consent
3 hours per week (3-0)

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. ZOOLOGY4 credit hours

Prerequisite: BIO 101 or consent.

Corequisite: BIO 227L

3 hours per week (3-0)

In this class, field and laboratory investigation provide a detailed study of classification, evolutionary relationships, structure, and function of the animal kingdom. For students with a general interest in animals or to provide a basis for further work in zoology or other programs.

BIO 228. BOTANY4 credit hours

Prerequisite: BIO 101 or consent

Corequisite: BIO 228L

3 hours per week (3-0)

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. MICROBIOLOGY4 credit hours

Prerequisite: BIO 101 or consent

Corequisite: BIO 237L

3 hours per week (3-0)

Micro-organisms and their activities are studied in lecture and laboratory.

BIO 249. FIELD STUDY OF BIRDS1 credit hour

Prerequisite: None

7½ weeks, 5 hours per week (5-0)

This class involves identification of birds, their songs and nesting habits.

BIO 258. FIELD STUDY OF TREES AND SHRUBS1 credit hour

Prerequisite: None

7½ weeks, 2 hours per week (2-0)

Identification and habitat study of woody plants takes place in this class.

BIO 259. FIELD STUDY OF COMMON PLANTS1 credit hour

Prerequisite: None

7½ weeks, 2 hours per week (2-0)

Non-woody higher plants are studied with emphasis on identification.

BIO 267. WINTER FIELD STUDY1 credit hour

Prerequisite: None

7½ weeks, 2 hours per week (2-0)

Biological organisms are studied in their winter conditions.

BLUEPRINT READING ————— (BPR)

BPR 100. BLUEPRINT READING (Construction)2 credit hours

Prerequisite: None

3 hours per week (3-0)

This elementary blueprint reading course for the construction trades emphasises the development of visualization skills and the study of practices and symbols for interpreting construction prints. Smaller scale construction projects are studied.

BPR 101. BLUEPRINT READING (Manufacturing)3 credit hours

Prerequisite: None

3 hours per week (3-0)

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.

BPR 106. BLUEPRINT READING FOR WELDERS3 credit hours

Prerequisite: None

3 hours per week (1-2)

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.

BPR 110. BLUEPRINT READING FOR CONSTRUCTION TRADES2 credit hours

Prerequisite: BPR 100

2 hours per week (2-0)

This class is for construction trade workers. Emphasis is on the application of blueprint reading, and principles and fundamentals to the construction process. Large scale construction projects are the base of instruction.

BUSINESS MANAGEMENT ————— (BMG)

BMG 100. INVESTMENTS 1 credit hour

Prerequisite: None

1 hour per week (1-0)

This course is designed to acquaint students with various aspects of financial investments. Topics include: corporate securities, investment banking, financial statement analysis, over-the-counter market and other phases of financial investments.

BMG 111. BUSINESS LAW I 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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: BMG 111

3 hours per week (3-0)

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: None

3 hours per week (3-0)

This is a course designed to help potential investors keep abreast of opportunities in today's changing financial world. This course presents current information on stock and bond markets, commodities, real estate investment, and other investment opportunities including antiques and gems. Students are taught how to analyze risk and return, and relate to the current tax structure.

BMG 140. INTRODUCTION TO BUSINESS 3 credit hours

Prerequisite: None

3 hours per week (3-0)

This course covers functions, objectives, problems, organization, and management of modern business. Also the free-enterprise system of business-economic activity and the impact of the consumer and governmental forces upon the system. Develops insight into vital role of the administrative function in

our economy as a whole and in the operation of a single business unit. Practical orientation in the career opportunities available in business and industry. This course is also taught as a television course using the program series "The Business File."

BMG 150. LABOR-MANAGEMENT RELATIONS ... 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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: BMG 140

3 hours per week (3-0)

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 200. HUMAN RELATIONS IN BUSINESS AND INDUSTRY 3 credit hours

Prerequisite: BMG 140

3 hours per week (3-0)

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: None

3 hours per week (3-0)

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: None
3 hours per week (3-0)

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. SMALL BUSINESS MANAGEMENT
PLANNING 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

This course is designed to examine and develop the skills of those persons interested in starting their own business or taking a "hands-on" responsibility for creating innovations of any kind within the corporate organization. The entrepreneur/intrapreneur may be the creator or inventor but is always the dreamer who figures out how to turn an idea into a profitable reality. Students prepare a business plan for their chosen, current, or future business or intrapreneurial project. The class is required for the Photographic Technician and Graphic Design Technician programs and a recommended elective for the Auto Body Specialist, Electronics Services, and Food Service programs.

**BMG 215. SMALL BUSINESS MANAGEMENT
OPERATIONS 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

This class is intended for persons expecting to be employed or already employed in a high technology or other smaller business. This course focuses on the management of small business, the small business environment, small business administrative and fiscal control, and small business marketing and operations. It is recommended for students in programs such as Numerical Control, Computer Information Systems, Robotics, Telecommunications, and Computer Aided Drafting.

BMG 220. PRINCIPLES OF FINANCE 3 credit hours

Prerequisite: ACC 092 or ACC 122
3 hours per week (3-0)

A survey is provided of the whole field of finance, both private and public. Emphasis is on the nature and role of finance in our economy, monetary system of the United States, commercial banking, Federal Reserve System, savings, nature of business financing, international finance, nature of consumer credit, interest rates, money markets, and financing state and federal governments.

BMG 230. SUPERVISORY MANAGEMENT 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This class focuses on the application of the principles of management. Emphasis is on the managerial process, examining the functions of planning, organizing, staffing, directing, and controlling, and their relationship to the job of a supervisor. It helps potential or practicing supervisors gain a broader perspective of their role in the organizational structure, enabling them to contribute more effectively to the goals of the organization.

BMG 235. WOMEN IN MANAGEMENT 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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**

Prerequisites: BMG 140 and BMG 208
3 hours per week (3-0)

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 250. PRINCIPLES OF MARKETING 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
2 hours per week (2-0)

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 270. ADVERTISING PRINCIPLES 3 credit hours

Prerequisite or Corequisite: BMG 250
3 hours per week (3-0)

This is a managerial approach to the study of the basic principles and concepts which underlie advertising practice and procedure in the marketing-promotional and distribution aspects of modern business-industrial enterprise operations. It includes the role of advertising in the individual firm and the total economy; also advertising objectives, methods, techniques, preparation, research, surveys, copywriting, layout, media selection and testing advertising effectiveness, as well as advertising rates and budgetary factors.

BMG 290. INDEPENDENT DIRECTED STUDY Variable credit

Prerequisite: Consent.
Credit hours determined prior to registration

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 299. INTERN-EXTERN/SELF-DIRECTED LEARNING Variable credit

Prerequisites: Recommendation/Sponsorship of Department Advisor or Employer and approval by Faculty Facilitator

This advanced course is designed to provide students with an understanding of self-directed learning as it relates to business, the job, and their chosen program. The course focuses on the process by which individuals take the initiative, with the help of others, to diagnose their learning needs, formulate learning goals, identify human and material resources for learning, choose and implement appropriate learning strategies, and evaluate learning outcomes. INTERNSHIPS are designed to provide students with work experience in their business-related program

area. EXTERNSHIPS are designed to provide full-time employed persons the opportunity to better understand their current job status and develop a plan to upgrade their position. Students are expected to attend a one-hour weekly discussion. To enroll, please see the Dean of Business or the Advisor of your program area. This course is transferable, as an elective, to four-year institutions. It may be repeated up to three times for a maximum of six credits.

BUSINESS OFFICE SYSTEMS — (BOS)

BOS 030. INTRODUCTION TO KEYBOARDING 1 credit hour

Prerequisite: None
5 weeks, 3 hours per week (1-2)

Introduction to Keyboarding is a short course in learning the touch method of keyboarding on a computer. The course is geared to students who want to learn or review the basics of the alphabetic keyboard. Grading is based on the satisfactory/unsatisfactory system.

BOS 101. BEGINNING TYPEWRITING 3 credit hours

Prerequisite: None
4 hours per week (1-3)

This beginning typewriting course is designed to develop key-stroking skill. Students learn to use the parts of the typewriter efficiently and format materials attractively by centering the copy horizontally and vertically. Students complete tabulation problems; format and type personal/business letters and memoranda, as well as simple tables, outlines and manuscripts. Opportunity is also given to compose on the typewriter, and proofreading skill is developed by comparing and verifying.

BOS 102. INTERMEDIATE TYPEWRITING 3 credit hours

Prerequisite: BOS 101 or equivalent
(Minimum of 30 wpm with 5 errors or fewer for 5 minutes)
4 hours per week (1-3)

This course is designed to develop students' expertise in solving a wide variety of communication problems. Development of speed and control is stressed in typing letters in basic styles with special features, simplified forms of business correspondence, tables, business forms, and technical and statistical reports.

BOS 103. KEYBOARDING2 credit hours

Prerequisite: None

7½ weeks, 4 hours per week (1-3)

Keyboarding develops skill in using the microcomputer keyboard while focusing on the touch method of keyboarding. This course is designed for students needing to develop or review basic alphabetic, numeric, and ten-key keyboarding skills.

BOS 107. CLERICAL METHODS AND PROCEDURES4 credit hours

Prerequisite: Typewriting proficiency of 30 wpm or concurrent enrollment in BOS 102

4 hours per week (3-1)

In this course students perform a variety of general office duties: the typing of forms and business correspondence, the processing of office mail, and the handling of the telephone. Concepts of word processing and reprographics are included. 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 130. BUSINESS MACHINES3 credit hours

Prerequisite or Corequisite: MTH 163 or equivalent

3 hours per week (1-2) plus a minimum of 6 practice hours

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 131. BEGINNING SHORTHAND4 credit hours

Prerequisite: None

4 hours per week (4-0)

This course is designed to help students develop shorthand skills in reading, writing, and transcription using the Gregg principles. Students learn to use Gregg shorthand to take dictation in the office and to take notes quickly in other environments such as the classroom, library, or meeting room. In addition, emphasis is placed on vocabulary building, spelling, punctuation, and the application of the rules of grammar.

BOS 132. INTERMEDIATE SHORTHAND3 credit hours

Prerequisites: BOS 101, BOS 131 or equivalent

4 hours per week (3-1)

This intermediate shorthand course is designed to review Gregg theory and strengthen students' grasp of major shorthand principles in order to develop dictation and transcription skills. Emphasis is placed on the building of dictation speed with 90 percent accuracy in transcription.

BOS 150. PROOFREADING AND EDITING2 credit hours

Prerequisite: None

7½ weeks, 4 hours per week (4-0)

This course is designed for the office worker or for students preparing to work in an office to develop skills in proofreading and editing. Students learn the proper techniques for checking the accuracy of business materials and for making changes to improve the written message. Topics include formatting, grammar review, use of abbreviations, word usage, punctuation, spelling, capitalization, use of numbers, tables and charts, clarity, conciseness, and other content considerations.

BOS 151. INFORMATION PROCESSING PRINCIPLES AND APPLICATIONS4 credit hours

Prerequisite: None

4 hours per week (2-2)

This course emphasizes jobs, skills, and career opportunities in today's automated office with an examination of all phases of word processing. Students develop skill in creating, storing, retrieving, and revising a variety of documents on word processing equipment.

BOS 152. COMPUTERIZED TRANSCRIPTION SKILLS3 credit hours

Prerequisite: High school typewriting proficiency or concurrent enrollment in BOS 102 or equivalent.

4 hours per week (1-3)

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 155. WORD PROCESSING —
MICROSOFT WORD 2 credit hours**

Prerequisite: BOS 101, 103 or typing proficiency of 30 wpm
7½ weeks, 4 hours per week (2-2)

This course introduces students to the basic functions of word processing using the Microsoft Word software program on the personal computer. Students learn to create, retrieve, edit and print documents. In addition, formatting and print merge will be covered. This course is an alternative to BOS 156.

**BOS 156. WORD PROCESSING —
WORDPERFECT 2 credit hours**

Prerequisite: BOS 101, 103 or typing proficiency of 30 wpm
7½ weeks, 4 hours per week (2-2)

This course introduces students to the basic functions of word processing using the WordPerfect software program on the personal computer. Students learn to create, retrieve, edit, and print documents. In addition, formatting and print merge will be covered. This course is an alternative to BOS 155.

BOS 200. INDEPENDENT DIRECTED STUDY Variable Credit

Prerequisite: Consent

This course includes a planned program of studies under the guidance and direction of a regular staff member.

BOS 204. KEYBOARDING/SPEED BUILDING 2 credit hours

Prerequisite: BOS 102 or typing proficiency of 30 wpm
7½ weeks, 4 hours per week (4-0)

This course is a follow-up to BOS 102 and is a requirement for the Business Office Systems programs. It would also be appropriate for the general student population. The course concentrates on increased skillbuilding in the use of the microcomputer keyboard.



BOS 210. MEDICAL TRANSCRIPTION 3 credit hours

Prerequisite: BOS 102 or equivalent, RDG 115
4 hours per week (1-3) plus a minimum of 4 machine hours

This introductory course in medical terminology and medical transcription is for students who are proficient in keyboarding. Emphasis is placed on basic transcription techniques so that students may acquire a thorough knowledge of dictation/transcription equipment. The course familiarizes students with a broad base of medical terms and the basic types of medical reports.

**BOS 215. INTEGRATED COMPUTER SOFTWARE —
MICROSOFT WORKS 3 credit hours**

Prerequisite: BOS 151 or CIS 100
4 hours per week (1-3)

This course uses the integrated software program of Microsoft Works to introduce students to the computer tools of word processing, spreadsheets, databases, and telecommunications. Some graphics are also included.

BOS 223. MEDICAL OFFICE PROCEDURES 3 credit hours

Prerequisite: BOS 102 or equivalent

4 hours per week (3-1) plus a minimum of 4 practice hours
This course covers secretarial responsibilities in a medical office or hospital including appointments, patient records, pegboard bookkeeping, telephone procedures, credit and collection procedures and medico-legal considerations. Medical insurance is studied. Students complete forms for Blue Cross/Blue Shield, Medicare, Medicaid, Workers' Compensation, CHAMPUS and private insurances using the proper coding system.

**BOS 225. INFORMATION PROCESSING SYSTEMS
AND PROCEDURES 3 credit hours**

Prerequisite: BOS 151 and 155 or 156 and 255 or 256
4 hours per week (1-3)

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 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 PROCEDURES4 credit hours**

Prerequisite: Typewriting proficiency of a minimum of 45 wpm or BOS 102 or equivalent. BOS 107 is recommended.

4 hours per week (3-1)

As the capstone of the Secretarial Program, this course covers most of the secretarial functions that have been changed by technology. Emphasis is placed on the responsibilities of the executive secretary or administrative assistant: decision-making activities, time management, prioritizing, and the exercise of effective human relations. Because competent secretaries must become word specialists, continuing importance is placed on the area of oral/written communications. Students prepare travel itineraries, agendas and minutes of meetings, investment records, and statistical data in proper graphic form to correlate with written reports. The significance of visibility and networking is included in career advancement.

**BOS 255. WORD PROCESSING
MICROSOFT WORD -LEVEL II2 credit hours**

Prerequisite: BOS 155

7 1/2 weeks, 4 hours per week (2-2)

This course is a continuation of BOS 155 and introduces students to the advanced word processing functions of Microsoft Word such as macros, style sheets, customized formatting, sorting, manipulation of columns, outlines, tables of contents, index, headers, footers, and footnotes.

**BOS 256. WORD PROCESSING
WORDPERFECT -LEVEL II2 credit hours**

Prerequisite: BOS 156

7 1/2 weeks, 4 hours per week (2-2)

This course is a continuation of BOS 156 and introduces students to the advanced word processing functions of Word Perfect such as macros, style sheets, customized formatting, sorting, manipulation of columns, outlines, tables of contents, index, headers, footers and footnotes.

CHEMISTRY _____ (CEM)

CEM 057. INTRODUCTORY CHEMISTRY 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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
LABORATORY1 credit hour**

Prerequisite or Corequisite: CEM 057

3 hours per week (0-3)

Designed to accompany CEM 057, this course provides an experience with basic chemical laboratory practices and procedures.

CEM 105. FUNDAMENTALS OF CHEMISTRY4 credit hours

Prerequisite: High school chemistry or CEM 057

Corequisite: CEM 105L

3 hours per week (3-0)

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 I4 credit hours

Prerequisites: High school chemistry and one year high school algebra or CEM 057

Corequisite: CEM 111L

3 hours per week (3-0)

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 II4 credit hours

Prerequisite: CEM 111 and MTH 169

8 hours per week (3-5)

This course covers four major topics in chemistry: kinetics, chemical thermodynamics, chemical equilibria, and electrochem. Laboratory work includes qualitative and quantitative analysis.

CEM 140. ORGANIC BIOCHEMISTRY 4 credit hours

Prerequisite: CEM 105 or CEM 111

Corequisite: CEM 140L

3 hours per week (3-0)

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 3 credit hours

Prerequisite: CEM 111

3 hours per week (3-0)

As the first part of a two semester sequence, CEM 211 provides students with the background in nomenclature of organic chemistry, stereochemistry, the preparation and reactions of aliphatic and aromatic compounds in preparation for further work in CEM 222. This course is normally offered only in the fall semester.

CEM 218. ANALYTICAL CHEMISTRY 4 credit hours

Prerequisite: CEM 122

8 hours per week (2-6)

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 5 credit hours

Prerequisite: CEM 122, 211

9 hours per week (3-6)

This second part of a two-semester sequence in organic chemistry provides students with an opportunity to practice the preparation and handling of organic compounds in the laboratory in addition to extending their knowledge of the principles of organic chemistry learned in CEM 211. This course is normally offered only in the winter semester.

CHILD CARE WORKER (CCW)

CCW 100. THE EXCEPTIONAL CHILD 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 from birth through six years of age. 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.

CCW 101. CHILD DEVELOPMENT 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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.

**CCW 103. ALTERNATIVE PROGRAMS IN
CHILD CARE 3 credit hours**

Prerequisite: None

3 hours per week (3-0)

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.

CCW 105. PRACTICUM I 3 credit hours

Prerequisite: None

9 hours per week (0-9)

This course provides supervised teaching at the WCC Children's Center. Students work in the classroom, supervised by a qualified teacher at the Center. One and one half hours per week are spent attending a practicum seminar. Opportunities for observation, planning and participation are dependent on students' readiness. The course should be taken during the first semester in the Child Care Worker program. Credit may be arranged for students with past experience working at a licensed child care center. Contact the coordinator to arrange credit. In order to reserve available blocks of time, students are required to arrange supervised teaching hours at WCC Children's Center before registration.

CCW 106. PRACTICUM II 3 credit hours

Prerequisite: CCW 105 and completion of 30 credit hours of CCW Program

9 hours per week (0-9)

This course is an advanced continuation of CCW 105. Students who completed CCW 105 on campus are required to select an off-campus placement for CCW 106. See staff for assistance. If CCW 105 was completed off-campus, CCW 106 must be completed on campus. In order to reserve available blocks of time, students are required to arrange supervised teaching hours at WCC Children's Center before registration.

CCW 107. EDUCATIONAL EXPERIENCES IN SCIENCE AND MATH 3 credit hours

Prerequisite: None

3 hours per week (3-0)

Integrated curriculum workshops introduce the theory of math and science experiences for the young child. 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.

CCW 108. EDUCATIONAL EXPERIENCES IN EXPRESSIVE ARTS 3 credit hours

Prerequisite: None

3 hours per week (3-0)

Integrated curriculum workshops cover a wide range of the arts, especially music, creative movement, art and drama. How to facilitate creativity and self-expression is emphasized. Basic materials, techniques and activities are introduced and then used with young children.

CCW 109. LANGUAGE AND COMMUNICATION ... 3 credit hours

Prerequisite: None

3 hours per week (3-0)

Designed for child care persons and parents, this course examines the theory of language development in children. Consideration is given to non-verbal communication and cultural differences. Basic methods, activities and materials which explore the current philosophies of communication are discussed.

CCW 110. SOCIAL/EMOTIONAL DEVELOPMENT 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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.

CCW 111. DAY CARE ADMINISTRATION 3 credit hours

Prerequisite: None

3 hours per week (3-0)

Practical aspects of starting and operating a child care center are presented: proposal writing, equipment selection, accounting, administrative forms, taxes, insurance, operational management, interpersonal relationships within a center and staff training. State and federal guidelines are also examined.

CCW 114. PRACTICUM III 4 credit hours

Prerequisite: CCW 105 and 106; must have completed or be completing 54 credit hours of CCW program (last semester in CCW program).

12 hours per week (0-12)

Students are assigned full responsibility as a practicing head teacher for a classroom of children for several weeks during the semester. Advance lessons and active participation as an assistant teacher are required. In order to reserve available blocks of time, students are required to arrange supervised teaching hours at WCC Children's Center the semester before taking Practicum III.

CCW 116. SEMINAR IN INFANT CARE 3 credit hours

Prerequisite: None

3 hours per week (3-0)

Infant development is studied. Theories of growth are examined and related to the characteristics and needs of the infant in group or an individual setting. Maternal care needs and facilities are also explored.

CCW 117. CHILDHOOD NUTRITION 2 credit hours

Prerequisite: None

2 hours per week (2-0)

This course presents the study of nutritional needs of the child. Included are the changing needs that occur from infancy through adolescence. There is particular emphasis on the impact of nutrition on the growth and function of children in the day care setting.

CCW 121. FIRST AID FOR CHILD CARE WORKERS 1 credit hour

Prerequisite: None
1 hour per week (1-0)

This course consists of lectures, textbooks and practical work in first aid as outlined by the American Red Cross. Students are certified in first aid and CPR. There is additional emphasis on child safety.

CCW 200. STAFF/PARENT INTERPERSONAL RELATIONS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 education programs. Emphasis is given to the preparation, mechanics and techniques for the individual parent/teacher conference.

COMMUNICATIONS AND THEATRE _____ (CMT)

CMT 101. FUNDAMENTALS OF SPEAKING 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

CMT 102. INTERPERSONAL COMMUNICATION 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

CMT 130. INTRODUCTION TO MASS COMMUNICATION 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

CMT 140. VOICE IMPROVEMENT FOR BUSINESS AND PROFESSION 1 credit hour

Prerequisite: None
1 hour per week (1-0)

This is an introduction to contemporary scientific and linguistic theory of the human speaking voice. It provides a basic method for the improvement of the individual's speaking voice for business conversation. The new and unique qualities of the human speaking voice for controlled and effective use on the microphone and telephone is studied.

CMT 152. ACTING FOR THE THEATRE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This class is an introduction to acting through the physical aspects of the stage, using the stage as a vehicle to promote ideas and feelings. Scenes will be assigned.

CMT 153. ACTING FOR THE THEATRE II 3 credit hours

Prerequisite: CMT 152
3 hours per week (3-0)

This course is a continuation of CMT 152. The course focuses upon the continuation in the study and practice of acting techniques and basic technical and presentational areas of direction, lighting, and sound.

CMT 183. ADVANCED PUBLIC SPEAKING AND PERSUASION 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

COMPUTER INFORMATION SYSTEMS _____ (CIS)

CIS 090. COMPUTER SKILLS 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This is a lab course in computer operation for beginners. It teaches the use of microcomputers and related equipment, such as printers. It is designed to deal with "computer anxiety." Startup procedures and basic DOS functions are covered, and examples of today's powerful, user-friendly software are introduced, including word processing, spreadsheet, and filing programs. Other practical topics are covered such as shareware and shopping for computers. IBM or compatible computers are used.

CIS 091. BASIC COMPUTER SKILLS FOR HEALTH PROFESSIONALS 2 credit hours

Prerequisite: None
2 hours per week (1-1)

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.

CIS 100. INTRODUCTION TO COMPUTERS 3 credit hours

Prerequisite: None
3 hours per week (1½-1½)

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 such as spreadsheet, word processing, and database. The course teaches the basic vocabulary of computers, how computers are used in today's world, the basic cycle of computer operation, input and output devices, 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 OFS 030 as a pre- or co-requisite.

CIS 102. COMPUTER GENERATED BUSINESS GRAPHS 1 credit hour

Prerequisite: None
7½ weeks, 2 hours per week (0-2)

This is an introductory course in computer-generated business graphs using formulas and menu or command-driven microcomputer software. Topics include computer hardware require-

ments, loading/preparing data sources, selecting data for display, choosing graph type (pie, bar, stacked bar, line, marked point, continuous data), displaying and printing the graph, naming and saving graph, recalling source data and graph, and producing complex graphs.

CIS 103. MSDOS COMMANDS 1 credit hour

Prerequisite: None
7½ weeks, 2 hours per week (0-2)

This course presents elementary and advanced MSDOS commands for making the system disk and for managing files and storage media. All internal and many external commands and their syntax are covered. The concepts of the boot disk, system prompt, system disk, wildcards, switches and the default drive are taught.

CIS 104. ADVANCED MSDOS 1 credit hour

Prerequisite: CIS 103 or equivalent
7½ weeks, 2 hours per week (0-2)

This course covers all commands for enhancing the microcomputer operating environment by building batch and configuration files and tree structure directories. The EDLIN utility program commands are used to build batch, AUTOEXEC & CONFIG files. The basic concepts and commands for input-output-redirection to devices and files, pipes and filter, and RAM disk are covered.

CIS 105. MICROCOMPUTER PROGRAMMING FOR BEGINNERS 2 credit hours

Prerequisite: None
2 hours per week (2-0)

In this class, students gain insights into computer organization, how it works in layman terms, develop (through lectures, exploring graduated exercises and assignments) skills necessary to identify problems and develop simple BASIC programs to solve them.

CIS 107. SPREADSHEET SOFTWARE 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This is an individualized course for persons wishing to learn how to use an electronic spreadsheet on a personal computer. Individuals may choose any spreadsheet software package approved by the instructor. The course utilizes one-to-one instructor guidance as needed while students work with tutorial guides and software. Individuals may work at their own pace.

**CIS 108. SOFTWARE TOOLS
(SPECIAL SOFTWARE)2 credit hours**

Prerequisite: None
2 hours per week (0-2)

This is an individualized course for students who want to learn how to use an application package on a personal computer. Individuals may choose any application software package approved by the instructor. The course utilizes one-to-one instructor guidance as needed while students work with tutorial guides and software. Individuals may work at their own pace.

CIS 109. DATABASE SOFTWARE2 credit hours

Prerequisite: None
2 hours per week (0-2)

This is an individualized course for persons wishing to learn how to use a database management system on a personal computer. Individuals may choose any database management system approved by the instructor. The course utilizes one-to-one instructor guidance as needed while students work with tutorial guides and software. Individuals may work at their own pace.

CIS 111. COMPUTER CONCEPTS3 credit hours

Prerequisite: None
7½ weeks, 6 hours per week (3-3)

This course provides an overview of Business Information Systems. Topics developed include basic terminology, the role of computers in society and the discussion of hardware and software with an emphasis on business applications. Students use microcomputer applications including word processing and electronic spreadsheets to implement information systems. It is recommended that students who do not know how to type take OFS 030 as a pre- or co-requisite.

CIS 112. COMPUTER FUNCTIONS3 credit hours

Prerequisite or Corequisite: CIS 111
7½ weeks, 6 hours per week (3-3)

This course is a continuation of CIS 111. Topics developed include personal database management systems, and a discussion of the information systems development process. Some programming is done to demonstrate problem solving using structured design techniques. (This course is offered in 15-week and 7½-week formats.)

CIS 115. PROGRAMMING LOGIC3 credit hours

Prerequisite: CIS 112
Corequisite: CIS 130
3 hours per week (3-0)

In this course students learn development of structured solutions to business computer problems using flowcharting techniques, pseudo code and other structured development tools.

CIS 121. BEGINNING UNIX2 credit hours

Prerequisite: CIS 100 or equivalent experience
2 hours per week (2-0)

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. This course is an approved elective for all CIS degree and certificate programs.

CIS 125. LOCAL AREA NETWORKS I2 credit hours

Prerequisite: CIS 104 or consent
2 hours per week (2-0)

This course is an introduction to Novell Netware and to local area network technology. Topics covered include: terminology, trustee and directory rights, the MAP command, Login Scripts, and the OSI model. This course is intended for anyone possessing a basic knowledge of DOS who is interested in learning about Local Area Networks.

**CIS 130. PASCAL FOR BUSINESS
AND INDUSTRY4 credit hours**

Prerequisite: CIS 112. Corequisite: CIS 115
4 hours per week (4-0)

This is a first course in Pascal covering structured algorithm development including branching and looping techniques. Strong emphasis is placed on good programming design using procedures and functions and efficient passing of parameters. Data structures, including arrays, records and sets are covered. During the semester, students write several programs, at least one of which is a large program.

CIS 136. BASIC FOR BUSINESS AND INDUSTRY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

The principles of the BASIC language using structured techniques are taught. Entry and retrieval of data, mathematical operations, comparison and control statements, subscripted variables and functions as well as data files and formatted output are addressed. Students write BASIC programs, then enter and run them on an IBM compatible microcomputer.

CIS 141. COMPUTER OPERATIONS I 4 credit hours

Prerequisite: None
4 hours per week (4-0)

This is the study of both mainframe and micro computer systems including input/output devices, secondary storage, the central processing unit, software and computer networks, with emphasis on operations. Students gain hands-on experience performing realistic assignments while using the devices about which they have studied. The interrelationships between hardware and software are covered.

CIS 151. INTRO TO LOTUS 1-2-3 2 credit hours

Prerequisite: None
2 hours per week (1-1)

This course covers use of Lotus 1-2-3 spreadsheet software for solving problems in business, finance, and other areas that involve calculation and tabulation. It teaches use of command menus, formulae, 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. Experience working with a computer is helpful but not required.

CIS 170. COBOL I 4 credit hours

Prerequisite: CIS 130 or consent
4 hours per week (4-0)

This is an introductory course in the COBOL language. Topics covered are file input and printer output; looping; structured programming; arithmetic, relational and logical operations; and one-dimensional table handling. The production of reports with heading lines, total lines, and control breaks are presented and used to illustrate solutions to several typical business problems.

CIS 199. ON-THE-JOB-TRAINING Variable credit

Prerequisite: Two data processing courses. Employment in data processing related jobs.

This course recognizes the value of learning which can take place on the job by offering an opportunity to earn college credit for development and achievement of learning objectives which are accomplished through current work experience. Students also participate in computer system-related seminar activities.

CIS 221. UNIX SHELL PROGRAMMING 2 credit hours

Prerequisite: CIS 121 or equivalent
2 hours per week (2-0)

This is a hands-on course for writing shell programs for the UNIX System V Bourne shell. In addition to covering the basic programming constructs such as loops, decisions and input/output, this course emphasizes an understanding of how the shell operates in the UNIX environment, local and exported variables, special shell variables and subshells. Korn shell topics are covered as time permits. This course is a CIS approved elective for all CIS degree and certificate programs.

CIS 225. LOCAL AREA NETWORKS II 2 credit hours

Prerequisite: CIS 125 or consent
2 hours per week (2-0)

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 230. ADVANCED PASCAL FOR BUSINESS AND INDUSTRY 4 credit hours

Prerequisite: CIS 130 or CPS 186
4 hours per week (4-0)

This is a second course in Pascal, designed to prepare a student to use Pascal in real world software applications. Modularization, data encapsulation, data structures, pointers, testing strategies, program verification and documentation are covered. Searching and sorting techniques are studied. Students complete an in-depth programming project.

CIS 238. PC ASSEMBLY LANGUAGE 3 credit hours

Prerequisite: CIS 130 or consent
3 hours per week (3-0)

This is a first course in the 8088 series Assembly language (the assembly language of the IBM PC series machines). The

organization of the 80xxx microprocessor is examined to aid in the study of the instruction set. Topics include various character/numeric conversions, the calling of Assembly language routines from a high level language, and the modification of some of the BIOS interrupt routines.

CIS 240. CAREER PRACTICES SEMINAR 2 credit hours

Prerequisite: ENG 100

2 hours per week (2-0)

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 270. COBOL II 4 credit hours

Prerequisite: CIS 170

4 hours per week (4-0)

This course is a continuation of COBOL I, and includes multi-dimensional table processing, sequential, indexed sequential, and relative file processing. Sorting and various file updating techniques, as well as Report Writer are discussed. Several programs are written to illustrate the topics covered, and at least one subprogram is written and called from another COBOL program.

CIS 275. C PROGRAMMING LANGUAGE 4 credit hours

Prerequisite: CIS 130 or consent

4 hours per week (4-0)

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 276. ADVANCED C PROGRAMMING LANGUAGE 4 credit hours

Prerequisite: CIS 275 or professional C programming experience

4 hours per week (4-0)

This is a course for programmers who have experience or coursework in the C language and want to learn advanced topics. It includes data structures, advanced I/O, dynamic memory management and successful techniques for team design of large programs.

CIS 282. SMALL SYSTEM DATA BASE 3 credit hours

Prerequisite: CIS 130 or consent

3 hours per week (3-0)

This course presents the theory and concepts underlying the use of database environments in today's integrated business information systems. The features and relative merits of relational, network and hierarchical data models are discussed; and the significance of database administration and security are emphasized. Students apply the theoretical concepts to realistic case studies.

CIS 284. DATA COMMUNICATIONS 3 credit hours

Prerequisite: CIS 130 or consent

3 hours per week (3-0)

This course introduces design issues in a network configuration, basic terminology and methodology, typical applications and uses of teleprocessing networks. Students study in detail typical building blocks and types of network organizations, common carrier services, tariffs, transmission facilities and signal conversion devices.

CIS 286. OPERATING SYSTEMS 4 credit hours

Prerequisites: First year required CIS courses

4 hours per week (4-0)

Concepts and technical knowledge of operating systems, utilities and control languages are presented with case studies of several operating systems, such as UNIX, UNISYS, MS-DOS, OS/2, VM AND VMS. Students use and write command procedures in some of the control languages.

CIS 288. SYSTEMS ANALYSIS AND DESIGN 3 credit hours

Prerequisite: CIS 130 or consent

3 hours per week (3-0)

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 BUSINESS TECHNOLOGY4 credit hours

Prerequisite: 3rd semester in Microcomputer Business Tech program or consent
4 hours per week (2-2)

This is the final class in the Microcomputer Business Technology program. In this class, students gain problem solving skills, practice user training techniques, and consolidate knowledge required for serving as a Microcomputer Business Technician.

COMPUTER SCIENCE _____ (CPS)

CPS 183. INTRO TO BASIC PROGRAMMING4 credit hours

Prerequisite: MTH 097
4 hours per week (4-0)

This course is designed for people with or without prior computer experience. Students learn the capabilities and special features of BASIC as it appears on popular home computers, or on a time-sharing system. Largely a hands-on course, students write and execute a wide variety of programs designed to teach programming principles, and principles of problem solution. Topics include program structure, file structure, menu-driven programs, string manipulation, arrays, sorting, searching, report generation, CAI, simulation and entertainment. This course is offered every term.

CPS 186. INTRO TO PASCAL PROGRAMMING4 credit hours

Prerequisite: MTH 169
4 hours per week (4-0)

This course is an introduction to the principles and practices of the Pascal programming language. Designed as a teaching tool for programming concepts, Pascal has become the preferred language of computer science departments. Students learn about problem-solving strategies, top-down program development and good programming style. Students write and execute approximately eight programs in Pascal leading to a significant final project. This course is offered every term and transfers to some four-year institutions.

CPS 187. INTRODUCTION TO FORTRAN PROGRAMMING4 credit hours

Prerequisite: MTH 169
4 hours per week (4-0)

This course is an introduction to the principles and practices of the FORTRAN 77 programming language. FORTRAN is designed for the science or business student who will use the computer as a tool in sorting, classifying, scheduling, performing complex or repetitive calculations, or evaluating models through simulation. Students learn about problem-solving strategies, top-down program development, and good programming style. Students write and execute selected programs in FORTRAN 77. This course transfers to some four-year institutions.

CPS 191. INTRODUCTION TO LISP PROGRAMMING3 credit hours

Prerequisite: One programming language course
3 hours per week (3-0)

This course presents an introduction to the principles and practices of the LISP programming language for students with prior programming experience in another language. The course includes the history and applications of LISP, atoms and lists, defining functions, conditionals, iteration and recursion, input and output and manipulation of property lists. Students design and execute several programs covering these topics.

CPS 284. PRINCIPLES OF COMPUTER GRAPHICS4 credit hours

Prerequisite: One computer language and 1 year algebra or permission
4 hours per week (4-0)

This course develops principles, algorithms and methods for graphics applications, using microcomputer graphics-enhanced BASIC language. Topics include complete coverage of the available graphics language, function, line, bar and pie graphs, rectangular and polar coordinates, creative design, movement, color, and 3D. The course includes graphics-enhanced discussion of topics in plane, solid, and analytic geometry and trigonometry. All necessary mathematics and BASIC are explained. Students create professional quality graphics. Special projects are encouraged.

CPS 286. ADVANCED PASCAL PROGRAMMING 4 credit hours

Prerequisite: MTH 169 and CPS 186 or 294 or CIS 130

4 hours per week (4-0)

Students are assumed to have a basic knowledge of Pascal. The more advanced features of Pascal and of scientific and data structure programming in general are covered. Students write and execute several Pascal programs utilizing recursion, files and libraries, sorting and dynamic data structures such as stacks, queues, linked lists, trees and hash tables. At least two of these are large programs. This course is normally offered in the Winter semester and transfers to some four-year institutions.

**CPS 290. PROGRAM DESIGN
METHODOLOGIES4 credit hours**

Prerequisite: CPS 294 or CIS 275

4 hours per week (4-0)

This course presents techniques and methodologies for designing computer programs, including an introduction to object-oriented design. 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 and extensibility of code. Students design and write programs using an object-oriented language.

**CPS 292. ASSEMBLER LANGUAGE
PROGRAMMING4 credit hours**

Prerequisite: CPS 186, or 187 or 188

4 hours per week (4-0)

This course has a transfer program orientation. The basic architecture of computers is discussed including the physical and logical components of a computer system. Processing, control and I/O are dealt with and programmed using most of the instruction set of a computer. Students write several programs in assembler language. The course provides a foundation in assembler general enough to be applied easily to numerous machines.

CPS 294. COMPARATIVE LANGUAGES4 credit hours

Prerequisite: One programming language

4 hours per week (4-0)

This course is designed to compare and contrast the characteristics of several popular programming languages. Each language is discussed and evaluated in terms of criteria such as general application area, efficiency, portability, ease of programming, and ease of maintenance. Students write short programs in each of the languages discussed. Languages normally include FORTRAN 77, Pascal, C, and LISP.

CORRECTIONAL SCIENCE ——— (COR)

COR 122. INTRODUCTION TO CORRECTIONS3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 INSTITUTIONS3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 199. CORRECTIONS
ON-THE-JOB-TRAININGVariable credit**

Prerequisite: COR 122 and 6 additional credits in corrections, and consent of Department Chairperson

8 hours per week minimum (8-0)

In this course students are given supervised, non-salaried positions as observers with various corrections agencies. Students are required to maintain a log of activities and submit a report at the end of the semester. Some agency assignments may require additional corrections courses for eligibility. All activities are monitored by the instructor and regular meetings with the instructor are required.

COR 211. LEGAL ISSUES IN CORRECTIONS3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 218. CORRECTIONAL COUNSELING3 credit hours

Prerequisite: None

3 hours per week (3-0)

This course presents the casework method of diagnosing and treating criminal offenders. A variety of counseling methods and their application to correctional casework is discussed.

COR 219. CLIENT RELATIONS IN CORRECTIONS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 within the walls.

COR 227. SEMINAR IN CORRECTIONS 3 credit hours

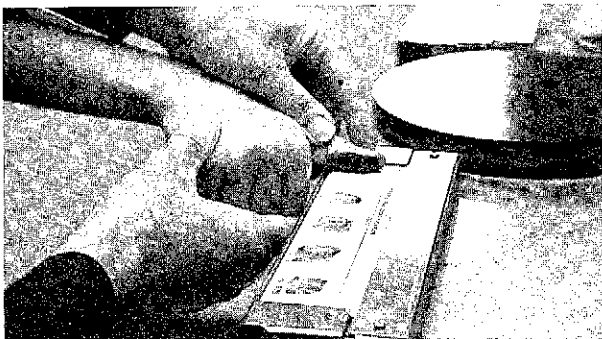
Prerequisite: None
3 hours per week (3-0)

This course provides an overall look at the system of corrections. It includes discussions on alternative methods, parole, probation and community based corrections. A research effort is required in this course.

COR 228. THE CORRECTIONAL CLIENT: GROWTH AND DEVELOPMENT 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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 103. POLICE RESERVE TRAINING 6 credit hours

Prerequisite: Sponsorship by a police department.
6 hours per week (6-0)

This course is designed to provide the auxiliary, reserve and/or part-time law enforcement officer with the skills necessary to function safely and effectively in that capacity. The course covers topics such as legal implications, juvenile law, investigations, traffic, first aid, liability, defensive tactics, and firearms qualifications. (Accredited by MROTC)

CJT 111. POLICE/COMMUNITY RELATIONS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 150. CRIMINAL JUSTICE PHYSICAL CONDITIONING 3 credit hours

Prerequisite: Physician's approval
3 hours per week (3-0)

This course is designed to build a skill/physical conditioning level to allow the student to successfully pass the Michigan Law Enforcement Officer's Training Council Pre-employment Physical Skill Test. The course is primarily for law enforcement students, but is also open to other students. (Prior to registration the student must present a medical examination certificate which is obtained in the CJT department office.)

CJT 152. INTRODUCTION TO FIREARMS SAFETY 3 credit hours

Prerequisite: None
3 hours per week (2-1)

This course is an introduction to firearms safety and function intended primarily for students in the Criminal Justice Program. Topics covered include the history of firearms, and legal and social issues. Laboratory practice includes learning to safely handle and fire a variety of firearms on both indoor and outdoor ranges under the direct supervision of certified firearms instructors. The course is not intended to provide expert marksmanship skills.

CJT 199. CRIMINAL JUSTICE ON-THE-JOB-TRAINING Variable credit

Prerequisite: CJT 100 and 6 additional credits in criminal justice, and consent of department chairperson
8 hours per week minimum (8-0)

In this course students are given supervised, non-salaried positions as observers/interns with various criminal justice agencies. Students are required to maintain a log of activities and submit a report at the end of the semester. Some agency assignments may require additional coursework for eligibility. All activities are monitored by an instructor and regular meetings with the instructor are required.

CJT 205. APPLIED PSYCHOLOGY FOR POLICE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 which police often encounter and proper techniques used to deal with them.

CJT 208. CRIMINAL EVIDENCE AND PROCEDURE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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 210. INTRODUCTION TO CRIMINALISTICS .. 3 credit hours

Prerequisite: None
3 hours per week (3-0)

Criminalistics is the study and application of the physical and natural sciences to the collection and evaluation of evidence. This course offers an introduction to the examination of physical evidence including the collection, preservation, transportation, storage and identification of physical evidence; crime laboratory resources and capabilities; and a demonstration of laboratory criminalistics.

CJT 221. LAW ENFORCEMENT TRAINING 16 credit hours

Prerequisites: 45 credit hours and successful completion of the Michigan Law Enforcement Training Council (MLEOTC) pretest
13 weeks, 40 hours per week (flexible hours due to classroom and lab activities)

This is a basic law enforcement training program, also known as the Police Academy. It is intensive and challenging. The curriculum, established by the MLEOTC, includes physical conditioning, defensive tactics, firearms, and first aid as well as subjects requiring extensive reading, writing, and note-taking skills. Students must adhere to regulations in the policy and procedures manual. Students successfully completing the course are eligible for the mandatory mastery examination administered by the MLEOTC for certification as a law enforcement person. The class meets at least 8 hours per day, 5 days per week for 13 weeks. Some weekends may also be involved. (Drug screening occurs prior to employment, as established by law.)

CJT 223. JUVENILE JUSTICE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

This course is designed to give students an overview of the hospitality industry, trends, and opportunities in the industry today. It is an introduction to the study of the business organization and functions of management.

CUL 110. SANITATION AND HYGIENE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
15 hours per week (2-13)

This is a beginning production course that examines the development of standards in food preparation, portion control, service techniques, sanitation, receiving and storage of food products and demonstrates their proper use in preparation and service.

CUL 118. PRINCIPLES OF NUTRITION 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 150. FOOD SERVICE MANAGEMENT 6 credit hours

Prerequisite: None
15 hours per week (2-13)

Students demonstrate service and supervisory techniques utilized in the operation of a full service restaurant. Guest speakers, tours and classroom discussions follow the lab, covering issues of CPR, marketing, advertising, financial accounting, responsible beverage service, and human relation principles, related to front of the house management. Students who complete this course and pass the exams may receive Race for Life CPR and Techniques of Alcohol Management TAM certificates.

CUL 199. INTERNSHIP3 credit hours

Prerequisite: 30 credit hours within the program or consent

Internship provides students with the opportunity to earn three credit hours while working under supervised conditions in a commercial food facility. A minimum of 300 hours of work on the job is required.

CUL 210. GARDE MANGER4 credit hours

Prerequisite: CUL 111 or consent

6 hours per week (0-6)

Garde Manger is designed to demonstrate classical food preparation and presentation techniques. Students progress to more elaborate techniques such as those used in culinary competition and in classical buffets.

CUL 219. BAKING AND PASTRIES4 credit hours

Prerequisite: None

6 hours per week (3-3)

Through lectures and demonstrations, students are required to produce yeast doughs, hot breads, muffins, desserts, pastry doughs, pastry cream, and basic decorating techniques.

**CUL 220. ORGANIZATION AND MANAGEMENT OF
FOOD SYSTEMS3 credit hours**

Prerequisite: CUL 100 or consent

3 hours per week (3-0)

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 222. QUANTITY FOOD PRODUCTION6 credit hours

Prerequisite: CUL 111 or consent

15 hours per week (7¹/₂-7¹/₂)

This course builds on the techniques learned in Elementary Food Preparation. Students learn how to properly prepare, from scratch: soups, sauces, meats, seafoods, poultry, breads, desserts, salads and salad dressings, appetizers, and vegetables. This is accomplished by preparing food for the Culinary Arts Dining Room, a full-service restaurant, operated by the students.

CUL 224. PRINCIPLES OF COST CONTROLS3 credit hours

Prerequisite: None

3 hours per week (3-0)

In this course students participate in discussions and exercises to learn about the process of purchasing foods and materials

used in the hospitality industry. The course involves analyzing all related costs that affect production and service including foods, beverages, labor and supplies.

CUL 225. ADVANCED BAKING AND PASTRY4 credit hours

Prerequisite: CUL 219 or consent

6 hours per week (2-4)

Expanding on elementary baking principles, students acquire production techniques in classical pastry items such as tortes, french pastries, puff pastries; utilization of various food products such as chocolates, pulled sugar, marzipan, and other food items used for culinary centerpieces.

CUL 227. ADVANCED CULINARY TECHNIQUES .6 credit hours

Prerequisite: CUL 111 and 222 or consent

6 hours per week (3-3)

This course is a culmination of experiences for the advanced student. Concentration is on techniques used in food preparation and platter displays for American Culinary Federation approved competition.

CUL 228. LAYOUT AND EQUIPMENT4 credit hours

Prerequisite: None

6 hours per week (3-3)

This class is designed to give necessary insight involved in establishing a restaurant or food service facility. Includes research, surveying, planning and construction of both menu and kitchen layout.

CUL 250. ADVANCED SERVICE TECHNIQUES3 credit hours

Prerequisite: None

3 hours per week (3-0)

Identification and service of wine and liquor, tableside preparation and management styles utilized in satisfying the more discriminating diner are demonstrated and discussed. Comparative tastings are a major component of this course.

CUL 260. CATERING AND BANQUETS3 credit hours

Prerequisite: CUL 111 or consent

2 hours per week (30 lab hours as needed)

The complete process of planning and serving banquets including facility use, menu planning, food purchasing and production. Students practice in actual development of banquets from inception to service.

DANCE _____ **(DAN)**

DAN 101. BEGINNING MODERN DANCE I 1 credit hour

Prerequisite: None
2 hours per week

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: None
2 hours per week

This course goes beyond the use of basic movement vocabulary by applying movement to more complex dance phrases and is paced faster than DAN 101.

DAN 103. BEGINNING TAP DANCE I 1 credit hour

Prerequisite: None
2 hours per week

Students learn basic tap dance vocabulary which is incorporated into traditional steps and dance routines. Rhythmical enjoyment is emphasized.

DAN 104. BEGINNING TAP II 1 credit hour

Prerequisite: DAN 103 or consent
2 hours per week

Students learn and develop more advanced styles of tap dance vocabulary. More emphasis is put on individual styles of the tapsicorian art.

DAN 105. BEGINNING JAZZ DANCE I 1 credit hour

Prerequisite: None
2 hours per week

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: DAN 105 or consent
2 hours per week

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: None
2 hours per week

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 performances.

DAN 108. BEGINNING BALLET II 1 credit hour

Prerequisite: DAN 107 or consent
2 hours per week

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: None
2 hours per week

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: None
2 hours per week

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, rhumba, 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: None
2 hours per week

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 126. COUNTRY WESTERN DANCE 1 credit hour

Prerequisite: None
2 hours per week

Students learn the basics of country western music. They learn to lead, follow and dance the Texas Two Step, Western polka, Schottische, Waltz, Cotton Eyed Joe, and Swing. It is designed for those with limited or no experience or for those who wish to review the basics.

DAN 130. BEGINNING CLOGGING I 1 credit hour

Prerequisite: None
2 hours per week

Students learn the basic clogging steps which are incorporated into dance routines. They learn to clog to Cotton Eyed Joe, Little Liza, Down South, and Old Time Rock-n-Roll. The course is designed for those with no or limited clogging experience.

DAN 210. AFRO-AMERICAN DANCE II 1 credit hour

Prerequisite: DAN 110 or consent
2 hours per week

This class is designed to further students' dance vocabulary using basic African/Afro-American movements employed in the boogie, jazz, Dixieland, 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: DAN 122 or consent
2 hours per week

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, rhumba, 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: DAN 123 or consent
2 hours per week

This course is designed for students who are in reasonable physical shape. Students in this dance exercise class learn choreographed warm-up, aerobic, strengthening, and cool down routines that help condition the heart and lungs and help keep the body flexible and toned. All routines are set to various types of music. To encourage students to develop a total fitness program, discussion of nutrition and the learning of simple relaxation techniques is included.

DAN 224. DANCE EXERCISE III 1 credit hour

Prerequisite: DAN 223 or consent
2 hours per week

This class is a continuation of DAN 123 and 223. It is a fitness maintenance program for those who have already been introduced to aerobic dance exercise. Students learn choreographed warm-up, aerobic, strengthening, and cool down routines that help condition the heart and lungs and help keep the body flexible and strong. All routines are set to various types of music. For the development of a total fitness program, time is devoted to a discussion of nutrition and the learning of relaxation techniques.

DENTAL ASSISTING _____ (DEN)

Enrollment priority for these courses is granted to students admitted to this program.

DEN 000. DENTAL CLINICAL LAB 0 credit hours

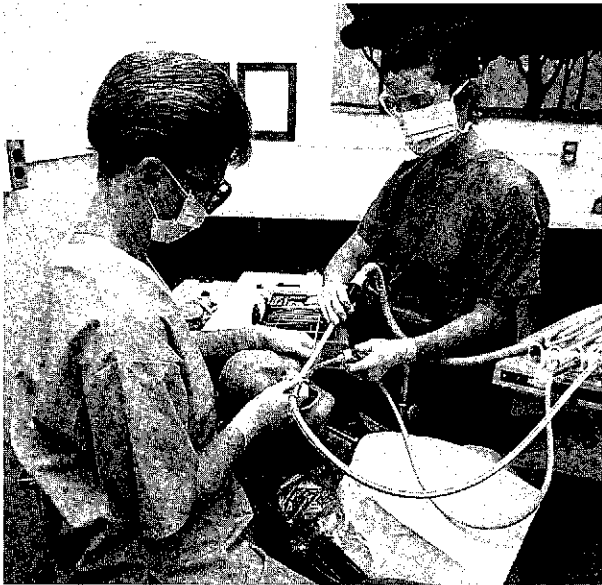
Prerequisite: Admission to Dental Assistant Program
Corequisite: Concurrent enrollment in DEN 110 or 124 or 224
3 hours per week (0-3)

The clinical lab provides services for students enrolled in DEN 110, 124, 224 to receive additional practice and/or clinical evaluation in developing skills in the WCC Dental Clinical Facility. The practice varies according to the specific assignments for each course.

DEN 039. DENTAL ASSISTANT REVIEW 1 credit hour

Prerequisite: Graduate or OJT
Dental Assistant
2½ weeks, 6 hours per week (6-0)

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: None
1 hour per week (1-0)

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 105. DENTAL RADIOGRAPHY 3 credit hours

Prerequisite: One year of experience or consent
19 hours lecture, 160 hours clinical practice

This course is designed for the on-the-job trained dental assistant who is currently employed in dentistry. Principles, techniques, safety precautions and operation of the dental radiographic equipment are studied. Students gain experience in exposure methods, processing methods and mounting techniques.

DEN 107. ORAL ANATOMY 2 credit hours

Prerequisite: Admission to the Dental Assisting Program
2 hours per week (2-0)

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 surface annotation, cavity classification, occlusion and malocclusion, and diseases of the teeth and supporting tissues.

DEN 108. PRINCIPLES OF DENTAL RADIOGRAPHY 1 credit hour

Prerequisite: Admission to the Dental Assisting Program
1 hour per week (1-0)

The principles, techniques, safety precautions, and operation of various types of radiographic film and equipment are studied. This course also includes the study of ionizing radiation, quality assurance, and facial anatomical landmarks and common pathological conditions.

DEN 110. BASIC CLINICAL DENTAL ASSISTING 4 credit hours

Prerequisite: Admission to the Dental Assisting Program
6 hours per week (3-3)

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 111. DENTAL SCIENCE 3 credit hours

Prerequisite: Admission to the Dental Assisting Program
4 hours per week (4-0)

This is an introductory course in head and neck anatomy. It studies 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, dental caries and fluoride.

DEN 112. DENTAL MATERIALS 4 credit hours

Prerequisite: Admission to the Dental Assisting Program
11 hours per week (2-3-6)

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 120. ORAL DIAGNOSIS 2 credit hours

Prerequisite: A 2.0 GPA in DEN 110 and 111
4 weeks, 11.25 hours per week (5.5-5.75)

This theoretical and practical course provides students with the knowledge and techniques used to obtain diagnostic data and the methods of recording this data. Treatment planning and referral letter writing are also included as well as instruction in blood pressure recording.

DEN 121. ORAL DIAGNOSTIC PRACTICUM 1 credit hour

Prerequisite: 2.0 GPA in DEN 110, 111, and 120
4 weeks, 11.25 hours per week (0-11.25)

This clinical course is designed to actively involve students in applying their knowledge of recording diagnostic data and treatment plans. Complete clinical records including a referral letter are written on actual clinical cases being treated in the college Dental Clinic. In addition, students have the opportunity to assist during actual prophylaxis and operative procedures as well as monitor and record blood pressure. Students also gain experience in using aseptic techniques and management of the sterilization area.

DEN 125. DENTAL RADIOGRAPHY 2 credit hours

Prerequisite: Admission to the Dental Assisting Program or consent
10 weeks, 4.5 hours per week (2.2-2.3)

The principles, techniques, safety precautions, and the operation of the dental radiographic equipment are studied. Students gain experience in processing methods and mounting techniques.

DEN 127. DENTAL NUTRITION 2 credit hours

Prerequisite: Admission to the Dental Assisting Program or consent
10 weeks, 4.5 hours per week (2.3-2.2)

This course is designed to give dental assisting students an indepth awareness of nutrition and preventive dentistry. The etiology, prevention, and control of dental caries, and oral hygiene instructions are emphasized.

DEN 201. DENTAL SPECIALTIES 3 credit hours

Prerequisite: A 2.0 GPA in all Dental Assisting courses
5 weeks, 9 hours per week (9-0)

This course is designed to introduce dental assisting students to the various dental specialties and their relationship to one another. Dental specialists provide expertise in relating the latest concepts and technology to students. In several specialty areas, students gain experience in specialized procedures or observe actual practices in field trips.

DEN 202. ADVANCED CLINICAL PRACTICE 3 credit hours

Prerequisite: A 2.0 GPA in all Dental Assisting courses
18.6 clinical hours per week

In this course, students actively participate in a variety of clinical settings. Students become acquainted with a number of office routines, procedures, equipment, and patient and staff relationships.

DEN 212. DENTAL PRACTICE MANAGEMENT 4 credit hours

Prerequisite: BOS 030 or introductory computer course or consent
7 weeks, 13 hours per week (6¹/₂-6¹/₂)

This course is an introduction to the dental business office. It is the study of systems of management used in dentistry, interpersonal communications, 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 215. ADVANCED DENTAL RADIOGRAPHY 1 credit hour

Prerequisite: A 2.0 GPA in DEN 125
3 weeks, 15 hours per week (0-15)

Clinical practice is provided in making radiographic exposures using manikins and patients participating in the WCC Dental Clinic Program. This course, in conjunction with the completion of DEN 125, allows a dental assistant to legally expose dental radiographs in the State of Michigan.

DEN 224. ADVANCED FUNCTIONS 4 credit hours

Prerequisite: A 2.0 GPA in all Dental Assisting courses
Corequisite: DEN 000
8 hours per week (2-6)

This course is designed to provide dental assisting students with knowledge and skill in performing intraoral functions as legally delegated to the RDA in the Michigan State Dental Practice Act. Students gain experience in rubber dam placement and removal; placement of anticariogenic agents; and suture removal on typodonts and live patients. Students also review related skills in preparation for the State Board Registry examination.



ECONOMICS (ECO)

ECO 111. CONSUMER ECONOMICS 3 credit hours

Prerequisite: None

3 hours per week (3-0)

The wise use of financial resources today requires more than an income-producing job and simple subtraction skills. In this course, students learn the basics of budgeting, money management, use of credit and buying, the intricacies of home ownership, income tax, investments, and the wise use of insurance, wills, and trusts. This course is also taught as a telecourse using the program series "Personal Finances and Money Management."

ECO 211. PRINCIPLES OF ECONOMICS I 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 USA."

ECO 222. PRINCIPLES OF ECONOMICS II 3 credit hours

Prerequisite: ECO 211 or consent

3 hours per week (3-0)

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 USA."



ELECTRICITY / ELECTRONICS (ELE)

ELE 040. RESIDENTIAL WIRING 2 credit hours

Prerequisite: None

3 hours per week (0-3)

This course is a practical hands-on course that has been designed to help students better understand the wiring techniques and safety considerations that must be considered when 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 uses the satisfactory/unsatisfactory system.

ELE 095. ELECTRICAL BLUEPRINT READING 2 credit hours

Prerequisite: None

3 hours per week

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 drawing is studied.

ELE 101. SERVICING TECHNIQUES I 2 credit hours

Corequisite: 123A

4 hours per week (0-4)

Instruction and development in the techniques and skills necessary for the service and maintenance of electrical/electronic systems. Proper use and care of tools and measuring instruments is stressed. Instruction in the following areas is included: soldering, printed circuit board layout, repair and fabrication, circuit building, testing and troubleshooting. Time is also devoted to learning the wiring techniques and safety considerations required to understand 110/220 volt supply and control systems.

ELE 105. INTRODUCTION TO TELECOMMUNICATIONS 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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: None

6 hours per week (6-0)

A basic electricity course designed for non-electrical majors. Course content 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 by the ELE programs. 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 123. FUNDAMENTALS OF ELECTRICITY 8 credit hours

Prerequisite: MTH 151 or equivalent

9 hours per week (9-0) plus open lab time

An accelerated introductory course in electricity. BECAUSE OF THE ACCELERATED PACE, ONLY STUDENTS HAVING ABOVE AVERAGE MATH AND READING SKILLS SHOULD ENROLL IN THIS COURSE. Students study theory and applications of direct current (D.C.), alternating current (A.C.), Ohms law, Kirchoff's law, superposition, Thevenin's theorems and the j operator. In the laboratory students apply the theory to lab projects by wiring circuits, measuring voltage, current, resistance and analyzing waveforms.

ELE 123A. FUNDAMENTALS OF ELECTRICITY (PART A) 5 credit hours

Prerequisite: MTH 151 or equivalent

6 hours per week (6-0) plus open lab time

The topics covered in the first half of ELE 123 are covered here. STUDENTS ENTERING AN ELECTRONICS PROGRAM WITH AVERAGE MATH AND READING SKILLS SHOULD ENROLL IN THIS COURSE. Lecture topics include: theory and applications of direct current (D.C.), Ohms law, Kirchoff's laws and Thevenin's theorems. Lab exercises include: wiring circuits, making voltage, current and resistance measurements with laboratory test equipment.

ELE 123B. FUNDAMENTALS OF ELECTRICITY (PART B) 5 credit hours

Prerequisite: ELE 123A

6 hours per week (6-0) plus open lab time

The topics covered in the second half of ELE 123 are covered here. Lecture topics include: theory and applications of alternat-

ing current (A.C.), Ohms law, Kirchoff's law and the j operator. Lab exercises include: drawing and wiring A.C. circuits and circuit measurement. Students gain proficiency in the uses of oscilloscopes, signal generators and other associated test equipment.

ELE 134. MOTORS AND CONTROLS 4 credit hours

Prerequisite: ELE 123 or 123A. Corequisite: ELE 123B

6 hours per week (3-3)

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 3 credit hours

Prerequisite: None

4 hours per week (4-0)

This is a beginning course in digital fundamentals. Students learn different number systems and codes, logical operations using basic logic gates and combinational logic circuits that are used in computers. Other topics are: Boolean algebra, truth tables, timing diagrams, Karnaugh maps, and arithmetic logic.

ELE 139. MICROPROCESSORS 4 credit hours

Prerequisite: ELE 137 or equivalent. Corequisite: ELE 140

6 hours per week (3-3)

This course is an introduction to the physical and logical 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: None

6 hours per week (4-2)

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 TROUBLESHOOTING4 credit hours

Prerequisite: None
6 hours per week (3-3)

The student who successfully completes this course will understand the internal functions of a micro computer and will have the ability to troubleshoot and repair to the level of user replaceable units. This course is an introduction to the physical and logical makeup of a micro-computer system with emphasis on repair. The major functional elements of a computer system and their relationship with each other are examined. Topics include coding systems, data storage representation, central processor architecture, input, output devices and diagnostics. Laboratory exercises provide hands-on experience with computer hardware and troubleshooting. Persons interested in PC concepts who have little or no experience will benefit from this course.

ELE 204. NATIONAL ELECTRICAL CODE4 credit hours

Prerequisite: ELE 123, or ELE 123A and ELE 123B, or consent
5 hours per week (5-0)

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: cardi-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 TELEPHONY4 credit hours

Prerequisite: ELE 139
6 hours per week (4-2)

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 213. SEMICONDUCTOR APPLICATIONS4 credit hours

Prerequisite: ELE 123 or 123B
6 hours per week (3-3)

Semiconductor Applications is a lecture and laboratory course for ELE majors covering semiconductor devices including di-

odes, transistors, integrated circuit operational amplifiers, thyristors and other solid state switching devices. Circuits using these devices are constructed and tested in the laboratory.

ELE 215. DIGITAL COMMUNICATIONS I4 credit hours

Prerequisite: ELE 213
6 hours per week (3-3)

This is a lecture and laboratory course in the theory and practical use of DATA communications equipment and associated test equipment. Lecture and laboratory topics include programmable terminals, break out boxes, protocol analyzers, and modem operation, testing and programming. Other topics include data codes, protocols and circuits, analysis and discussion of common carriers.

ELE 221. COMPUTER PERIPHERALS3 credit hours

Prerequisite: None
3 hours per week (3-0)

This is an introductory course which studies the input and output devices of a computer system. Emphasis is placed on Digital magnetic recording theory and Digital magnetic input/output (peripheral) devices.

ELE 224. INTRODUCTION TO PLCs4 credit hours

Prerequisite: ELE 137
6 hours per week (3-3)

This is a beginning course in programmable logic controllers (PLCs). The course introduces students to the Allen Bradley PLCs/05, the SLC-500 and the Modicon Micro -984. 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 program and the robotics programs. It is also for electricians, technicians, and engineers who wish to upgrade their skills.

ELE 224A. PROGRAMMABLE CONTROLLERS A3 credit hours

Prerequisites: ELE 123 or ELE 123A and 123B
7½ weeks, 6 hours per week (3-3)

This course covers the first half of ELE 224. Studied in this course is the theory and operation of programmable controllers with emphasis placed on the Modicon Micro-84. Other lecture topics are ladder diagrams, relays, programming and interfacing.

ELE 224B. PROGRAMMABLE CONTROLLERS B 3 credit hours

Prerequisites: ELE 123 or ELE 123A and 123B
7½ weeks, 6 hours per week (3-3)

This course covers the second half of ELE 224. Studied in this course is the theory and operation of programmable controllers with emphasis placed on the Allen Bradley PLC-4. Other lecture topics are ladder diagrams, relays, programming and interfacing.

ELE 224C. PROGRAMMABLE CONTROLLERS C 3 credit hours

Prerequisite: None
7½ weeks, 6 hours per week (3-3)

This course is intended for electricians, engineers, and managers in programming the Allen Bradley Mini-PLC-2/05 programmable controller. It is an introductory-level course in working with programmable controllers. Theoretical topics include a general introduction to programmable controllers, digital codes and number systems common to programmable controllers, and efficient program design. Practical laboratory topics include use of a simulator to proof and debug a program, mating a controller to various input/output devices, and troubleshooting a control system that includes the PLC-2/05. The only prerequisite for this course is a minimal understanding of AC and DC circuits.

ELE 225. DIGITAL COMMUNICATIONS II 4 credit hours

Prerequisites: ELE 205 and ELE 215
6 hours per week (4-2)

This course studies the theoretical and practical aspects of data communication systems. Major lecture discussions are directed toward telephone system performance requirements, transmission of data, digital modulation and network protocols. Major topics are operation of data communication modems, multiplexers and local area networks, and the effects of noise and other distortions in data communications.

ELE 230. COMPUTER SYSTEM FUNDAMENTALS 4 credit hours

Prerequisites: ELE 140 and ELE 150
6 hours per week (4-2)

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 234. VAX/VMS FOR HARDWARE TECHNICIANS 3 credit hours

Prerequisites: ELE 140 and ELE 230
4 hours per week (4-0)

This course deals with the knowledge and practical skills needed to use the VAX/VMS operating system as a hardware maintenance tool. Topics include the functions of an operating system, installation of the current version of VMS, use of the Digital Command Language, management of account privileges, use of tape and disk volumes, and use of the Error Log and System Dump Analyzer utilities to collect relevant data on system problems.

ELE 235. COMPUTER SYSTEM TROUBLESHOOTING 4 credit hours

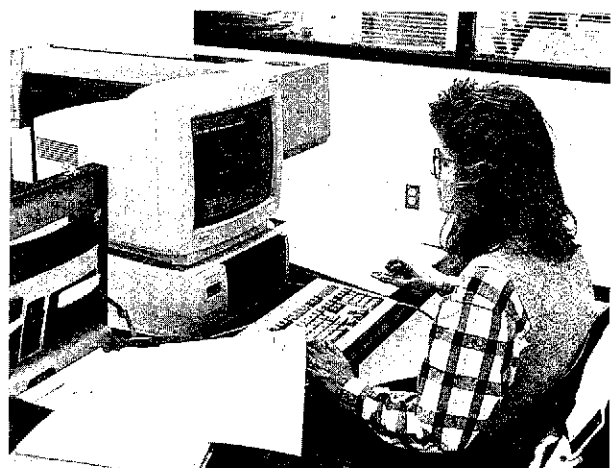
Prerequisites: ELE 230
6 hours per week (4-2)

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: ENG 100
2 hours per week (2-0)

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 241. DIGITAL ELECTRONICS 4 credit hours

Prerequisites: ELE 137

6 hours per week (3-3)

This course is an in-depth study of the logic presented in ELE 137. The operation, electrical parameters and application of logic gates with emphasis on TTL and CMOS logic families are studied. Combinational logic circuits such as adders, subtractors, shift registers, multiplexers, encoders and memories are also covered. Experience in the use, operation, testing and troubleshooting of integrated circuits is gained in the lab.

ELE 244. MOTION CONTROL 4 credit hours

Prerequisites: ELE 224, 254, 140 or Consent

6 hours per week (4-2)

This course features the Allen Bradley IMC 120. Topics include programming and applications for multi-axis digital control systems. ELE 244 is intended for ECS students, technicians, electricians, and engineers who wish to upgrade their skills in the area of motion control

ELE 245. TRANSMISSION SYSTEMS 4 credit hours

Prerequisites: ELE 205, ELE 215

6 hours per week (4-2)

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

Prerequisites: ELE 150

6 hours per week (3-3)

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

Prerequisites: ELE 224, 140 or permission of instructor

6 hours per week (4-2)

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/O, 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 260. TELEPHONE SIGNAL SYSTEMS 3 credit hours

Prerequisite: ELE 205, ELE 245

3 hours per week (3-0)

A detailed study of the theory, operation and testing of telephone system signaling techniques incorporated in Switched Maintenance Access System (SMAS) including loop start, ground start, duplex, E & M, manual ringdown, automatic ringdown, two-point, multipoint, two state digital and four-state digital.

ELE 275. SWITCHING SYSTEMS 4 credit hours

Corequisite: ELE 205

6 hours per week (3-3)

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: None

7 weeks, 3 hours per week (3-0)

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 which 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 000. WRITING CENTER0 credit hours

The Writing Center provides three services. First, students enrolled in English 040, 050, 051, 091, 100, and 111 receive additional practice and/or assignments in developing writing skills in the lab. The practice method and assignments vary from course to course. Second, students can receive help on any writing projects from the Center staff. Third, Apple computers are available so students may word process their papers.

ENG 010. WRITING PRACTICUM1 credit hour

Prerequisite: None

1 hour per week (0-1)

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 uses the satisfactory/unsatisfactory system.

ENG 020. ENGLISH AS A SECOND LANGUAGE I8 credit hours

Placement based on oral interview

8 hours per week (8-0)

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 uses the satisfactory/unsatisfactory system.

ENG 021. ENGLISH AS A SECOND LANGUAGE II8 credit hours

Placement based on oral interview or successful completion of ENG 020

8 hours per week (8-0)

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 III8 credit hours

Placement based on results of English Placement Test (EPT) or successful completion of ENG 021

8 hours per week (8-0)

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 to-

ward communication for daily living. Grading uses the satisfactory/unsatisfactory system.

ENG 030. ENGLISH FOR THE FOREIGN BORN I .3 credit hours

Placement based on results of English Placement Test (EPT) or successful completion of ENG 022

3 hours per week (3-0)

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. Grading uses the satisfactory/unsatisfactory system.

ENG 031. ENGLISH FOR THE FOREIGN BORN II 3 credit hours

Placement based on results of English Placement Test (EPT) or successful completion of ENG 030

3 hours per week (3-0)

This course is a continuation of English 030. Grading uses the satisfactory/unsatisfactory system.

ENG 035. ENGLISH PRONUNCIATION AND CONVERSATION3 credit hours

Prerequisite: ENG 022 or EPT score of 40+

3 hours per week (1-2)

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 uses the satisfactory/unsatisfactory system.

ENG 040. BASIC WRITING - ESL4 credit hours

Corequisite: ENG 000

4 hours per week (3-1)

This course provides opportunities to develop skills in formal written English for non-native speakers of English. It emphasizes rhetorical structures, vocabulary, and a review of selected problem areas in grammar. Grading uses the satisfactory/unsatisfactory system.

ENG 050. BASIC WRITING I4 credit hours

Corequisite: ENG 000

4 hours per week (3-1)

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 Reading 040 before or at the same time as this course. Grading uses the satisfactory/unsatisfactory system.

ENG 051. BASIC WRITING II 4 credit hours

Corequisite: ENG 000
4 hours per week (3-1)

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 system.

ENG 085. REVIEW OF ENGLISH GRAMMAR 3 credit hours

Prerequisite: EPT score of 80+
3 hours per week (3-0)

This course reviews the basics of our grammatical system and looks at some complex language problems often experienced by native speakers. It helps students to write more precisely and effectively. It may be taken in conjunction with ENG 091, 100, 107, 111 and 122.

ENG 091. WRITING FUNDAMENTALS 4 credit hours

Corequisite: ENG 000
4 hours per week (3-1)

This course focuses on strengthening the writing skills required of a worker, citizen, or college student. The emphasis is 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

Corequisite: ENG 000
4 hours per week (3-1)

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 college level. This course is intended primarily for native speakers of English.

ENG 102. TERM PAPER 1 credit hour

Prerequisite: None
1 hour per week (0-1)

This course provides individual instruction for students engaged in preparing a research paper. Step-by-step help is provided in topic selection, information gathering, note taking, organization, writing, documenting, and revising. Students who enroll in this course must use a text processor (computer) to complete their work. Student-accessible computers are available at several locations on campus, including the Writing Center.

ENG 107. TECHNICAL COMMUNICATIONS 3 credit hours

Prerequisite: ENG 100
3 hours per week (3-0)

This course is a continuation of ENG 100 with emphasis on longer, more complex assignments which simulate work situations. As an introduction to more advanced courses in Technical communications, this course is a requirement for the Technical Communications degree program.

ENG 108. ADVANCED TECHNICAL COMMUNICATIONS Variable credit

Prerequisite: None
1-3 hours per week

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 109. AWARD WINNING DOCUMENTS 3 credit hours

Prerequisites: ENG 108 and GDT 217
3 hours per week (3-0)

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 111. COMPOSITION I 4 credit hours

Corequisite: ENG 000
4 hours per week (3-1)

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 classroom 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 their writing proficiency.

ENG 122. COMPOSITION II 3 credit hours

Prerequisite: ENG 111
3 hours per week (3-0)

This course is a continuation of ENG 111 with emphasis on research and critical literary papers along with narrative and persuasive writing.

ENG 145. WOMEN WRITERS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

A survey of poetry, fiction, drama and essays by women, with an emphasis on 20th Century writers is provided in this class. The class explores the writings of women authors and what those authors have to say about themselves and the world around them.

**ENG 160. INTRODUCTION TO LITERATURE:
POETRY AND DRAMA 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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, science fiction, biography, mystery, westerns or images of women in literature.

ENG 181. AFRICAN-AMERICAN LITERATURE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course provides a critical analysis of the African-American experience in the world of literature. 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 199. SCIENTIFIC/TECHNICAL COMMUNICATION
INTERNSHIP Variable credit**

Prerequisite: ENG 109 or consent

Advanced students may earn credits while doing commercial scientific and technical communication under academic supervision. This course is not required for the scientific and technical communication degree and may not be available.

ENG 200. SHAKESPEARE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 211. AMERICAN LITERATURE I 3 credit hours

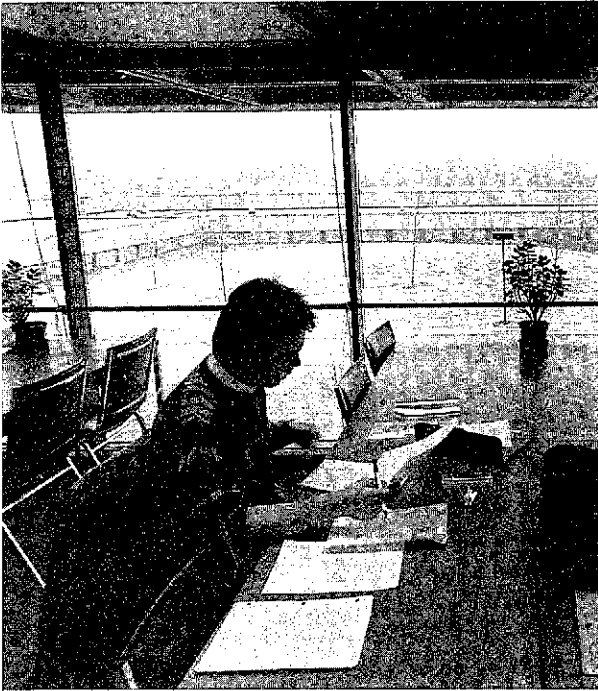
Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

The course studies English literature from the Anglo-Saxon period through the 18th Century. Readings stress the major authors from Chaucer to Johnson.



ENG 213. WORLD LITERATURE I 3 credit hours

Prerequisite: None
3 hours per week (3-0)

World Literature 213 and 224 is a sequence which attempts an approach to the eternal values of man through literary masterpieces written from the time of ancient Greece to the present.

ENG 222. AMERICAN LITERATURE II 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

This course is a continuation of ENG 212. It involves a study of representative writers of the Romantic, Victorian and Modern periods.

ENG 224. WORLD LITERATURE II 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 240. CHILDREN'S LITERATURE 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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 PRACTICE SEMINAR 2 credit hours

Prerequisite: ENG 100
2 hours per week (2-0)

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: None
3 hours per week (3-0)

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. Journals remain confidential. The course is transferable to four year colleges.

ENG 261. JOURNAL WORKSHOP II3 credit hours

Prerequisite: ENG 260

3 hours per week (3-0)

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 I3 credit hours

Prerequisite: None

3 hours per week (3-0)

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. Some designated sections focus on poetry.

ENG 271. CREATIVE WRITING II3 credit hours

Prerequisite: ENG 270

3 hours per week (3-0)

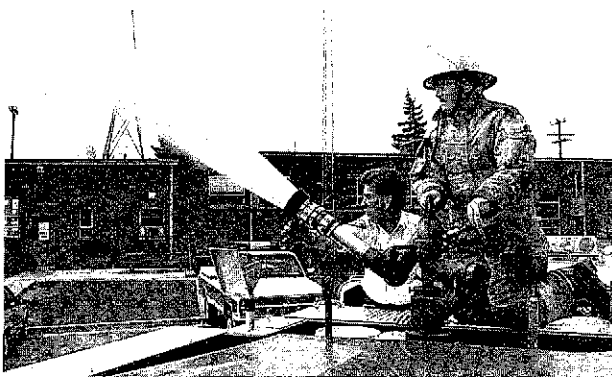
This course is a continuation of English 270, Creative Writing, for those students who have already completed 270 and who wish to continue to develop skills. Students develop individual writing projects. Designated sections coordinate publication of Northern Spies, WCC's creative arts journal.

ENG 278. MAGAZINE PUBLICATION3 credit hours

Prerequisite: ENG 270

3 hours per week (3-0)

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.



FIRE PROTECTION (FPT)

FPT 099. LABOR RELATIONS IN THE PUBLIC SECTOR3 credit hours

Prerequisite: None

3 hours per week (3-0)

Labor relations in the public sector are studied using simulated collective bargaining procedures and case studies. A field study report is required.

FPT 100. INTRODUCTION TO FIRE PROTECTION3 credit hours

Prerequisite: None

3 hours per week (3-0)

Covered in this course are the history and development of fire protection, the role of the fire service in the development of civilization, personnel in fire protection, introduction to general fire hazards, and the problems and possible solutions for current and future fire protection.

FPT 103. HAZARDOUS MATERIALS3 credit hours

Prerequisite: None

3 hours per week (3-0)

Designed for students in the Fire Protection program, this course covers the chemistry of flammable and explosive materials with special emphasis on hazards. Information from DOT and other agencies dealing with hazardous material response is provided.

FPT 109. INCIDENT COMMAND3 credit hours

Prerequisite: FPT 100 or consent

3 hours per week (3-0)

The student is exposed to the decision making process required to manage fireground operations. Emphasis is on methods used in rescue, exposure, confinement, extinguishment and overhaul.

FPT 111. HYDRAULICS3 credit hours

Prerequisites: Math 097 and consent

3 hours per week (3-0)

This course covers basic skills and knowledge relevant to fire service hydraulics operation. Emphasis is placed on types and styles of pumps, construction, testing and maintenance procedures. In addition, main streams water distribution systems and automatic extinguishing systems are discussed. Partial coverage of NAPA Standard 1002 objectives is provided.

FPT 112. FIRE COMPANY SUPERVISION3 credit hours

Prerequisite: Consent
3 hours per week (3-0)

The theory and practice of supervision are studied. Included are the relationship of supervision to leadership, leadership styles, individual differences, problems of morale and motivation, interpersonal communication, instructional basics, supervision and strategy.

**FPT 116. BUILDING CONSTRUCTION FOR
FIRE SERVICE3 credit hours**

Prerequisite: Consent
3 hours per week (3-0)

Firefighters are confronted with many unknown factors at the fire ground. Among these is the questionable structural stability of the fire building. The design of the building also contributes to fire spread and extinguishment in direct forms. This course provides a study of the fundamental concepts of building design and construction, including site selection, code compliance, architectural plans, terminology and explorations of design. Emphasis is focused on fire protection concerns.

**FPT 122. FIRE PREVENTION THEORY
AND APPLICATIONS3 credit hours**

Prerequisite: FPT 100 or consent
3 hours per week (3-0)

The development of fire prevention laws and ordinances for elimination of fire hazards is studied. Topics included are: inspection organization, practices and procedures, theory and application of laws and ordinances in modern concepts of fire prevention.

FPT 124. FIRE PROTECTION SYSTEMS I3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course provides an introduction to the concepts of fire protection systems and their relationship to the control and extinguishment of fires. It includes a review of extinguishing agents and their application, study of sprinkler systems, automatic fire detection systems and municipal fire alarm systems.

**FPT 209. COMMAND AND CONTROL OF
MAJOR FIRES3 credit hours**

Prerequisite: Consent
3 hours per week (3-0)

Covered in this course are fireground operations, strategy and judgments. Topics include: when to call for additional equipment, why buildings collapse, when to retreat, when or when not

to ventilate and how to best augment systems which are installed in the building. Factors or conditions which affect and determine a department's operations are studied.

**FPT 210. INTRODUCTION TO FIRE
ADMINISTRATION3 credit hours**

Prerequisite: Consent
3 hours per week (3-0)

This course provides a study of the practical application of records, reports, and training in fire administration. Topics included are: the municipal fire problem, organization for fire protection to include manpower, equipment and facilities, principles of organization, methods of supervision and discipline, relations with the public and other city departments, budget and purchasing practices, rating systems and their application to the fire service, and ways to handle personnel problems and employee suggestions.

FPT 213. FIRE INVESTIGATION AND ARSON3 credit hours

Prerequisite: Consent
3 hours per week (3-0)

The fire fighter's role in arson investigations is studied. Topics include: method and mechanics of protecting, searching and controlling the fire scene; determining the point of origin, path of fire travel and fire causes; interviews and interrogations; and recognizing and preserving evidence. This course covers Michigan laws, alibis, motives and proving the corpus delicti, preparation of the case, court testimony, reports and records and juvenile fire setters.

**FPT 216. LEGAL ASPECTS OF FIRE
PROTECTION3 credit hours**

Prerequisite: None
3 hours per week (3-0)

Legislative and court decisions which affect the fire service are studied. This course reviews criminal and administrative law, tort actions against municipalities, legal implications of hiring, discipline and promotions.

FPT 224. PROTECTION SYSTEMS3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course covers attitudes prevalent in industry toward fire protection, development of fire and safety organizations in industry, relationships between private and public fire protection organizations, industrial obligations to communities in regard to fire and safety, current trends, deficiencies, and possible solutions for fire protection problems facing industry today.

**FPT 250. FIRE PROTECTION TRAINING
METHODOLOGY 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

This course is designed to prepare training officers to conduct fire protection training programs. It includes the study of various components essential in the development and delivery of fire protection training. This course is equivalent to the National Fire Academy Educational Methodology I course.

FLUID POWER _____ (FLP)

FLP 111. FLUID POWER FUNDAMENTALS 4 credit hours

Prerequisite: None
5 hours per week (3-2)

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 symbols are used to design simple circuits. Disassembly of components and assembly of circuits make up the lab experiences.

FLP 122. HYDRAULIC PUMPS AND MOTORS 2 credit hours

Prerequisite: FLP 111
4 hours per week (2-2)

This course takes a look at the principles of the major positive displacement pumps. Building on the information from FLP 111, students study hydraulic pump controls, and multi-pressure systems. Other topics include hydrastatic drives, power unit construction, and rotary actuator principles and controls. Lab sessions are an important part of the class.

FLP 213. HYDRAULIC CONTROLS 3 credit hours

Prerequisite: FLP 111
Corequisite (recommended): FLP 214
4 hours per week (2-2)

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. Other topics include electric components used in sequencing of hydraulic actuators, and component trouble shooting. Lab time is an integral part of this course.

FLP 214. BASIC HYDRAULIC CIRCUITS 3 credit hours

Prerequisite: FLP 111
Corequisite (recommended): FLP 213
4 hours per week (2-2)

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.

FLP 225. FLUID POWER INSTRUMENTATION 3 credit hours

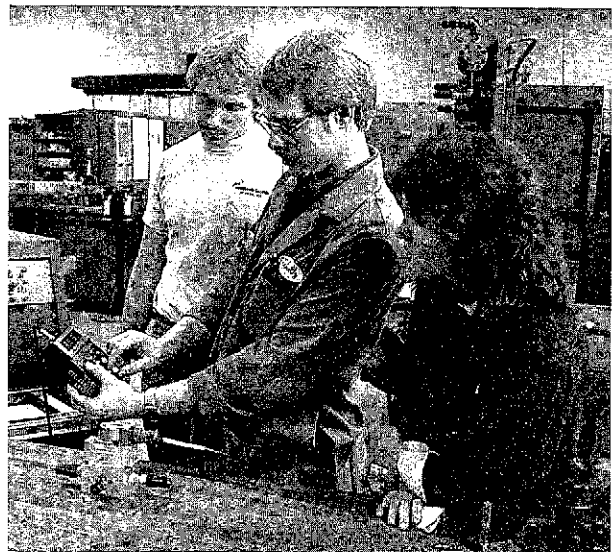
Prerequisites: FLP 111 and ELE 123A
4 hours per week (2-2)

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 XY 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: None
4 hours per week (2-2)

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.



FRENCH _____ **(FRN)**

FRN 111. FIRST YEAR FRENCH I4 credit hours
Prerequisite: None
4 hours per week (3-1)

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 120. BEGINNING CONVERSATIONAL FRENCH2 credit hours

Prerequisite: None
2 hours per week (2-0)

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 course.

FRN 121. INTERMEDIATE CONVERSATIONAL FRENCH2 credit hours

Prerequisite: FRN 120
3 hours per week (3-0)

This is a continuation of FRN 120. The course provides vocabulary expansion and cultural insights through student involvement in conversation practice sessions.

FRN 122. FIRST YEAR FRENCH II4 credit hours

Prerequisite: FRN 111
4 hours per week (3-1)

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 culture.

FRN 213. SECOND YEAR FRENCH I3 credit hours

Prerequisite: FRN 122 or consent
3 hours per week (3-0)

This course provides a review of first year French language, as well as an introduction to cultural and commercial French. Students with good high school backgrounds or previous language experience in French may be eligible for admission without FRN 111 and 122.

FRN 224. SECOND YEAR FRENCH II3 credit hours

Prerequisite: FRN 213 or consent
3 hours per week (3-0)

This is a continuation of FRN 213. Short-wave broadcasts and language laboratory practice augment the oral-aural method. The course covers aspects of Canadian as well as French cultural life.

GEOGRAPHY _____ **(GEO)**

GEO 100. GEOGRAPHY AND ENVIRONMENT3 credit hours

Prerequisite: None
3 hours per week (3-0)

This global survey course covers the world by regions emphasizing the contemporary relationships between developed nations and developing nations. It evaluates how geophysical elements, climates, location, vegetation, and resources interact with culture, economic and political aspects which in turn relates to environmental problems and the accelerating growth of the global population.

GEOLOGY _____ **(GLG)**

GLG 100. INTRODUCTION TO EARTH SCIENCE4 credit hours

Prerequisite: None
Corequisite: GLG 100L
2 hours per week (2-0)

This course provides practical training in earth science including work with soils, plate tectonics, minerals, glaciers, volcanism, maps, meteorology, astronomy and oceanography. Field trips to points of interest are included.

GLG 103. FIELD GEOLOGY3 credit hours

Prerequisite: None
7½ weeks, 6 hours per week (1-5)

Students examine the processes that have formed and are forming the landscape by studying formations at local sites. GLG 103 is normally offered only in the Summer Term.

GLG 104. WEATHER3 credit hours

Prerequisite: None

7½ weeks, 6 hours per week (3-3)

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 type, 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 ROCKS3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 MONUMENTS2 credit hours

Prerequisite: None

2 hours per week (2-0)

The geological settings of specific National Parks and Monuments is studied including the principles and processes which shaped them. Slide programs are used to illustrate the geological features.

GLG 114. PHYSICAL GEOLOGY4 credit hours

Prerequisite: None

Corequisite: GLG 114L

2 hours per week (2-0)

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 GEOLOGY4 credit hours

Prerequisite: GLG 100, 114 or consent

5 hours per week (2-3)

The development of North America as a typical continent is presented including the formation of mountains, plains, the evolution of life on land and water, and the identification of fossils. A three day field trip is required with food and housing expenses the responsibility of the student.

GLG 202. EARTH SCIENCE FOR ELEMENTARY TEACHERS4 credit hours

Prerequisite: None

5 hours per week (2-3)

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.

GERMAN (GRM)

GRM 111. FIRST YEAR GERMAN I4 credit hours

Prerequisite: None

4 hours per week (3-1)

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. (Students intending to study German should have a sound, basic background in English grammar and syntax to be able to take and succeed in a foreign language as inflected and analytical as German.)

GRM 120. CONVERSATIONAL GERMAN2 credit hours

Prerequisite: None

2 hours per week (2-0)

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: GRM 120 or consent
2 hours per week (2-0)

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: GRM 111 or consent
4 hours per week (3-1)

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: None
6 hours per week (2-4)

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. DESIGN SURVEY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course surveys historical and contemporary styles and influences in graphic design through the ages.

GDT 102. COMPUTER AIDED PUBLISHING 2 credit hours

Prerequisite: None
4 hours per week (1-3)

An introduction to "desktop publishing" involving hands-on experience in preparing publication design, copy, artwork and page composition using a microcomputer.

GDT 103. PERSPECTIVE DRAWING 4 credit hours

Prerequisite: None
6 hours per week (2-4)

This course is formulated for the graphic designer and the illustrator to explore the methods of visual expression needed for various occupations, with emphasis placed on developing and fine-tuning hand-eye skills. One, two and three dimensional drawing, freehand sketching and shadow construction make up the course content. Students must provide basic drawing supplies. This course is required for GDT majors — Illustration Option.

GDT 112. GRAPHIC COMMUNICATION 4 credit hours

Prerequisite: GDT 100, ART 112
6 hours per week (2-4)

This class provides coverage of methods in visual communication, ideation, visual perception and problem solving techniques. Exercises explore word-picture-abstract design, visual thinking and communication theories.

GDT 113. PRINCIPLES OF PRODUCTION 4 credit hours

Prerequisite: GDT 100
6 hours per week (2-4)

This class provides study of art production mechanics and techniques including keylining, page formatting, and camera ready art preparation. It focuses on industry related assignments.

GDT 116. PRINT PHOTOGRAPHY 2 credit hours

Prerequisite: ART 112
4 hours per week (1-3)

This class, for photography majors, covers basic printing processes and terminology of the various stages required for producing printed materials. Students concentrate on hands-on execution and take projects through printing preparation to the final printed piece.

GDT 201. GRAPHIC ILLUSTRATION 4 credit hours

Prerequisite: GDT 103 or consent
6 hours per week (2-4)

This course introduces students to techniques and materials used by professional designers and illustrators. Projects include three-dimensional artwork, exploded and assembled drawings, and art to enhance instructional materials. Computer assisted methods are introduced. Students must provide basic drawing tools and materials. This course is required for the Illustration major and is an approved elective for the Design major.

GDT 214. PUBLICATION LAYOUT 4 credit hours

Prerequisite: GDT 112, GDT 113

6 hours per week (2-4)

This course involves production of varied media comprehensives for advertising, typography and graphic design including page formatting, posters and newspaper/magazine advertisements. Marker sketches to highly refined presentation works constitute coursework.

GDT 215. TYPOGRAPHY II 4 credit hours

Prerequisite: GDT 112, GDT 113

4 hours per week (1-3)

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 217. COMPUTER-AIDED PUBLISHING II 2 credit hours

Prerequisite: GDT 102 or consent

4 hours per week (1-3)

This course is a continued exploration into desktop publishing, software applications and principles of fundamental publication design using a microcomputer. Emphasis is placed on computer layout techniques for industry related assignments.

GDT 222. COMMERCIAL ILLUSTRATION 4 credit hours

Prerequisite: GDT 103 or consent

6 hours per week (2-4)

Explore the variety of methods and materials used by professional graphic designers and illustrators. Creative expression is enhanced by refining techniques and investigating various media such as watercolor, acrylics, pastels, markers, pencils, pen and ink. Illustration is visual communication that gives expression to the creative processes. Students must provide basic drawing supplies. This course is required for the Illustration major and is an approved elective for the Design major.

GDT 223. IMAGE ASSEMBLY 2 credit hours

Prerequisite: None

4 hours per week (1-3)

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 225. OFFSET PRESS OPERATIONS 4 credit hours

Prerequisite: None

6 hours per week (2-4)

This course introduces students to the principles of offset printing operations. Training in various lithographic processes is emphasized, with additional coverage of printing materials and chemistry using Web and sheetfed presses for multi-color and process color printing.

GDT 226. COMPUTER AIDED PUBLISHING III 4 credit hours

Prerequisite: GDT 102 and 217 or 238

6 hours per week (0-6)

This course is an advanced exploration into publication layout and design with emphasis on typography, typesetting and precise design structures. Computer layout techniques are developed through the use of Quarkxpress software, computer graphics software and effective graphic design principles. This course is required for GDT Design Option students.

GDT 227. INTRO TO PRINTING METHODS 4 credit hours

Prerequisite: GDT 216

6 hours per week (2-4)

This class provides further investigation into offset printing preparation, paper characteristics, inks, darkroom procedures and bindery. Emphasis is placed on hands-on experience with graphic arts equipment including the operation of small format offset printing presses.

GDT 228. AIRBRUSH 4 credit hours

Prerequisite: ART 111 or consent

6 hours per week (2-4)

Airbrush illustrating techniques are introduced in this course. Various materials and methods are combined to encourage the development of style and design with an airbrush. Emphasis is placed on creativity as well as control Airbrush and related materials are needed for this class. This course is required for Illustration majors and is an approved elective for Design majors.

GDT 229. SCREENPRINTING TECHNIQUES 4 credit hours

Prerequisite: GDT 216 or consent

6 hours per week (2-4)

This is an introductory course in screen process printing (known as silkscreen printing). Through projects, students acquire knowledge of screen image make-ready and printing. The four basic methods to be studied are: 1) tusche, 2) hand-cut film, 3) hand-made photo, and 4) direct image photography. Students are given hands-on experience in hand-screen and machine printing.

GDT 230. PROFESSIONAL PRACTICES2 credit hours

Prerequisite: GDT 101

4 hours per week (2-2)

This class provides an overview of various professional design operations, career options, media services, freelancing, resume and portfolio preparation/presentation procedures. Lectures also touch on the fundamentals for operating a small design office.

GDT 232. ILLUSTRATION2 credit hours

Prerequisite: ART 111, GDT 214

4 hours per week (1-3)

The course is an investigation of conceptual and technical skills required for communication of ideas. Exercises and projects aim to develop visual awareness and accuracy of illustrative drawing using various media.

GDT 233. PRINT ESTIMATING2 credit hours

Prerequisite: None

2 hours per week (2-0)

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 234. PLANNING AND FINISHING FOR
PRINTING2 credit hours**

Prerequisite: None

2 hours per week (2-0)

This course prepares students for the planning of printed material, with an emphasis on impositioning and assembly as it relates to all binding and finishing operations. This course is required for GDT Printing Technology Option students.



GDT 236. SPECIALIZED STUDY Variable credit

Prerequisite: GDT 113, GDT 214

This class provides an opportunity for students to work independently with faculty on projects related to industry. Students are encouraged to concentrate on study in areas of interest and subjects not fully covered in the curriculum such as computer typesetting.

GDT 237. AIRBRUSH TECHNIQUES II4 credit hours

Prerequisite: GDT 228

6 hours per week (2-4)

A further study of materials, strategies and techniques utilized in airbrush projects and the execution and evaluation of several such projects.

GDT 238. COMPUTER-AIDED ILLUSTRATION4 credit hours

Prerequisite: GDT 102

6 hours per week (2-4)

This course explores advanced computer graphic illustration using vector based software on a microcomputer. Step-by-step exercises are followed by practical assignments in black and white and in color. Students are required to produce a portfolio of course work including two high resolution printouts for evaluation. This course is a program requirement for GDT design and illustration majors.

GDT 240. COMPUTER-AIDED PRESENTATIONS ...1 credit hour

Prerequisite: GDT 102

3 hours per week (0-3)

This course is an exploration into the design and layout of slides and overhead transparencies on the Macintosh computer using Aldus Persuasion presentation software. Emphasis is placed on developing industrial and entertainment presentations to be displayed on the computer in 35m slides and with an overhead projector. This course is an approved elective for GDT students.

GDT 241. COMPUTER-AIDED PUBLISHING - PC .2 credit hours

Prerequisite: GDT 102 or computer experience

4 hours per week (1-3)

This course is an exploration into desktop publishing and principles of fundamental publication design using an IBM/PC microcomputer in a Windows environment. Emphasis is placed on computer layout techniques using PageMaker software to create industry related assignments. This course is an approved elective for GDT program students and for the general public with computer experience.

HEALTH SCIENCE (HSC)

HSC 113. INTRODUCTION TO MEDICAL SCIENCE 2 credit hours

Prerequisite: None
2 hours per week (2-0)

This course provides an overview of the health professions, how and why diseases occur, vital signs, death and dying. Course content may vary according to student interest.

HSC 115. MEDICAL OFFICE AND LABORATORY PROCEDURES 3 credit hours

Prerequisite: HSC 113 or equivalent
3 hours per week (3-0)

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: None
2 hours per week (2-0)

This course presents normal nutrition and its relationship to health. It includes the nutritional needs for various age groups and for physical activity. The nutritional practices of many different cultures are included. The importance of nutrition in the growth and functioning of the human body is emphasized. This course meets Nursing Program requirements and also is appropriate for the general student population.

HSC 128. THERAPEUTIC NUTRITION 1 credit hour

Prerequisite: NUR 101, HSC 118
Corequisite: NUR 123 and 124
7½ weeks, 2 hours per week (2-0)

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 1 credit hour

Prerequisite: Health Student
5 weeks, 3 hours per week (1-2)

This course prepares health students for American Red Cross Basic Life Support for the Professional Rescuer certification. It includes both community CPR and BLS courses and is intended for students without prior CPR preparation. This course combines the content of HSC 131A and HSC 131B.

HSC 147. GROWTH AND DEVELOPMENT 4 credit hours

Prerequisite: None
4 hours per week (4-0)

This course covers the physical, 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 220. PATHOPHYSIOLOGY 4 credit hours

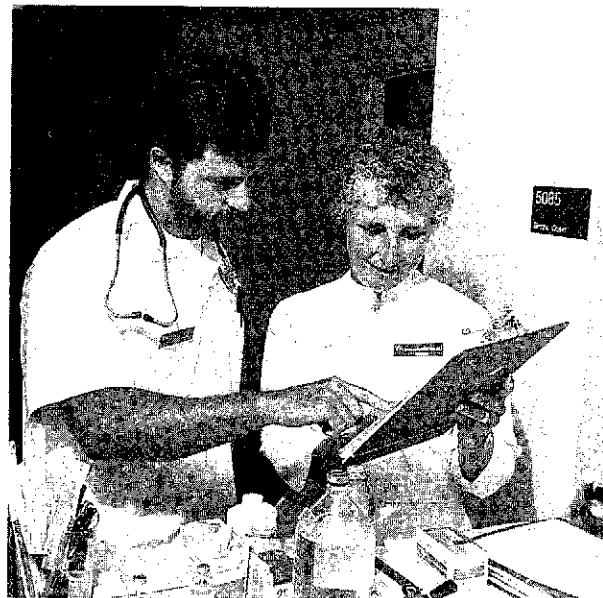
Prerequisite: LPN, RN or consent
4 hours per week (4-0)

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. MEDICAL ETHICS 2 credit hours

Prerequisite: Nursing students or consent of faculty
2 hours per week (2-0)

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. Topics include patient rights, confidentiality, informed consent, abortion, genetic manipulation, experimental procedures, treatment of defective newborns, euthanasia, and AIDS.



HEATING _____ (HTG)

HTG 100A. BOILER OPERATIONS I3 credit hours

Prerequisite: Employment with boilers or consent
3 hours per week (3-0)

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 II3 credit hours

Prerequisite: HTG 100A
3 hours per week (3-0)

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.

HTG 101. BOILER ACCESSORIES3 credit hours

Prerequisite: 100B or consent
3 hours per week (3-0)

This course covers all boiler accessories; their use, design, requirements, operation and care. Also, the study of combustion equipment is continued.

HTG 102. BOILER AUXILIARIES3 credit hours

Prerequisite: HTG 101 or consent
3 hours per week (3-0)

This course provides continuing study of accessories and auxiliaries including injectors, feedwater heaters, deaerators and evaporators, economizers, air preheaters, and cooling towers.

HTG 103. POWER PLANT ENGINE & TURBINES .3 credit hours

Prerequisite: HTG 102 or consent
3 hours per week (3-0)

Principles of operation and maintenance practices of steam engines and turbines are presented. Also included are construction, mechanisms, engine indicators, governors, engine rating and efficiency.

HTG 104. POWER PLANT REFRIGERATION3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 SYSTEMS3 credit hours

Prerequisite: HTG 104
3 hours per week (3-0)

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 I3 credit hours

Prerequisite: Employed Operating Boilers or consent
3 hours per week (3-0)

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 II3 credit hours

Prerequisite: HTG 106 or consent
3 hours per week (3-0)

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 codes are discussed.

HTG 109. REVIEW FOR BOILER EXAMINATIONS3 credit hours

Prerequisite: Employed operating boilers or consent
3 hours per week (3-0)

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.

Note: HTG 111 through HTG 215 are primarily trade-related instruction program courses. Their purpose is to upgrade persons currently employed in the industry; however, students who are not currently employed in the industry are welcome. Membership in the Educational Society of the Refrigeration Service Engineers (RSES) is required. Consent of advisor is required for registration.

HTG 111. HEATING FUNDAMENTALS5 credit hours

Prerequisite: Refrigeration Service Engineers Society (RSES) membership required
5 hours per week (5-0)

This is the first in a series of courses introducing heating and air conditioning service personnel to the fundamentals of heating fuels, heating equipment and systems.

HTG 122. HEATING SYSTEMS5 credit hours

Prerequisite: HTG 111 or consent and Refrigeration Service Engineers Society (RSES) membership
5 hours per week (5-0)

Building upon HTG 111, this course covers applications, installation and start-up of heating equipment: oil, gas, electric warm air and hydronic.

HTG 213. HEATING CONTROLS5 credit hours

Prerequisite: HTG 122 and consent
5 hours per week (5-0)

This course focuses on controls and troubleshooting heating equipment and systems.

HTG 215. HEAT PUMP SERVICING5 credit hours

Prerequisite: RSES membership and demonstrated knowledge of basic refrigeration, air conditioning and electricity.
5 hours per week (5-0)

This course includes a review of fundamentals, understanding heat loss/gain, heat pump principles, heat pump application and installation, compressors, refrigerant reversing components, wiring, auxiliary heaters, defrost controls, electrical controls, air distribution, equipment performance, troubleshooting, and customer relations. Upon examination students are awarded a certificate of completion, with the stipulation that they are required to reappear for the examination every three years.

HTG 228. PNEUMATIC TEMPERATURE CONTROLS2 credit hours

Prerequisite: None
2 hours per week (2-0)

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.

HISTORY _____(HST)

HST 101. WESTERN CIVILIZATION TO 15003 credit hours

Prerequisite: None
3 hours per week (3-0)

This course examines the development of the cultures and institutions of the ancient Near East and Classical, Medieval and Renaissance civilizations.

HST 102. WESTERN CIVILIZATION FROM 1500 TO THE PRESENT3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course studies cultural developments and the growth of institutions from the Renaissance to the present. Emphasis is on the expansion of European civilizations.

HST 106. WESTERN CIVILIZATION MODERN WORLD 1815 TO THE PRESENT3 credit hours

Prerequisite: None
3 hours per week (3-0)

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. AFRO-AMERICAN HISTORY3 credit hours

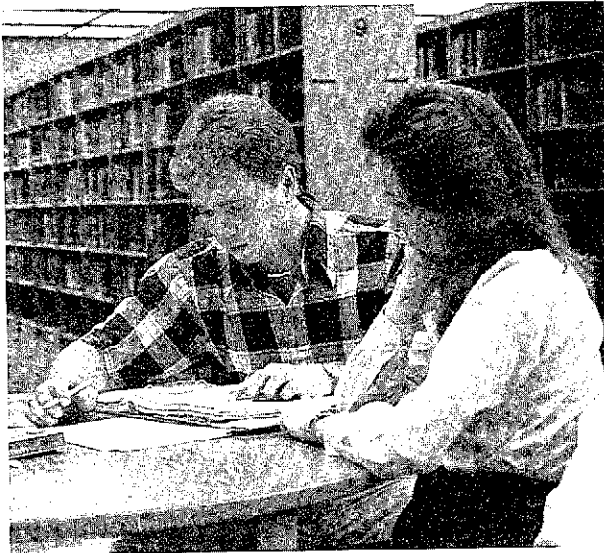
Prerequisite: None
3 hours per week (3-0)

This class surveys and analyzes the literature and some of the problems and interpretations of the history of the Afro-American from the Revolutionary War to the present.

HST 160. AMERICAN FILM3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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,
1500-1865 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

The American peoples and their growth from early colonization to the close of the Civil War, this class re-examines the dominant themes in American life as well as the conflicts oppressed minorities faced in seeking their needs and ambitions in America. This course is also taught as a television course using the program series "The American Adventure."

**HST 202. UNITED STATES HISTORY,
1865-PRESENT 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

American society and politics since the Civil War are studied including an examination of social and cultural unrest of growing America to better understand and deal with stresses of the present. It is a continuation of HST 201.

**HOTEL-RESTAURANT
MANAGEMENT (HRM)**

**HRM 100. HOSPITALITY INDUSTRY
ACCOUNTING 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

The course provides basic information of bookkeeping and accounting skills and orientation to office procedures related to the hospitality industry.

HRM 104. FRONT OFFICE PROCEDURES 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

**HRM 222. LODGING MARKETING
AND PROMOTION 3 credit hours**

Prerequisite: None
3 hours per week (3-0)

This course is designed to zero in on both front office and back of the house management. 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. Includes official Certificate of Completion from Institute of Hotel/Motel Management.

HRM 223. INTERNSHIP 3 credit hours

Prerequisite: 30 credit hours in the program or consent
300 hours minimum

This course provides students with the opportunity to earn three credit hours while working under supervised conditions in an approved lodging facility (hotel, motel). A minimum of 300 hours of work is required.

HRM 230. HOSPITALITY LAW 4 credit hours

Prerequisite: None
4 hours per week (4-0)

Contract Law as a foundation for anticipating legal difficulties and making the best use of legal advice is the focus of this course. Functional hotel or restaurant problems, policy problems, and the legal resolution are studied. Also includes the origin and development of common statutory and constitutional law and of the functioning of the judicial system.

HUMANITIES (HUM)

HUM 101. INTRODUCTION TO HUMANITIES I 3 credit hours

Prerequisite: None

3 hours per week (3-0)

This course explores the humanities considering the creative nature of humanity. It focuses on art, literature, music philosophy, human thought and people's relationship to their culture. From ancient times to the end of the high middle ages.

HUM 102. INTRODUCTION TO HUMANITIES II 3 credit hours

Prerequisite: None

3 hours per week (3-0)

This course explores the humanities considering the creative nature of humanity. It focuses on art, literature, music, philosophy, human thought and people's relationship to their culture from the Renaissance to current times.

HUM 150. INTERNATIONAL CINEMA 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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: None

3 hours per week (3-0)

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.



INDUSTRIAL DRAFTING (IND)

IND 100. TECHNICAL DRAWING 4 credit hours

Prerequisite: None

6 hours per week (2-4)

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 105. PICTORIAL DRAWING 2 credit hours

Prerequisite: IND 100 or equivalent

3 hours per week (1-2)

The development of perspective and isometric drawings suitable for engineering studies, parts catalogs, and assembly and service manuals is the focus of this course. Emphasis is on rapid methods of drawing development using typical manufactured parts as subjects.

IND 107. MECHANISMS 4 credit hours

Prerequisite: MTH 152 or equivalent

4 hours per week (1-3)

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 111. INDUSTRIAL DRAFTING 4 credit hours

Prerequisite: IND 100 or 2 years of high school drafting

6 hours per week (2-4)

Examined in this course are standard drafting practices and procedures in the areas of material specifications, drawing numbering systems, preparation of tabulated drawings, auxiliary views, sectioning, screw threads and fasteners. Dimensioning, tolerancing and the use of drafting materials for the preparation of assembly drawings, detail drawings and parts lists are also included.

IND 112. DESCRIPTIVE GEOMETRY 4 credit hours

Prerequisite: IND 100 or consent

6 hours per week (2-4)

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 DRAFTING4 credit hours
Prerequisite: IND 111 or equivalent
6 hours per week (2-4)

Practices and procedures for preparing assembly drawings from given details. An introduction to principles of design is included with emphasis on the use of standard part catalogs.

IND 121. THEORY OF JIGS AND FIXTURES2 credit hours
Prerequisites: IND 100, MET 111
3 hours per week (1-2)

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 2 credit hours
Prerequisite: IND 111 or equivalent
3 hours per week (1-2)

This course is an analysis of tolerancing in both the conventional and geometrical systems of dimensioning. Emphasis is placed upon definitions, terminology, and practical application of principles to typical problems in industry.

IND 212. THEORY OF DIES2 credit hours
Prerequisite: Apprentice in Tool and Die Making or IND 111
3 hours per week (1-2)

The nomenclature and the basic types, principles and standards used in the design of dies are studied. Special attention is given to the use of standard parts catalogs and the standard die detailing and assembly drawing practices.

IND 216. INTRODUCTION TO COMPUTER AIDED DRAFTING2 credit hours
Prerequisite: IND 100
4 hours per week (1-3)

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 CAD2 credit hours
Prerequisites: IND 112 and IND 216
4 hours per week (1-3)

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 218A. INTERACTIVE COMPUTER-AIDED DRAFTING2 credit hours
Prerequisite: IND 216 or consent
4 hours per week (1-3)

Advanced AutoCAD techniques and functions are introduced with special emphasis on 3-D and solid model development. Basic use of AutoLISP is also introduced.

IND 219. 2-D CAD PLANNING AND DRAWING4 credit hours
Prerequisite: IND 217 or equivalent
6 hours per week (2-4)

This class is an introduction to the operation of a large CAD/D system. Emphasis is on the startup, input and output skills as applied to typical 2-D drawings. Planning and flow processes are stressed. Computervision 4-4X and Personal Systems software are used to develop transferable skills for employment.

IND 220. CAD APPLICATION - ELECTRONIC4 credit hours
Prerequisite: IND 219 and IND 251 or consent
6 hours per week (2-4)

The course examines the principles of electronic layout including the application of CAD to develop block diagrams, electronic symbolization, component and hardware representations. Types of layout and assemblies are included. ORCAD software is featured for problem completion.

IND 221. CAD APPLICATION - MECHANICAL4 credit hours
Prerequisite: IND 219
6 hours per week (2-4)

An introduction to the operation of a large CAD/D system. Emphasis is on startup, input, and output as applied to typical 2D and 3D drawings. Using the Prime Computervision CADDSTATION and Personal Designer Software, details and assemblies are generated from both 2D and 3D databases.

IND 222. INTRODUCTION TO ELECTRONIC DESIGN4 credit hours
Prerequisite: IND 220
6 hours per week (2-4)

Emphasized are the design principles of laying out single and double sided printed circuit assemblies, wireless, and harness

drawings for electronic unit interfacing. ORCAD and TANGO software are featured for problem solution.

IND 223. INTRODUCTION TO MECHANICAL DESIGN 4 credit hours

Prerequisite: IND 221
6 hours per week (2-4)

3-D surfaces and solid models are created using advanced 3-D techniques. The course includes full color shading techniques to present an engineering model. Determining the mass properties of 3-D models and presenting the data in an engineering format is included.

IND 230. ADVANCED PRODUCT DRAFTING 4 credit hours

Prerequisite: IND 107, IND 111 or consent
6 hours per week (2-4)

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 3 credit hours

Prerequisite: IND 100 or equivalent
4 hours per week (1-3)

This class involves the principles of preparing basic electronic block diagrams, logic diagrams, schematic diagrams and electrical ladder diagrams. The correlation of the electronic symbol to the actual component configuration. Basic component board layouts are generated from schematic drawings.

INTEGRATED MANUFACTURING — (INM)

INM 111. CIM FUNDAMENTALS 4 credit hours

Prerequisite: None
5 hours per week (3-2)

The purpose of this course is to provide an overview of the various components which make up Computer Integrated Manufacturing systems. Students experience guided laboratory exercises in Computer Aided Design (CAD), Robotics, and Computer Aided Manufacturing (CAM). Topics of discussion include manufacturing planning, data base preparation, packaging, quality assurance, and new manufacturing methods.

INM 121. ROBOTICS I 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This is an introductory course exposing students to automated manufacturing systems. Emphasis is placed on applications of flexible automation, types of programming, sensors, and feedback devices. Open and closed loop systems are studied. Good safety practices along with the sociological impact of robots in the work place are among other topics covered. Field trips to local users or manufacturers of robotic equipment are an integral part of this course.

INM 122. ROBOTICS II 4 credit hours

Prerequisite: INM 111 or 121
6 hours per week (2-4) plus open lab time

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.

INM 223. ROBOTICS III 4 credit hours

Prerequisite: INM 212
6 hours per week (2-4) plus open lab time

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. Automated welding, (GMAW) Gas-Metal Arc Welding, using an industrial robot is also developed in this course.

INM 224. ROBOTICS IV 4 credit hours

Prerequisite: INM 223
6 hours per week (2-4) plus open lab time

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.

INM 260. CIM APPLICATIONS 4 credit hours

Prerequisite: Consent

4 hours per week (4-0) plus open lab time

In this course a team of students from CAD, NCT, and Integrated Manufacturing are assigned a product. Course activities require the development of a suitable design identification of manufacturing techniques, and the assembly and testing of the completed product utilizing a "work cell" model.

MATHEMATICS (MTH)

MTH 036. MATH ANXIETY 1 credit hour

Prerequisite: None

7½ weeks, 2 hours per week (2-0)

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 which 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: None

7½ weeks, 2 hours per week (2-0)

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: None

3 hours per week (3-0)

This course is a review of the basic arithmetic operations common in everyday 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. This lecture course includes an additional hour of computation guided by the instructor. Grading uses the satisfactory/unsatisfactory system.

MTH 053. MATHEMATICAL THINKING 3 credit hours

Prerequisite: None

3 hours per week (3-0)

This course is designed to help students organize their thinking and improve retention. Topics covered include organization, orientation in space, analytical perception, comparisons, following instructions, and categorizing.

MTH 054. BASIC MATH FOR HEALTH STUDENTS 3 credit hours

Prerequisite: None

3 hours per week (3-0)

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 090. OCCUPATIONAL MATHEMATICS 3 credit hours

Prerequisite: MTH 039 or placement test equivalent

3 hours per week (3-0)

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 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: MTH 039 or placement test equivalent

5 hours per week (5-0)

The scope and content of this course is equivalent to a first-year high school algebra course. Topics include the whole, integer, rational and real number systems, algebraic operations, solving equations, practical applications, inequalities, graphing, systems of equations, polynomials, 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: MTH 039 or placement test equivalent
3 hours per week (3-0)

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: MTH 097A or placement test equivalent
3 hours per week (3-0)

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 110. HANDHELD CALCULATOR 2 credit hours

Prerequisite: MTH 097 or Consent
3 hours per week (3-0)

This course provides instruction in the use of handheld calculators. Topics covered include exact and approximate numbers, addition and subtraction, multiplication and division, algebraic expressions, memory, scientific notation, powers and radicals, simple equations and formulas, and the power function. This course is offered only in the self-paced format.

MTH 114. COMPUTER ASSISTANCE FOR STUDENTS WITH SPECIAL NEEDS Variable credit

Prerequisite: Consent
6 hours per week

This course provides assistance to students with special needs, especially those wishing to strengthen particular areas or handicapped students. Microcomputers and terminals are used in the course. The course is project-oriented with activities centered primarily around mathematics classes. Typical projects are typing notes and homework assignments, word-processing, writing computer programs, solving mathematical problems, and using Data Base Management systems. This course may not be used as a substitute for a required mathematics course.

MTH 148. FUNCTIONAL MATH FOR ELEMENTARY SCHOOL TEACHERS 4 credit hours

Prerequisite: MTH 097
4 hours per week (4-0)

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: MTH 039 or placement test equivalent
5 hours per week (5-0)

This course introduces algebraic and geometric concepts in an applied setting and is primarily for trade and technical students. Topics, which emphasize applications, include 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: MTH 097 or MTH 151
4 hours per week (4-0)

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 155. PLANE GEOMETRY 4 credit hours

Prerequisite: MTH 097
4 hours per week (4-0)

This course provides instruction in plane Euclidean geometry. This course is equivalent to a first course in high school plane geometry, using deductive proofs. (Offered irregularly.)

MTH 160. BASIC STATISTICS 4 credit hours

Prerequisite: MTH 097
4 hours per week (4-0)

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.

MTH 163. BUSINESS MATHEMATICS 3 credit hours

Prerequisite: MTH 039 or placement test equivalent
3 hours per week (3-0)

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: MTH 039 or placement test equivalent
3 hours per week (3-0)

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 decimal fractions; geometry; the metric system; the apothecary and household systems; signed numbers; solving equations; ratio and proportion; instrumentation; circle, bar, and 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: MTH 097 or placement test equivalent
4 hours per week (4-0)

The scope and content of this course is equivalent to a second-year high school algebra course. Topics include the real number system, polynomials, linear equations, inequalities, absolute value, exponents, complex numbers, quadratic equations and

inequalities, linear and quadratic functions, inverse functions, linear and non-linear systems of equations and inequalities, and determinants and matrices. This course is offered in 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 institutions.

MTH 169A. INTERMEDIATE ALGEBRA (first half) 3 credit hours

Prerequisite: MTH 097 or placement test equivalent
3 hours per week (3-0)

This course is the first half of MTH 169. Topics include the real number system, polynomials, linear equations, inequalities, absolute value, radicals, and exponents. 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: MTH 169A or placement test equivalent
3 hours per week (3-0)

This course is the second half of MTH 169. Topics include rational exponents, complex numbers, quadratic equalities and inequalities, linear and quadratic functions, inverse functions, lines and linear systems, non-linear systems, systems of inequalities, and determinants and matrices. 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: MTH 097 or placement test equivalent
3 hours per week (3-0)

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: MTH 169 or placement test equivalent
3 hours per week (3-0)

This course provides a rigorous background in trigonometry necessary for students intending to study calculus. Topics include circular functions, graphs, inverse circular functions, trigonometric functions, solution of triangles, identities, vectors,

complex numbers, and polar coordinates. This course transfers to many four-year institutions. MTH 178 and 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: MTH 169 or placement test equivalent
4 hours per week (4-0)

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.

MTH 181. MATHEMATICAL ANALYSIS I 4 credit hours
Prerequisite: MTH 169 or placement test equivalent
4 hours per week (4-0)

This course teaches the methods and applications of finite mathematics to social science and business. Topics covered include solution to linear equations and inequalities, mathematics of finance, matrices, linear programming, sets, and probability. This course transfers to many four-year institutions.

MTH 182. MATHEMATICAL ANALYSIS II 4 credit hours
Prerequisite: MTH 179 or 181
4 hours per week (4-0)

This course teaches the elementary methods of calculus applied to social science and business. Topics covered include functions, differentiation of algebraic functions, optimization, exponential and logarithmic functions and their derivatives, and an introduction to integration. Some four year institutions accept this course as the calculus requirement of certain of their business and social science programs.

MTH 191. CALCULUS I 5 credit hours
Prerequisite: MTH 178 and 179
5 hours per week (5-0)

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.

MTH 192. CALCULUS II 4 credit hours
Prerequisite: MTH 191
4 hours per week (4-0)

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.

MTH 197. LINEAR ALGEBRA 4 credit hours
Prerequisite: MTH 191. MTH 192 also encouraged
4 hours per week (4-0)

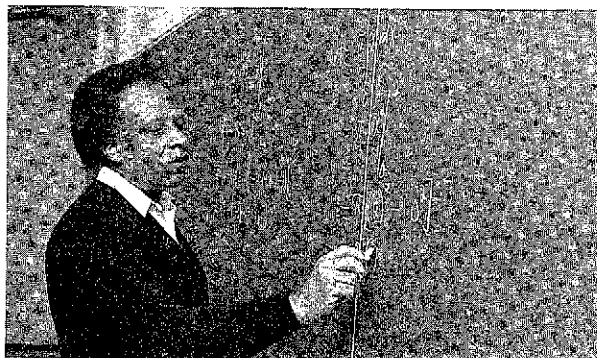
This is an introductory college course in linear algebra. Topics include linear systems of equations, properties of vectors and matrices, determinants, vector spaces, linear transformations, eigenvalues, and applications. This course transfers to four-year institutions.

MTH 293. CALCULUS III 4 credit hours
Prerequisite: MTH 192
Corequisite: MTH 197
4 hours per week (4-0)

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.

MTH 295. DIFFERENTIAL EQUATIONS 4 credit hours
Prerequisite: MTH 197 and 293
4 hours per week (4-0)

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.



MECHANICAL TECHNOLOGY — (MET)

MET 100. MACHINE SHOP THEORY3 credit hours

Prerequisite: None
3 hours per week (3-0)

This class is designed to teach machine shop theory to those who have had or are presently receiving hands on or practical experience in the machining field. Precision and semi-precision measuring instruments, layout tools and procedures, proper use of hand tools, and the basic principles of machine tool operations are covered. Films supplement classroom instruction.

MET 103. INTRODUCTION TO MATERIALS3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

MET 111. MACHINE SHOP THEORY AND PRACTICE4 credit hours

Prerequisite: None
6 hours per week (1-5)

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.

MET 122. MACHINE TOOL OPERATIONS AND SET-UP I4 credit hours

Prerequisite: MET 111 or consent
6 hours per week (1-5)

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.

MET 123. MACHINE TOOL OPERATIONS AND SET-UP II4 credit hours

Prerequisite: None
6 hours per week (0-6)

A continuation of MET 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.

MET 201. MACHINE TOOL TECHNOLOGY4 credit hours

Prerequisite: MET 122
6 hours per week (0-6)

The last and most advanced machine shop class, this course emphasizes students' individual goals and proficiencies of specific machining operations. After completing an assigned project the students choose additional projects to manufacture using several advanced techniques to meet individual needs.

MUSIC — (MUS)

MUS 103. WCC JAZZ ORCHESTRA1 credit hour

Prerequisite: Audition
3 hours per week (0-3)

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 106. JAZZ COMBO1 credit hour

Prerequisite: None
2 hours per week (0-2)

The Jazz Combo is designed for the musician with some degree of competency to gain experience and skill in performance and improvisation of different styles of jazz and blues. This is a performing group which offers concerts in the community.

MUS 135. CHORUS 1 credit hour

Prerequisite: None
2 hours per week (0-2)

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: None
2 hours per week (0-2)

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: None
3 hours per week (3-0)

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 143. COMPOSITION: THEORY
AND ARRANGEMENT 2 credit hours**

Prerequisite: None
2 hours per week (2-0)

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: None
3 hours per week (3-0)

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: None
2 hours per week (2-0)

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. SIGHT SINGING/EAR TRAINING 2 credit hours

Prerequisite: None
2 hours per week (2-0)

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 152. MUSIC THEORY I 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 class 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 157. JAZZ IMPROVISATION 2 credit hours

Prerequisite: None
2 hours per week (2-0)

This course in jazz theory provides students with techniques of melody, harmony and rhythm that would excite spontaneous creativity in the jazz style.

MUS 170. AUDIO RECORDING TECHNOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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, as is lecture and studio experience on automated recording techniques and multitrack.

MUS 180. MUSIC APPRECIATION 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This is an introduction to music, using innovative techniques on how to listen to music after becoming acquainted with the socio-cultural values of the people who produced the many kinds of music in our world. All music styles are covered. Presentations deal with the growth and development of musical forms and different styles through recordings and demonstrations.

MUS 183. AFROMUSICOLOGY3 credit hours

Prerequisite: None
3 hours per week (3-0)

Afromusicology is a relatively new discipline of musical studies which combines the areas of Anthropology (Egyptology), Organology, World and Social History, and Musicology to explain the creative and artistic developments of Africa and Africa-American peoples of the world. The mode of presentation deals with an ethnomusicological approach, focusing on the lifestyle, traditions and mores to define the visual and musical arts.

MUS 204. VOICE 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This course is an extension of Introduction to Voice and is an in-depth study of vocal techniques.

MUS 206. VOCAL PERFORMANCE2 credit hours

Prerequisite: None
2 hours per week (0-2)

Students learn techniques in performing songs. Community and public concerts are held. Sound system and recorded band tracks are used for accompaniment. Students may also accompany themselves.

MUS 210. FUNCTIONAL PIANO2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 musicianship, elementary keyboard harmony, sight reading, pedal technique, aids to memorization and keyboard application of subjects studied in music classes.

MUS 213. INTERMEDIATE PIANO2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 AND BLUES2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 220. APPLIED MUSIC: BRASS2 credit hours

Prerequisite: None
2 hours per week (0-2)

Instruction in this course is geared to students' level of expertise in this introductory group instruction in brass instruments.

MUS 225. BEGINNING JAZZ DRUM2 credit hours

Prerequisite: None
2 hours per week (0-2)

Rudimentary skills in jazz drumming are learned; study includes historical styles such as Swing, Be-Bop, and South American and African rhythms.

MUS 231. CLASSICAL GUITAR2 credit hours

Prerequisite: None
2 hours per week (0-2)

This is a course in performing and teaching skills for the classical guitar for students with a strong background in reading music and playing the guitar. Course emphasis includes the history of classical guitar as well as the playing and teaching of classical guitar.

MUS 233. BEGINNING GUITAR2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 GUITAR2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 GUITAR2 credit hours

Prerequisite: None
2 hours per week (0-2)

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 242. BASS GUITAR 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This course in applied music (bass) is designed specifically for jazz enthusiasts who want to learn jazz bass performance techniques. Melodic, harmonic and rhythmic theory is used to develop jazz bass performance styles. Students must have their own instrument.

MUS 249. INTRODUCTION TO JAZZ FLUTE 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This is an introductory course in jazz flute for students with varying abilities.

MUS 250. BEGINNING FLUTE/SAX 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This beginning class familiarizes students with primary musical jargon and the basics of flute and saxophone playing. Basic instruction includes sound production, reading musical notation, learning flute and saxophone fingering, performing basic major scales and a combination of reading and performing simple tunes involving both classical and jazz music.

NUMERICAL CONTROL _____(NCT)

NCT 111. MANUFACTURING PROCESSES FOR CAM 4 credit hours

Prerequisite: INM 111
4 hours per week (4-0)

Industrial techniques and processes used for product manufacture are studied. Planning of machining operations and routing of parts through all stations needed to complete the part are examined. Cost estimating, specialized tooling, fixturing, speeds and feeds, and nontraditional machining methods are major topics explored. Effects of flexible manufacturing and the future trends in the manufacturing industry are discussed.

NCT 121. MANUAL PROGRAMMING AND NCT TOOL OPERATION 4 credit hours

Prerequisite: INM 111, MET 111, MTH 169
6 hours per week (3-3) plus open lab time

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 y 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 NCT TOOL OPERATION 4 credit hours

Prerequisite: NCT 121, MTH 177
6 hours per week (3-3) plus open lab time

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 125. CAM COMPUTER OPERATOR AND PROGRAMMER 3 credit hours

Prerequisite: INM 111
3 hours per week (3-0)

This course provides an Introduction to computers for Numerical Control programming courses and PC-based CAM systems. The course covers the basic vocabulary, historical development, cycle of operation, information storages and input and output devices of computers. Students gain hands-on experiences using and editing software and PC operating system software. Laboratory time is required.

NCT 236. CAM MACHINE TOOL PROGRAMMING 4 credit hours

Prerequisite: INM 111, 121 and 125
4 hours per week (2-2) plus open lab time

Students generate tool paths for milling, turning and welding machines which are N/C controlled, using Computer Aided Manufacturing systems and software. Part programs are constructed by defining the part geometry and then defining the tools and the tool path required to manufacture the part 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 course material. Students are provided time outside class to use the CAM workstations in order to complete assignments.

NCT 247. ADVANCED CAM MACHINE TOOL PROGRAMMING 4 credit hours

Prerequisites: NCT 236, IND 219

4 hours per week (2-2) plus open lab time

This course is a continuation of NCT 236. Students are required to generate tool paths on parts containing complex geometry, and which are often considered to be problem situations in industry. Tool paths are generated on data-bases developed on separate CAD systems, which have been transferred to the CAM workstation. Students are required to select the proper order of machining operations, the tooling required, and work holding devices needed to complete the machining of parts assigned. Milling, turning, and plasma arc N/C machining applications are included. Students are provided time outside of class to use the CAM workstations in order to complete assignments.

NURSING (NUR)

Enrollment for these courses is granted to students admitted to this program. Courses must be taken in the sequence outlined in the curriculum unless consent is obtained from the nursing division after review of previous transcripts.

NUR 039. STATE BOARD PREPARATION 1 credit hour

Prerequisite: Consent
15 hours to be arranged

This course assists Nursing Program graduates in preparing for the State Board of Nursing Examinations. Emphasis is placed on reviewing learned materials and on taking national competitive examinations. Grading uses the satisfactory/unsatisfactory system.

NUR 101. INTRODUCTION TO NURSING 1 credit hour

Prerequisite: Admission to the Nursing Sequence
7½ weeks, 2 hours per week (2-0)

This is the first course in the nursing sequence. Information which provides a foundation for other nursing courses is introduced. Topics include the roles of nurses, an overview of nursing history with an emphasis on associate degree nursing, the Code of Ethics for Nurses, universal precautions, and basic legal issues.

NUR 102. FUNDAMENTALS OF NURSING 2 credit hours

Prerequisites: All first semester courses, HSC 131 or equivalent

Corequisite: NUR 103, NUR 112
2 hours per week (2-0)

Theory which 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

Prerequisites: All first semester courses, HSC 131 or equivalent

Corequisite: NUR 102, NUR 112
9 laboratory/clinical hours per week

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

Prerequisites: All first semester courses, HSC 131 or equivalent

Corequisite: NUR 105
1 hour per week (1-0)

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

Prerequisites: All first semester courses, HSC 131 or equivalent

Corequisite: NUR 104
3 clinical hours per week (0-3)

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 112. PHARMACOLOGY 2 credit hours

Prerequisites: All first semester courses, HSC 131 or equivalent

Corequisites: NUR 102, NUR 103

Principles of pharmacology are introduced including drug sources, preparations, classification and legislation. Topics include pharmacokinetics, lab monitoring and toxicity. 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 123. ACUTE CARE NURSING I 3 credit hours

Prerequisites: First and second semester courses

Corequisites: NUR 124, HSC 128, HSC 220

7½ weeks, 6 hours per week

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, intraoperative 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

Prerequisites: First and second semester courses

Corequisites: NUR 123, HSC 128, HSC 220

7½ weeks, 12 clinical hours per week

This course builds on and supports skills learned in NUR 102: Fundamentals of Nursing and NUR 104: Nursing of the Older Adult. Students gain increased competence in assessment skills, including the integration of diagnostic tests and procedures and their results. Also introduced are planning individualized nursing care including discharge teaching, based on appropriate nursing diagnoses and collaborative problems.

NUR 131. NURSING OF THE CHILD BEARING FAMILY 3 credit hours

Prerequisites: First and second semester courses

Corequisites: NUR 132, HSC 220

7½ weeks, 6 hours per week (6-0)

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

Prerequisites: First and second semester courses

Corequisites: NUR 131, HSC 220

7½ weeks, 12 clinical hours per week

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 200. NURSING ROLE TRANSITION 4 credit hours

Prerequisite: Successful completion of all Nursing Level I

courses or LPN accepted into Level II of the program

6 hours per week (3-3)

This course includes study of nursing history and development of associate degree nursing programs, nursing roles, change theory and individual reactions to change. Also included are an introduction to general systems theory and advanced study of the nursing process. The laboratory components include nursing skills review/update, CPR update and nursing assessment practice.

NUR 223. ACUTE CARE NURSING II 3 credit hours

Prerequisite: Completion of first three semesters

Corequisites: NUR 224, HSC 244

7½ weeks, 6 hours per week

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: Completion of first three semesters

Corequisites: NUR 223, HSC 244

7½ weeks, 12 clinical hours per week

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: Completion of first four semesters

Corequisites: NUR 232

7½ weeks, 6 hours per week

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 stress of hospitalization are addressed. Promoting health and fostering normal growth and development is emphasized.

**NUR 232. NURSING OF CHILDREN -
CLINICAL PRACTICE 2 credit hours**

Prerequisite: Completion of first four semesters

Corequisites: NUR 231

7½ weeks, 12 clinical hours per week

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 practice incorporating growth and development assessment, as well as response to illness, into developing nursing interventions appropriate for the specific child and family. Opportunities for interaction with well children in community settings also is provided.

**NUR 235. ADVANCED PARENT-CHILD
NURSING 5 credit hours**

Prerequisite: Successful completion of all Nursing Level I courses or LPN accepted into Level II of the program, all first semester Level II courses

7½ weeks, 18 hours per week (6-12)

This course provides further study of the family with parent-child health related needs begun in NUR 135. Focus is on emotional aspects of parenting, pregnancy, and health problems related to these processes. Family structure, function, and health teaching, including concepts of nutrition and normal growth and development are discussed. Parent-child nursing concepts are applied in hospital situations. Students have experience with high and low-risk families across the childbearing cycle, including antepartum, intrapartum, and postpartum periods. Experience with the childrearing family includes opportunities for health teaching.

**NUR 245. COMPLEX MEDICAL-SURGICAL
NURSING 6 credit hours**

Prerequisite: NUR 255 and successful completion of all first semester Level II courses

7½ weeks, 26 hours per week (6-20)

This course emphasizes the theoretical base of nursing care aimed at meeting the common bio-psycho-social needs of individual adult clients who are experiencing complex medical-surgical problems with predictable outcomes in an acute care setting. The course is designed around six concepts, with the nursing process being the integrating thread. An application of the nursing process is emphasized in meeting these needs in an acute care setting.

NUR 255. MENTAL HEALTH NURSING 3 credit hours

Prerequisite: Completion of first three semesters

Corequisites: NUR 256, HSC 244

7½ weeks, 6 hours per week (6-12)

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: Completion of first three semesters

Corequisites: NUR 255, HSC 244

7½ weeks, 12 clinical hours per week

Mental health nursing concepts are applied in hospital and community situations. Students have experience with current methods of prevention, maintenance and treatment.

**NUR 260. NURSING MANAGEMENT
AND TRENDS 2 credit hours**

Prerequisite: NUR 255 and successful completion of all first semester Level II courses

Corequisite: NUR 245

2 hours per week (2-0)

This course includes leadership and management concepts in relation to organizing care of groups of clients. Emphasis is placed on communication, decision making and motivation as it relates to entry level nursing responsibilities. Legal aspects of supervision are studied, as well as trends and current problems in the nursing profession. Clinical practice of management skills is integrated into Complex Medical-Surgical Nursing.

NUR 261. TRANSITION TO GRADUATE NURSE ROLE 1 credit hour

Prerequisite: Completion of first four semesters
Corequisite: NUR 262
7½ weeks, 2 hours per week

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 seeking employment, membership in professional organizations and continuing education also is presented.

NUR 262. TRANSITION TO GRADUATE NURSE ROLE - CLINICAL PRACTICE 4 credit hours

Prerequisite: Completion of first four semesters
Corequisite: NUR 261
7½ weeks, 24 clinical hours per week

This course is intended to socialize students into the working role. Experience is provided for each student to function cooperatively with a selected Registered Nurse mentor on a one-to-one basis and to work with 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 HOSPITAL AND COMMUNITY PHARMACY 3 credit hours

Prerequisite: Admission to Pharmacy Technician Program
3 hours per week (3-0)

The student is familiarized with the functions and services provided by both hospital and community pharmacies. Hospital organization is presented. The role of the pharmacist and technician is studied. Discussion includes legal and ethical responsibilities.

PHT 101. DRUG PRODUCTS AND NOMENCLATURE 2 credit hours

Prerequisite: PHT 100 or consent
2 hours per week (2-0)

Drugs are studied by therapeutic classification with special attention on dosage forms, commonly used names and manufacturers. Study is limited to commonly used drug standards of reference in each classification that are used in community and hospital practice.

PHT 102. DRUG DISTRIBUTION SYSTEMS AND PROCEDURES 3 credit hours

Prerequisite: PHT 100 or consent
5 hours per week (2-3)

Methods of drug preparation, packaging and distribution in the hospital and community pharmacy setting are presented. The specific duties and responsibilities of the technician are emphasized.

PHT 105. PREPARATION OF MEDICATIONS 2 credit hours

Prerequisite: PHT 100 or consent
3 hours per week (1-2)

Dosage forms and routes of drug administration are discussed, including the rationale, techniques and potential problems of each. The course also includes the basic principles, equipment and techniques involved in the preparation of sterile products.

PHT 130. PHARMACY SEMINAR 1 credit hour

Prerequisite: First and second semester courses
1 hour per week (1-0)

In this course, students discuss the application of pharmacy technology theory in the clinical setting. It is also designed to assist students in preparing for the certification examination.

PHT 198. PHARMACY FIELD EXPERIENCE 8 credit hours

Prerequisite: All first and second semester courses
16 hours per week (0-16)

Skills and knowledge acquired in the first two semesters of the program are put into practice in both hospital and community settings. Students spend 16 hours a week in a practice setting. All experience is under the supervision of a registered pharmacist.



PHILOSOPHY (PHL)

PHL 101. INTRODUCTION TO PHILOSOPHY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

PHL 200. EXISTENTIALISM 3 credit hours

Prerequisite: None
3 hours per week (3-0)

A general introduction to the existentialist tradition of philosophy is provided as it is presented in the works of such representative thinkers as Nietzsche, 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. VALUES: ETHICS AND AESTHETICS ... 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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: None
4 hours per week (2-2)

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 2 credit hours

Prerequisite: None
2 hours per week (2-0)

Designed to introduce students to the history of photography, this class studies the development of the important processes for making photographs and the philosophy of the most significant photographers of the 19th and 20th centuries.

PHO 111. PHOTOGRAPHY 4 credit hours

Prerequisite: None
6 hours per week (2-4)

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 112. DARKROOM TECHNIQUES 5 credit hours

Prerequisite: PHO 111
Corequisite: PHO 113
7 hours per week (1-6)

This class features development of skills needed by technicians in commercial and other types of darkrooms used in business and industry. All major phases of darkroom work including film

processing, print making, photographic supplies, and zone system calibration are practiced.

PHO 113. STUDIO TECHNIQUES 3 credit hours

Prerequisite: PHO 111

Corequisite: PHO 112

4 hours per week (1-3)

This course includes specialized instruction in large format photography and studio lighting techniques. Emphasis is on view camera use with various studio lighting set-ups. Students must have a hand-held light meter.

PHO 114. BASIC COLOR PHOTOGRAPHY 3 credit hours

Prerequisite: PHO 111

4 hours per week (1-3)

This course is an introduction to the various color photography processes in common use today. Emphasis is placed on producing color-corrected prints from negatives. Color light theory and design concepts also are emphasized.

PHO 115. PHOTO RETOUCHING 2 credit hours

Prerequisite: PHO 111

3 hours per week (0-3)

Manual spotting techniques and associated materials as applied to the retouching and processing of photographic prints and negatives are learned.

PHO 116. PORTRAIT PHOTOGRAPHY 2 credit hours

Prerequisite: PHO 113

3 hours per week (1-2)

This is a study in basic lighting and posing techniques used in creating studio portraits. Areas of study include: children, families, seniors, wedding and executive portraiture.

PHO 216. INTRODUCTION TO FASHION PHOTOGRAPHY 3 credit hours

Prerequisite: PHO 116

4 hours per week (1-3)

This class expands students' knowledge of formal portraiture in order to create professional fashion photographs. Areas of study include: model portfolios, fashion advertising, hi-key/low-key lighting, creating unique backgrounds, outdoor lighting and location photography.

PHO 219. PHOTOGRAPHIC DESIGN 3 credit hours

Prerequisite: PHO 111

4 hours per week (1-3)

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. ADVANCED STUDIO TECHNIQUES 3 credit hours

Prerequisite: PHO 113

4 hours per week (1-3)

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 221. ADVANCED DARKROOM TECHNIQUES 3 credit hours

Prerequisite: PHO 112

7 hours per week (1-6)

This course focuses on various advanced techniques used and problems faced by the darkroom technician. The concept of port-visualization is integrated with the various techniques demonstrated and used in the course.

PHO 222. ADVANCED COLOR PHOTOGRAPHY .. 3 credit hours

Prerequisite: PHO 114

6 hours per week (2-4)

This is a continuation of the studies begun in Basic Color Photography 114. Emphasis is placed on color correction from unusual situations and color distortion to achieve special effects and experience in automated color production techniques and equipment.

PHO 223. PHOTOGRAPHIC OPERATIONS 3 credit hours

Prerequisite: PHO 113

4 hours per week (2-2)

Students study photographic operations in business and industry through guest lecturers and field trips. Students use skills gained in basic and studio classes to complete freelance assignments on a professional client/ photographer basis.

PHO 230. SPECIALIZED STUDIES IN PHOTOGRAPHY Variable credit

Prerequisite: Consent

This course offers students the opportunity to work independently with faculty consultation in major areas of photography.

PHO 231. PORTFOLIO SEMINAR 2 credit hours

Prerequisite: Consent
4 hours per week (2-2)

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.

PHYSICAL EDUCATION ACTIVITIES _____ (PEA)

PEA 105. NAUTILUS WEIGHT TRAINING 2 credit hours

Prerequisite: None
2 hours per week (0-2)

This course provides opportunities for students to acquire skills which will be a source of healthful and recreational exercise.

PEA 109. BEGINNING TENNIS 1 credit hour

Prerequisite: None
2 hours per week (0-2)

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)

OPEN PHYSICS LABORATORY

Physics courses 105, 111, 122, 131, 143 utilize an open laboratory format. Under this format the laboratory is open with an instructor present about twenty-five hours per week. Students perform assigned experiments at specified stations when the laboratory is open. Computer software is used for data analysis and simulations.

PHY 059. FUNDAMENTALS OF PHYSICS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: MTH 090
6 hours per week (3-3)

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: MTH 090
6 hours per week (3-3)

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: MTH 169
Corequisite: MTH 177 and PHY 111L
3 hours per week (3-0)

The topics of mechanics, heat, and wave motion are presented

using the principles of algebra to pre-professional and liberal arts students in PHY 111. 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 II4 credit hours
 Prerequisite: PHY 111
 6 hours per week (3-3)

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 131. PHYSICS FOR RESPIRATORY THERAPY 3 credit hours
 Prerequisite: MTH 165
 4 hours per week (2-2)

Designed to meet the needs of students in the respiratory therapy program, PHY 131 presents students with: basic mechanics, energy in the human body, properties of fluids and gases, molecular phenomena, heat, and the physical principles of selected respiratory therapy equipment.

PHY 143. RADIOLOGIC PHYSICS4 credit hours
 Prerequisite: MTH 165, High School Physics, or PHY 105
 6 hours per week (4-2)

Radiology students should take this course which covers the topics of: basic mechanics, structure of matter, wave motion, electromagnetism, the X-ray circuit, production of X-rays, interactions with matter, radioactive decay, ultrasound, and nuclear magnetic resonance.

PHY 211. ANALYTICAL PHYSICS I5 credit hours
 Prerequisite: MTH 191, High School Physics or PHY 105 or 111
 Corequisite: PHY 211L
 4 hours per week (4-0)

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.

PHY 222. ANALYTICAL PHYSICS II5 credit hours
 Prerequisite: PHY 211
 7 hours per week (4-3)

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)

Political Science 108, 112, and 150 all meet the minimum requirements for the Associate Degree.

PLS 108. GOVERNMENT AND SOCIETY3 credit hours
 Prerequisite: None
 3 hours per week (3-0)

This is an introductory course on the American political system: executive, legislative, and judicial functions; processes and machinery of popular control (public opinion, media, interest groups, parties, and elections). It is designed to help students to more clearly define and express their own political ideas.

PLS 112. INTRODUCTION TO AMERICAN GOVERNMENT3 credit hours
 Prerequisite: None
 3 hours per week (3-0)

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.

PLS 150. STATE AND LOCAL GOVERNMENT AND POLITICS3 credit hours
 Prerequisite: None
 3 hours per week (3-0)

Forms and functions of state and local governments in the United States are studied. The relationships of urban community development to the politics of metropolitan areas are analyzed. Theories of studying community decision-making are evaluated.

PLS 211. INTRODUCTION TO COMPARATIVE GOVERNMENT3 credit hours
 Prerequisite: None
 3 hours per week (3-0)

This class surveys the political systems of Great Britain, France, Italy, Germany, the former Soviet Union and China. The importance of ideologies to the development of political systems are emphasized.

PSYCHOLOGY (PSY)

PSY 100. INTRODUCTORY PSYCHOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 discussed. This course also is taught as a television course using the program series "Psychology: The Study of Human Behavior."

PSY 107. BLACK PSYCHOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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 150. INDUSTRIAL PSYCHOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course involves discussion of human relations in business and industry. Special attention is given to occupational information, personnel selection, training and development and employee appraisal. This is a practical introduction to the psycho-

logical dimensions and implications of the modern working world.

PSY 160. COPING WITH STRESS 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course studies the recent developments in stress reduction and personal growth using materials from humanistic psychology, psychiatry, nutrition and exercise.

PSY 200. CHILD PSYCHOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

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 222. LOSSES AND GRIEVING 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course, concerned with losses and the therapeutic process of grieving, examines people's reactions to unexpected losses. Losses due to death are treated as well as losses naturally accompanying everyday life and the growth process. Also examined is grief resulting from disillusionment, divorce, unemployment, role change, the empty nest and the loss of material possessions. The class focuses on the way people react to their own losses and the role of friends and professionals in helping complete the grieving process. Problems resulting from incompleting grieving and the nature of grief work is considered in depth. The class blends theory with practice.

PSY 257. ABNORMAL PSYCHOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

This class provides an overview of human sexuality. Topics include research, anatomy, dysfunctions and their treatment, family planning methods, sexual communication, sexually transmitted diseases and sexual variations.

RADIOGRAPHY (RAD)

Enrollment priority for these courses is granted students admitted to this program. Courses must be taken in sequence outlined in the curriculum unless consent is obtained from the Radiography division after review of previous transcripts.

RAD 097. REGISTRY REVIEW 1 credit hour

Prerequisite: Admission to Program or Consent
7½ weeks, 2 hours per week (2-0)

This course assists graduates of the Radiography Program to prepare for the Registry Examination.

RAD 100. INTRODUCTION TO RADIOGRAPHY 2 credit hours

Prerequisite: Admission to the Radiography Program
7 weeks, 4.2 hours per week (4.2-0)

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 OF PATIENT CARE 2 credit hours

Prerequisite: Admission to the Radiography Program
7 weeks, 4.2 hours per week (4.2-0)

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 1 credit hour

Prerequisite: None
Corequisite: RAD 112
7½ weeks, 16 hours per week (0-16)

This course provides structured clinical experience in the application of knowledge and skill in positioning the upper extremity, chest and abdomen; and the demonstration of knowledge concerning professional ethics, courtesy and empathy in handling patients, film processing and darkroom procedures.

RAD 111. FUNDAMENTALS OF RADIOGRAPHY . 2 credit hours

Prerequisite: RAD 100
7½ weeks, 4 hours per week (4-0)

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: None
Corequisite: RAD 110
3 hours per week (1-2)

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: RAD 111
7½ weeks, 4 hours per week (4-0)

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: None
Corequisite: RAD 123
16 hours per week (0-16)

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 on the design and operational characteristics of equipment and accessories in a general radiographic room.

RAD 123. RADIOGRAPHIC POSITIONING II 2 credit hours

Prerequisite: RAD 112
3 hours per week (1-2)

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: Consent
3 hours per week (3-0)

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: BIO 111
3 hours per week (3-0)

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: None
Corequisite: RAD 124
2 hours per week (0-2)

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 130. CLINICAL EDUCATION 2 credit hours

Prerequisite: RAD 120
7 weeks, 32 hours per week (0-32)

Structured clinical experience is provided in the application of knowledge and skill in positioning the upper and lower extremities, chest, abdomen, trunk, spine, procedures requiring the use of a contrast medium and in the demonstration knowledge of the components and operational characteristics of the fluoroscopic unit.

RAD 135. PATHOLOGY FOR RADIOGRAPHERS .2 credit hours

Prerequisite: Admission to Program or Consent
7 weeks, 4.2 hours per week (4.2-0)

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 140. CLINICAL EDUCATION 2 credit hours

Prerequisite: RAD 130
7 weeks, 32 hours per week (0-32)

This course is a continuation of Clinical Education 130. Students demonstrate a knowledge of orthopedic radiography.

RAD 215. RADIOGRAPHY OF THE SKULL 2 credit hours

Prerequisite: Admission to Program or Consent
Corequisite: RAD 217
3 hours per week (1-2)

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: None
Corequisite: RAD 215
24 hours per week (0-24)

Structured clinical experience is provided in the components and operational characteristics of radiographic equipment used in radiography of the skull. Student apply knowledge and skill in positioning the upper and lower extremities, chest, abdomen, trunk, spine and skull and in procedures requiring the use of a contrast medium.

RAD 218. RADIATION BIOLOGY2 credit hours

Prerequisite: Admission to Program or Consent
7½ weeks, 4 hours per week (4-0)

This course is designed to acquaint students with the effects of ionizing radiation on the cells which form human tissue.

RAD 219. RADIATION PROTECTION 2 credit hours

Prerequisite: Admission to Program or Consent
7½ weeks, 4 hours per week (4-0)

The interaction of radiation with matter and the effect of exposure factors on radiation dose, biological effects, unit of measurement, maximum permissible dose and exposure monitoring are covered in this course.

RAD 220. MANAGEMENT OF RADIOLOGICAL ENVIRONMENT 2 credit hours

Prerequisite: Admission to Program or Consent
2 hours per week (2-0)

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 225. CLINICAL EDUCATION3 credit hours

Prerequisite: RAD 217
24 hours per week (0-24)

Structured clinical experience is provided in all areas of radiography. Electives in specialized areas are explored (i.e., ultrasound, C.T. Scanner, mobile and surgical radiography).

RAD 240. CLINICAL EDUCATION 2 credit hours

Prerequisite: RAD 225
7 weeks, 32 hours per week (0-32)

Internship in Clinical Education is provided.

RAD 255. QUALITY ASSURANCE IN RADIOLOGY 3 credit hours

Prerequisite: RAD student or current employment in RAD
3 hours per week (3-0)

This course is designed to update the practicing radiographer on current trends in quality improvement and quality assurance. Each participant will leave the class with a completed quality assurance notebook that will be applicable to their department. The course consists of lectures, labs and group discussions on practical methods of dealing with the changing Radiology environment.

RAD 260. COMPUTED TOMOGRAPHY CROSS-SECTIONAL ANATOMY 3 credit hours

Prerequisite: Basic knowledge of anatomy or consent
3 hours per week (3-0)

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 techniques are discussed.

READING (RDG)

RDG 000. READING LAB 0 credit hours

The Reading Lab (SC 301) is available to help improve students' reading and learning skills. Students enrolled in RDG 040, 045 or 070 also must enroll in a lab section of their choice where they will receive an additional hour of reading instruction. Students not enrolled in Reading classes may be referred for individual consultation.

RDG 040. BASIC FUNDAMENTALS OF READING 4 credit hours

Corequisite: RDG 000
4 hours per week (1-3)

This course provides the remedial reader with basic reading skills. A program of instruction is individually designed for each student based upon his/her diagnostic reading test and a personal interview. The course includes work assigned in the RDG 040 classroom and, in addition, a continuation of individualized instruction is given in the reading lab. Students enrolled in this course must satisfactorily complete the work in this course before enrolling in a higher level reading course. Grading uses the satisfactory/unsatisfactory system. (Students enrolled in ENG 050 are encouraged to take Reading 040 at the same time.)

RDG 045. INTERMEDIATE FUNDAMENTALS OF READING 4 credit hours

Prerequisite: RDG 040 or equivalent; Corequisite: RDG 000
4 hours per week (1-3)

This is an intermediate reading course designed to improve basic reading skills. Major areas of reading improvement include comprehension, spelling, and vocabulary. Students work in individualized programs and materials appropriate to their abilities. In addition to the work assigned in the classroom, an hour of reading skills improvement is received in the lab each week.

RDG 070. ADVANCED FUNDAMENTALS OF READING4 credit hours

Prerequisite: RDG 060 or equivalent; Corequisite: RDG 000
4 hours per week (1-3)

Students receive practice designed to improve comprehension, spelling, vocabulary and basic study skills in preparation for enrollment in WCC training programs and academic courses. Students work on materials appropriate to their abilities as demonstrated by the results of diagnostic tests and personal interviews. One additional hour of reading skills improvement is received in the reading lab each week.

RDG 103. STUDY SKILLS3 credit hours

Prerequisite: High school reading ability
3 hours per week (3-0)

This course is designed for students interested in improving study and note taking skills. Reading and note taking techniques appropriate to specific course materials are stressed. It is essential that students electing this course be enrolled in an English, Humanities, Social or Exact Science course so they can apply their newly learned study skills in other disciplines.

RDG 104. STUDY SKILLS2 credit hours

Prerequisite: High school reading ability
7½ weeks, 4 hours per week (4-0)

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 Exact Science course so they can apply their newly learned study skills.

RDG 105. VOCABULARY AND SPELLING POWER3 credit hours

Prerequisite: High school reading ability
3 hours per week (3-0)

This course is designed for students interested in improving spelling skills and expanding vocabulary. Emphasis is placed on meeting the individual student's needs. This is not a remedial course; students in need of basic spelling and/or vocabulary skills should elect Reading 040.

RDG 106. SPEED READING2 credit hours

Prerequisite: High school reading ability
7½ weeks, 4 hours per week (4-0)

This course is designed for students interested in becoming more flexible readers. Students learn techniques to vary reading speeds and techniques appropriate to their material and purposes.

RDG 107. SPEED READING3 credit hours

Prerequisite: High school reading ability
3 hours per week (3-0)

This course is designed for competent students interested in becoming faster and more flexible readers. Students learn techniques to vary reading speeds appropriate to their material and purposes. Class meets for a full semester, allowing time for students to master each successive reading technique before learning a new one.

RDG 109. VOCABULARY FOR THE FOREIGN BORN4 credit hours

Prerequisite: ENG 040 or English Placement Test
4 hours per week (4-0)

This vocabulary improvement course is designed for advanced learners of English as a second language. Major areas of emphasis include the study of word derivations, context clues, idiomatic English, and dictionary skills.

RDG 115. MEDICAL TERMINOLOGY2 credit hours

Prerequisite: High School reading ability
2 hours per week (2-0)

To acquaint students with the origin and structure of medical terms. Individual student needs will be met to help them interpret and understand requests for radiographic and other examinations; to read medical reports and articles; and to define, spell, and pronounce medical terms as they occur in private practice or hospital environments.

REAL ESTATE _____ (RES)

RES 100. REAL ESTATE PRINCIPLES AND PRELICENSURE4 credit hours

Prerequisite: None
4 hours per week (4-0)

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: None
3 hours per week (3-0)

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's course requirements for Real Estate Brokers.

RES 130. REAL ESTATE APPRAISAL 3 credit hours

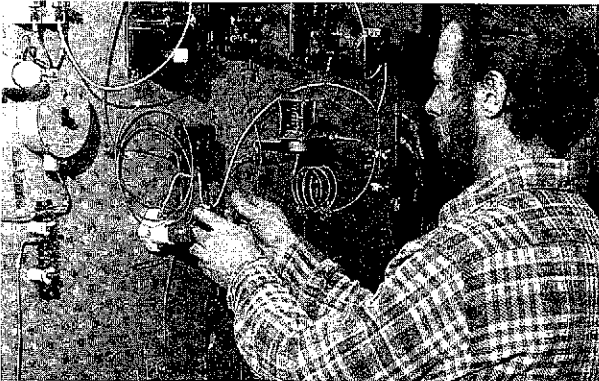
Prerequisite: RES 100 (recommended)
3 hours per week (3-0)

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: RES 100 or BMG 111 (recommended)
3 hours per week (3-0)

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 requirements for real estate appraiser and real estate broker licenses.



**REFRIGERATION/
AIR CONDITIONING _____(RAC)**

RAC 111 through RAC 216 are primarily trade-related instruction program courses. Their purpose is to upgrade persons currently employed in this industry; however, students who are not currently employed in the industry are welcome. Presently, courses are only offered in the evenings. All training materials are provided by the Refrigeration Service Engineers Society (RSES). Students should expect to pay approximately \$110 per term in addition to tuition. Consent of advisor is required for registration.

RAC 111. REFRIGERATION I 5 credit hours

Prerequisite: consent; RSES membership required
5 hours per week (4-1)

This is the foundation course in a series of courses presented with a practical approach to servicing refrigeration air conditioning systems. Major units covered include mathematics, principles of refrigeration, refrigerants and refrigerant tables, refrigerant oils, contaminants and dryers, moisture in the air, food preservation, basic electric wiring and insulation.

RAC 122. REFRIGERATION II 5 credit hours

Prerequisite: RAC 111 and consent; RSES membership required
Corequisite: RAC 123
5 hours per week (4-1)

Emphasis in this course is on the functional principles and servicing of the following units: compressors, condensers (air and water-cooled), cooling towers, evaporator selection, metering devices (expansion valves, capillary tubes), motors and accessories, defrost systems, supermarket refrigeration, fresh meats, soda fountains and ice cream dispensers, ice making machines, beer cooling, milk cooling, estimating heat loads, commercial refrigeration.

**RAC 123. REFRIGERATION AND AIR CONDITIONING
SYSTEMS 5 credit hours**

Prerequisite: RAC 124 and consent; RSES membership required
6 hours per week (5-1)

Sketching and constructing refrigeration systems are the focus of this class. Calibration and efficiency balance of these units are stressed. Troubleshooting electrical controls and additional study in thermodynamics are included.

RAC 124. BASIC CONTROLS 5 credit hours

Prerequisite: RAC 111 and consent;
RSES membership required
5 hours per week (3-2)

This is the first in a series of courses designed to provide a sound understanding of the principles and applications of electricity in refrigeration and air conditioning service, providing the essentials of the major objectives; reading and understanding complex electrical drawing, wiring diagrams and the schematics associated with refrigeration/air conditioning controls. Safety is included and emphasized.

RAC 212. REFRIGERATION SYSTEMS LAB I 3 credit hours

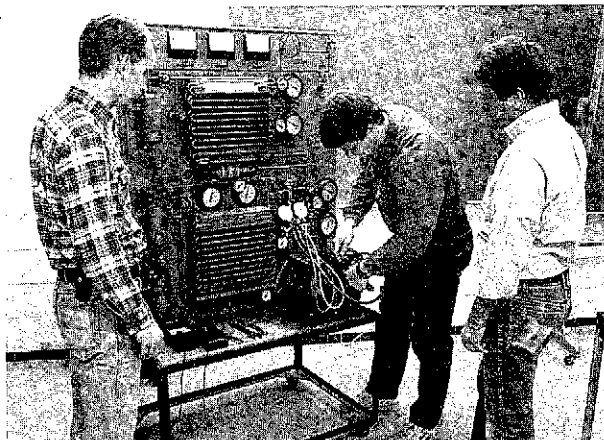
Prerequisite: RAC 123
Corequisite: RAC 215
5 hours per week (2-3)

This course involves intensive, hands-on experience with refrigeration components, electrical circuitry and refrigerant handling. Students gain proficiency in analysis and repair of disfunctioning HVAC equipment in preparation for successful completion of the Refrigerant Reclamation Certification examination.

RAC 213. AIR CONDITIONING 5 credit hours

Prerequisite: RAC 122 or consent;
RSES membership required
5 hours per week (3-2)

This course covers the operating principles of modern mechanical equipment and troubleshooting approaches to these systems. Units covered are: air conditioning (general), psychrometric charts, insulation in air conditioning, thermostatic and pneumatic controls, heat pumps, room air conditioning units, heating and cooling systems and equipment, ducts and grills, blowers and fans, air filters, safety, first aid and codes.



RAC 214. CONTROL SYSTEMS 5 credit hours

Prerequisite: RAC 124 and consent;
RSES membership required
Corequisite: RAC 216
5 hours per week (3-2)

This course presents further study and practice in reading electronic wiring diagrams and schematics as applied to the electrical controlling systems of refrigeration and air conditioning, including alternating current, motors, starters, capacitors, transformers, motor protectors, standard service techniques and troubleshooting industrial controls.

RAC 215. TROUBLESHOOTING CONTROLS 5 credit hours

Prerequisite: RAC 214 and consent;
RSES membership required
Corequisite: RAC 212
5 hours per week (3-2)

This is an advanced, comprehensive study of the theory and applications of refrigeration and air conditioning control systems and devices; electromechanical, electronic and solid state. Problem-solving experiences are offered through operational sequencing examples and wiring diagrams on name brand systems such as Carrier, Trane, Climatrol, Honeywell, Penn, Westinghouse, Allen-Bradley, etc.

RAC 216. SYSTEMS LABORATORY 5 credit hours

Prerequisite: RAC 123
Corequisite: RAC 214
5 hours per week (2-3)

Advanced troubleshooting is the major thrust with experiences in all types of refrigeration, air conditioning and ice making equipment. Some of the equipment that will be experienced are walk-in freezer, walk-in cooler, display cases, water and air cooled units, central air conditioning units, heat pumps, flaked and cubed ice machines, domestic refrigerators and freezers. Students will add oil to compressors as well as test old oil for acid, using dial-a-charge method on critical charge units and adjust water regulating valves to control head pressure. Service, troubleshooting and safety are top priority.

RAC 240. REFRIGERATION CODES 2 credit hours

Prerequisite: Consent
2 hours per week (2-0)

American National Standard B9 ASHRAE Standard and City of Ann Arbor Reciprocal Council. Offered infrequently.

RESPIRATORY THERAPY (RTH)

RTH 097. RESPIRATORY THERAPY REVIEW 1 credit hour

Prerequisite: None

Five 3-hour sessions

This course is designed to assist graduates of Respiratory Therapy Programs studying for their certification or registry exams. It is offered the five Saturday mornings preceding the exam. Emphasis placed on sample examinations.

RTH 106. CHEMISTRY FOR RESPIRATORY THERAPISTS 3 credit hours

Prerequisites: CEM 057, 058

3 hours per week (3-0)

This course is intended primarily for students in the Respiratory Therapy Program. It is a study of the chemical and physiochemical behavior of gases, solutions, acids, bases, pH and electrolytes, encompassing topics in organic chemistry and biochemistry related to metabolism and respiration.

RTH 120. INTRODUCTION TO RESPIRATORY THERAPY 3 credit hours

Prerequisite: Admission to the Respiratory Therapy Program

3 hours per week (3-0)

This lecture course orients students to the respiratory therapy program and the profession. Topics include an overview of respiratory anatomy, terminology, equipment, history, diseases, and treatment. Methods of studying the topics are emphasized.

RTH 121. BASIC EQUIPMENT AND PROCEDURES 4 credit hours

Prerequisite: Admission to the Respiratory Therapy Program

4 hours per week (2-2)

This is an introductory course dealing with the instruments and techniques used by the respiratory therapist; principles of operation and maintenance repair of various analyzers, humidifiers, masks, catheters, respirators, tents and regulators.

RTH 122. RESPIRATORY PHYSIOLOGY 3 credit hours

Prerequisites: BIO 111, RTH 106

3 hours per week (3-0)

For respiratory therapy students only, this course is an in-depth study of the anatomy and physiology of the respiratory system and the diseases that affect it.

RTH 123. RESPIRATORY PATHOPHYSIOLOGY .. 2 credit hours

Prerequisite: BIO 111

Corequisite: RTH 122

2 hours per week (2-0)

This course should be taken concurrently with RTH 122. It is intended for respiratory therapy students only. It is the study of the causes, treatment and assessment of respiratory disorders and other diseases treated by the respiratory therapist.

RTH 148. PHARMACOLOGY FOR RESPIRATORY THERAPISTS 2 credit hours

Prerequisite: BIO 111

2 hours per week (2-0)

The course provides a survey of drugs used to treat disease, with emphasis on drugs commonly used to treat cardiopulmonary disorders.

RTH 149. PATHOLOGY FOR RESPIRATORY THERAPISTS 3 credit hours

Prerequisite: BIO 111

3 hours per week (3-0)

The course provides a survey of anatomical pathology including inflammation, infection, tuberculosis, viral disease, poisons, tumors, cardiovascular disease, shock and diabetes.

RTH 198. GENERAL CLINICAL PRACTICE I 3 credit hours

Prerequisite: RTH 121

16 hours per week (0-16)

This course provides bedside practice of general respiratory therapy techniques such as intermittent positive pressure breathing, oxygen therapy, humidity therapy, cardiopulmonary resuscitation, sputum induction and equipment rounds. It meets in a cooperating hospital. Experience is coordinated with topics covered in RTH 121.

RTH 199. GENERAL CLINICAL PRACTICE II 3 credit hours

Prerequisite: RTH 198

16 hours per week (0-16)

Bedside practice of general respiratory therapy techniques developed in RTH 198 are continued in this course. Students practice in area hospitals 16 hours per week.

RTH 200. ADVANCED CLINICAL PRACTICE 4 credit hours

Prerequisite or Corequisite: RTH 121, 122, 123, 198, 199,

212, 213 and successful completion of qualification exam

16 hours per week (0-16)

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.

RTH 201. SPECIALTY CLINICAL PRACTICE 2 credit hours

Prerequisite: Completion of third semester of Respiratory Therapy Program

7½ weeks, 16 hours per week (0-16)

Experience is provided in one of the following specialty areas; management, teaching, cardiognostics, burn medicine, home care, research, pulmonary function testing.

RTH 202. PEDIATRIC CLINICAL PRACTICE 2 credit hours

Prerequisites: RTH 200, 212, 213, 219, successful completion of Pediatric Qualification Exam

7½ weeks, 16 hours per week (0-16)

Structured, at the bedside, practice of respiratory therapy is provided in the neonatal intensive care unit and pediatric units.

RTH 212. VENTILATORS 3 credit hours

Prerequisite: RTH 121

4 hours per week (2-2)

This course gives an in-depth study of the use, classification, operation, advantages, modifications, maintenance repair and troubleshooting of medical ventilators, pulmonary function testing devices and other respiratory therapy equipment.

RTH 213. INTENSIVE RESPIRATORY CARE 4 credit hours

Prerequisites: RTH 106, 212

5 hours per week (3-2)

A detailed study is provided emphasizing the treatment of acute and chronic respiratory failure; the treatment of overwhelming pneumonias, adult respiratory distress syndrome, post-operative problems, poisonings and the rehabilitation of patients with chronic pulmonary disease. Medical specialists discuss the respiratory care of their patients.

RTH 214. CARDIODIAGNOSTICS 3 credit hours

Prerequisite: BIO 111 or equivalent

3 hours per week (3-0)

A survey is provided of invasive and noninvasive methods of studying the heart and cardiovascular system. Swan Gantz catheterization, echocardiography, stress tests, EKG interpretation, etc. are discussed. This course is open to students other than those in Respiratory Therapy.

RTH 217. SEMINAR - RESPIRATORY THERAPY .. 2 credit hours

Prerequisite: None

2 hours per week (2-0)

This course is a discussion of current problems, credentialing systems, job attainment skills, psychological assessment of patients, teaching and management techniques.

RTH 219. PEDIATRIC RESPIRATORY THERAPY .3 credit hours

Prerequisites: RTH 121 and 122

3 hours per week (3-0)

This is a study of the physiology of children explaining modes of therapy used to treat cardiopulmonary diseases of children, infants and neonates.

RTH 221. PULMONARY REHABILITATION 2 credit hours

Prerequisite: RTH 212

7½ weeks, 2 hours per week (2-0)

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.

RTH 222. PULMONARY FUNCTION TESTING 2 credit hours

Prerequisite: BIO 122

2 hours per week (2-0)

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.

RTH 224. RESPIRATORY SCIENCE REVIEW 3 credit hours

Prerequisite: 1 year RTH experience

3 hours per week (3-0)

This course is a review of Anatomy and Physiology, Physics and Chemistry for the practicing Respiratory Therapy technician. This is a required course for the Advanced Standing Program.

**RTH 225. RESPIRATORY THERAPY
TECHNOLOGY REVIEW 3 credit hours**

Prerequisite: 1 year RTH experience

3 hours per week (3-0)

This course reviews and reinforces respiratory therapy theory and applies it to the clinical setting. It covers oxygen therapy, acid-base balance, humidity therapy, IPPB and alternative therapy, and pulmonary function studies.

RUSSIAN _____ **(RUS)**

RUS 111. FIRST YEAR RUSSIAN I 4 credit hours

Prerequisite: None
4 hours per week (3-1)

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: None
2 hours per week (2-0)

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 122. FIRST YEAR RUSSIAN II 4 credit hours

Prerequisite: RUS 111 or consent
4 hours per week (3-1)

This is a continuation of GS 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.

SOCIOLOGY _____ **(SOC)**

SOC 100. PRINCIPLES OF SOCIOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 (power, sanctions, needs, values) that pressure us to conform or to deviate from social expectations. Some issues to be examined include ethics and applications of social research, social responsibility and management of change. This course is also taught as a television course using the series "The Sociological Imagination."

SOC 150. MARRIAGE AND THE FAMILY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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. Some issues to be examined pertain to family planning, sexuality, sex education, single-parenting, divorce, child and spouse abuse.

SOC 201. MEDICAL SOCIOLOGY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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: None
3 hours per week (3-0)

An examination is provided of the theories which attempt to explain criminal behavior. Punishment versus rehabilitation schools of thought is dealt with as well as capital punishment. Attention also given to the functioning of police and court systems.

SOC 203. AGING AND SOCIETY 3 credit hours

Prerequisite: None
3 hours per week (3-0)

This course examines social and personal responses to the aging process. Emphasis is placed on social attitudes, preparation for the adaptive challenges of retirement, role changes in midlife, youth and aged interaction, problems of housing, family bonds, illness, victimization, substance abuse, finances, and community services and personnel. Also examined are issues such as caring for elderly relatives, ageism, senior power, medicare and social security, substance abuse and meeting the needs of the aging population.

SOC 205. RACIAL AND ETHNIC RELATIONS3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 sub-groups.

SOC 207. SOCIAL PROBLEMS3 credit hours

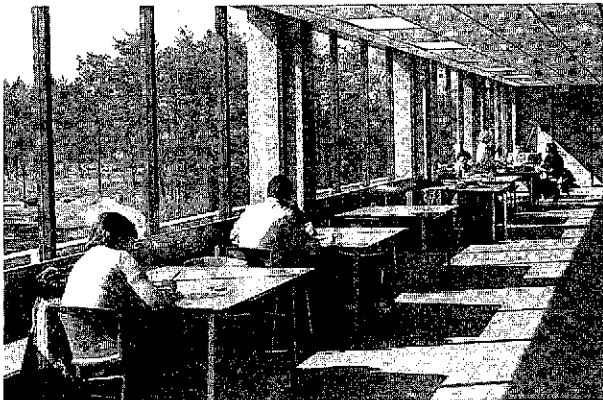
Prerequisite: None
3 hours per week (3-0)

This course uses sociological concepts to explain how social forces can create and maintain as well as prevent major social problems that result from man's effort to meet his needs for survival and growth. Emphasis is placed on the institutional, social-structural, technological and social psychological reasons for: (a) global and environmental problems (population, energy, environmental depletion and pollution); (b) inequalities (poverty, sexism, racism, ageism, handicapism); (c) deviance and social control (crime, war and the arms race, interpersonal violence, substance abuse, mental and physical illness); (d) institutional crises (family and divorce, work, education, media, economy and government).

SOC 250. JUVENILE DELINQUENCY3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 I4 credit hours

Prerequisite: None
4 hours per week (4-0)

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 I1 credit hour

Corequisite: SPN 111
2 hours per week (0-2)

This course is intended to augment SPN 111. Students work in a supervised language lab with taped materials which correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

SPN 118. FOCUS LATIN AMERICA/SPAIN1 credit hour

Prerequisite: None
2 hours per week (2-0)

No knowledge of Spanish is required for this audio-visual introduction to the cultures, sights, sounds and handicrafts of Spain and various Latin American countries. The course involves students' individual experiences, expertise and research, and utilizes a bilingual approach.

SPN 119. SPANISH LANGUAGE ADVENTURES1 credit hour

Prerequisite: None

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 first-hand the outstanding cultural attractions, and practice Spanish throughout their stay.

SPN 120. BEGINNING CONVERSATIONAL SPANISH2 credit hours

Prerequisite: None
2 hours per week (2-0)

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 these exciting cultures. This course may be taken as a review for students already enrolled in the first year course.

SPN 121. INTERMEDIATE CONVERSATIONAL SPANISH 2 credit hours

Prerequisite: SPN 120 or equivalent
2 hours per week (2-0)

A continuation of SPN 120, this flexibly structured course provides vocabulary expansion and cultural insights through total student involvement in the conversation practice sessions.

SPN 122. FIRST YEAR SPANISH II 4 credit hours

Prerequisite: SPN 111 or equivalent
4 hours per week (4-0)

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

Corequisite: SPN 122
2 hours per week (0-2)

This course is intended to augment SPN 122. Students work in a supervised language lab with taped materials which correlate to the lessons in their texts and workbooks. Students are provided with supplemental listening aids that include both music and literature.

SPN 213. SECOND YEAR SPANISH I 3 credit hours

Prerequisite: SPN 122, or equivalent or consent
3 hours per week (3-0)

This is an intermediate course in Spanish that covers all of the basic grammar. Emphasis is on the written form through composition. Culture and conversation are reviewed.

SPN 224. SECOND YEAR SPANISH II 3 credit hours

Prerequisite: SPN 213, or equivalent or consent
3 hours per week (3-0)

This is a continuation of SPN 213 with special attention to Latin American and Spanish literature.

SPN 225. INTRODUCTION TO BUSINESS SPANISH 3 credit hours

Prerequisite: SPN 213 or equivalent or consent
3 hours per week (3-0)

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.

SPEECH

(see Communications and Theatre Arts)

STATISTICAL PROCESS CONTROL (SPC)

SPC 101. PROCESS QUALITY CONTROL 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

SPC 122. SAMPLING QUALITY CONTROL 3 credit hours

Prerequisite: MTH 169 or consent
3 hours per week (3-0)

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 of sampling acceptance plans are discussed. Military 105D, sequential and variable sampling are introduced and their effectiveness and industrial applications are analyzed.

SPC 201. QUALITY OF SERVICE 3 credit hours

Prerequisite: SPC 101 or equivalent experience
3 hours per week (3-0)

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.

SPC 213. QUALITY CONTROL BY STATISTICAL METHODS 3 credit hours

Prerequisites: SPC 101, 122
3 hours per week (3-0)

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.

SPC 224. QUALITY CONTROL PROBLEM SOLVING 3 credit hours

Prerequisites: SPC 213 and knowledge of basic algebra
3 hours per week (3-0)

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.

SPC 225. QUALITY CONTROL MANAGEMENT 3 credit hours

Prerequisite: SPC 101 or Consent
3 hours per week (3-0)

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.

SPC 226. DIMENSIONAL METROLOGY AND TESTING 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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.

STUDENT SERVICES _____ (STS)

STS 100. CAREER PLANNING SEMINAR 3 credit hours

Prerequisite: None
3 hours per week (3-0)

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 through course materials, class activities and in-class guest speakers. 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 101. STUDENT SUCCESS SEMINAR 1 credit hour

Prerequisite: None
1 hour per week (seminar)

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.

STS 102. INDEPENDENT STUDY - CAREER PLANNING 1 credit hour

Prerequisite: 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 100. SURGICAL TECHNOLOGY I 3 credit hours

Prerequisite: Admission to Program

5 hours per week (2-3)

In this course, students become familiar with the services provided by a surgical technologist and the surgical technologists's role. Hospital organization, the history of surgery, the preparation and maintenance of a sterile environment, the preparation of a case, and ethical and legal issues are studied. Students also participate in a weekly laboratory experience to practice basic surgical technology skills.

SUR 120. SURGICAL TECHNOLOGY II THEORY .3 credit hours

Prerequisite: SUR 100

Corequisite: SUR 125

3 hours per week (3-0)

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 3 credit hours

Prerequisite: SUR 100

Corequisite: SUR 120

8 lab/clinical hours per week

This course complements the Surgical Technology II theory course. It provides the student with laboratory practice that supports the lecture topics. The lab focus is on setting up a basic case, handling emergency situations, completing records, using specialized equipment and supplies, and communications. Some hospital experience is included.

SUR 140. SURGICAL TECHNOLOGY PHARMACOLOGY 1 credit hour

Prerequisite: SUR 100

1 hour per week (1-0)

This course acquaints students with common principles of pharmacology, allowing an understanding of the types, usages, and effects of various medications (agents) commonly used in the operating environment. Measurement, terminology, proper handling, responsibility of the surgical technologist, usages, and anesthesia will be covered.

TRADE RELATED INSTRUCTION — (TRI)

TRI 092. REVIEW FOR APPRENTICE TEST 4 credit hours

Prerequisite: None

4 hours per week (4-0)

This course is offered for those individuals who would like to review the various facets which one encounters when taking the examinations for apprenticeship selection. Offered infrequently.

TRI 099. SKILLED TRADES INDUSTRIAL SAFETY 2 credit hours

Prerequisite: None

2 hours per week

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 100. CONSTRUCTION THEORY AND PRACTICE I 4 credit hours

Prerequisite: MTH 039 and consent

4 hours per week (4-0)

This is the first of two courses that examine the theoretical concepts of the construction industry. It is designed for those students who have limited experience and access to the construction field. Basic techniques are discussed and demonstrated.

TRI 103. SHEET METAL BLUEPRINT READING AND LAYOUT 3 credit hours

Prerequisite: None

4 hours per week (2-2)

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 140. MILLWRIGHT THEORY2 credit hours

Prerequisite: None
2 hours per week (2-0)

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 200. CONSTRUCTION THEORY AND PRACTICE II 2 credit hours

Prerequisite: TRI 100 or consent
4 hours per week (1-3)

This is the second of a two-course series that examines the theoretical concepts of the construction industry. Building on the concepts of the first course, students are provided laboratory experiences that introduce fabrication techniques common to the industry. Students must provide their own hand tools for this course.

TRI 201. PLUMBING AND PIPEFITTING I 3 credit hours

Prerequisite: None
4 hours per week (4-0)

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: TRI 201
4 hours per week (4-0)

This course is a continuation of FLP 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: IND 100
4 hours per week (4-0)

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.

WELDING AND FABRICATION — (WAF)

WAF 091. WELDING PROCEDURES FOR ROBOTICS 1 credit hour

Prerequisite: None
3 hours per week (1-2)

This course gives students a thorough knowledge of the arc welding processes used in Robotic Manufacturing. Selection of weldments, procedure development, safety, along with brief training in G.M.A.W., G.T.A.W. and S.M.A.W. is also presented.

WAF 100. FUNDAMENTALS OF WELDING 2 credit hours

Prerequisite: None
4 hours per week (1-3)

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: None
4 hours per week (1-3)

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. ARC WELDING 2 credit hours

Prerequisite: None
4 hours per week (1-3)

This introductory course in arc welding covers theory and practice, and proper procedures for various welding positions. Both A.C. and D.C. welding is covered, electrode identification, classification and proper applications to typical operations.

WAF 103. HELI-ARC WELDING 2 credit hours

Prerequisite: None
4 hours per week (1-3)

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 AND BRAZING2 credit hours

Prerequisite: None
4 hours per week (1-3)

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 SCHOOLS2 credit hours**

Prerequisite: None
4 hours per week (1-3)

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 111. WELDING
(BASIC OXY-ACETYLENE)4 credit hours**

Prerequisite: None
8 hours per week (2-6)

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 (BASIC ARC)4 credit hours

Prerequisite: None
8 hours per week (2-6)

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 stressed.

**WAF 123. WELDING
(ADVANCED OXY-ACETYLENE)4 credit hours**

Prerequisite: WAF 111
8 hours per week (2-6)

Advanced instruction is provided in oxy-acetylene welding with emphasis on out of position welded joints. Procedures are covered and put in practice for fabricative welded joints on steel plate and pipe. Related theory included.

WAF 124. ADVANCED ARC WELDING4 credit hours

Prerequisite: WAF 112
8 hours per week (2-6)

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 FOR WELDERS2 credit hours

Prerequisite: None
3 hours per week (1 1/2-1 1/2)

This course involves layout problem solving for the welder including techniques using layout die, combination squares, protractors, center heads trammel, points, dividers and straight edges. 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 METALLURGY3 credit hours

Prerequisite: None
3 hours per week (1 1/2-1 1/2)

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. ADVANCED T.I.G. AND M.I.G.
WELDING4 credit hours**

Prerequisite: None
8 hours per week (2-6)

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
PROCEDURES4 credit hours**

Prerequisite: Consent
8 hours per week (2-6)

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 FABRICATION3 credit hours

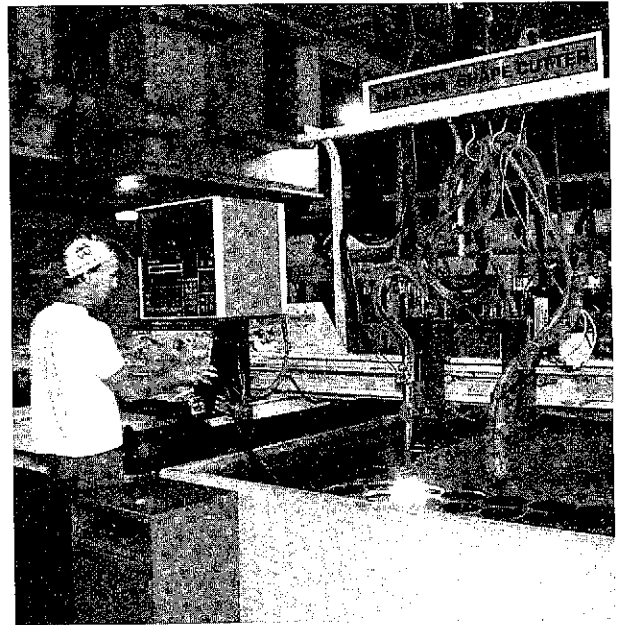
Prerequisite: Consent
4 hours per week (2-2)

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: Consent
4 hours per week (3-1)

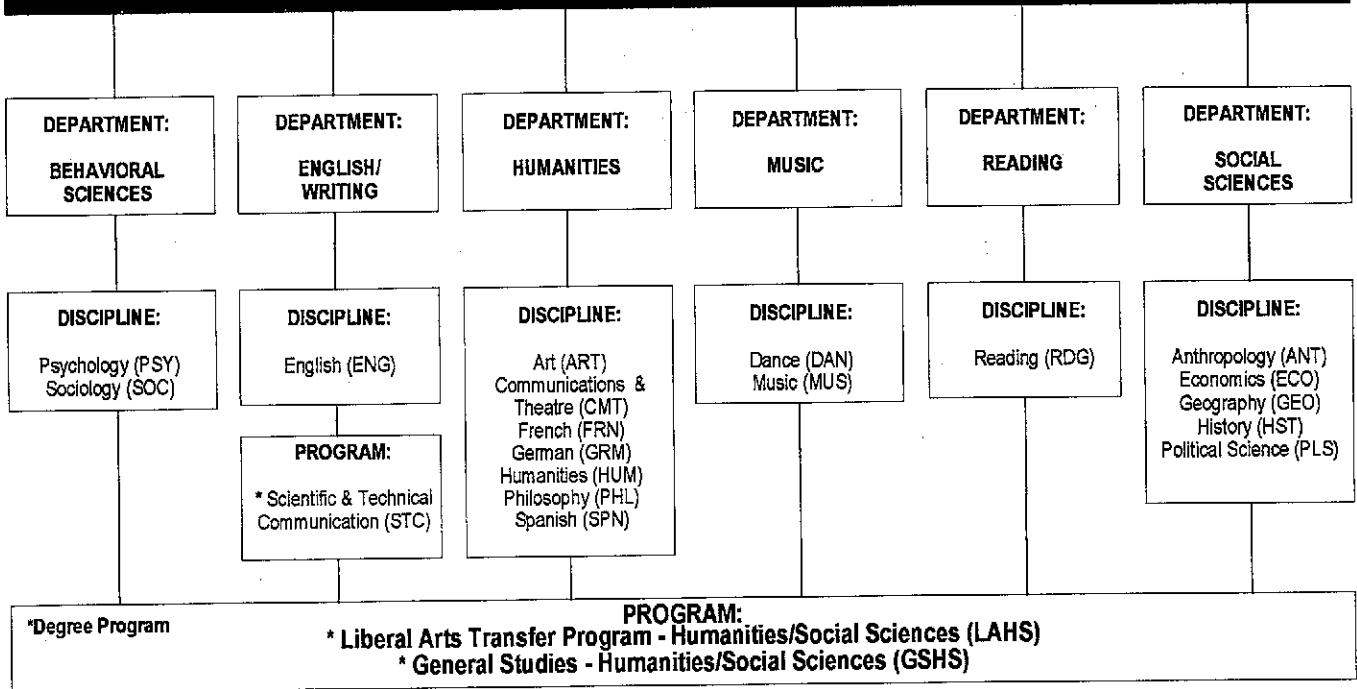
Students learn the shape-cutting process with oxy-acetylene and plasma cutting torches. With the use of the optical eye and Burny IV N.C. control, students learn how to cut mild steel, aluminum and stainless steel parts.



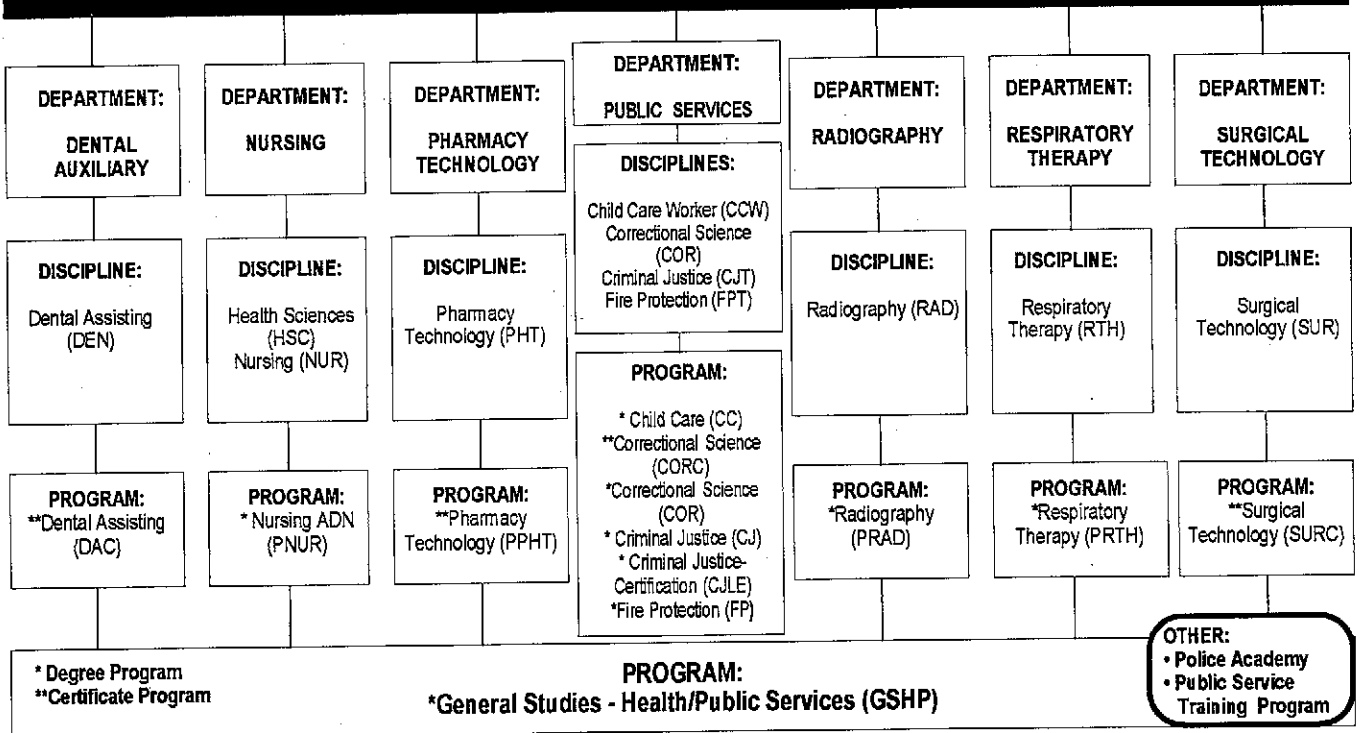


Organizational Charts

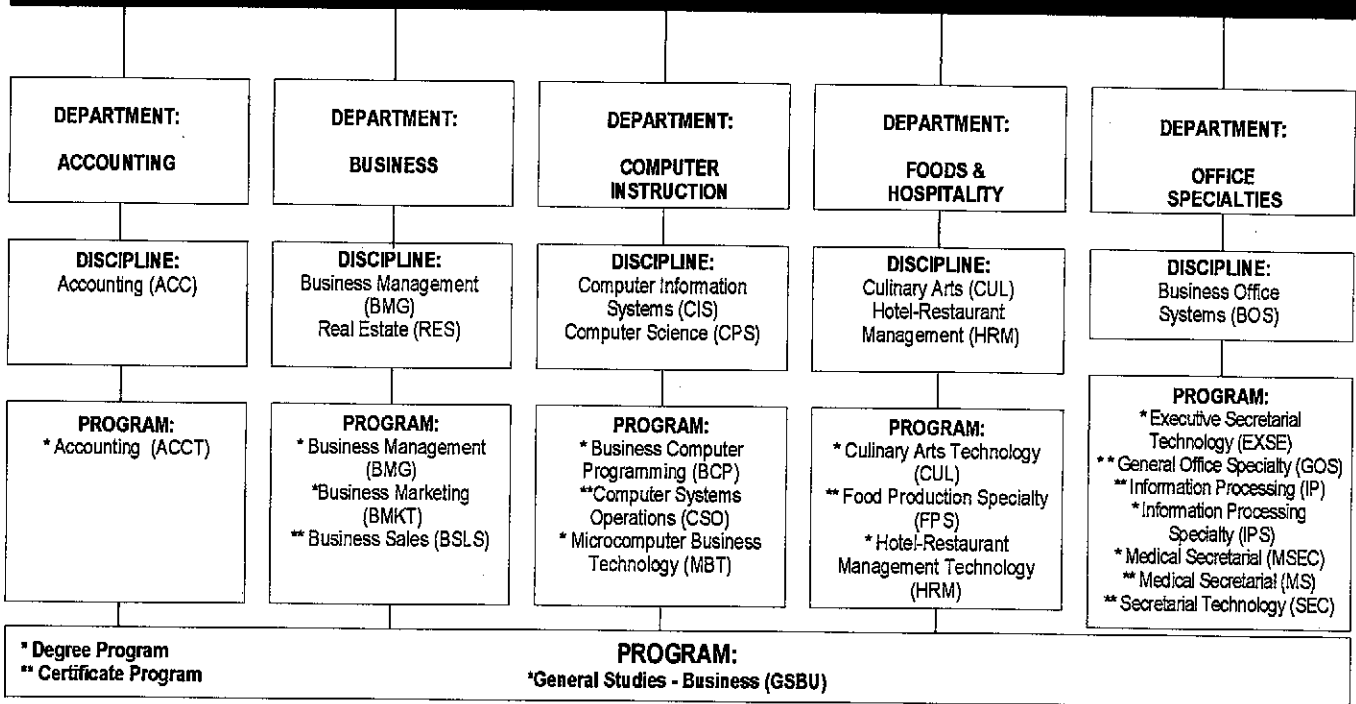
DIVISION: HUMANITIES AND SOCIAL SCIENCES



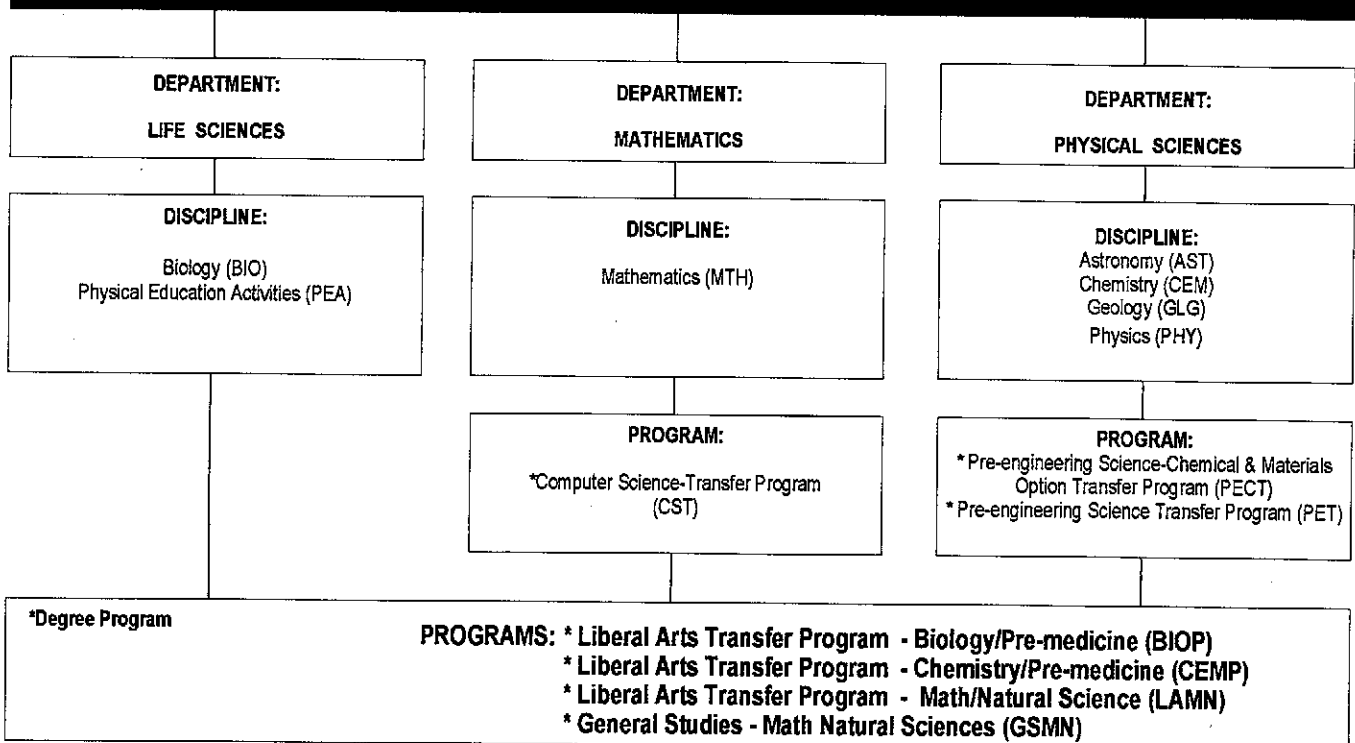
DIVISION: HEALTH AND PUBLIC SERVICES



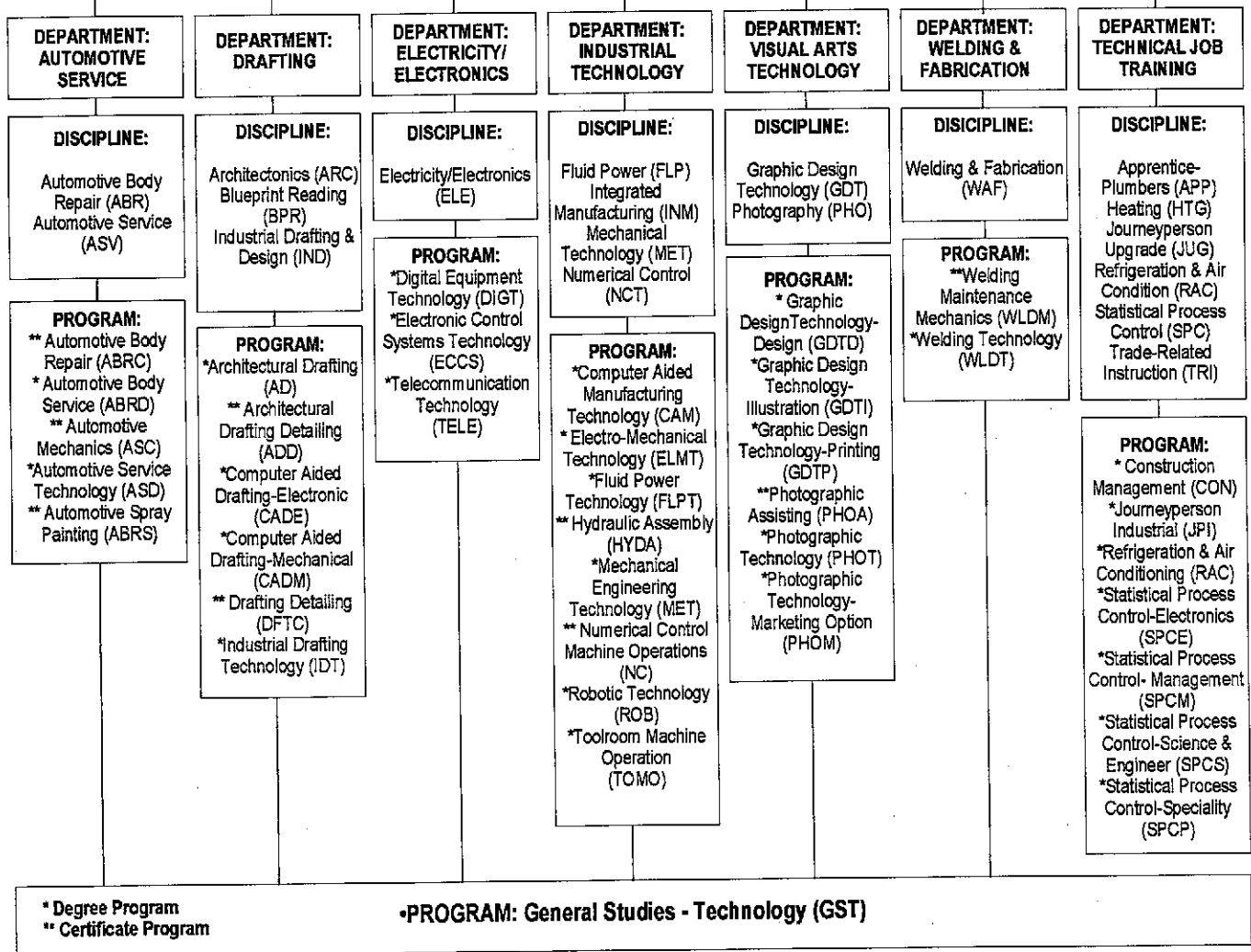
DIVISION: BUSINESS



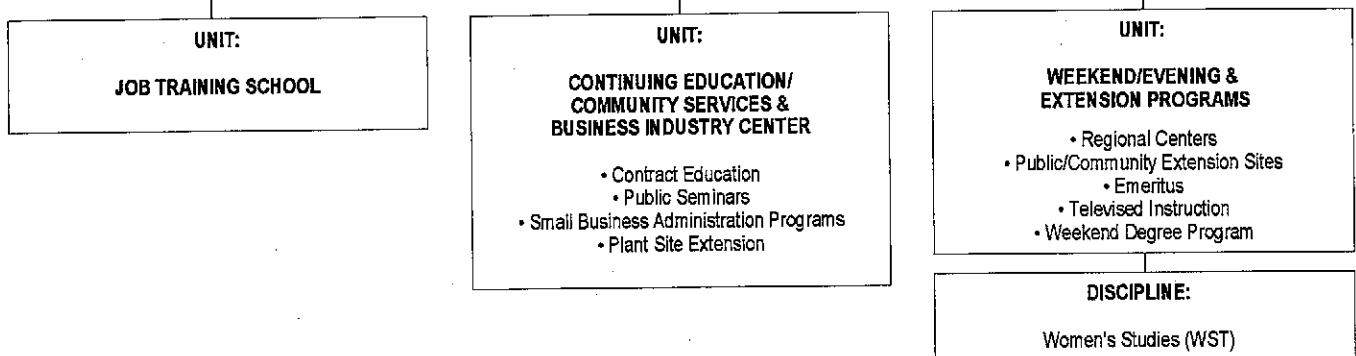
DIVISION: MATH AND NATURAL SCIENCES



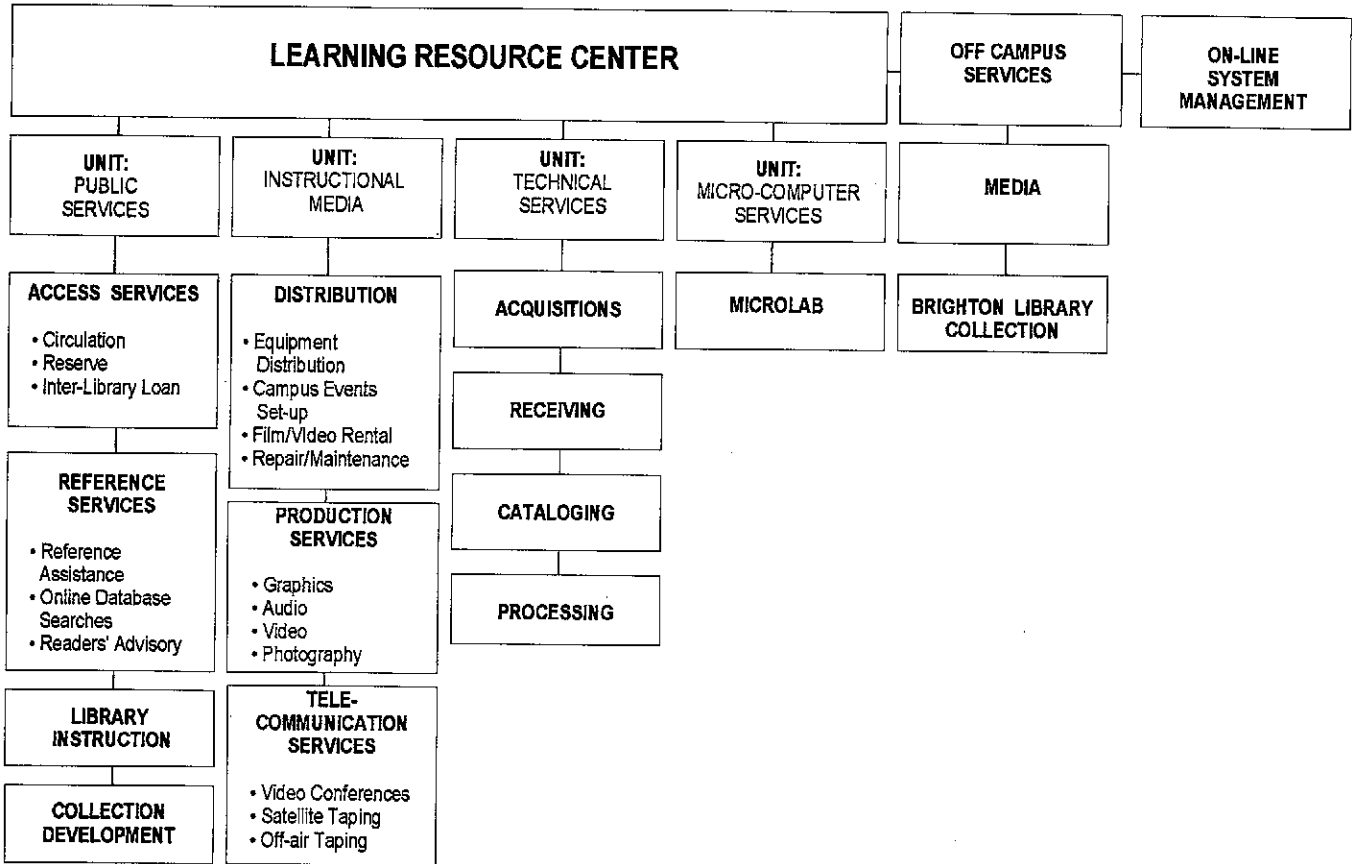
DIVISION: TECHNOLOGY



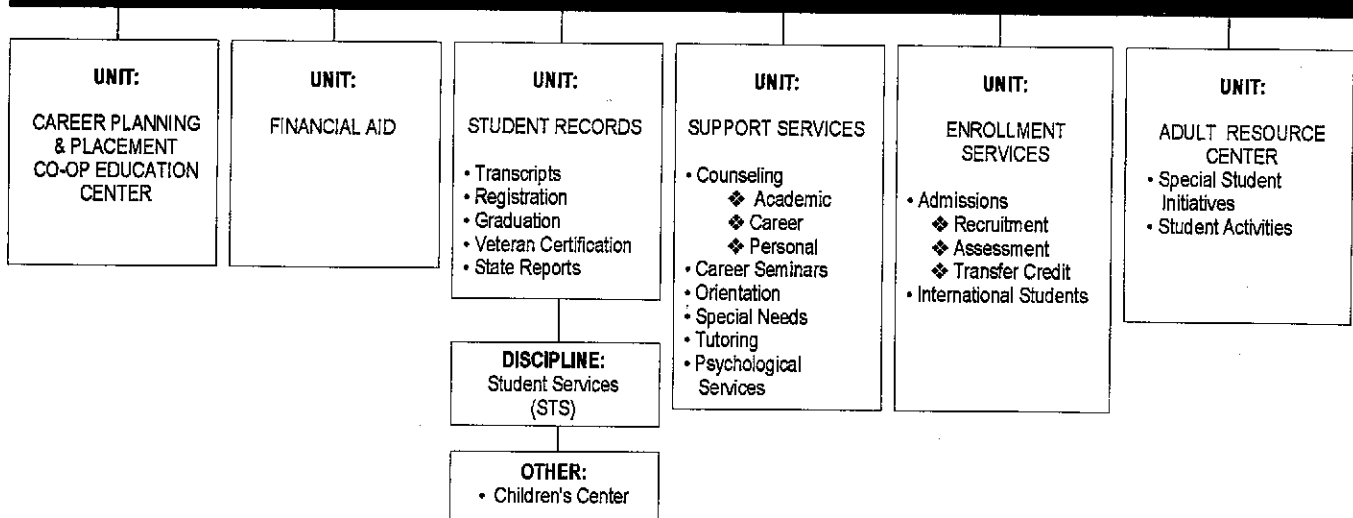
DIVISION: CONTINUING EDUCATION/COMMUNITY SERVICES



DIVISION: LEARNING RESOURCES

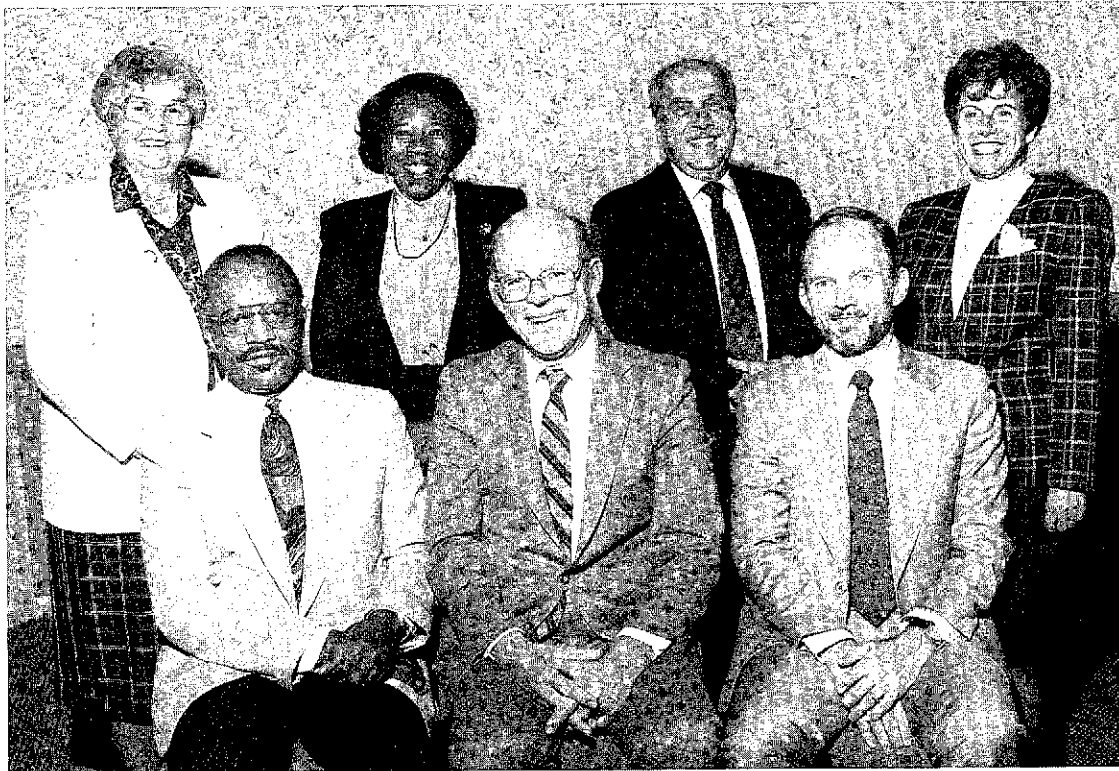


DIVISION: STUDENT SERVICES





Personnel



BOARD OF TRUSTEES:

Front row (l-r)
 James W. Anderson, Jr.
 Richard W. Bailey
 R. Griffith McDonald

Back row (l-r)
 Mary Clair Anhut
 Ruth H. Moorman
 Anthony J. Procassini
 Nancy N. Margolis

BOARD OF TRUSTEES

Member	Term Expires
Richard W. Bailey, Chair	December 31, 1996
Ann Arbor	
R. Griffith McDonald, Vice Chair	December 31, 1994
Ann Arbor	
James W. Anderson, Jr., Secretary	December 31, 1996
Ann Arbor	
Mary Clair Anhut, Treasurer	December 31, 1996
Ypsilanti	
Nancy N. Margolis, Trustee	December 31, 1994
Ann Arbor	
Ruth H. Moorman, Trustee	December 31, 1992
Ypsilanti	
Anthony J. Procassini, Trustee	December 31, 1992
Ann Arbor	

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.

EXECUTIVE OFFICERS

Myran, Gunder A., President	1975
B.S. - Mankato State University	
M.A. - University of Iowa	
Ed.D. - Michigan State University	
Altieri, Guy,	
Vice President of Instruction and Student Services	1987
B.A. - Glassboro State College	
M.A. - Glassboro State College	
M.A. - West Chester University	
M.A. - Columbia University	
Ed.D. - Columbia University	
Konschuh, Harry J.,	
Vice President of Administration and Finance	1972
B.Ed. - University of Alberta	
M.A. - Michigan State University	

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	
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	
Grzegorzcyk, 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	
Jacques, Edith N.	1976
Dean of Continuing Education/Community Services	
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	
Williams, Calvin	1969
Dean of Student Services	
A.B. - Western Michigan University	
A.M. - The University of Michigan	
Ph.D. - The University of Michigan	

FACULTY AND PROFESSIONAL STAFF

Abrams, Terry	1990
Faculty: Visual Arts	
E.D.M. - Boston University	
B.F.A. - Maryland Institute Coll.	
Agin, George C.	1968
Faculty/Department Chairperson: Industrial Technology	
B.S. - Wayne State University	
M.A. - Eastern Michigan University	

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	
Alloway, Mary	1972
Supervisor: Purchasing	
Alonzo, Kathleen	1990
Financial Aid Specialist	
B.A. - Michigan State University	
Amaru, Augustine	1966
Faculty: Social Sciences	
A.B. - Boston University	
M.A. - Michigan State University	
Amundsen, Jack	1975
Faculty: Physical Sciences	
B.A. - The University of Michigan	
M.A. - The University of Michigan	
Andrews, Jacqueline Parks	1984
Director - Research and Development: Business-Industry Center	
B.A. - University of Minnesota	
M.A. - Eastern Michigan University	
Ph.D. - The University of Michigan	
Avery, Dean	1981
Faculty: Industrial Technology	
B.S. - Ferris State College	
M.S. - Wayne State University	
Avinger, Charles	1992
Faculty: English / Writing	
B.A. University of Alabama	
M.A. University of Alabama	
Baker, Gerald A.	1975
Faculty: Radiology	
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	
Bateil, Mark F.	1984
Faculty: Mathematics	
B.A. - Knox College	
M.A. - The University of Michigan	
M.A. - The University of Michigan	
Batty, Carol	1990
Coordinator: Access Services, Learning Resource Center	
B.S. - Illinois State University	
M.S. - Indiana University	
Beauchamp, Jillaine	1976
Faculty: Foods and Hospitality	
B.S. - Eastern Michigan University	
M.S. - The University of Michigan	
Beaumont, David E.	1990
Coordinator: Special Student Initiatives	
B.A. - Eastern Michigan University	
M.A. - Eastern Michigan University	

Bellers, Clifford	1968	Bylsma, Donald, Jr.	1966
Faculty/Department Chairperson: Accounting		Faculty: Behavioral Science	
B.B.A. - Eastern Michigan University		B.S. - Wayne State University	
M.A. - Eastern Michigan University		M.S. - Wayne State University	
		Ph.D. - The University of Michigan	
Bellers, Bob	1968	Cain, Ronald L.	1986
Laboratory Assistant: Electricity/Electronics		Director: Instructional Media	
A.D. - Washtenaw Community College		B.S. - University of Minnesota	
B.S. - Eastern Michigan University		M.A. - University of Minnesota	
Biederman, Rosalyn L.	1967	Cammet, Edward	1975
Faculty: Humanities		Faculty: Automotive Services	
B.A. - Ohio State University			
M.A. - Ohio State University			
Bila, Dennis W.	1969	Cash, Marjorie O.	1985
Faculty: Mathematics		Coordinator: Special Needs	
B.S. - Central Michigan University		B.A. - Prairie View A.M. University	
		M.Ed. - University of North Dakota	
M.A. - Wayne State University		Chambers, JoAnn	1983
Blakey, Linda S.	1988	Staff Benefits Coordinator: Human Resources Management	
Director: Student Records		A.D. - Washtenaw Community College	
B.S. - The University of Michigan		Charlton, Eleanor	1966
M.S. - The University of Nevada at Las Vegas		Faculty: Business Office Systems	
Blodgett, Elizabeth	1979	B.S. - Central Michigan University	
Other Funds Accountant: Financial Services		M.A. - Central Michigan University	
B.A. - Wayne State University		Chisholm, Arnett	1988
M.B.A. - Eastern Michigan University		Student Advisor: Student Support Services	
Bogue, Robert A.	1984	B.S. - The University of Michigan	
Laboratory Assistant: Automotive Services		M.A. - Eastern Michigan University	
A.D. - Washtenaw Community College		Clark, Diana	1989
B.S.Ed. - The University of Michigan		Counselor: Student Support Services	
Bostwick, Phyllis M.	1966	A.D. - Washtenaw Community College	
Director: HRD and Support Services		B.S. - Eastern Michigan University	
A.A. - Flint Junior College		M.A. - Eastern Michigan University	
B.G.S. - Wayne State University		Clark, William G.	1968
Bottoff, Ralph S.	1966	Counselor: Student Support Services	
Faculty: Mathematics		B.R.E. - Grand Rapids Baptist College	
B.A. - University of Iowa		M.A. - Western Michigan University	
M.A. - University of Illinois		Cleary, William T., Jr.	1983
Ph.D. - The University of Michigan		Faculty: Electricity/Electronics	
Bressler, Allan	1980	A.S.E.E.T. - University of Maine	
Computer Operator II: Computer Services		B.E.E.T. - University of Maine	
Brown, Bonita	1981	M.B.A. - University of Maine	
Technician: Security/EMT		Coles, Deborah E.	1991
Bundra, Carol	1987	Student Advisor	
Coordinator: Open Computer Labs/Network		B.S. - Wayne State University	
A.D. - Washtenaw Community College		Coles, Marlene	1991
Butcher, Kathleen	1989	Admissions Specialist	
Faculty: Physical Science		B.A. - Eastern Michigan University	
B.S. - St. Mary's College		Commet, Eileen	1989
M.S. - Wayne State University		Collections Analyst: Financial Services	
		B.S. - Ferris State University	
		Cox, Cynthia M.	1986
		Coordinator: WCC Job Training School	
		B.S. - Eastern Michigan University	
		M.A. - Eastern Michigan University	

Croake, Edith M.	1966	Fauri, Greta	1977
Faculty: English/Writing		Student Advisor: Children's Center	
B.A. - The University of Michigan		B.A. - Adrian College	
M.A.T. - Northwestern University		Figg, William	1972
M.A. - Northwestern University		Faculty/Department Chairperson: Welding and Fabrication	
D.A. - The University of Michigan		A.D. - Washtenaw Community College	
Culver, Rosalyn	1989	Finkbeiner, Betty Ladley	1969
Faculty: Business Office Systems		Faculty/Department Chairperson: Dental Assisting	
B.S. - Michigan State University		A.A. - Grand Rapids Junior College	
M.A. - Michigan State University		B.S. - The University of Michigan	
Cygnar, Patricia	1989	M.S. - The University of Michigan	
Coordinator: Curriculum Development		Finkbeiner, Charles A.	1975
B.F.A. - University of Illinois		Faculty: Computer Information Systems	
M.Ed. - University of Illinois		A.D. - Washtenaw Community College	
Daniels, Cheryl	1990	B.S. - The University of Michigan	
Recruitment Assistant: Human Resources Management		M.S. - The University of Michigan	
A.A. - Schoolcraft College		Fish, Judith R.	1991
Dannemiller, Kathryn F.	1991	Faculty/Department Chairperson: Physical Science	
Coordinator: Student Records		B.S. - State University of New York, Albany	
B.B.A. - Eastern Michigan University		M.S. - State University of New York, Albany	
Dedhia, Hiralal	1987	Ph.D. - Oakland University	
Clinical Instructor: Respiratory Therapy		Flack, Joseph	1990
A.D. - Washtenaw Community College		Faculty/Department Chairperson: Business	
B.S. - University of Poona		B.A. - Eastern Michigan University	
Dick, Roger	1979	M.B.A. - University of Detroit	
Faculty: Industrial Technology		J.D. - Detroit College of Law	
A.S. - Ferris State College		Foster, Connie S.	1990
B.S. - Western Michigan University		Director: Educational Services	
M.A. - Eastern Michigan University		A.D. - Washtenaw Community College	
Donahey, Jeffrey	1984	B.S. - Central Michigan University	
Faculty: Industrial Technology		M.A. - Eastern Michigan University	
B.S. - The University of Michigan		Fracker, Ronald	1989
Downen, Gary W.	1983	Grants Coordinator: College Advancement	
Faculty/Department Chairperson: Electricity/Electronics		B.A. - The University of Michigan	
B.G.S. - The University of Michigan		M.A. - The University of Michigan	
M.A. - Eastern Michigan University		French, Gargi	1974
Downey, Patrick	1991	Faculty: Physical Science	
Technician: Conference Services		B.S.C. - University of Bombay	
Dries, Cathie	1989	Ph.D. - Harvard University	
Foundation Manager: College Advancement		Fronczak, Edward J.	1992
A.A. - Delta Community College		Director: Administrative Computer Systems	
B.A. - Michigan State University		B.S.E. - The University of Michigan	
M.A. - Central Michigan University		M.S. - The University of Michigan	
Egan, James	1989	Frye, Iota H.	1975
Faculty: Mathematics		Counselor: Student Support Services	
B.A. - Case Western Reserve University		B.S. - Eastern Michigan University	
B.S. - Case Western Reserve University		M.A. - Eastern Michigan University	
M.S. - The University of Michigan		Galvin, Ralph H.	1984
M.S. - The University of Michigan		Director: Public Service Training	
Ennes, Steven M.	1987	B.S. - Nazareth College	
Faculty: Business		Garrett, Don L.	1975
A.A.S. - Macomb Community College		Faculty/Department Chairperson: Foods and Hospitality	
B.S. - Western Michigan University		A.D. - Washtenaw Community College	
		B.S. - Mercy College of Detroit	

Gaughan (Mickelson), Joan M. 1969	Grimes, William L. 1991
Faculty: Social Science	Faculty: Business
B.A. - St. Teresa College	B.A. - University of Southern California
M.A. - Eastern Michigan University	M.A. - The University of Michigan
Ph.D. - The University of Michigan	M.B.A. - University of California - L.A.
Gaughan, John T. 1968	Grossman, Esta 1975
Faculty: English/Writing	Faculty/Department Chairperson: Life Sciences
B.A. - St. Mary's College	B.A. - Pembroke College in Brown University
B.S. - St. Mary's College	M.A. - The City College New York
M.A. - Eastern Michigan University	M.S.W. - The University of Michigan
Gerhardt, Laura J. 1985	Grotrian, Paulette 1980
Director: Special Training Program, Technology Administration	Faculty: Humanities
B.A. - Eastern Michigan University	B.A. - Valparaiso University
M.A. - Eastern Michigan University	M.A. - Valparaiso University
Gerlitz, Frank 1991	M.A. - Eastern Michigan University
Faculty: Drafting	Guastella, C. Dennis 1980
B.S. - University of Wisconsin	Faculty/Department Chairperson: Visual Arts Technology
M.S. - University of Wisconsin	A.A. - Macomb County Community College
Ph.D. - University of Wisconsin	B.F.A. - Wayne State University
Gessert, Nora 1992	M.F.A. - Eastern Michigan University
Coordinator: ADAPT Student Program	Haglund, Richard 1987
B.S. - Eastern Michigan University	Technician: Security/EMT
Gibson, Maxine 1990	Hall, Clyde 1978
Faculty: English/Writing	Faculty: Welding and Fabrication
B.S. - Eastern Michigan University	A.D. - Washtenaw Community College
M.A. - The University of Michigan	B.S. - The University of Michigan
Glass, Michael K. 1991	A.W.S. - Certified Welding Inspector
Student Advisor: Student Support Services	Hamilton, Nancy 1977
B.S. - Eastern Michigan University	Technical Assistant: Reprographics
M.A. - Eastern Michigan University	A.D. - Washtenaw Community College
Glowski, Susan K. 1988	Hammond, Linda 1987
Faculty: English/Writing	Coordinator of Job Skills - Business: Business/Industry Center
B.A. - Beloit College	B.A. - The University of Michigan
M.A. - San Francisco State University	M.A. - The University of Michigan
Glusac, Ivan C. 1966	Hann, David F. 1986
Faculty: Social Science	Direct Account Services: Financial Services
B.S. - Wayne State University	B.S. - Brigham Young University
M.A. - The University of Michigan	Harris, Sally D. 1981
Goldberg, David 1977	Student Advisor: Adult Resource Center
Faculty: Mathematics	A.D. - Washtenaw Community College
B.S. - The University of Michigan	B.A. - Concordia College
Goodkin, Barbara H. 1975	M.A. - Eastern Michigan University
Faculty/Department Chairperson: Nursing	Hastings, Janet G. 1987
B.S.N. - The University of Michigan	Faculty: Mathematics
M.S. - The University of Michigan	B.A. - The University of Michigan
Gracie, Cheryl D. 1989	M.A. - Cornell University
Faculty: Business	Hatcher, Ruth 1981
B.B.A. - Eastern Michigan University	Faculty/Department Chairperson: English/Writing
M.B.A. - Eastern Michigan University	A.B. - Earlham College
J.D., C.P.A. - University of Oregon	M.A. - The University of Michigan

Hawkins, Janet L. 1977	Hower, Guy W. 1966
Writer/Editor: College Advancement	Director: Financial Aid
A.D. - Washtenaw Community College	B.B.A. - The University of Michigan
B.B.A. - Eastern Michigan University	M.A. - The University of Michigan
Heator, Martin G. 1985	Hunt, Barbara 1968
Director: Publications and News Services	Faculty: English/Writing
B.S. - Eastern Michigan University	B.A. - University of Toledo
Hemstereger, Thomas 1992	M.A. - The University of Michigan
A.A.S. Ferris State University	D.A. - The University of Michigan
B.S. Eastern Michigan University	Jindal, Usha R. 1982
Hentz, Gary R. 1967	Faculty: Computer Information Systems
Faculty/Department Chairperson: Drafting	B.S. - Delhi University
B.S. - Eastern Michigan University	B.S. - Pennsylvania State University
M.A. - Eastern Michigan University	M.S. - Pennsylvania State University
Hill, Birgitte 1986	Johnson, Claudia Sullens 1984
Accountant for Cash Management: Financial Services	Clinical Instructor: Dental Assisting
B.A. - The University of Michigan	A.D. - Washtenaw Community College
Hinds, Dwight D. 1968	B.S. - Madonna College
Faculty: Physical Science	Johnston, Mark 1990
B.S. - Eastern Michigan University	Faculty: Accounting
M.S. - Michigan State University	B.B.A. - Eastern Michigan University
Ho, Leo C. 1975	M.S. - Walsh College
Librarian: Instructional Media	Johnson, Sylvester 1990
B.A. - National Cheng Chi University	Microcomputer Support Specialist: Computer Services
M.L.S. - Atlanta University	A.D. - Washtenaw Community College
Ph.D. - Wayne State University	Jordan, Cole L. 1978
Hoag, Todd H. 1983	Custodial Supervisor I: Custodial Services
Laboratory Assistant: Industrial Technology	A.D. - Washtenaw Community College
A.D. - Washtenaw Community College	B.A. - Wayne State University
Hogue, Cheryl 1985	Jordan, Lester 1979
Laboratory Assistant: Visual Arts Technology	Faculty: Automotive Services
A.D. - Washtenaw Community College	B.A. - Eastern Michigan University
B.F.A. - The University of Michigan	M.Ed. - Wayne State University
Holmes, George H., III 1968	Juster, Marie S. 1982
Faculty: Social Science	Faculty/Department Chairperson: Business Office Systems
B.A. - University of North Carolina	B.S. - William Paterson College
M.A. - Xavier University	M.A. - New York University
Holmes, William 1990	Kapp, George 1970
Executive Director: College Advancement	Faculty: Physical Science
B.A. - West Virginia Wesleyan College	A.D. - Washtenaw Community College
M.Div. - Methodist Theological School	B.S.E. - The University of Michigan
Horowitz, Frederick A. 1968	Karamol, Mark 1991
Faculty: Humanities	Media Production Specialist: Instructional Media
B.A. - Yale University	B.A. - University of Toledo
B.F.A. - Yale University	Kerans, Ellen 1991
M.F.A. - The University of Michigan	Annual Fund Coordinator: College Advancement
Hoth, Bradley 1987	B.A. - The University of Michigan
Student Advisor: Student Enrollment	Kibens, Maija 1976
A.A. - Henry Ford Community College	Faculty/Department Chairperson: Humanities
B.A. - Michigan State University	B.A. - Mount Holyoke College
M.A. - Eastern Michigan University	M.A. - The University of Michigan
	Ph.D. - The University of Michigan

Kirkland, Robert W.	1988	LeFlouria, Donald	1989
Faculty: Humanities		Custodial Supervisor II: Custodial Services	
B.A. - The University of Michigan		A.G.S. - Kirkland Community College	
M.A. - The University of Michigan		A.A. - Kirkland Community College	
Knoll, Gladys	1981	Levy, Mary L.	1981
Faculty: Nursing		Programmer Analyst I: Computer Services	
Diploma - Henry Ford Hospital School		B.A. - College of Wooster	
B.S.N. - The University of Michigan		M.A. - The University of Michigan	
M.S. - The University of Michigan		Lewis, William A.	1968
Kollen, Michael	1969	Faculty: Mathematics	
Faculty/Department Chairperson: Behavioral Science		B.S. - North Carolina Central University	
B.A. - Knox College		M.A. - The University of Michigan	
M.S. - New Mexico Highlands University		Little, Patrick J.	1986
M.A. - The University of Michigan		Supervisor: Security and Plant Operations	
Kooi, Lucy A.	1977	A.D. - Washtenaw Community College	
Systems Coordinator: Computer Services		B.A. - Concordia College	
A.B. - The University of Michigan		Liu, Victor	1991
Kramer, Lawrence	1977	Coordinator: Technical Services LRC	
Faculty: Electricity/Electronics		B.A. - University of South Carolina	
B.S.E.E. - The University of Michigan		M.A. - Michigan State University	
Krantz Fischer, Carrie	1992	M.I.L.S. - The University of Michigan	
B.A. Edinboro University Pennsylvania		Lockard, Jon M.	1970
M.A. Bowling Green State University		Faculty: Humanities	
Krieg, Laurence J.	1983	Lowe, Burton C.	1968
Faculty: Computer Information Systems		Faculty: Industrial Technology	
B.A. - College of Wooster		Ludos, Phillip	1978
M.A. - The University of Michigan		Faculty: Police Academy	
Ph.D. - The University of Michigan		A.A. - Schoolcraft College	
LaHote, Randy	1992	B.S. - Madonna College	
Faculty: Social Science		M.A. - University of Detroit	
B.A. - University of Toledo		Lutz, Geoffrey A.	1986
M.A. - University of Toledo		Programmer Analyst I: Computer Services	
Larson, Barbara A.	1987	B.S. - The University of Michigan	
Director: Management and Budget		Lynch, John T.	1987
B.S. - Rutgers University		Executive Director: Business/Industry Center	
M.A. - The University of Wisconsin		B.S. - University of Detroit	
Lawrence, Morris J.	1969	Mack, Debra D.	1990
Faculty/Department Chairperson: Music		Laboratory Assistant: Equity/Homemaker Grant	
B.S.M.E. - Xavier University		Mann, John B.	1971
M.M. - The University of Michigan		Faculty: Automotive Service	
Ph.D. - Bernadean University		B.S. - Eastern Michigan University	
Laycock, Angelina	1991	M.A. - The University of Michigan	
Director: Career Placement		A.S.E. - State of Michigan	
B.S. - Eastern Michigan University		Martin, Herbert L.	1967
M.S. - Eastern Michigan University		Faculty: Behavioral Sciences	
Lee, Arthur A.	1984	B.A. - Eastern Michigan University	
Faculty: Mathematics		M.A. - Eastern Michigan University	
B.A. - Aquinas College		M.S.W. - The University of Michigan	
M.A. - The University of Michigan		Martin, John W.	1968
Lee, Granville W.	1990	Faculty: Visual Arts Technology	
Faculty: Business		A.A. - Macomb County Community College	
B.S. - New York University			
M.B.A. - University of Dayton			

Martin, LaRuth E. 1974	Moulton, Maxine 1989
Faculty: Reading	Clinical Instructor: Nursing
B.S. - Shaw College at Detroit	B.S.N. - The University of Michigan
G.A. - The University of Michigan	
E.F.D.A. - Indiana University	Moy, William 1968
M.A. - The University of Michigan	Faculty: Behavioral Sciences
	B.A. - Valparaiso University
Martinez, Gloria 1989	Mueller, Joseph 1991
Clinical Instructor: Nursing	Technician: Testing Center
B.S.N. - Madonna College	B.S. - Eastern Michigan University
McGee, Sophie 1969	Mullen, Marjorie 1980
Faculty: Reading	Payroll Supervisor: Office of the Controller
B.A. - The University of Michigan	
M.A. - The University of Michigan	Mullins, Philip G. 1982
Ph.D. - Michigan State University	Faculty: Electricity/Electronics
McGill, John B. 1966	A.D. - Washtenaw Community College
Faculty: Mathematics	Nagel, Rosemarie E. 1967
B.S. - Eastern Michigan University	Faculty/Department Chairperson: Reading
McGuire, Belinda G. 1988	A.B. - The University of Michigan
Faculty: Drafting	M.A. - The University of Michigan
A.S. - Monroe County Community College	
B.F.A. - Eastern Michigan University	Nair, Damodaran 1982
McPherson, Paul D. 1990	Director: Continuing Education/Extension Programs
Faculty: Foods and Hospitality	B.A. - Gandhigram University
B.A. - Madonna College	M.A. - Gandhigram University
Meade, Roland 1990	M.S. - Michigan State University
Faculty: Computer Information Systems	Ph.D. - Michigan State University
B.S. - Northern Michigan University	Nelson, James 1986
M.A. - Western Michigan University	Publications Assistant: College Advancement
Ph.D. - Western Michigan University	A.D. - Washtenaw Community College
Mealing, Percy 1966	Nelson, Robert 1966
Faculty/Department Chairperson: Mathematics	Faculty/Department Chairperson: Radiology
B.A. - Talladega College	A.A. - Fort Scott Community Junior College
M.A. - The University of Michigan	A.D. - Washtenaw Community College
Medeiros, Neil O. 1980	B.S.Ed. - The University of Michigan
Maintenance Supervisor: Buildings and Grounds	M.S. - The University of Michigan
R.E.T.S. - Electronics Engineering School	Nestorak, Theresa 1989
Meeks, Sandra S. 1969	Clinical Instructor: Nursing
Counselor: Student Support Services	B.S.N. - The University of Michigan
B.S.N. - The University of Michigan	Nevers, William B. 1975
M.S. - The University of Michigan	Faculty: Dental Assisting
Miller, Jean 1989	B.S. - Wayne State University
Faculty: English/Writing	D.D.S. - The University of Michigan School of Dentistry
B.A. - Marygrove College	Nowak, Margaret R. 1986
M.A. - University of Tulsa	Coordinator: Business/Industry Services
Miller, Louis R. 1969	B.A. - Michigan State University
Faculty: Social Sciences	M.S.A. - Central Michigan University
B.S. - Eastern Michigan University	O'Rear, Katherine 1988
M.A. - The University of Michigan	Faculty: English/Writing
Minock, Daniel W. 1983	B.A. - Washington State University
Faculty: English/Writing	M.A. - Eastern Michigan University
A.B. - University of Detroit	Ortega-Trudel, Maria 1992
M.A. - University of Detroit	Faculty: Behavioral Sciences
Ph.D. - Ohio State University	B.S. - Central Michigan University
	M.A. - Michigan State University

Packard, R. James	1969	Reilly, Kathieen	1987
Faculty: Drafting		Technician: Human Resources Management	
A.D. - Washtenaw Community College		A.D. - Washtenaw Community College	
B.S.M.E. - University of Wisconsin			
M.A.Ed. - Wayne State University		Reiter, Susan	1991
Palay, Roger M.	1975	Special Projects Coordinator: President's Office	
Executive Director: Management Information Systems		B.A. - University of Michigan	
B.S. - University of Chicago		M.A. - University of Minnesota	
M.S. - University of Wisconsin		Remen, Janet M.	1982
Patrick, Marjory	1989	Faculty/Department Chairperson: Mathematics	
Faculty: Humanities		B.Sc. - University of Durham	
B.S. - Eastern Michigan University		M.S. - The University of Michigan	
M.A. - Western Michigan University		Reps, Flavia P.	1966
Paup, Arlene M.	1982	Faculty: Social Sciences	
Faculty: Computer Information Systems		B.A. - St. Joseph College	
B.S. - Temple University		M.A. - Georgetown University	
M.S. - Drexel University		Rinn, John	1980
Pequinot, Mary	1981	Faculty: Computer Information Systems	
Student Advisor: Career Development Center		A.A. - Port Huron Junior College	
B.A. - Michigan State University		A.B. - The University of Michigan	
M.A. - Eastern Michigan University		M.S. - The University of Michigan	
Phibbs, John	1969	Rinn, Kim M.	1984
Supervisor: Reprographics		Systems Analyst: Computer Services	
A.D. - Washtenaw Community College		A.Commerce - Henry Ford Community College	
B.B.A. - Eastern Michigan University		B.B.A. - Eastern Michigan University	
Pierce, Leslie E.	1984	M.S. - Eastern Michigan University	
Director: Technical Job Training Programs		Roberts, Alvin	1968
A.A. - Polk Community College		Faculty: Behavioral Sciences	
B.A. - University of Florida-Gainesville		B.S. - Prairie View AM University	
B.A.E. - University of Florida-Gainesville		M.S.W. - Wayne State University	
M.Ed. - University of Florida-Gainesville		Romine, Mary	1988
Placey, David	1992	International Student Assistant: Student Services	
Director: Admissions		Russell, Dean A.	1966
B.A. - The University of Michigan		Faculty: Electricity/Electronics	
M.A. - The University of Michigan		B.S. - Eastern Michigan University	
Pogliano, Michael F.	1969	M.A. - Eastern Michigan University	
Faculty: Drafting		Sabada, Mary L.	1966
B.Arch. - The University of Michigan		Director, Personnel Services: Human Resources Management	
Poliner, Merrill Loughheed	1987	Salerno, Douglas	1969
Systems Programmer/Analyst: Computer Services		Faculty: English/Writing	
B.S. - Northwestern University		B.A. - Western Michigan University	
M.B.A. - The University of Michigan		M.A. - Western Michigan University	
Powell, Lula P.	1991	M.A. - The University of Michigan	
Coordinator: ECUS		Ph.D. - The University of Michigan	
A.D. - Jackson Community College		Schultz, Gary L.	1984
B. A. - University of Wisconsin		Faculty: Industrial Technology	
Redick, Martin	1978	A.D. - Washtenaw Community College	
Faculty: Respiratory Therapy		B.S. - Eastern Michigan University	
B.S. - The University of Michigan		Schuster, William	1989
M.S. - The University of Michigan		Faculty/Department Chairperson: Automotive Services	
Reeves, Robert A.	1968	B.A. - Wayne State University	
Associate Vice President: Human Resources Management		M.A. - Eastern Michigan University	
B.A. - Eastern Michigan University			
M.A. - Eastern Michigan University			

Scott, Kathleen 1971
 Librarian: Learning Resource Center
 B.A. - University of Iowa
 M.A. - University of Iowa

Shier, David 1990
 Faculty/Department Chairperson: Life Sciences
 B.S. - Cornell University
 Ph.D. - The University of Michigan

Showalter, Martha 1980
 Faculty: Mathematics
 B.S. - Ohio State University
 B.A. - Ohio State University
 M.Ed. - University of Houston

Siers, Laura Kasischke 1992
 Faculty: English/Writing
 B.A. - The University of Michigan
 M.F.A. - The University of Michigan

Sinclair, Starlett 1992
 Assistant: Human Resources Management
 B.S. - Wayne State University

Smith, Howard A. 1990
 Coordinator: Collaboration Project
 B.Ph. - Grand Valley State University

Spann, Carol 1991
 Employment Coordinator: Human Resources Management
 B.S. - Florida A&M University

Spickard, James F. 1977
 Director: Plant Operations and Security
 B.S. - Eastern Michigan University

Stadtfeld, Kathleen 1982
 Instructional Services Technician: Academic Services
 B.S. - Eastern Michigan University
 M.A. - Eastern Michigan University

Stallworth, Clarence A. 1974
 Director: Campus Development and Auxiliary Services
 B.S.E. - The University of Michigan
 M.S.E. - The University of Michigan

Stanford, Adrian 1987
 Student Advisor: Enrollment Management
 B.S. - Eastern Michigan University

Steinbach, J. Raymond 1969
 Faculty: Visual Arts Technology
 B.S. - Michigan State University
 M.S.O.E. - Ferris State University

Storbeck, Scott 1991
 Laboratory Assistant: Foods & Hospitality
 A.D. - Washtenaw Community College

Stotz, Daniel 1991
 Coordinator: Southern Regional Center/Lifelong Education
 B.B.A. - Eastern Michigan University
 M.S. - Colorado State University

Strayer, Ross 1989
 Faculty: Life Sciences
 B.S. - Eastern Michigan University
 M.S. - Eastern Michigan University

Susnick, Stuart B. 1969
 Faculty/Department Chairperson: Social Sciences
 B.A. - Brooklyn College, CUNY

Swan, Judith 1989
 Supervisor: Weekend, Evening, and Extension Programs
 B.A. - Eastern Michigan University
 M.A. - Eastern Michigan University

Teevans, James 1989
 Faculty: Drafting
 B.Arch. - University of Detroit

Thomas, David 1980
 Faculty: Physical Sciences
 A.S. - Macomb Community College
 B.S. - Eastern Michigan University
 M.S. - Eastern Michigan University

Thomas, Ervin L. 1969
 Faculty: Social Sciences
 B.A. - Wayne State University
 M.A. - Wayne State University

Thomas, Myron 1991
 Faculty: Accounting
 B.A. - Morehouse College
 M.S.T. - Walsh College

Thompson, Doreen 1975
 Faculty: Behavioral Sciences
 A.B. - Atlantic Union College
 Licence es Lettres - University of Paris
 M.Ph. - The University of Michigan

Thompson, Leroy 1991
 Faculty: Mathematics
 B.S. - South Illinois University
 M.A. - University of Detroit

Tom, Kimberly 1988
 Microcomputer Support Specialist: Computer Services
 A.D. - Washtenaw Community College
 B.A. - The University of Michigan

Townsend, Henry 1991
 Faculty: Public Services
 B.A. - The University of Michigan, Flint
 M.A. - Eastern Michigan University

Trame, John 1989
 Faculty: Electricity/Electronics
 B.S. - University of Houston
 M.S. - University of Houston

Travis, Patricia A. 1974
 Coordinator: Children's Center
 B.A. - The University of Michigan
 M.A. - Eastern Michigan University

VanderVeen, Sister Judith	1976	Whiteford, Priscilla S.	1971
Faculty: Nursing		Faculty: Social Sciences	
Diploma - Mercy Central School of Nursing		B.A. - Western Michigan University	
B.S.N. - Mercy College of Detroit		M.A. - The University of Michigan	
M.A. - The University of Michigan			
VanGenderen, Gary L.	1982	Wilkins, Barry L.	1982
Faculty: Physical Sciences		Powerhouse Supervisor: Power Plant	
B.S. - The University of Michigan		A.D. - Washtenaw Community College	
M.S. - Eastern Michigan University			
Vass, Steven T.	1967	Wilson, Jacquelyn	1987
Faculty: Social Sciences		Programmer: Computer Services	
B.S. - Academy of Military Science		A.D. - Washtenaw Community College	
B.S.Ed. - Black Hills State College		B.A. - Concordia College	
M.A. - The University of Michigan			
Ph.D. - The University of Michigan		Wilson, Rosemary	1986
		Faculty: Business	
Velarde-Hill, Gloria A.	1990	B.S. - Milligan College	
Clinical Instructor: Nursing		M.B.A. - University of Notre Dame	
B.S.N. - Eastern Michigan University			
M.S.N. - Wayne State University		Wirbel, Johanna V.	1968
		Faculty: Mathematics	
Verseman, Kathryn A.	1990	B.A. - Kent State University	
Financial Aid Specialist: Financial Aid		M.A. - The University of Michigan	
B.S. - Concordia, St. Paul, MN		A.M. - The University of Michigan	
M.S. - Mankato State University			
		Wojnowski, Judith L.	1978
Vrabel, George	1969	Controller	
Professional Service Faculty: Career Development Center		B.S. - Canisius College	
B.S. - Western Michigan University		C.P.A. - State of Michigan	
M.A. - Wayne State University			
		Wood, John D.	1984
Walline, Cynthia	1987	Student Advisor: Career Development Center	
Student Advisor: Student Enrollment		B.S. - Michigan State University	
B.A. - Eastern Michigan University			
		Young, Colette	1987
Walsh, Ruth Anne	1987	Faculty: Business	
Faculty/Department Chairperson: Public Services		B.A. - Michigan State University	
B.A. - University of Toledo		M.A. - Michigan State University	
J.D. - University of Toledo			
		Young, Mary E.	1975
Warner, Elizabeth	1988	Counselor: Student Support Services	
Faculty: Reading		B.R.E. - Detroit Bible College	
B.A. - The University of Michigan		B.A. - Eastern Kentucky University	
M.A. - San Francisco State University		M.A. - Eastern Kentucky University	
Webster, Brenda J.	1987	Zaremba, Ernest	1969
Clinical Instructor: Nursing		Faculty: Behavioral Sciences	
B.S. - The University of Michigan		B.A. - The University of Michigan	
		M.A. - The University of Michigan	
		Ph.D. - The University of Michigan	
Weid, Richard	1979		
Faculty: Automotive Service		Zeeb, Ronald E.	1968
B.S. - Eastern Michigan University		Faculty: Business	
M.A. - Eastern Michigan University		B.S. - Eastern Michigan University	
M.S. - Eastern Michigan University		M.A. - Eastern Michigan University	
Weidner, Hal R.	1969	Zenian, Paul	1968
Faculty: English/Writing		Faculty: Humanities	
A.B. - Columbia College		B.S. - The University of Michigan	
M.A. - The University of Michigan		M.F.A. - The University of Michigan	
Ph.D. - The University of Michigan			
		Zielinski, Diane	1967
Westcott, Richard	1984	Administrative Assistant to the Vice President of Administration and Finance	
Supervisor Plant Operations: Buildings and Grounds		A.D. - Washtenaw Community College	

EMERITUS TEACHING FACULTY 1990-92

- Arnold, Gwen** **Business**
A.D. - Washtenaw Community College
B.B.A. - Cleary College
M.A. - The University of Michigan
- Devereaux, William T.** **Speech**
B.A. - Michigan State University
M.A. - Michigan State University
Ed.D. - Laurence University
- Ford, Andrew** **Drafting**
B.S. - Wayne State University
M.Ed. - Wayne State University
Ed.D. - Wayne State University
- Hanson, Charlotte** **Speech**
A.B. - The University of Michigan
M.A. - The University of Michigan
- Kokkales, Paul C.** **Accounting**
B.S. - Eastern Michigan University
M.A. - The University of Michigan
- Mitchell, W. Bede** **English**
A.B. - Wayne State University
M.A. - Wayne State University
- Plummer, Robert** **Social Sciences**
A.B. - Wabash College
M.S. - Indiana University
Ed.D. - Indiana University
- Pollock, David S.** **Social Sciences**
M.A. - Eastern Michigan University
- Prichard, Lawrence** **Mathematics**
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
- Radick, Lawrence** **Humanities**
B.A. - Michigan State University
M.A. - Michigan State University
- Rees, Gerald** **Physics**
B.S. - The University of Michigan
M.S. - The University of Michigan
- Robinson, Albert** **Electricity/Electronics**
B.A. - Indiana University
M.S. - Eastern Michigan University
- Ross, Donald** **Mathematics**
B.S. - Eastern Michigan University
M.A. - The University of Michigan
M.A.T.M. - The University of Detroit
- Slepsky, Lawrence** **Life Sciences**
B.S. - Eastern Michigan University
M.A. - Eastern Michigan University
Ed.S. - Eastern Michigan University
- Wotring, J. Robert** **Computer Information Systems**
B.A. - University of Philippines



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.

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 will be incorporated into every WCC degree program of study beginning in September 1993. The learning areas include communi-

cation, 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 simultaneously 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: 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, journey person, 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 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.

Non-College Certificate: A certificate denoting completion of a planned course or program of study, but not associated with the completion of a minimum of 30 semester hours of credit (i.e., College Certificate).

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 classifications 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.

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.

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.

CATEGORY REQUIREMENTS

I. English Composition

English Composition ENG 100, 111, 222

II. Social Sciences

(3 courses in more than one discipline)

Anthropology ANT 201, 202
Economics ECO 111, 211, 222
Geography GEO 111
History HST 101, 102, 201, 202
Political Science PLS 108, 112, 150
Psychology PSY 100, 150, 200, 209, 257
Sociology SOC 100, 150, 205, 207, 250

III. Natural Science

(3 courses, one must be a laboratory course)

Biology BIO 100, 102, 127, 128
Chemistry CEM 111, 122, 211, 222
Physics PHY 111, 122, 211, 222
Geology GLG 100, 114, 125
Mathematics MTH 179, 191, 192, 293, 295

IV. Humanities

(3 courses in more than one discipline)

Art ART 101, 111, 112, 122, 130
Foreign Language FRN/SPN 111, 120, 122, 213, 224
Humanities HUM 101, 150, 160
Literature ... ENG 160, 170, 200, 211, 212, 213, 222, 223, 224
English ENG 225, 230, 270
Music MUS 140, 146, 152, 158, 180, 183
Philosophy PHL 101, 250
Religion ANT 150
Communications CMT 101, 102, 131, 152

PUBLIC SCHOOL ARTICULATIONS

Articulation agreements exist between WCC and more than 11 public school districts. The College will grant credit to articulated students for identified task competencies. Credit earned from public school articulations will not be awarded until the student has earned six or more credit hours at WCC. Students must apply for articulation credit within 2 years of high school graduation.

Copies of specific Articulation Agreements are available at respective high school guidance counselors' offices and the WCC Admissions Office.

TRANSFER AGREEMENTS

Specific transfer agreements exist between WCC and several Michigan four-year colleges and universities (e.g., Cleary College, EMU), which allow WCC students in specific programs to apply credits toward a bachelor's degree. Information on specific transfer agreements is available at the WCC Counseling Office.

Transfer guides are available in the counseling office. These guides are used to facilitate the transfer of courses to various four-year colleges in Michigan.

APPENDIX B

COLLEGE MEMBERSHIPS

American Association of Higher Education
Council of North Central Community and Junior Colleges
American Association of Community and Junior Colleges
American Association of Community College Trustees
The Association for the Management of Information
Technology in Higher Education
Community College Association for Instruction and Technology
The Institute of Electrical and Electronics Engineers, Inc.
Michigan Community College Association
Michigan Community College Business Officers Association
Michigan Public Employer Labor Relations Association
Michigan Technology Council
National Association of College and University Business Officers
National Association of Industrial Technology
The National Center for Research in Vocational Education
The National Institute for Staff and Organizational Development
North Central Association
The Professional Association in Computing and
Information Technology in Higher Education
Southeast Michigan Council of Governments

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, 1992 and is subject to change without prior notice.
- b. The listing of the instructors' names in the class schedule is for informational purposes only and does not constitute a contract of employment or offer to employ any named instructor. Instructional assignments are subject to change in accordance with College policies as the needs of the College may require.
- c. This document is intended to be used with the catalog, which provides complete information on courses as well as College regulations and more details on the academic calendar and procedures.

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, handicap, height, weight, marital status, or veteran status in provision of its educational opportunities or employment opportunities and benefits.

WCC does not discriminate on the basis of sex or handicap in the educational programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Public Act 453; and Section 504 of the Rehabilitation Act of 1973, and Public Act 220 respectively. This policy extends to both employment by and admission to the College.

WCC does not discriminate on the basis of disability, and accommodations are made for qualified disabled people in compliance with the Americans with Disabilities Act of 1990. In conformation with the act, WCC follows the ADA's accessibility guidelines for buildings and facilities, rules of nondiscrimination on the basis of disability by public accommodations and in commercial facilities, and the EEOC's equal employment opportunity for individuals with disabilities.

Student inquiries concerning ADA, Title IX, and Section 504 should be directed to the Office of the Dean of Student Services, Room 221B, Student Center Building, Washtenaw Community College, Ann Arbor, MI., 48106, (313) 973-3536. Charges of violation of the above compliance statements also should be directed to the College Affirmative Action Officer in the Office of Human Resource Management, 2nd floor, Student Center Building, or telephone (313) 973-3497.

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 (313) 973-3536).

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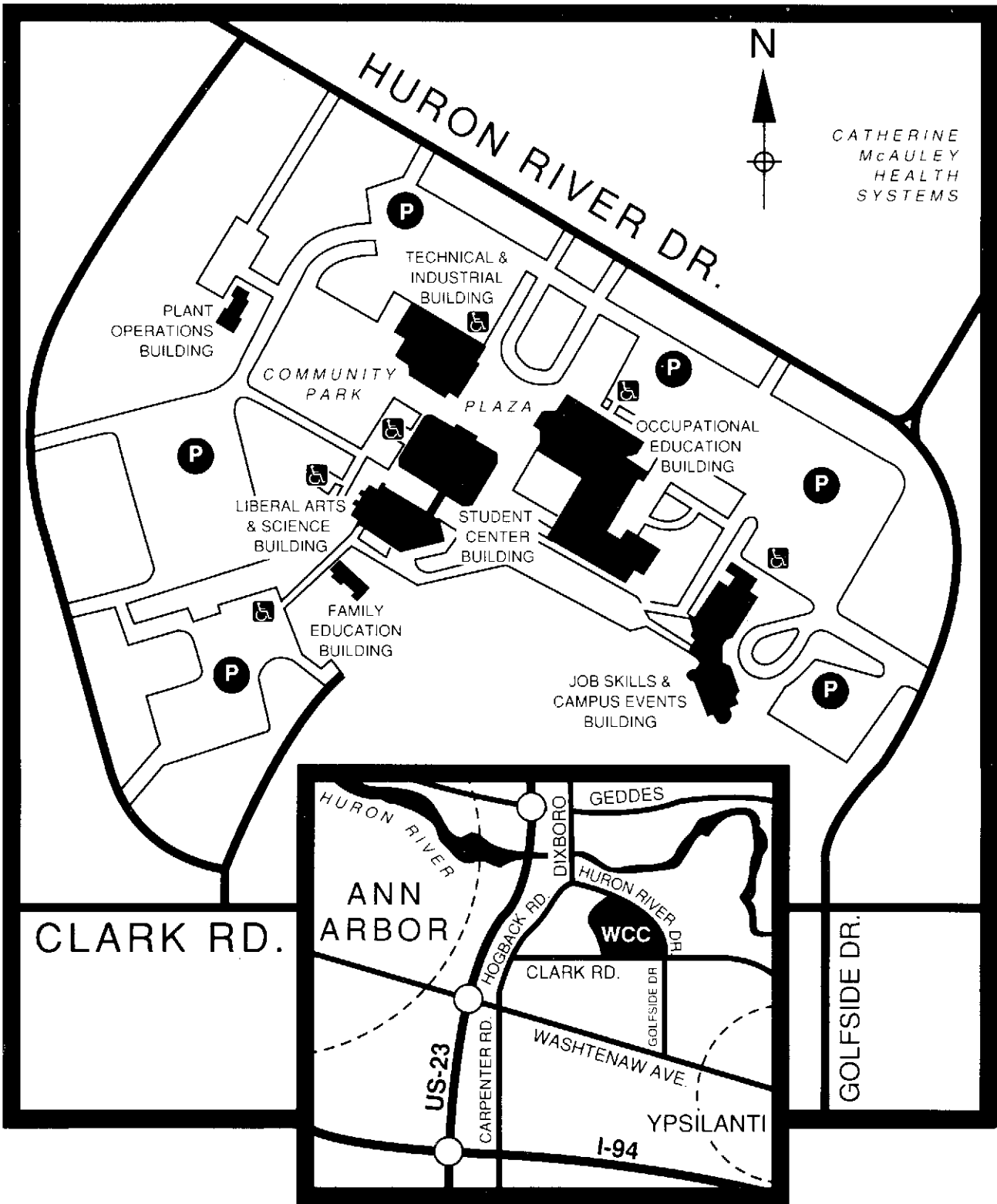
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Withdrawal from College	16
Withdrawal "W" grade	41
Women's Studies	35
Writing Center	31



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WASHTENAW COMMUNITY COLLEGE

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