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# WASHTENAW COMMUNITY COLLEGE

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## BULLETIN 1983-85

OCTOBER 1983

VOLUME 13-NUMBER 3

## TELEPHONE ASSISTANCE

**Main Campus: (313) 973-3300**

**4800 E. Huron River Drive Ann Arbor, Michigan 48106**

**Automotive Services Building: (313) 434-1555**

**5115 Carpenter Road Ypsilanti, Michigan 48197**

Admissions	973-3543
Adult Resources Center	973-3528
Apprentice and Employee Training	973-3533
Automotive Services	434-1555
Bookstore	973-3594
Business Office	973-3507
Cafeteria	973-3585
Career Placement	973-3558
Cashier	973-3485
Children's Center	973-3538
College in the Mall	973-3408
Community Relations	973-3665
Continuing Education	973-3352
Continuing Education Services	973-3493
Counseling	973-3464
Dental Clinic	973-3337
<b>Directory Assistance (Switchboard)</b>	<b>973-3300</b>
Drama Group	973-3625
Extension Centers	973-3408
Financial Aid	973-3524
FOCUS (College Newspaper)	973-3376
<b>Information Center (College Events, Resources)</b>	<b>973-3622</b>
Institute for Economic Development and Job Training	973-3352
JTPA/TRA/NDTC (National Development Training Council)	973-3533
Learning Resource Center	973-3429
Math Center	973-3392
President	973-3491
Publications Office	973-3665
Reading Center	973-3301
Refugee Education Program	973-3315
Registration	973-3548
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Veterans Counseling	973-3479
Women's Studies	973-3493
Work Study Office	973-3558
Writing Center	973-3647

The Washtenaw Community College Bulletin (USPS 897-820) is issued four times a year in February, April, August and December by Washtenaw Community College, Ann Arbor, Michigan 48106. Second Class postage paid at Ann Arbor, Michigan. POSTMASTER: Send Form 3579 to Washtenaw Community College, P.O. Box D-1, Ann Arbor, Michigan 48106.



# **Washtenaw Community College**

**Committed to Helping Students  
Reach Career and Life Goals  
Through Quality Education...**

# Continuing a Tradition Of Educational Progress



**Washtenaw Community College**  
4800 E. Huron River Drive, P.O. Box D-1  
Ann Arbor, Michigan 48106

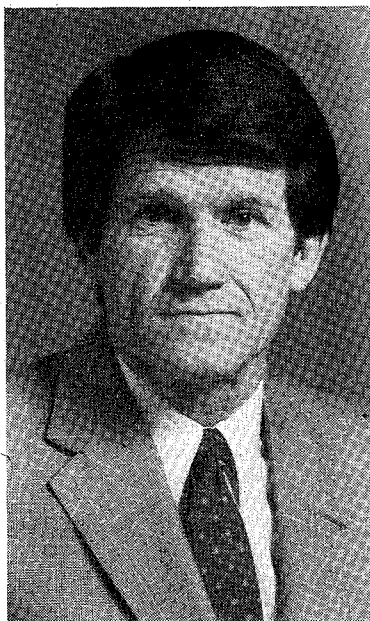




# 1983-85 College Bulletin

Volume 13 Number 3

# Greetings from President Gunder Myran



One of the most striking characteristics of Washtenaw Community College is the warm caring environment for learning that exists here. This environment has been created by people: faculty, administrators, clerical staff, custodians, and maintenance personnel. The College has been molded by the philosophy that the individual student is respected and valued regardless of his or her educational or occupational background.

There is a real love here for the teaching-learning process and for the students of all ages and backgrounds that we serve.

Yes, the College is *people* who care: staff members, students, members of the Board of Trustees, those who employ our students and the citizens who support us. All groups have helped to create a college dedicated to helping people achieve career and other life goals through quality education. We have a special mandate from our students and the communities we serve to make it possible for individuals to develop the knowledge and skills they need to enter and advance in a career field. We also have a responsibility to provide specific freshman-sophomore level courses which parallel courses at four-year colleges to which individuals desire to transfer. As a comprehensive community college, we provide other educational services and programs that will help people be more effective in their various life roles such as worker, family member, citizen and consumer.

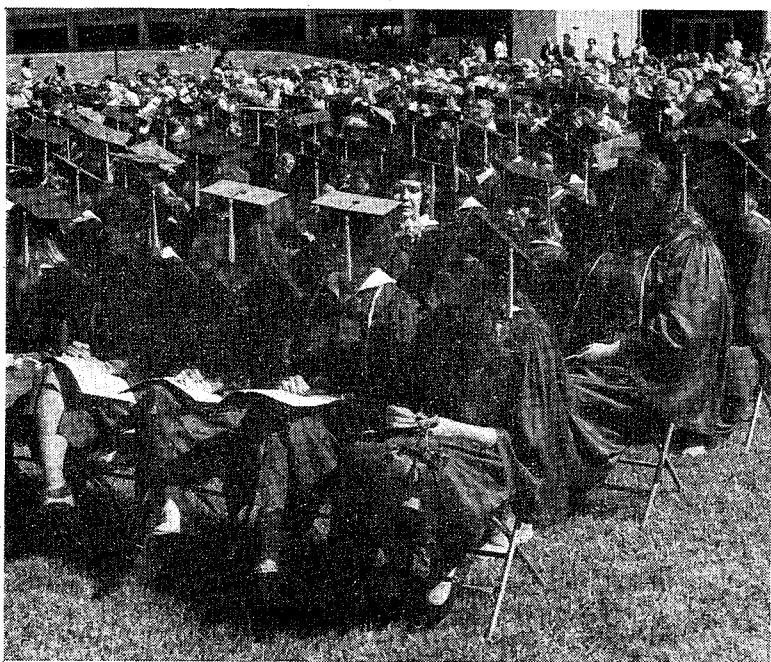
We are committed to providing an environment of caring and support that makes it possible for individuals to adjust to college and to attend college while also carrying out other life responsibilities. We welcome you to join us—this is *your* college.

A handwritten signature in cursive script that reads "Gunder A. Myran".

Gunder A. Myran  
President  
Washtenaw Community College

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## College's Special Services



Special services at Washtenaw Community College include a wide range of extras. These include everything from special financial aid programs to programs and services for veterans to a Center devised to help adults returning to school. It includes a program for community senior citizens, a career placement center, a bookstore, a child care center for children of students, well developed counseling programs and laboratories for math, reading and writing help.

Washtenaw Community College is a College with many services to make your educational experiences here good ones.



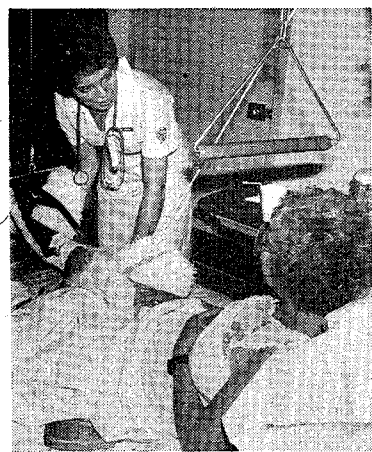
Provide Extras...





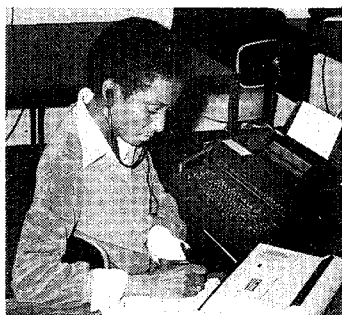
## Classes Arranged To Meet Community's Needs

Activity is large part of learning in classes at Washtenaw Community College. The curriculum for many of the classes is centered around and requires mastering various skills needed for employment in the community or for further educational pursuits. The College faculty members want students to be successful; they exert their skills and helpfulness in assisting students to achieve.

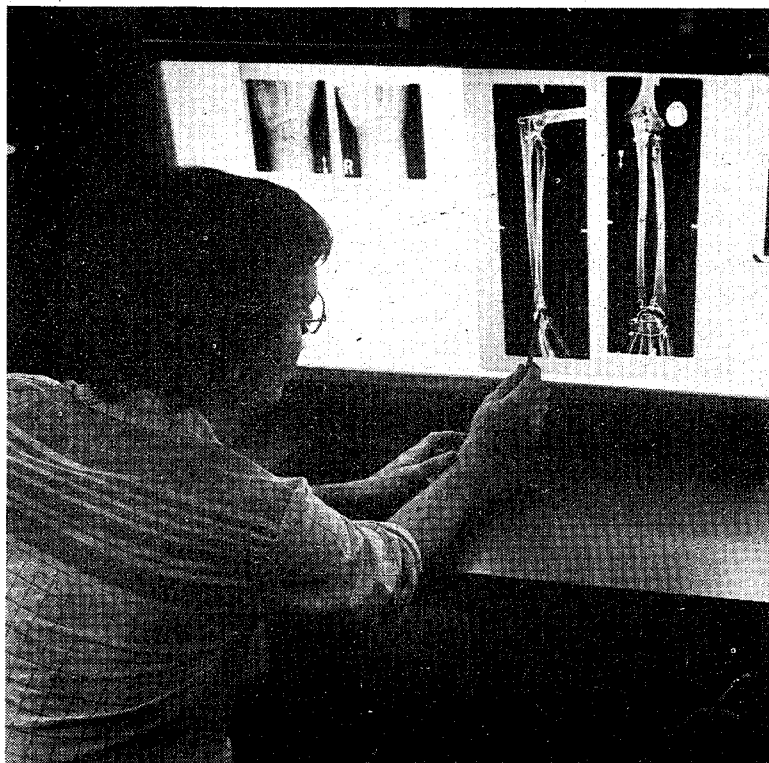


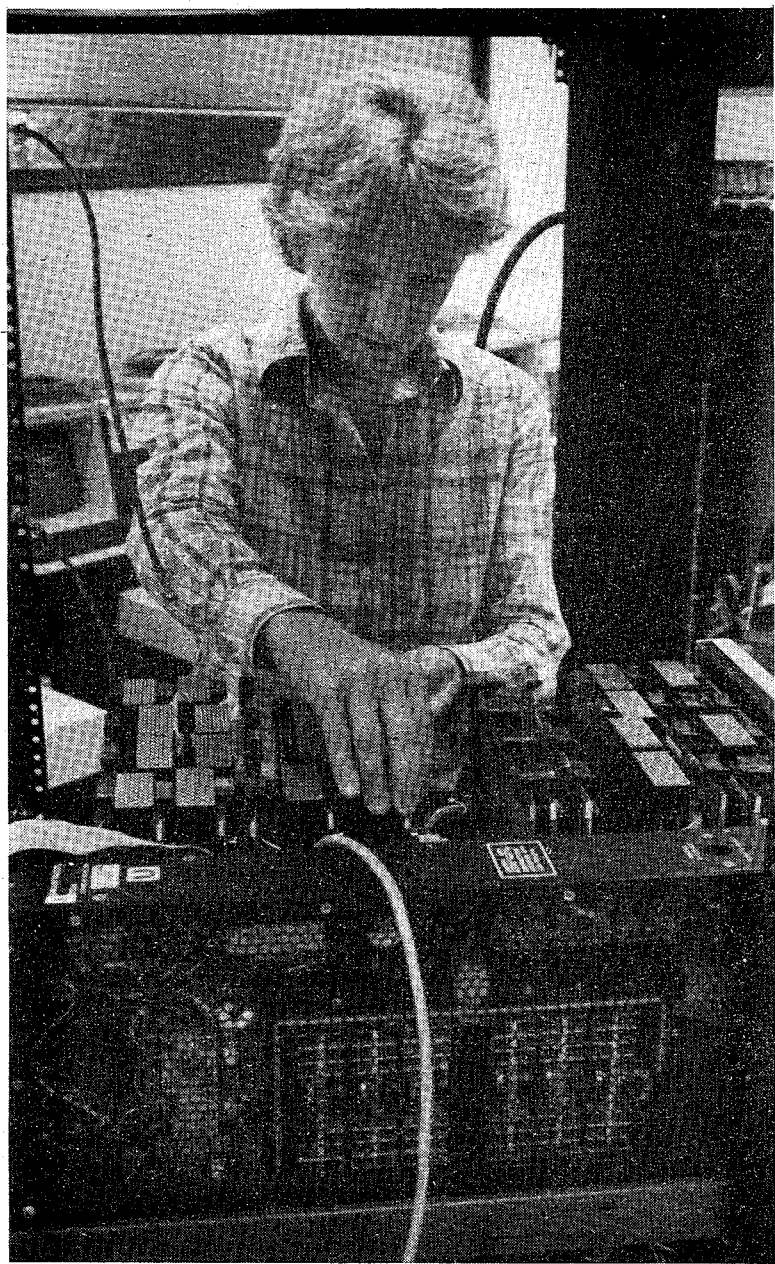


# Career Programs Offer Keys to Brighter Future



Career programs at Washtenaw Community College offer students specific technical instruction and education for productive employment in a wide range of more than 60 occupational areas. Technical courses along with general study subjects provide the breadth and balance needed for well rounded career preparation. College laboratories are well equipped to give students experiences they will find on the job.

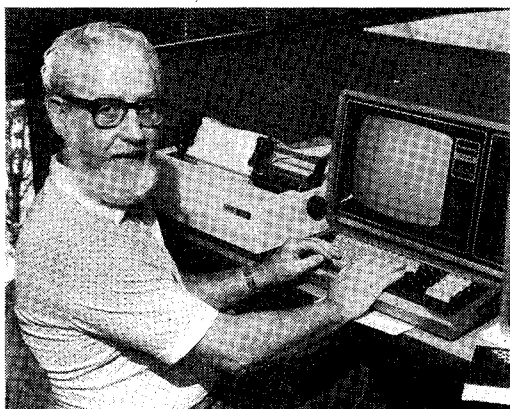




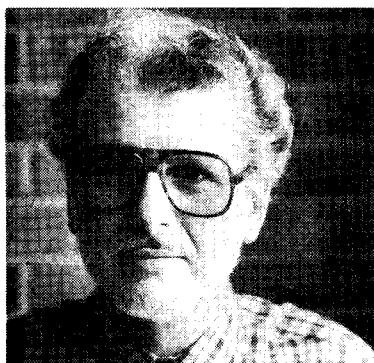


## A Caring Faculty Provides

Faculty at Washtenaw Community College has earned its fine reputation as one devoted to quality teaching and concern for students. Whether in the health sciences, in the technical training areas, in general education programs or in other special classes, faculty excel in meeting student educational needs and in providing up-to-date material taught using the most modern methods. The teaching combined with coordinated services in counseling, financial aid and student services makes for a community college in which Michigan can be proud.



## Quality Course Work...



# **ACCREDITATION**

Approved by the  
STATE DEPARTMENT OF EDUCATION  
STATE OF MICHIGAN

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

Dental Assisting Program  
Approved by  
COUNCIL ON DENTAL EDUCATION,  
AMERICAN DENTAL ASSOCIATION

Emergency Medical Technology Program  
Approved by  
EMERGENCY MEDICAL SERVICES DIVISION.  
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

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

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

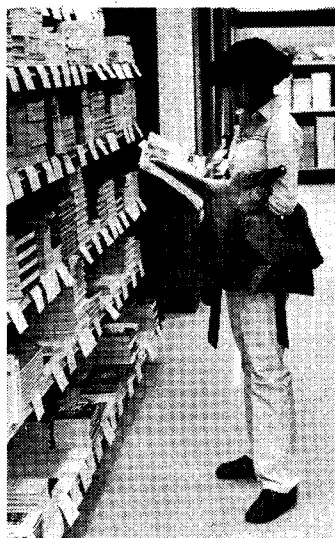
Practical Nursing Program  
Approved by  
MICHIGAN DEPARTMENT OF LICENSING AND REGULATION  
Board of Nursing

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

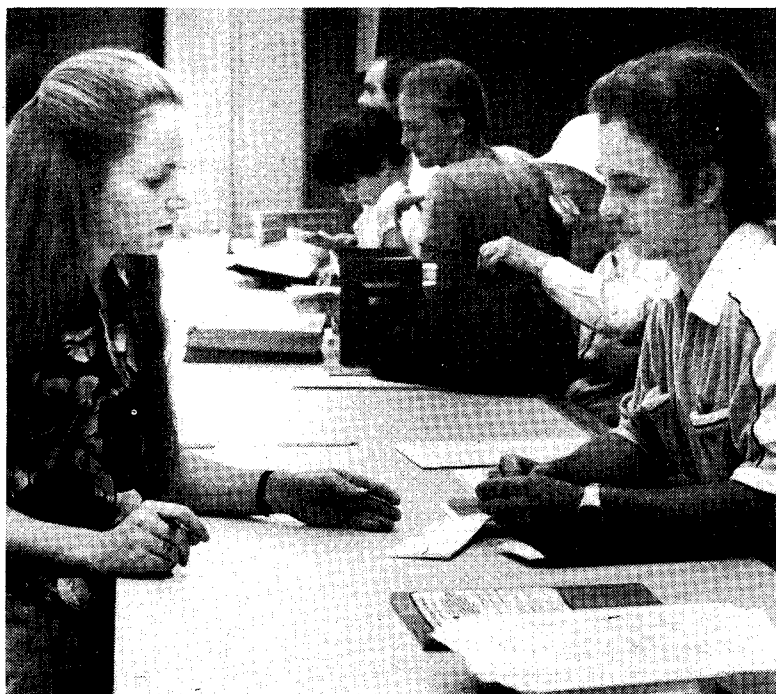
An Institutional Member of  
AMERICAN ASSOCIATION OF  
COMMUNITY AND JUNIOR COLLEGES

A Member of  
MICHIGAN COMMUNITY COLLEGE ASSOCIATION

*An Affirmative Action/Equal Opportunity, Title IX Institution*



## **GENERAL INFORMATION**



# STATEMENT OF PHILOSOPHY AND MISSION

## **A Description of the College:**

Washtenaw Community College offers instruction in occupational education, general and college transfer education, developmental education, and continuing education and community services. To assist students from a variety of educational backgrounds, the College provides counseling, financial aid, job placement, and other supportive student services. The College welcomes persons of all ages and backgrounds who have the desire to prepare for or pursue college level studies. The College offers associate degree and one-year certificate programs and enables students who do not seek a college degree or certificate to take individual courses, seminars, and workshops. Tuition charges to students are kept as low as possible so that those with limited funds may attend.

## **The Philosophy of the College:**

The faculty, staff, and Board of Trustees of the College believe that each student has dignity, worth, and potential. We believe that each student should have the opportunity to develop skills needed for employment and a meaningful career. We believe that students should have learning experiences which convey the enduring values of their heritage and which provide for awareness and development of their own personal values. We believe that instruction should be based on a respect for the learner and a commitment to the maintenance of academic excellence. We believe it is important to provide a learning environment characterized by a devotion to the acquisition of knowledge, development of skills, and the mastery of subject matter. We believe our efforts as a faculty and staff must be characterized by a warm, caring concern for the personal growth of each student. We believe that the vitality of the College can be measured by how well it delivers programs which respond to the educational needs of the individual and the community. The wide range of programs offered and the variety of instructional methods used reflects our belief that learning is a lifelong process and that learners are individuals with differing degrees of preparedness, differing reasons for seeking instruction and differing styles of learning.

## **The Mission of the College:**

It is the mission of the College to provide an opportunity for individuals from all walks of life to pursue, through education, their life goals. The College has a special mission to enable individuals to prepare for careers and to advance in their careers. The College carries out its mission by offering the following programs and services:

**Occupational Education:** The College offers single course, one-year certificate, and two-year associate degree programs intended to provide students with the knowledge and skills needed for employment and



career development or which provide students with occupational courses which are part of a program to be continued at a four-year college or university.

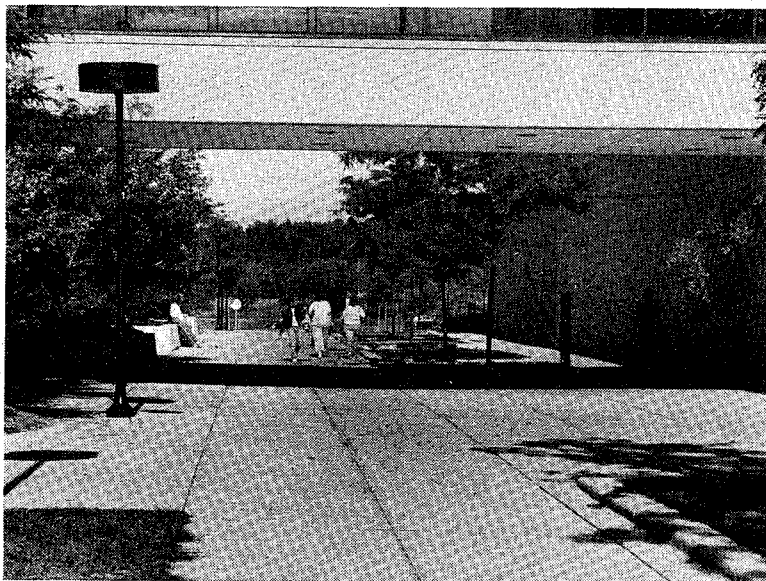
**General and Transfer Education:** The College offers courses in various academic disciplines which are transferable to four-year colleges and universities, general education courses which complement occupational education programs, and courses which enhance the personal growth of the students.

**Continuing Education and Community Services:** The College offers credit and credit-free courses and programs aimed at meeting the needs and interests of students who wish to attend the college during the evening and weekend hours or at off-campus extension centers.

**Developmental Education:** The College offers courses for those who wish to strengthen their basic communication, mathematical, or study skills.

**Student Services:** The College offers such services as admission counseling, orientation, assistance in selecting College programs and courses, personal counseling, financial aid planning, career counseling, and job placement.

**Community Development:** The College engages in educational activities that enhance the economic, cultural, intellectual, and social life of the community and maintains continuous contact with employers, advisory committees, community agencies, and other community groups to insure that the College remains attuned to the community's educational needs.



# **ADMISSIONS AND REGISTRATION**

Any person who has graduated from high school or is 18 years of age may be admitted to Washtenaw Community College.

Washtenaw Community College is open to all individuals who can benefit from the College's instructional and service programs. The focus is on the individual's career and life goals rather than on his or her previous educational background. The College seeks to create an admissions assistance process where those interested in attending the College can learn about College programs and assess their own academic, career and life goals. This service is available without charge, and the individual is then free to decide whether College programs are available which match these goals.

## **Admissions Criteria:**

Any person who has graduated from high school or passed the GED examination may be admitted. Persons 18 or older who are not high school graduates may be admitted to specific classes, but are encouraged to visit with a counselor before enrolling. Persons under 18 years of age who have passed the GED examination may be admitted with the recommendation of their high school principal. Any person, regardless of experience or educational background, is encouraged to visit with a counselor to learn about services the College can provide.

Applications for admissions can be made any time during the year and throughout the registration period. However, students are encouraged to apply by July 15 for Fall, November 15 for Winter, and March 15 for Spring/Summer semesters in order to register at an earlier date.

The application is considered complete when the application form is received by the College and the \$10.00 application fee has been paid. This fee is non-refundable and paid only once, no matter how many times one enrolls in classes at the College in the future. This enables a student to take any course or program at the College with the exception of some programs in the Allied Health Occupations which have special admissions requirements. Information on these requirements is available by calling the College Admissions Office (313)973-3596.

The procedure for applying for admission is simply to contact the Admissions Office by telephone (313)973-3543 for an application blank or to come in person to the Office on the second floor of the Student Center Building. Fill out the application and pay the \$10.00 fee. If formal registration has begun, the fee can be paid at the same time tuition is paid.

## **General Requests:**

1. Please register for yourself.
2. Please be prepared to pay tuition in full at the time of registration.

MasterCard and Visa (BankAmericard) are accepted. Problems regarding tuition payment should be directed to the Financial Aid Office.

3. Please have schedule approved by a counselor or advisor before going to registration area.

**Fees:**

Tuition is \$27.00 per credit hour for in-district residents; \$44.00 per credit hour for out-of-district but in-state residents; \$58.00 per credit hour for out-of-state residents.

Throughout the year many non-credit workshops and programs which run from several hours to a semester in length are offered. Tuition for these courses is determined by the subject content and the length of the course.

The only other fees are the \$10.00 application fee for new students only and, for those who register after the regular registration period, a \$5.00 late registration fee. Both are non-refundable. A processing fee is charged to students who have registered but who withdraw completely from the College prior to the first day of class.

The College provides scholarships for all types of students including those just out of high school and those who are reentering school. The College has monies available through Federal Financial Aid Programs. Students interested in applying for any type of scholarship or financial aid can apply at the Financial Aid Office, Room 223, Student Center Building or by calling (313)973-3523 for further information.

In addition the College provides an Emeritus Scholarship Program for retired persons living in Washtenaw County. These scholarships make it possible for adults, 60 or over, to participate in College courses without cost, other than books. Applications and information can be obtained from the Admissions Office, Room 221, Student Center Building or by telephone at (313)973-3543.

The College reserves the right to change tuition and fees without advanced notice.

**High School Students:**

High school juniors and seniors may take daytime, evening, weekend, or spring-summer classes for college credit or for units to be counted toward the high school diploma.

High school students enrolled under this program must be assigned to and work consistently with a WCC counselor. Students will be allowed to enroll for a maximum of six (6) credit hours. Application for admission must be initiated through the high school, signed by the high school principal, and forwarded to the WCC Admissions Office. (See discussion of advanced placement for further information.)

**High School Contractual Arrangements:**

It is the intent of Washtenaw Community College to permit College district high school seniors and juniors to take courses at the College as an enrichment to their high school program through the financial spon-

sorship of the school district. Such arrangements shall be initiated by the individual school district.

### **Late Registration:**

Late registration will be held beginning the first day of classes and continue for five days during the Fall and Winter semesters; it continues for three days for the Spring/Summer sessions. A special late registration period is scheduled on several evenings for those students who cannot register during the day.

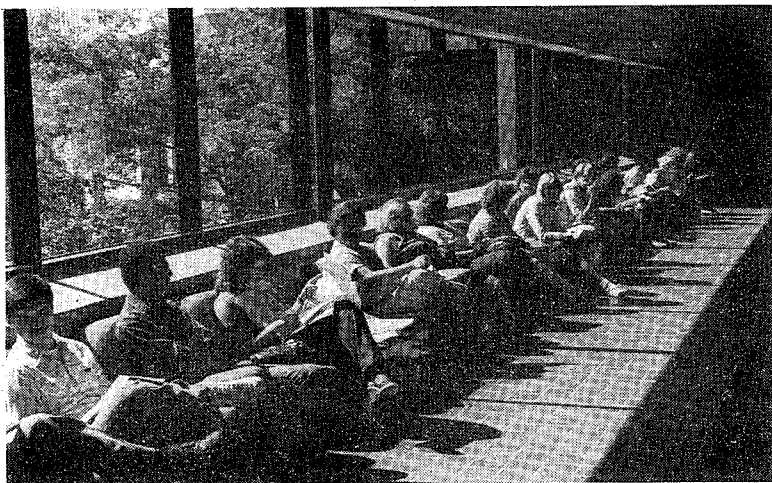
A \$5.00 fee is charged those who register late.

Students who feel they can only register late should report to their advisors or to the Counseling Office for approval of their programs. An Add Card must be completed for each late course request. This should be filled out before registering and should include the instructor's signature.

Late student registration is not considered complete until the late fee and the tuition are paid. Valid copies of Add Cards (stamped with the Registrar's name) need to be presented to the instructor by those who register late for a class.

### **New Student Orientation:**

A registration orientation session is set up prior to each semester for all new students to attend. During this required session, counselors will assist students in selecting and scheduling courses. These registration sessions are scheduled at a variety of times to accommodate the busy schedules of prospective students. New students who have not had their registration applications processed, should attend one of the orientation sessions and register at the time stated on their permits to register.



**Readmission:**

Former students who have not registered for classes at Washtenaw Community College for one (1) full semester (Spring and Summer Session excluded) must complete an Application for Readmission to reactivate and update their files.

**Returning Students:**

All returning full-time students must have a registration form signed by an advisor or a counselor before registering.

**Registration Withholds:**

Students will be withheld from registering if they have failed to meet their financial responsibilities to the College or have been disciplined. Any withhold must be cleared with the office issuing it before registration may be completed.

**Residency Policy:**

Students enrolling at Washtenaw Community College shall be classified in-district, out-district, or out-of-state for purposes of administering tuition charges.

**Classification of Residency:**

The following regulations are set forth as the major points which govern the determining of residency status:

***In-District Students are***

- Independent applicants who have resided in
- Applicants who live *with* and whose spouse has resided in
- 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 as a non-student immediately prior to enrollment if previous residency was within Michigan
  - 6 months as a non-student 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 are legal residents of the State of Michigan for at least six months.

***Out-of-State Students*** are applicants who do not meet the requirements for an in-district or an out-district resident.

**Aspects of Residency:**

A student's legal residency is the basis for the determination of the appropriate tuition rate. Tuition rates are not determined on the basis of the location of owned property which is not the student's legal residence.

Students whose families move out of the college district or out of Michigan during the time he or she is a student may retain their current residency status as long as they are continuously enrolled in successive fall and winter semesters.

An in-district student will not lose residency by marrying an out-district or out-of-state student during the time he or she is continuously enrolled at Washtenaw Community College for successive fall and winter semesters.

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.

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.

Students cannot gain residency for the purpose of attending Washtenaw Community College while enrolled as students at another college or university. If a person has come to the college district primarily for the purpose of becoming a student and not as a permanent resident, in-district status will not be granted.

Anyone who moves into the district and works full-time for thirty (30) days immediately prior to enrollment qualifies for in-district rates for that semester/session. Appropriate documentation of employment has to be supplied at the beginning of each semester. Such documentation should substantiate that the person worked full-time thirty (30) or more days prior to enrollment. Spouse and dependents will also qualify for in-district rates. After working full-time for sixty days for out-district students (or six months for out-state students), the residency status can be changed officially by supplying proof of full-time employment and legal residence.

Students who are employed full time by an in-district company may pay in-district tuition rates at the time of registration providing they have appropriate documentation of their employment from their sponsoring company at the beginning of each semester. Such documentation should substantiate that the student was employed full time 30 or more days prior to enrollment and that the employer has approved the coursework to be taken. If such students attend Washtenaw Community College without documentation from their company/industry, tuition rates will be determined by their legal residency.

#### **Change in Out-District or Out-of-State Classification:**

Students who feel they are entitled to in-district or out-district residency classifications may petition the Admissions Officer, stating their reasons, with supporting documents, why their residency classifications should be changed. Any residency change after the eighth day of classes becomes effective the following semester.

#### **Billing:**

Students employed at in-district companies which pay tuition charges will be billed at the in-district rate. This does not affect the residency of the student, and when the student discontinues employment at an in-district company, tuition charges will be based on legal residence.

### **Admission for Foreign Students:**

Proof of visa status is required upon applying.

**Student Visa:** A person on a student visa cannot be admitted.

F-1—A foreign student supported by private funds cannot be admitted.

A-1, A-2 (Diplomatic Visa)—can attend full-time (charge out-state).

B-1 (Business Visa)—can attend part-time (charge out-state).

Immigrant Visa—can attend full-time (depends on how long they have resided here)

B-2 (Visitor Visa)—can attend full-time (charge out-state).

F-2—The spouse of the F-1 student can be admitted on a part-time basis.

G-4 (Work Visa)—can attend part-time (charge out-state).

H-3 (Trainee Visa)—can attend part-time (charge out-state).

I-94 (Refugee)—can attend full-time (depends on what the United States address is on I-94; if Washtenaw County—in-district). Spouse Visa—can attend part-time (charge out-state). Student Visa—cannot attend.

J-1 (Exchange Visitor)—can attend full-time (charged out-state)

J-2—The spouse of the J-1 student can be admitted on a part-time basis.

**Foreign Students on "Guest" Status:** Washtenaw Community College may accept Foreign Students (F-1) as "Guest" students for the Spring/ Summer Sessions subject to the following provisions:

- a) Accepted on "Guest" status only.
- b) All counseling, advising or financial assistance must be done by the "home" institution.
- c) Student must demonstrate ability to communicate in the English language. A personal interview may be requested by the Admissions Officer prior to acceptance.
- d) Student must be assessed the out-state tuition.
- e) No certification of attendance will be made other than transcript of record.

### **Student Classifications:**

A **Full-time Student** is one who enrolls in twelve or more credit hours (six or more for Spring/Summer sessions).

A **Part-time Student** is one who enrolls in less than twelve credit hours (six or more for Spring/Summer sessions).

A **Freshman** or **First Year Student** is one who has completed fewer than 28 credit hours.

A **Sophomore** or **Second Year Student** is 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.

A **Special Student** is one who is enrolled in classes but is not pursuing a degree or certification of achievement.



A **Transfer Student** is one admitted from an institution whose entrance requirements, programs, and grading systems are equivalent to those at WCC. Students transferring to WCC from other colleges and universities should submit their applications for admission and official transcripts in advance of the term they plan to enroll at WCC. That way an evaluation of credits can be completed before seeing a counselor for scheduling. These students may receive full credit for their past work in which they earned a grade of "C" or better. Courses in the program not covered by equivalent work at the first college attended must be taken at WCC. An evaluation of transfer of credit will not be made until a student has been admitted to WCC. Acceptable course credits earned at another institution are recorded on the student's permanent academic record, but the grades and grade points earned are not transferred to this record. Only grades and grade points earned at WCC appear on the Washtenaw Community College academic record. Thus, only work completed at WCC is included in the WCC grade-point average.

**Guest Student at Another Institution** is a WCC student who attends another institution as a guest student for short periods, either during the regular academic year or in the summer for the purpose of earning credit for transfer to WCC. Students planning to attend Michigan public institutions should use the Michigan Uniform Undergraduate Guest Application available from the host institution or from the Admissions Office at WCC. Applications must be completed and turned in to the Registrar's Office where the seal of the college will be imprinted. It is the responsibility of the prospective guest student to determine in advance the appropriateness of courses at the school to be visited in which he or she proposes to enroll. Assistance with this is available from Admissions Office personnel.



# ENROLLMENT CHANGES

Students are expected to complete the courses in which they register. If a change is necessary, it should be done as follows:

## **Refunds:**

All refunds must be initiated by the student. This includes refunds for cancelled classes. Refunds are not automatic and are accomplished only by processing a drop and refund form. In the case of official withdrawal from the College prior to the first day of school, the student may claim a 100% refund of tuition paid less a processing fee of \$10.00. The student may claim a 75% refund of the tuition paid if the withdrawal is made during the first ten days of the semester. The student may claim 50% of the tuition if the withdrawal is made after the tenth day of the semester and before the end of the fourth week of the semester. Applications for refund must be made through the Registrar's Office. If in the case of extreme hardship, a student must withdraw after the fourth week of the semester and wishes to be considered for a refund, he or she must petition the Registrar in writing stating reasons why such a refund should be granted. A check covering the refund will be sent within four to six weeks. Refund deadlines differ during the Spring/Summer Session. Please refer to the Spring/Summer Bulletin.

## **Drops and Adds:**

During the official drop and add period a student may add or drop a class or change a section without an Instructor's approval. 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.

Generally, the following rules apply:

**To Add a Course:** Students should have their added courses approved by their advisors or counselors. An Add Card must be completed for each course request, prior to reporting to the Late Registration Area. An added course will be accepted on a space available basis during the official drop and add period. Afterwards, the signature of the appropriate instructor is also required.

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

Students adding courses must present the validated copy of the Add Card to the instructor as evidence of Registration.

**To Drop a Course:** A student is not officially dropped from the class until the Drop card is accepted in the Registrar's Office.

**Changing Sections:** Students changing from one section to another of the same course, may complete the process within the Late Registration Area.

Students will be added on a space available basis and instructor approval is required after the Drop/Add period.

**Adjustment of Tuition:** If the adding or dropping of courses changes the total number of credits in which the student is enrolled, an adjustment of tuition is made according to the policies for assessment of tuition and refunds as shown under Tuition, Fees and Residence Policy section of this catalog.

**Books and Supplies:**

Students may be required to purchase certain individual supplies and materials. These are available at the Bookstore on the first floor of the College's Student Center Building.

## **VETERAN'S AFFAIRS**

All veterans receiving benefits must see a veteran's counselor before registering.

Any drops or changes made by veteran students are to be reported to the Veteran Certification Office immediately.

**New Students:**

Veterans and other eligible dependents receiving educational benefits under Chapters 32, 34 and 35, 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 Office of the Registrar after registering for classes. Please bring with you copies of your DD-214, marriage license and birth certificates of dependent children, if applicable.

**Previously Enrolled Veterans:**

Veterans who have not attended classes during the previous semester should bring a copy of their registration receipt to the Office of the Registrar.

**Transfer Students:**

Those 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 Office of the Registrar. DD-214 and transcripts from colleges or universities where the student has completed previous training must accompany the application.

**Credit for Formal Service School Experience:**

Credit will be 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 VA counselor in the Counseling Office.

### **Continuing Veterans:**

These students must turn in a completed certification card after registering for classes every semester to insure the continuance of their benefits.

### **Standards for Receiving Educational Benefits:**

In compliance with the Department of Veteran Benefits, Circular 22-80-38, the College has developed the following standards of progress. Each Veteran student must conform to these standards to be eligible for Veterans Administration Educational Benefit Certification.

Each Veteran student must read, sign, and return the original copy of these standards to the Registrar's Veterans Certification Office at each enrollment.

1. It is the responsibility of the Veteran student to report to the Registrar's Certification Office immediately upon withdrawal or dropping of courses, indicating the last date of attendance in class. This information will be reported to the Veterans Administration.

A Veteran student, receiving an "N" (nonattendance) on the final grade reports, will be reported to the Veterans Administration as having registered for the class but did not attend. "DF" grades are also reported to the Veterans Administration.

2. Veteran students having attended another institution of higher education, must submit a transcript of the previous training to the Registrar's Certification Office for evaluation, prior to enrollment. The Veterans Administration and the student will be notified, indicating the appropriate credit given by the College for this training and the student's training period will be shortened proportionately.
3. Veteran students are required to make satisfactory progress toward their approved programs of study. As of June 21, 1982, Veteran students who have a cumulative grade point average of less than 2.0 (C) or receive "N" grades in any of their classes during a semester will be placed on academic probation. Veteran students will be certified for benefits while on probation for no more than two (2) consecutive semesters.

Veteran students will not be certified after attempting 60 hours with a cumulative grade point average below 2.0 without prior approval of the Veterans Administration nor will they be certified for benefits if they received "N" grades during their next semester of attendance without prior approval of the Veterans Administration.

Veteran students will be removed from academic probation when they have attained a cumulative grade point average of 2.0 and/or they do not receive any "N" grades in the subsequent semesters.

Courses not included in an approved program of study will be certified, subject to approval of the Veterans Administration.

For the General Studies Program, a maximum of 60 credit hours is allowed, 3 must be in English and 3 in Political Science.

A 2.00 grade point average is required for graduation.

4. When a Veteran student has accumulated credits which would result in granting of a degree to the Veteran, and for which the degree has been certified to the Veterans Administration during the period of attendance in the institution, the Veteran will be considered as having met the degree requirements and further financial benefits will be terminated unless the Veteran has not otherwise fulfilled graduation requirements. An additional 12 credit hours may be allowed to meet these requirements. The General Studies Program does not qualify for this extension without Veterans Administration approval.
5. A Veteran student, with an Associate Degree or 72 semester hours, will be certified subject to approval of the Veterans Administration.

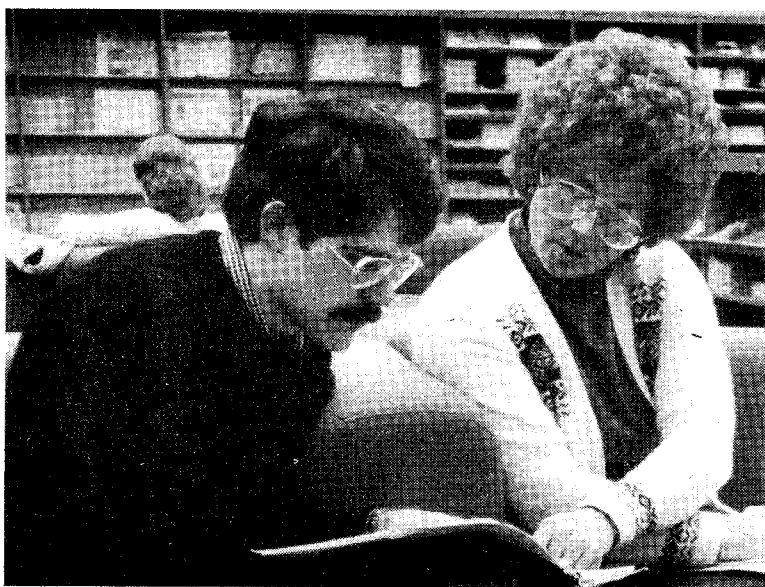
## **TRANSFER STUDENT AGREEMENTS**

It is the philosophy of Washtenaw Community College to evaluate and grant credit for all formal instruction that is determined to be equivalent to courses taught at the College.

Course work to be evaluated must be documented with an official transcript from the instructional institution.

Credits granted through evaluation are posted to the student's academic record, but grades and honor points are not used in calculating the grade point average earned at Washtenaw Community College.

Students may receive credits in the following manner:



**Accredited Institutions:**

Credit may be granted for course work done at another accredited institution if the grade earned is a "C" or better and the course is below the junior level (no credit given for Physical Education Activity classes). The publication, *Report of Credit Given by Education Institutions*, is used as a guide to institutions accredited by a regional accreditation agency.

**Non-Accredited Institutions:**

Credit may be granted for course work done at non-accredited institutions if the course work at that institution has been evaluated by the appropriate Dean and approved. This approval may be for selected courses, programs or all College offerings below the junior level, with the exception of Physical Education Activity classes. A grade of "C" or better is required.

**Credit and Advanced Placement:**

Course credit and advanced placement may be obtained in any one of the following ways:

1. Credit by Exam—offered by most Occupational Education areas.
2. The Advanced Placement Program—standardized tests in specific subject areas designed for secondary students.
3. The College Level Examination Program—standardized tests designed for adults in specific subject areas.

For more information, contact Admissions (973-3543), Counseling (973-3463), or the specific instructional area in Occupational Education.

**State Articulation Agreement (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 courses and some technical or occupational courses) are not included in the basic requirements.

### Value of Agreement:

Graduates of Washtenaw Community College who complete the basic two-year requirements of this agreement will not be required to pursue further basic courses in the four-year institutions to which they transfer.

### Category Requirements:

#### English Composition (2 courses)

English Composition . . . . . ENG 111, 122

#### Social Sciences (3 courses) in more than one discipline

Anthropology . . . . . ANT 201, 202, 207

Economics . . . . . EC 211, 222, 111

Geography . . . . . GEO 100

History . . . . . HST 101, 102, 103, 201, 202

Political Science . . . . . PLS 108, 112, 150, 200, 230

Psychology . . . . . PSY 100, 108, 150, 200, 207, 209

Sociology . . . . . SOC 100, 150, 205, 207, 250

#### Natural Sciences (3 courses) one course must be a lab course

Astronomy . . . . . AST 111, 112

Biology . . . . . BIO 101, 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, 197, 293, 295

#### Humanities (3 courses) in more than one discipline

Art . . . . . ART 130, 101, 111, 112, 114, 122

Foreign Language . . . . . FRN/SPN 111, 122, 213, 224, 120

Humanities . . . . . HUM 101, 103, 105, 135, 139, 150

Literature . . . . . ENG 160, 170, 200, 211, 212, 213, 222, 223, 224

English . . . . . ENG 225, 230, 270

Music . . . . . MUS 180, 140, 146, 152, 158, 183

Philosophy/Religion . . . . . PHL 101, 200, 205, 250, ANT 150

Speech . . . . . SPH 101, 131, 142, 183, 185, 186

Drama . . . . . SPH 152, 162

### Engineering Transfer Program

An engineering transfer program acceptable to engineering colleges in Michigan has been prepared by the Engineering College-Community College Liaison Committee. The schools and colleges of engineering in the State of Michigan, recognizing that the community colleges are playing a strategic role in engineering education through engineering transfer programs, are anxious to cooperate in every way possible in the development of these programs. In this light the following program has been formulated as a recommended engineering transfer program for community colleges. This program enables the student to transfer to any of the engineering colleges in the State with a very favorable situation for credit transfer and choice of specific engineering program.



The recommended program is as follows:

<b>Curriculum Area</b>	<b>Number of Semester Courses Recommended</b>
Mathematics . . . . .	4
Analytic Geometry, Calculus, Linear Algebra, Differential Equations	
Physics/Classical . . . . .	2
(Mechanics, Heat, Light, Sound, Magnetism and Electricity Using Calculus)	
Chemistry/General . . . . .	2
Computer Programming . . . . .	1
Fortran preferred	
English . . . . .	2
Literature and Composition	
Humanities . . . . .	2
Social Science . . . . .	2
<b>TOTAL</b>	<b>15</b>

To receive a full two years of transfer credit, a program of approximately 60 semester credits or 90 quarter credits is required. If available, courses in modern physics (atomic and nuclear), engineering mechanics, and/or materials may be used to supplement the above courses or to replace humanities and social science courses. Students planning to major in chemical engineering should take work in organic chemistry either in addition to the program above or in lieu of some of the humanities and social science credit.

### **Cleary College Agreement**

Cleary College and Washtenaw Community College have an agreement which provides junior level status to Washtenaw Community College graduates who transfer to Cleary College.

The articulation agreement provides that all of the courses an individual successfully completes at Washtenaw Community College will apply toward a Bachelor of Business Administration degree at Cleary. The student can then pursue a degree in Accounting, Secretarial Science or Management.

An associate degree represents the successful completion of 60 semester credit hours of college courses. At Cleary the student will take an additional 90 quarter term credits to complete the bachelor's degree. The total program can be completed in four years.

### **Eastern Michigan University Agreements**

Eastern Michigan University and Washtenaw Community College have specific agreements which allow students who have earned Associate Degrees in various Occupational Education programs to transfer all credits toward a Bachelor of Science Degree at Eastern Michigan University. At the present time detailed agreements exist for 24 Occupational Education Programs.

# INSTRUCTION AT WASHTENAW COMMUNITY COLLEGE

The College's Division of Instruction is responsible for all teaching and learning activities in occupational and general education areas through courses of study and career program opportunities.

**General Education:** Instruction is provided in the areas of English, Humanities, Life Science, Mathematics, Music, Physical Science, Reading and Writing, Behavioral Science and Social Science. A Mathematics Center, Reading Center and Writing Center offer students a wide range of services from individualized and programmed instruction to diagnostic skill testing and tutoring.

Principal objectives of studies in general education include the development of reading, writing, thinking, listening and speaking skills. In addition to studies in humanities, exact sciences and social sciences, the College provides general education to enable students to:

- Complete the first two years of college studies acceptable for transfer to four-year institutions;
- Develop support skills required in studies leading to specific career occupations;
- Pursue studies of general enrichment;
- Obtain a basic knowledge of the world, the environment, and the means used to understand and alter man's environment;
- Grasp the significance of modern life with its technological foundation;
- Study the science of humanity and machines to promote an appreciation of the limitations and potential of the technology on which people depend;
- Obtain introductory pre-professional education;
- Gain insights into and develop skills for meaningful and rewarding experiences with people in society;
- Obtain responsible citizenship training;
- Engage in relevant educational experiences.

**Occupational Education:** Washtenaw Community College offers a wide range of fully developed occupational, technical, and para-professional career programs. Programs are designed to meet individual educational and training requirements for job-entry, career upgrading, and career change. One- and two-year programs are offered, as well as special certificate programs and short-term courses.

Occupational Education career programs include studies in Accounting, Data Processing, Business, Food and Hospitality Service, Public Service, Secretarial and Office, Electronics, Welding, Auto Service, Drafting and Construction Technology, Industrial Technology, Nursing, Radiologic Technology, Respiratory Therapy, Emergency Medical Technology and Visual Arts Careers. In addition, Trade Related Instruction and Apprentice Training are offered.



Programs of study in Occupational Education enable individuals to:

- Pursue theory and skill training for a specific career;
- Prepare for career entry;
- Obtain on-the-job training for a specific career;
- Gain the practical knowledge and experience needed for handling everyday mechanical and technological situations and problems;
- Do pre-apprenticeship study as preparation for apprenticeship examination;
- Receive instruction in apprenticeship trades;
- Enroll employees in training programs designed to upgrade the skills of manufacturing and construction firm workers.

## **CREDITS AND GRADES**

### **Credit:**

All credit courses offered by the College are taught on a semester basis. Each course carries a designated number of credits. This number is based upon how many hours are required each week for the student to be in class or in laboratory. In most cases, one credit hour is earned by attending an on-laboratory class for fifty-five minutes, once a week for fifteen weeks. In a laboratory courses, one credit is granted for from two to four (fifty-five) periods per week in the laboratory.

### **Credit Load:**

The normal credit load for a full-time student is fifteen credit hours or more. Special permission must be obtained from the Dean of Student Services if a student wishes to register for more than 18 credit hours per semester. A full-time course load for the summer session is 6-8 hours and special permission must be obtained from the Dean of Student Services if a student wishes to register for more than eight credit hours for the session.

## Grades:

Washtenaw Community College uses a letter grade system for showing the degree of progress or the postponement of assigning a grade for a student.

Grades	Grade Points Per Credit Hour
A — Superior	4
B — Excellent	3
C — Average	2
D — Inferior	1
F — Failure	0
S* — Satisfactory	
U* — Unsatisfactory	040 numbered classes and below
I** — Incomplete; Credit Withheld	
W — Withdrawal	
DF*** — Deferred	
N — Non-Attendance	
V**** — Visitor or auditor	

\**Satisfactory 'S' or Unsatisfactory 'U'*: In courses numbered 040 and below or certain short courses the evaluation of a student's performance will be by the grade of 'S' (satisfactory) or 'U' (unsatisfactory). Honor points will not be given for these grades.

\*\**Incomplete Grade 'I'—Credit Withheld*: If for some reason a student has missed a final examination or has not otherwise completed all requirements for the courses as determined by the instructor, the instructor may issue an incomplete grade 'I'. The 'I' grade will remain on the student's permanent Academic Record until the requirements for the course are met. The 'I' grade will not be considered as a deficiency and is not figured into credits attempted or honor points.

\*\*\**Deferred Grade 'DF'—Credit Withheld*: In certain designated courses a student may be unable to complete the required work until the following semester. If in the opinion of the instructor the student is making normal progress, the 'DF' may be assigned. The student must re-enroll in the course and complete the required work the following semester (Spring and Summer Session excluded) or the grade automatically becomes a 'W'.

\*\*\*\**Class Visitor 'V'—No Credit*: A student may enroll in credit courses on a non-credit basis, with the approval of a counselor or advisor. Such credits as the course normally carries are included as part of the total credit load and tuition assessed accordingly.

Change from Visitor to credit or credit to Visitor status is not permissible after the close of the Add period. Credit may not be earned in courses taken as Visitor except by re-enrollment for credit and completion of the course with a satisfactory grade.

## Grade-point Average:

Honor points or grade points measure the achievement of the student for the number of credit hours he or she has attempted.

Grade points are determined by multiplying the grade points per credit hour by the credit hour value of the course attempted. The following example will enable students to compute their grade-point average.

Divide the total grade points by the total credit hours attempted—34 divided by 17 = 2.00 grade-point average.

The cumulative grade-point average is the total number of grade points earned divided by the number of credit hours attempted. It includes the number of credit hours of 'F', even though no grade points are allowed for this grade.

Courses	Credit Hours Attempted	Final Grade	Grade Points
English	3	B	3 grade points (3x3) = 9
History	3	F	0 grade points (0x3) = 0
Mathematics	3	C	2 grade points (2x3) = 6
Electronics	2	A	4 grade points (4x2) = 8
Physics	5	C	2 grade points (2x5) = 10
Physical Education	1	D	1 grade point (1x1) = 1
	17		34

### Policy for Release of Private Records:

Effective November 19, 1974, pursuant to the Family Educational Rights and Privacy Act of 1974, as amended, any person who is or has been in attendance at Washtenaw Community College, shall have the right to inspect and review any and all education records directly related to that person after a request for access to such records has been made on the approved form and in accordance with the approved College procedure for such access. If any material or document in the educational record of a person includes information on more than one person, an individual shall have the right to inspect and review only such part of such material or document as relates to the individual or to be informed of such specific information contained in such part of such material. Access will be granted within a reasonable time but in no case more than forty-five days after the request has been made.

Release of educational records (or personally identifiable information contained therein) without the written consent of the student will not be made, except to the following:

1. Other school officials, including faculty within Washtenaw Community College, who have a legitimate educational interest;
2. Authorized representatives of government agencies in connection with the audit and evaluation of federally-supported education programs, provided that the collection of any personally identifiable data shall not include information which would permit the personal identification of such students after the data has been collected;
3. Organizations conducting studies for, or on behalf of, educational agencies or institutions for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improved instructions, if such studies are conducted in such a manner as will not permit the personal identification of students by persons other than representatives of such organizations and such information will be destroyed when no longer needed for the purpose for which it was conducted;
4. Accrediting organizations in order to carry out their accrediting functions;
5. Subject to regulations of the Secretary of Health, Education and Welfare in connection with an emergency, appropriate persons if the knowledge of such information is necessary to protect the health or safety of the student or other persons;

6. In compliance with judicial order or lawfully issued subpoena with notice to the student of such orders or subpoenas prior to compliance therewith; and
7. In connection with the student's appliance for or receipt of financial aid.

An appropriate hearing procedure will be established, in accordance with the regulations of the Secretary of Health, Education and Welfare to provide students with an opportunity to challenge the content of the student's educational records, in order to insure that the records are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights, and to provide an opportunity for the correction or deletion of any such inaccurate, misleading or otherwise inappropriate data contained therein and to insert into such records a written explanation of the student respecting the content of such records.

### **Repeating a Course:**

A student who receives a grade of "D" or below may repeat the course. Whenever a course is repeated on a credit basis, the last grade and credits earned replace the previous grade in computing grade-point averages. However, all entries remain a part of the student's permanent academic record.

Grades are issued at the end of each semester session. Final grades are mailed to the home address of the student.

### **Request for Transcript:**

A student requesting that a transcript of his or her grades be sent to an educational institution or to a prospective employer must complete the appropriate form in the Registrar's Office. There is a service charge of \$1.00 for each copy. Transcripts will be withheld from students if they have failed to meet their financial responsibilities to the College or for disciplinary reasons. Any withhold must be cleared with the appropriate office before transcripts are released.

A hold will be applied to the release of a transcript for any student who has any overdue indebtedness or other obligation to the College.

### **Scholastic Honors:**

Recognition is given to all students obtaining high scholastic achievement while attending the College.

**Dean's Honor Roll:** The Dean's Honor Roll honors all students in the College completing 12 hours or more during the Fall and Winter semesters. "S" and "U" grades are not included in the computation.

**Graduation Honors:** High scholastic achievement is recognized at graduation for students earning a 3.50 or better average for all work completed prior to the semester of graduation. Graduation with honors is indicated on the student's permanent record, the commencement program, and lists released to the press.

Students earning a 3.80 or better are designated as "High Honors".

# ATTENDANCE AND EXAMINATIONS

## **Student Evaluation (Examinations):**

Scheduled evaluations are an important part of the instructional program at WCC. Students should be prepared not only for final examinations, but for periodic tests covering various phases of instruction. The instructor will inform the student as to the time, place and other examination requirements.

## **Attendance:**

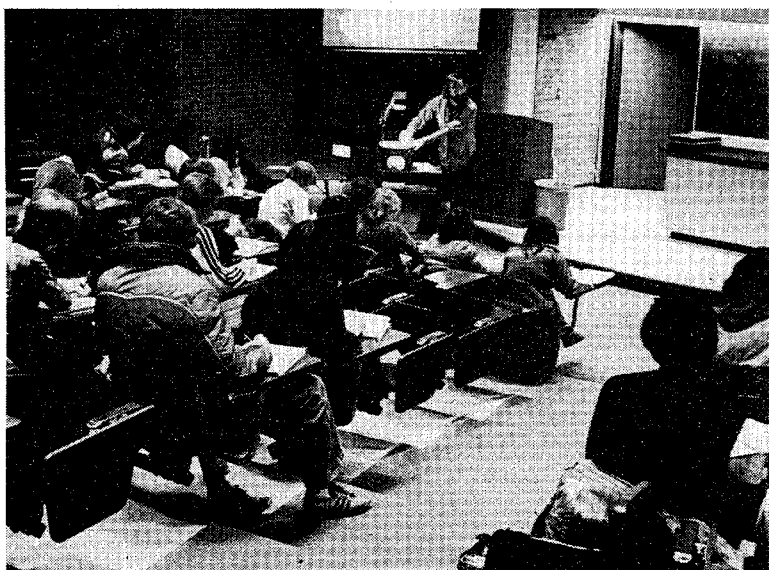
1. It is consistent with the College philosophy that regular class attendance is necessary if students are to receive maximum benefits from their work. Students are expected to attend all sessions of the classes for which they registered. The individual instructor may determine that the quality of the student's work has been adversely affected by absence or tardiness.

2. Students should explain the reason for the absence to their instructors.

3. It is the responsibility of the student to make up work missed because of any absence.

4. Students are required to be present at examinations in order to receive credit in a course.

***No person is allowed to attend a class unless officially enrolled on a credit or non-credit basis with the appropriate fees paid.***



**Withdrawal from the College:**

A student finding it necessary to withdraw from the College during the semester must initiate the withdrawal procedure in the Counseling Office.

Upon official voluntary withdrawal from the College, grades are assigned according to the Change of Enrollment section of this catalog.

In case of official voluntary withdrawal from the College, semester tuition and fees are subject to the refund policy shown under the Tuition, Fees, and Residency Policy section of this catalog.

A student who leaves the College during a semester without obtaining an official withdrawal may be reported as having failed all courses. The withdrawal procedure will not take place automatically for the student who leaves the campus because of illness, of either one's self or family member, but must be initiated by writing the Registrar's Office.

A student who leaves the College without withdrawing properly forfeits any tuition or deposits paid to the College.

**Dismissal:**

In the case of serious breaches of acceptable conduct, a student may be dismissed from the College with due process.

## **GRADUATION RECORD AND REQUIREMENTS**

**Graduation Requirements:**

To be eligible for the ASSOCIATE DEGREE a student must:

1. Complete a minimum of sixty credit hours (the last fifteen must be earned at Washtenaw Community College), including the specific subject or course requirements in the selected program. Certain programs may require more than the minimum of sixty credit hours—these must also be completed. Physical Education activity hours and credits in courses numbered 040 and below do not count toward graduation.

2. Complete three credit hours of English. (091 or 100 or 107 or 111 or 122)

3. Complete three credit hours of political science.

4. Earn a minimum cumulative grade-point average at Washtenaw Community College of 2.0.

5. File the Application for Graduation form at the time of registering for the final semester. This form is available from the Registrar's Office.

6. A second associate degree in an additional program area may be earned by re-enrollment and the completion of a minimum of fifteen credit hours, including all specific subject or course requirements in the selected program.

To be eligible for the CERTIFICATE OF ACHIEVEMENT a student must:



1. Complete a minimum of thirty credit hours (the last fifteen must be earned at Washtenaw Community College), including the specific subject matter or course requirements of the selected program. Certain programs may require more than the minimum of thirty credit hours—these must also be completed. Physical Education activity hours and credits in courses numbered 040 or below do not count toward graduation.

2. Complete three credit hours in speech or three credit hours in English.

3. Earn a minimum cumulative grade-point average at Washtenaw Community College of 2.0.

4. File the Application for Graduation form at the time of registering for the final semester. This form is available from the Registrar's Office.

Certificates are available only in certain study areas.

Commencement ceremonies for all Washtenaw Community College graduates are held in the month of June. The conferring of Associate Degrees, the granting of Certificates of Achievement, and the giving of honors highlight the graduation exercises. Students receiving the Associate Degree or the Certificate of Achievement are requested to participate in the commencement.

A hold may be applied to the graduation for a student who has an overdue indebtedness or other obligation to the College.

Requirements for graduation may be completed during any semester or session.

### **Academic Record (Transcript):**

A report of the student's grades in each course is sent to the student at the end of each semester.

A permanent record of all student's courses, credits and grades earned is kept in the Registrar's Office. Students should maintain a record of courses, credits and grades each semester and check from time to time to see that their records agree with those of the College. The record may also help students determine their eligibility for any activity which requires them to meet specific scholastic standards. Copies of the permanent record are available to the student upon request and payment of a small service charge. Completion of graduation requirements will be indicated on a student's transcript.

## **SPECIAL SERVICES**

### **Adult Resources Center (973-3528):**

This is a special drop-in center offering help for adults entering or re-entering school; making course, program and career decisions, or desiring personal counseling. The Center staff is especially sensitive to the concerns and needs of female and minority students.

Drop-in center hours for each semester will be posted on the ARC news board in the cafeteria area. The Center is located on the first floor of the Student Center Building, 4800 East Huron River Drive, Ann Arbor.

***Financial Aid Information on Special Programs:***

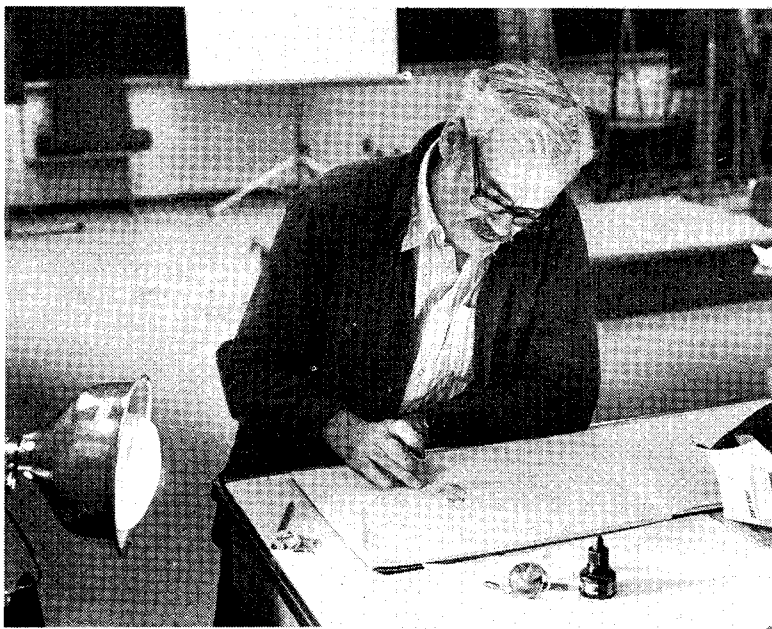
The State of Michigan Department of Education, Voc-Tech Department, offers tuition monies for students who meet certain qualifications such as re-entry into the labor market for homemakers required to work because of dissolution of marriage, up-grading of skills for the current labor market, and/or entry of women into careers traditionally held by men or by men into careers held by women. For further information, contact the Center at 973-3528.

Some WCC scholarships for a limited number of credit hours on a first-time at WCC basis are also available. Call 973-3528.

***Emeritus Program—Mature Adult Development (973-3528):***

Older adult county residents, aged 60 or older, and retired, have special opportunities at Washtenaw Community College as members of the Emeritus Program. Citizens may participate in any credit course or credit-free offering with tuition waived.

Emeritus participants may enroll for a credit class by following regular Registration procedures. If a credit-free offering is desired, contact the above number.



**Alumni Association (973-3313):**

The entire concept of the community college implies involvement with the community in which it exists. The college alumni are the single largest group in the community with direct ties to the college. These ties are fostered and maintained in the form of an active alumni organization. For information, call (313) 973-3313.

**Bookstore (973-3593):**

The College serves the student body and enhances the instructional program through the bookstore. Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. Costs are kept to a minimum based on the College goal of service to students. Located on the lower level of the Student Center Building, the bookstore is open daily. Please note that the Bookstore is unable to accept personal checks.

**Business and Industry Services—Institute of Economic Development and Job Training (973-3533):**

Office of Economic Development and Job Training provides a broad spectrum of training capabilities and services for both employers and employees. Coordinators are available to assist in the development of apprenticeship and other employee training programs. Special training programs may be developed and tailored to meet specific needs for groups or individual employees. Related instruction can be provided for most apprenticeable trades with the College coordinator 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 Bureau of Apprenticeship and Training, Department of Labor. The Related Instruction program is approved by both the Bureau of Apprenticeship and Training and the Michigan State Department of Education.

Office of Economic Development and Job Training also provides advising and counseling services for employees referred to the College by employers for upgrading, continuing education, or skill development.

**Career Placement Center (973-3558):**

Whether you are a new student, a continuing student, or a graduate student, you can profit from registering with the Career Placement Center which offers expanded areas of career planning, job finding assistance and employment opportunities:

Assistance with career planning on an individual or group basis is available through the Career Placement Center. The Career Placement Center offers the following services:

1. Placement of graduates
2. Placement of non-graduates seeking full-time career employment
3. Placement of college work-study students
4. Placement into off-campus part-time jobs
5. On-campus recruitment/interviewing

6. WCC placement bulletin boards
7. Special events: job fairs, apprenticeship information days, employer-educator conferences, etc.
8. Placement bulletins and publications—various publications that contain job listings, e.g., National Business Employment weekly, Computer World Magazine, Chronicle of Higher Education, Michigan Hospital Association Personnel Referral System, etc., and some out-of-state newspapers
9. Classroom visitations by Career Placement Center staff
10. Statistical information from Washtenaw County Employment Manpower Survey and from Graduate follow-up studies, etc.
11. Coordination of placement efforts with other community job or training oriented organizations, e.g., MESC (Job Service), CETA, CETA Private Industrial Council, WIN, Vocational Rehabilitation and other college placement offices
12. Other miscellaneous services upon request, e.g., high school visitations and speaking engagements to community and employer groups
13. Maintenance of a constant liaison and linkage with area employers
14. Employer visits

In conjunction with the Counseling Center, the Career Placement Center provides the following services:

1. Individual career counseling by appointment
2. Group career planning seminars
3. Career reference library
4. Transfer information

### **Career Planning (973-3464):**

Special services are available for persons who want help in making a career choice or in changing careers. A self-help guide to career planning called MOVING ON is now available. This workbook contains self-assessment exercises and information on goals, interests, values, skills, abilities, occupational exploration, and decision-making. The workbook can be purchased in the College bookstore for \$5.00. Interested individuals can also get one college credit for completing the work book. Those interested should register for SPS 102, Independent Study—Career Planning, and contact the instructor.

In addition, a three-credit career planning seminar (SPS 100) is available each semester. Other short-term workshops are available through the Adult Resources Center or Continuing Education Services. Look under the headings for these centers in the back of the time schedule each semester to see what is offered. Vocational testing and individual career counseling are also available in the Counseling Center, Room 227, Student Center Building. There is a Career Resource Room in the Counseling Center that contains information on jobs and educational programs. Hours of the Resource Room (231 Student Center

Building) are posted on the door. Persons are free to use the materials in the room.

Persons who want individual help or who have questions about career planning services should contact the Counseling Center or the Adult Resources Center.

### **Children's Center (973-3538):**

The Student Services Division provides a licensed children's learning and care center in the spacious Family Education Building. The center is proud of its comprehensive child development program which emphasizes the emotional, social, intellectual and physical development of the young child. The center is staffed by highly qualified teachers with extensive experience in early childhood education with additional love and care being provided by four foster grandparents.

The center serves a nutritious breakfast and an afternoon snack. Practicum students, in the Child Care Worker Program, provided additional new experiences for our children.

**Hours:** 7:30 a.m. to 5:30 p.m., Monday through Friday.

**Ages:** 1½ to 9 years (Children need *NOT* be toilet trained.)

**Attendance:** The center's first purpose is to care for children of WCC students and staff while parents are attending class, studying on campus or employed on campus. Children can also be cared for during non-peak hours for appointments and off-campus employment. A higher fee is charged for this time.



**Enrollment:** Children must be enrolled EACH semester. Children's Center enrollment follows the same daytime schedule as WCC registration. Enrollment papers can be picked up at the Children's Center office. Specific rooms will be closed to enrollment when hourly maximums are reached. We encourage you and your child to visit the Center before attending.

**Fees:** A non-refundable enrollment fee is charged at the time of enrollment each semester. Hourly fees are charged based on the age of the child and the family income. Copies of the fee schedule can be obtained at the Children's Center office in the Family Educational Building or college Information Desk, 2nd floor, Student Center Building.

**College in the Mall (973-3408):**

Washtenaw Community College, in cooperation with Briarwood Mall, offers credit courses as a part of its extension program. Classes will be held in the mall's Community Room. Students may register on campus during normal registration times, or on special registration days set up at the mall.

**College Newspaper (973-3376):**

*Focus* is the Washtenaw Community College newspaper for students. Students with talent in writing, graphics and photography are welcome to contribute and should contact the editor. The *Focus* office is at 232 Student Center Building.

**Continuing Education Services (973-3493):**

The Office of Continuing Education Services is the link through which the College extends its resources and facilities to business, industry, labor and the community. The special activities offered through this office provide continuing education and training for industry, government, and professional groups.

Continuing Education Services responds to requests from business, industry and labor. Courses/workshops are designed on a contractual basis for specific firms, agencies or organizations and are scheduled before, during, or after the workday, or on weekends at local firms, unions or community locations.

Continuing Education Services also offers opportunities for the general public to partake in life centered, lifelong learning. Individuals may explore new career options, increase their professional proficiency, and/or develop new skills and potential.

With its objective of continuing life education, Continuing Education Services provides real opportunities to meet the desire for an education focusing on life experiences in a way that recognizes the rapid changes and complexities of today's world. Continuing Education Units (CEUs) are offered for most programs as a measurement of the completion of an educational offering. One CEU is equal to ten hours of classroom participation.

**Counseling Center (973-3464):**

Counselors are available at the Counseling Center Monday through Friday, 8:00 a.m.–12:00 noon, 1:00 p.m.–5:00 p.m. During the fall and winter terms the Counseling Center is also open from 6:30–8:30 p.m. Monday through Thursday evenings. The schedule of evening hours during the spring and summer terms as well as during semester breaks and holiday periods will vary. Contact the Counseling Center for specific scheduling during these times. Each student is assigned to a counselor who will discuss career goals and plan a program of classes at the College.

Counselors aid students in clarifying their vocational objectives. Interest inventories can be administered and reference made to the extensive occupational information which is available to students. In order to aid the student in planning for his or her future education, an extensive collection of college catalogs is maintained in the Counseling Center.

The professionally trained counseling staff will work with students experiencing personal or emotional problems or may refer them to the appropriate agency or service in the community for specialized assistance.

Counseling services include providing a career resources information room, career planning seminars, G.E.D. testing, transfer information, and tutorial assistance.

All students are encouraged to utilize the services provided by their counselors. Counselors are available for all part-time, full-time, day, and extended-day students at the College.



The entire faculty of Washtenaw Community College has a major commitment to help each individual student pursue a course of study planned to fulfill his or her goals. In order to accomplish this, instructors are committed to assisting students on an individual basis. Students are encouraged to confer with their instructors when problems or questions arise.

**Culinary Arts Dining Room (973-3584):**

The Culinary Arts Dining Room (Artists' Gallery Dining Room) is located on the first level of the Student Center Building next to the Cafeteria. Students staff the kitchen and dining room earning credit in the Hospitality courses. The dining room is open for service to students and the general public Monday through Thursday during the lunch hour.

**Dental Clinic (973-3337):**

The College has a complete, modern dental clinic which is open to students, faculty and staff during the Winter and Spring-Summer terms on Tuesdays and Thursdays from 8:00 a.m. until 12:00 noon and from 1:00 to 4:00 in the afternoon. A non-profit nominal fee schedule has been set to cover basic costs of materials. Treatment is given by University of Michigan dental students under the supervision of a licensed dentist. They are assisted by College dental assistant enrollees. Primary types of treatment include x-rays, oral prophylaxis and minor operative treatment. To make all appointments, stop by the clinic in LA325 or call staff at 973-3337.

**Drama Group, The College Players (973-3625):**

The College Players is a drama group at the College, open to all students regardless of major area of study. The group is a touring one which presents plays each year to between 6,000 and 7,000 people. Presentations have expanded to include two major three-act productions as well as children's theatre. Other performances are given for





area hospitals and schools. Community groups requesting performances should contact Dr. William Devereaux at the College. Interested students are invited to sign up at the beginning of each semester, stop by the theater in the Liberal Arts and Sciences Building or call drama staff at the above number.

### **Extension Centers and Evening and Weekend Programs (973-3405):**

In an effort to better serve its students, Washtenaw Community College offers many of its credit courses throughout the college district in cooperation with local high schools and other institutions. A minimum enrollment of 10 students is required for each class. Students may register on campus during normal registration times or on special registration days set up at the sites. These sites include various locations in Ann Arbor, and the high schools in Ann Arbor, Brighton, Chelsea, Dexter, Hartland, Manchester, Milan, Saline, Whitmore Lake, Willow Run, and the Ypsilanti Community Center Building.

### **Family Education Program (973-3493):**

In an effort to provide support to the family, Washtenaw Community College offers a series of credit and credit-free courses and activities aimed toward assisting the family unit and individual family members to meet their real life needs. Many of these courses and activities will be co-sponsored with community-based human services agencies.

Fees for credit-free offerings are calculated for *each* adult. One parent and one additional family member under 18 years of age are allowed on one registration in workshops labeled "parent/child" or "parent/adolescent". Children must be accompanied by parent. Classification of *child* is school age (5 years) and up. Classification of *adolescent* is 11 years of age and up.

Registration for credit-free offerings is handled by the Continuing Education Services office at 973-3493.

### **Financial Aid (973-3525):**

The Financial Aids Office at Washtenaw Community College exists to help students with financial difficulties they may encounter while attending Washtenaw Community College. The main function of the Financial Aids Office is to provide financial assistance to students who are in need of additional funds to attend college. Washtenaw Community College administers the major federal financial aid programs and provides support of the many state, institutional and private sources of financial assistance.

In addition to determining students' needs for monetary assistance and administering financial aid to students, the office also provides many other resources to students to help them exist on limited budgets while attending college, such as referrals to community agencies.

Students are invited to stop in to see the staff on the second level of the Student Center Building or to call (313) 973-3525, whenever they have any questions concerning financial assistance.

### **How to Apply for Aid:**

The bulk of financial aid awards are made to students in July and August, prior to the beginning of the Fall Semester. Students who wish maximum consideration for financial aid should have applications in the Financial Aids Office by the following dates, in order of priority: Fall Semester: March 1; Winter Semester: November 1; Spring-Summer Semester: March 1. Applications received after these dates will be processed only as staff time and funding allows.

Most programs of financial assistance at Washtenaw Community College are jointly sponsored with the federal government and are based on a student's financial "need." Need is determined by calculating a student's expected family contribution and subtracting this from the appropriate standard expense budgets, which include adequate minimum amounts for costs of tuition, books and supplies, transportation, room and board, and personal expenses.

### **Financial Aid Programs:**

A student must meet the following eligibility requirements to receive financial aid at Washtenaw Community College:

1. Must carry at least six (6) credit hours per semester.
2. Must be U.S. citizen or permanent resident.
3. Can receive aid for no more than six semesters at Washtenaw Community College.
4. Must be of undergraduate status.
5. Must show need.

In addition, different aid programs have specific requirements. In packaging aid for a student, the student is generally expected to accept some type of self-help—either a loan or a job—before grant aid is awarded.

### **Pell Grant (formerly B.E.O.G.):**

This program provides direct student grants of up to \$2,000 minus expected family contribution. The maximum dollar value of these awards is also limited to 50% of the established school budget, or amount of demonstrated need, whichever is least. Applicants wishing consideration for the academic year must submit the application prior to March 1 of that academic year.

### **Supplemental Educational Opportunity Grant Program:**

The Supplemental Educational Opportunity Grant provides funds to supplement self-help resources such as loans and work for those who have greatest financial need. Students are eligible to receive SEOG funds only after all other sources of aid have been exhausted for that individual and if the student would be unable to attend the institution without the grant aid. The grant can meet up to one-half the student's financial need (up to \$1500) and must be matched by funds from another aid program controlled by the school. Students who complete the applications for financial assistance will be considered for the SEOG if they are eligible.

**Trustee Awards:**

Trustee Awards are scholarships made available by the Board of Trustees of Washtenaw Community College to assist students with financial need who may not be eligible for other types of financial assistance or who do not receive enough assistance from other sources to meet their entire financial need.

**Scholarships:**

Most academically-based scholarships at Washtenaw Community College come in the form of donations from groups outside the College who wish to help meet one or more students' educational costs. Only a few scholarships are available each year which are awarded through the college. Students are chosen for these scholarships on the basis of academic achievement and financial need as well as particular requests made by the donating group.

**National Direct Student Loan Program:**

The NDSL program provides loan funds of up to \$1500 per academic year and up to \$5000 for four years of study.

Repayment at 5% interest normally begins nine months after a student ceases to be at least a half-time student at Washtenaw Community College, and may be extended over a ten-year period. Repayment deferment options are available if the student enrolls in another college or university or enters the Peace Corps, VISTA, or Military Service. In certain situations, a portion of the loan may be cancelled for full-time teaching in a formally defined "disadvantaged" school setting, full-time teaching of the handicapped, full-time educational position in an approved pre-school program, and full-time military service in an active combat zone.

Students must complete the application for financial aid and must demonstrate need to be eligible for the NDSL program.

**College Work-Study Program (CWS):**

The College Work-Study Program provides jobs for students with financial need for up to twenty hours a week on the Washtenaw Community College campus or in nonprofit community agencies. This earn-while-you-learn program helps to provide many students with the financial resources to pay for the direct and indirect expenses necessary for attending college.

Students must complete the application for financial aid and must demonstrate need to be eligible for the College Work-Study Program.

**Community Scholarships:**

**High School Merit Scholarships:** High School Merit Scholarships will be offered by Washtenaw Community College to each of the county high schools based upon student's academic performance and the type of activities in which they participated during their high school years. Each county high school will be granted one High School Merit Scholarship which will be for the cost of tuition for a Fall and Winter Semester,

plus \$100.00 per semester for books and supplies.

Applications for the High School Merit Scholarship Program will be accepted from high school seniors during the Winter Semester. Selections will be made by May 15.

**Community Merit Scholarships:** Community Merit Scholarships will be offered by Washtenaw Community College to students selected from various communities. These Merit Scholarships will be for a period of one academic year (Fall and Winter Semesters). They will include the cost of tuition for the selected students as well as \$90.00 per semester for books and supplies.

Applications for the Community Merit Scholarship will be accepted during the Winter Semester or Spring Term and final selection will be made by June 15. Applicants will be asked to submit an application and a copy of their high school and college transcripts before May 15. Criteria for selection will consist of the following: (1) Significant contribution to community, (2) Previous grades (3) Vocational goals (4) Recommendation from community organizations or groups.

**Start-Up Scholarships:** A major goal of Washtenaw Community College is to provide educational opportunity for adults who are entering college several years after completing high school or other schooling. Some of these individuals need financial assistance in order to return to the mainstream of the educational system. In order to accomplish this, the college will provide "Start-Up" tuition scholarships to part-time students. Students may receive aid for a maximum of five credit hours. Each recipient will receive a tuition scholarship for the first semester of attendance only.

Selection of persons will be on the basis of financial need, demonstrated occupational objectives, and potential to succeed in a chosen career.

**Emeritus Scholarships:** This scholarship program is designed for persons over age 60 and retired. These scholarships would make it possible for retired persons to participate in college courses without cost.

#### **Student Expenses:**

Students are expected to live at a modest standard while attending college. Student budgets are determined yearly in an attempt to define realistic figures relating to student expenses in the Washtenaw County area.

Tuition is \$27.00 per credit hour for Washtenaw County residents, \$44.00 per credit hour for out-of-county residents, and \$58.00 per credit hour for out-of-state students. Books and supplies are estimated at \$200 for two semesters.

#### **Additional Programs:**

**Guaranteed Student Loan Program (MHEAA Loan):** Provides loans to half and full-time students through lending institutions such as banks, which are guaranteed by the Michigan Department of Education against the borrower's death, permanent disability, or default. Application forms

are obtained directly from a lender who participates in the program and is willing to make a loan to the particular student. The student completes the application and submits it to Washtenaw Community College which verifies enrollment, academic standing, etc. The Student Financial Services Office returns the forms to the lender which sends them to the Michigan Department of Education for guarantee approval. After approval, the student lender and Washtenaw Community College are notified if the loan is approved. Undergraduates may borrow a maximum of \$2,500 if full-time and \$1,250 if part-time. The maximum interest rate charged to the student is 9% simple interest which begins the day the loan proceeds are disbursed.

**Scholarships:** The State Scholarship Program currently measures academic potential on the basis of performance on the ACT Exam. Applicants with qualifying academic credentials are screened on the basis of financial need and other program requirements. Those found eligible may receive up to the amount of demonstrated need, the amount of tuition or \$1,200 per academic year, whichever is least.

**Washtenaw Community College Deferred Tuition Loan:** Deferred tuition loans are available to spread out tuition for students over the first four weeks of the semester. A down payment is required and the balance of the loan is to be paid within four weeks. Students must be able to demonstrate the ability to pay the tuition. Applications are available during the registration period in the Financial Aids Office.

### **Housing:**

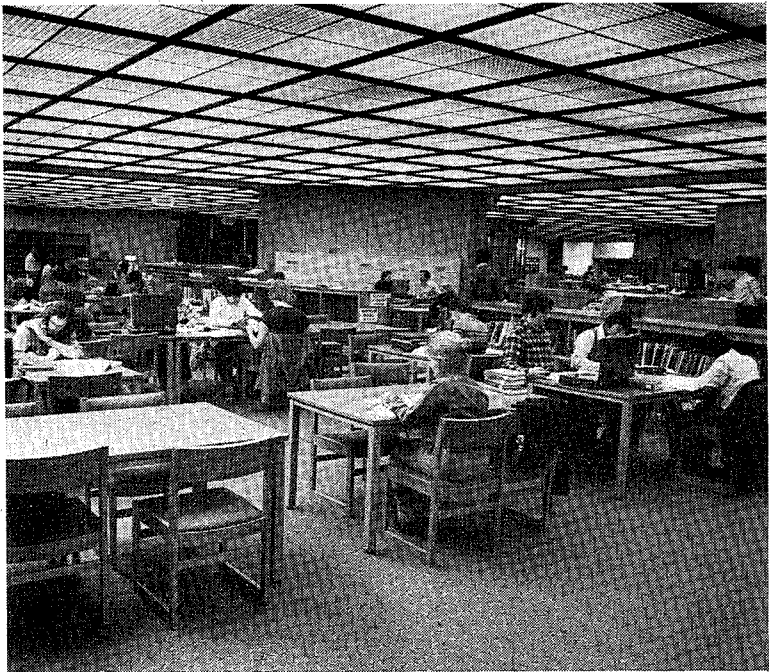
The College is primarily an institution for commuting students; therefore, no dormitory facilities are provided. A list of apartment locations available within a short distance from the College is available from the Information Center in the Student Center Building.

### **Institute for Economic Development and Job Training (973-3352):**

The College's Institute has been established for the purpose of creating job training programs requested by area businesses, industries and other employers. The College is supporting the economic development activities of the Washtenaw County area by providing job training programs and other educational services:

- Providing short-term training programs in specific job categories when requested by existing or new firms and organizations.
- Offering associate degree and certificate programs in a wide range of occupational areas.
- Providing continuing education programs for employers who wish to upgrade or improve the job skills of specific employee groups.
- Working with other community groups to attract new firms to the area and to support the expansion efforts of existing firms.

A wide range of possibilities exist. The College can assist employers by drawing upon the resources of its established occupational programs in Business and Management careers, Human Service Careers, Health Careers, Technical and Industrial Careers.



**Learning Resource Center (973-3429):**

The Learning Resource Center is an integral segment of the total Washtenaw Community College learning environment. As the materials center of the College, the Learning Resource Center offers students and faculty the opportunity to use a collection of over 50,000 books, nearly 10,000 pamphlets and clippings, over 500 magazines, 20 newspapers, 500 college catalogs, and a growing collection of such audio-visual items as cassette tapes, video-tapes, 16mm films, records, slides, and film-strips.

Faculty and librarians select the best of current and retrospective materials to respond to students' curriculum needs and extracurricular interests to keep information up to date, and to present varying viewpoints on subjects and issues. To help students use the Learning Resource Center, the librarians provide group instruction and assist in independent study activities.

Learning Resource Center facilities include small seminar rooms, traditional study tables, informal lounge seating, and carrels specially equipped for the use of tapes, slides and similar audio-visual materials. Learning Resource Center staff help students use this equipment.

If needed materials are not available in the Learning Resource Center, the staff can usually arrange, on request, to borrow the materials from another library.

**Math Center (973-3392):**

The Math Center is a mathematics center which serves as:

1. The meeting place for self-paced mathematics classes (039, 090, 097AB, 110, 163, 165, 169AB, 177, 178 and 179AB). Each self-paced mathematics class is designated in the Time Schedule with the symbol (+).

2. The place where mathematics placement tests are administered. These placement tests help the student decide the level of mathematics at which to begin. Students are usually referred for placement testing by self, counselors, or instructors.

3. An open area of study for mathematics classes. Students so studying may seek help on specific mathematics problems from available instructors. However, the first responsibility of an instructor is to the students in his or her class.

4. An information center regarding mathematics courses, procedures, policies, schedules, etc.

**Special Services Program (973-3464):**

The Special Services Program provides services to handicapped, 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.

The program is coordinated through the Counseling Office and is a part of the Student Services Division. For additional information and eligibility for services, contact the Counseling Office.

**Reading Center (973-3301):**

The Reading Center laboratory is designed to improve the student's reading and learning skills. Students enrolled in reading classes are encouraged to use the facility regularly during the semester. Those not enrolled in reading classes may be referred for individual help. In addition to classes in Basic Reading, Spelling and Vocabulary Power, Study Skills and Speed Reading, the Center provides individual help for those who come to the Center in the Student Center Building.

**Refugee Education Program (973-3315):**

The Refugee Education Program offers English as a Second Language class for all refugees living in Washtenaw County. The Program also assists refugees in adjusting to the American culture. Class emphasis is placed on topics which increase employability and ease assimilation.

If you are in need of any of these services or would like to contribute your talents or ideas, please come by our office in Room 200 of the Liberal Arts and Sciences Building or call 973-3315.

**Student Center:**

Food services, a spacious lounge and meeting rooms are located on

the first level of the Student Center Building. A casual lounging area provides a full-service cafeteria as well as vending machines for snacks, light lunches and beverages for students.

### **Student Government and Programs (973-3313):**

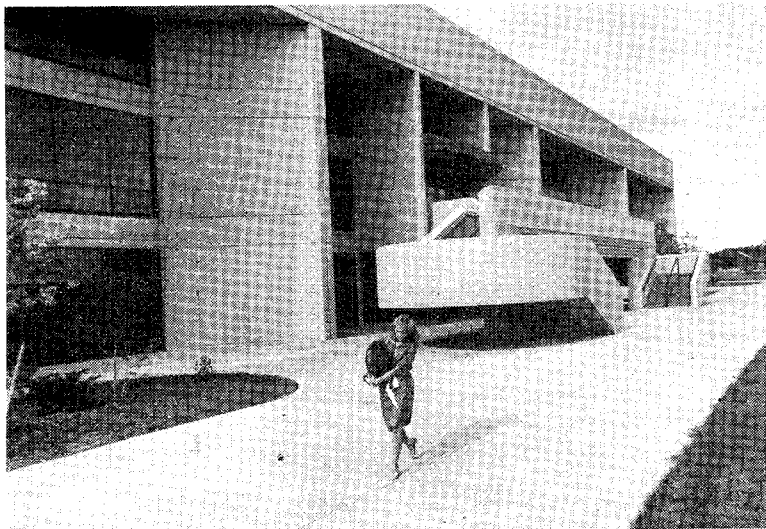
The College offers students an opportunity to carry forward their existing interests and to explore new ones. The students' college life is enhanced by involvement in student organizations which allow them to enjoy a wide range of physical, intellectual and social interests. Groups of students organize activity clubs and organizations with the assistance of the Office of Student Programs.

As a part of Student Programs, the College brings to the campus each year a Program Series which includes outstanding speakers, music and theatrical performances. These programs are open to the student body and to the community without charge.

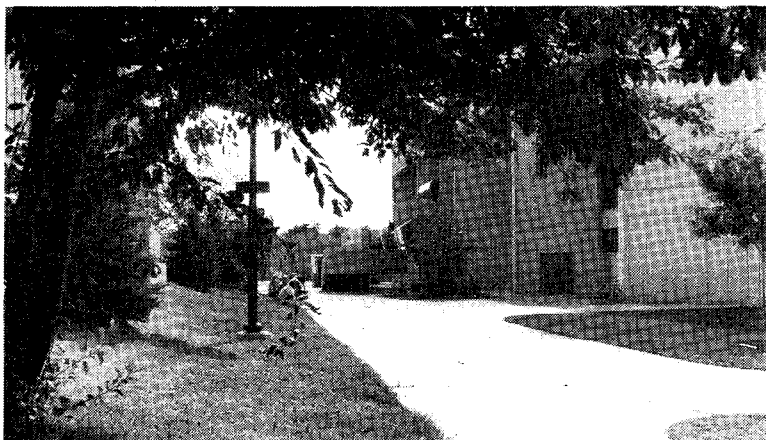
### **Student Insurance:**

Washtenaw Community College does not sponsor health, life, and/or accident insurance coverage by any particular agency or company. However, a comprehensive sickness and accident insurance plan is available from a private carrier for students who are interested in this coverage. Full-time students will receive information about the plan at the beginning of the Fall Semester. Additional information concerning the insurance program may be obtained by calling the Security Office at 973-3502.

### **Student Publications** (See College Newspaper)







### **Television Courses (973-3671):**

Washtenaw Community College offers courses on television to be viewed at home which may be taken for college credit. Registration for telecourses is completed in the same manner as all other academic credit classes.

Telecourses are aired over public television stations and area cable network stations. Actual airing times are available by calling the TELECOURSE HOTLINE (973-3671) and leaving your name, address, and short message on the recorder.

All students enrolled in a telecourse are required to attend an on-campus orientation session/first class meeting. There are also periodic on-campus meetings arranged with the instructors. The orientation session will cover information on how to contact instructors, assignments, testing requirements, textbook and study guide information.

### **Tutoring (973-3464):**

Washtenaw Community College offers a program in Peer Tutoring. The tutors are chosen from the current student body. Students who wish to help other students, to reinforce one's own knowledge and to get paid for doing it should contact the Counseling Office for further information. The Counseling Office is located in Room 227, Student Center Building.

### **Veteran Services (973-3479):**

The Veteran's Affairs Office, second level, Student Center Building, is qualified to handle all veteran matters. Specialized veteran counseling offers academic, personal and career advisement, interpretation of military records, and discharge up-grade counseling. Appropriate agency referral service is available when necessary.

It is the Veterans' Affairs Office major responsibility to assure the veteran has someone whose only concern and responsibility is the veteran's welfare during his time at Washtenaw Community College.

**Washtenaw County Vocational Articulation (973-3629):**

Articulation is the process which allows high school graduates to receive WCC credit for high school vocational training.

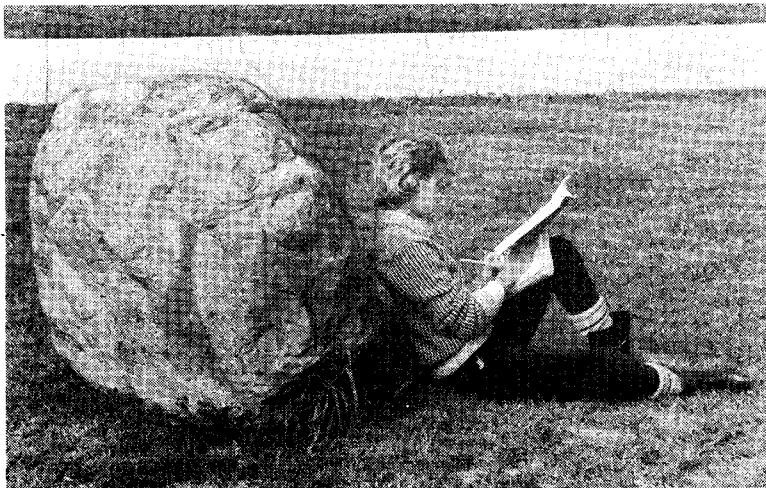
Graduates from Washtenaw County high school vocational programs may apply for advanced placement credit at WCC in these programs: Automotive Service, Electrical-Electronics, Culinary Arts, Secretarial, Child Care Worker, Mechanical Technology and Welding and Fabrication.

The Articulation Agreement provides that students may receive up to nine (9) credits towards a certificate program at WCC and up to eighteen (18) credits towards an Associate Degree program. The number of WCC credits granted for high school vocational training is dependent upon each student's high school performance record in a particular vocational program.

Students interested in applying for articulated credit should speak to their high school vocational instructor and/or a counselor. The tuition for articulated credit(s) is waived.

**Women's Studies and Resources (973-3493):**

In order to meet the diverse educational and occupational needs of the increasing numbers of adult women students, several areas of Washtenaw Community College have cooperated with Continuing Education/Community Services to present a variety of courses, workshops, seminars and special events. These offerings are planned to assist women to set goals, make career decisions, learn their rights, be more aware of their world, effect change and take action. Students may register for credit course offerings by following the Registration procedures. Credit-free offerings are handled by the Community Services office at 973-3493.





### **Writing Center (973-3647):**

The Writing Center is located in the third floor of the Student Center Building. It is the area where English Composition and Literature courses are taught and where the writing "lab" sessions are held. The walk-in service is designed to accommodate students who come in for help with their writing skills. They may be self referred or sent in through any campus source. There is neither credit assigned nor a fee charged for this service.

Students may elect a one credit hour individualized course that is taught in the Writing Lab: English 010—Writing Practicum.

## **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.

b. This document was prepared on October 1, 1983 and is subject to change without prior notice.

c. This Catalog is intended to be used with the *Schedule of Classes*, published each term, which provides more recent information on courses as well as College regulations and more details on the academic calendar and procedures.

Details concerning new developments and changes in occupational programs are available through the College Counseling Center.

## **AFFIRMATIVE ACTION / NON-DISCRIMINATION**

It is the policy of Washtenaw Community College not to discriminate on the basis of sex or race in admissions or in the operation of any educational program or activity. Any inquiries should be directed to Title IX Coordinator.

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# BUSINESS AND MANAGEMENT CAREER PROGRAMS

## ACCOUNTING CAREERS

### Accounting

**Two-Year Program: Code 521**

**Advisors: Paul C. Kokkales, Norma Meyers and Clifford M. Bellers**

A two-year program providing career training as an accounting technician. Accounting technicians perform relatively 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 technician 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. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
	1	BUS 140 Introduction to Business	3
	1	ACC 111 Principles of Accounting	3
	2	CIS 111 Computer Concepts*	3
	2	CIS 112 Computer Functions*	3
	1	MTH 163 Business Mathematics or	
		MTH 167 Finite Mathematics or	
		Mathematics Elective	3
	5	ENG 111 English Composition I	4
			19
<b>Second Term</b>			
	2	ACC 122 Principles of Accounting	3
	5	SO 130 Business Machines	3
	5	ENG 122 English Composition II	3
	5	SPH 101 Fundamentals of Speaking	3
	8	PLS 150 State and Local Government and Politics	3
			15
<b>Third Term</b>			
Fall		ACC 213 Intermediate Accounting	3
	6	BUS 111 Business Law	3
	6	EC 211 Principles of Economics	3
	2	BUS 207 Business Communications	3
	3	MGT 230 Supervisory Management	3
			15
<b>Fourth Term</b>			
Wtr		ACC 225 Principles of Cost Accounting	3
	6	MGT 200 Human Relations in Business and Industry	3
	7	EC 222 Principles of Economics	3
	7	FIN 220 Principles of Finance	3

8	IE 200	Internship-Externship or Business Elective**	3
			<u>15</u>

**Total Credit Hours for Program: 64**

- \*Meets 6 hours per week for 7½ weeks.
- \*\*BUS 122 Business Law
- \*\*ACC 200 Personal Tax Accounting
- \*\*Other Electives with Program Advisor Consultation

## COMPUTER INFORMATION SYSTEMS

### Business Computer Programmer

Two-Year Program: Code 531

**Advisors: Charles A. Finkbeiner, Usha Jindal, Lawrence Krieg,  
Arlene Paup, John Rinn and John R. Wotring**

A two-year program intended for the preparation of entry-level or trainee computer programmers who will work in an applications environment to support the general, administrative and organizational information processing function of industry, commerce, business and government service.

Graduates should be able to work with a systems analyst in the programming environment usually found in a medium to large installation.

Part-Time Sequence**	Full-Time Sequence	Description	Hrs.
<b>First Term</b>			
	CIS 111	Computer Concepts	3
	CIS 112	Computer Functions	3
	MTH 169	Intermediate Algebra	4
	ACC 111	Principles of Accounting	3
	PLS 108	Government and Society	<del>3</del> 3
			<u>16</u>
<b>Second Term</b>			
	CIS 115	Programming Logic	3
		A Course in PASCAL***	3
	ACC 122	Principles of Accounting	3
	BUS 111	Business Law	3
	MTH 160	Basic Statistics	4
	SPH 101	Fundamentals of Speaking	3
			<u>19</u>
<b>Third Term</b>			
	CIS 271	Introduction to COBOL	3
	CIS 272	Intermediate COBOL	3
	ENG 100	Communication Skills	4
	MGT 200	Human Relations in Business and Industry	3
		*Choose two approved CIS electives from below	6
			<u>19</u>
<b>Fourth Term</b>			
	CIS 273	Advanced COBOL	3
	EC 211	Principles of Economics	3

CIS 199	On-The-Job Training	3
	*Choose two approved CIS electives from below	<u>6</u>
	<b>*Approved CIS Electives</b>	<u>15</u>
	A Course in Computer File Design***	3
CIS 282	Data Base	3
CIS 284	Data Communications	3
CIS 286	Operating Systems	3
	A Course in Systems Analysis and Design***	3
	One Programming Language course	3

**Total Credit Hours for Program: 69**

\*\*An advisor can suggest a part-time sequence.

\*\*\*Specific courses and content under review by curriculum committee at time of this printing.

**Small Business Systems Programmer**

**Two-Year Program: Code 531**

**Advisors: Charles A. Finkbeiner, Usha Jindal, Lawrence Krieg  
Arlene Paup, John Rinn and John R. Wotring**

A two-year program designed to meet the special needs of expanding micro computer applications to business data processing. The student will be exposed to several micro computer systems, several languages and will analyze and design small business systems. This curriculum prepares the student for employment as a programmer/analyst/operator in a small installation.

Part-Time Sequence**	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
	CIS 111	Computer Concepts	3
	CIS 112	Computer Functions	3
	MTH 169	Intermediate Algebra	4
	ACC 111	Principles of Accounting	3
	PLS 108	Government and Society	3
			<u>16</u>
<b>Second Term</b>			
	CIS 115	Programming Logic	3
		A Course in PASCAL***	3
	ACC 122	Principles of Accounting	3
	BUS 111	Business Law	3
	MTH 160	Basic Statistics	4
	SPH 101	Fundamentals of Speaking	3
			<u>19</u>
<b>Third Term</b>			
		A Course in Advanced PASCAL***	3
	ENG 100	Communication Skills	4
	MGT 200	Human Relations in Business and Industry	3
		*Choose two approved CIS electives from below	6
			<u>16</u>



**Fourth Term**

	A Course in Principles of BASIC***	3
CIS 199	On-The-Job Training	3
EC 211	Principles of Economics	3
	*Choose three approved CIS electives from below	6
		<u>15</u>
	<b>*Approved CIS Electives</b>	
CIS 238	Assembler	3
	A Course in Computer File Design***	3
CIS 282	Data Base	3
CIS 284	Data Communications	3
	A Course in Systems Analysis and Design***	3
	One Programming language course	3

**Total Credit Hours for Program: 69**

\*\*An advisor can suggest a part-time sequence.

\*\*\*Specific course and content under review by curriculum committee at time of this printing.

**Computer Systems Operator****One-Year Program: Code 531**

**Advisors: Charles A. Finkbeiner, Usha Jindal, Lawrence Krieg  
Arlene Paup, John Rinn, and John R. Wotring**

A one-year program designed to develop skills and knowledge necessary to meet demands of computer operations in any data processing environment. Typical operator-trainee categories include RJE terminal operator, mini-computer operator, I/O or peripheral device operator and junior computer operator. The program includes both classroom and laboratory work.

<b>Part-Time Sequence**</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
	<b>First Term</b>		
	CIS 111	Computer Concepts	3
	CIS 112	Computer Functions	3
	CIS 141	Computer Operations I	3
	MTH 163	Business Math	3
	ENG 100	Communication Skills	4
			<u>16</u>
	<b>Second Term</b>		
	CIS 142	Computer Operations II	3
	CIS 199	On-The-Job Training	3
	MGT 200	Human Relations in Business and Industry	3
	PLS 108	Government and Society	3
		*Choose one approved CIS electives from below	3
			<u>15</u>
		<b>*Approved CIS Electives</b>	
	CIS 238	Assembler	3
		A Course in Computer File Design***	3
	CIS 282	Data base	3

CIS 284	Data Communications	3
	A Course in Systems Analysis and Design***	3
	One Programming language course	3

**Total Credit Hours for Program: 31**

\*\*An advisor can suggest a part-time sequence.

\*\*\*Specific course and content under review by curriculum committee at time of this printing.

## BUSINESS CAREERS

### Management

**Two-Year Program: Code 541**

**Advisors: Gwen Arnold, Robert C. McNally, Robert W. Paulson,  
Frank Ross, Ronald Zeeb**

A two-year program providing career training as a management technician. This person provides services to customers of manufacturing establishments by rendering technical, marketing, and other advice; supplies information regarding handling, contents, and technical uses of product; consults with department managers concerning problems of packaging, customer specifications, and competitive product information; assists sales force in promotional activities, submits reports on product consumption; investigates consumer complaints and attempts to remedy situation; surveys potential markets and new uses of products; usually specializes in servicing customers of one product or a group of closely related products. *Average employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	BUS 140	Introduction to Business	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
2	MGT 160	Principles of Salesmanship	3
1	ENG 111	English Composition I	4
1	MTH 163	Business Mathematics or Mathematics Elective	3
			16
<b>Second Term</b>			
2	MGT 208	Principles of Management	3
4	CIS 100	Introduction to Computers or	
	CIS 111	Computer Concepts*	3
2	ENG 122	English Composition II	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
5	BUS 111	Business Law	3
8	SPH 101	Fundamentals of Speaking	3
			18
<b>Third Term</b>			
3	MGT 150	Labor Management Relations	3
7	BUS 207	Business Communication	3
2	EC 211	Principles of Economics	3

8	PLS 150	State and Local Government Business Elective**	3 <u>3</u> 15
<b>Fourth Term</b>			
6	MGT 200	Human Relations in Business and Industry	3
6	MGT 240	Personnel Management	3
3	EC 222	Principles of Economics	3
2	MGT 250	Principles of Marketing	3
	FIN 220	Principles of Finance	3
			<u>3</u> 15

**Total Credit Hours for Program: 67**

Student may elect additional courses in data-record operations.

\*Meets 6 hours per week for 7½ weeks.

**\*\*RECOMMENDED ELECTIVES:**

BUS 107	Women in the Workplace	1
BUS 122	Business Law	3
IE 200	Internship/Externship	3
MGT 230	Supervisory Management	3

**Sales**

**One-Year Program: Code 543**

**Advisor: Frank Ross, Ronald Zeeb**

A one-year program offering 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 may include display preparation, inventory analysis and basic market research. *Average employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	BUS 140	Introduction to Business	3
1	MTH 163	Business Mathematics or Mathematics Elective	3
2	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
3	SPH 101	Fundamentals of Speaking	3
4	PSY 100	Introductory Psychology	3
			<u>3</u> 16
<b>Second Term</b>			
4	MGT 250	Principles of Marketing	3
3	MGT 160	Principles of Salesmanship	3
5	MGT 200	Human Relations in Business and Industry	3
5	BUS 111	Business Law	3
2	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
6	IE 200	Internship-Externship or Business Elective	3
			<u>3</u> 18

**Total Credit Hours for Program: 34**

**Marketing**  
**Two-Year Program: Code 542**  
**Advisors: Robert Paulson, Frank Ross, Ronald Zeeb**

A two-year program developing students for career opportunities in the field of marketing. Such opportunities may be in any one of the marketing activities that involves the moving of products or services from producer to consumer. This program provides students with a basic education in the marketing discipline, leading to entry or mid-level positions, ranging from industrial sales to retail buying. It will emphasize such skills as sales technique, advertising, sales management, human relations, distribution, administrative and record management. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	BUS 140	Introduction to Business	3
1	MTH 163	Business Mathematics or Mathematics Elective	3
2	ENG 111	English Composition I	4
7	MGT 160	Principles of Salesmanship	3
3	SPH 101	Fundamentals of Speaking	3
2	CIS 100	Introduction to Computers or	
	CIS 111	Computer Concepts*	3
			<u>19</u>
<b>Second Term</b>			
2	CIS 112	Computer Functions*	3
1	MGT 150	Labor Management Relations	3
	ENG 122	English Composition II	3
6	BUS 111	Business Law	3
	PLS 150	State and Local Government and Politics	3
			<u>15</u>
<b>Third Term</b>			
5	MGT 200	Human Relations in Business and Industry	3
3	BUS 207	Business Communications	3
5	EC 211	Principles of Economics	3
3	MGT 250	Principles of Marketing	3
4	MGT 208	Principles of Management	3
5	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
			<u>18</u>
<b>Fourth Term</b>			
7	MGT 260	Sales Management	3
8	MGT 270	Advertising Principles	3
6	EC 222	Principles of Economics*	3
8	IE 200	Internship-Externship or Business Elective	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
			<u>15</u>
<b>Total Credit Hours for Program: 68</b>			

Student may elect additional courses in data-record operations.  
 \*Meets 6 hours per week for 7½ weeks.

**General Administration**  
**Two-Year Program: Code 551**  
**Advisors: Gwen Arnold, Robert W. Paulson, Ronald Zeeb**

A two-year program providing career training as a public administration technician. The program is designed to prepare the students for careers at the administrative management support level in national, state, or local public service organizations. It provides valuable preparation for the student who intends to engage in occupational activity related to public services or voluntary organizations interested in the objectives and problems of government which includes such groups as unions, the chamber of commerce, business and industrial associations, and citizen research organizations. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	BUS 140	Introduction to Business	3
2	PSY 100	Introductory Psychology	3
1	MTH 163	Business Mathematics	3
1	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
3	MGT 100	Leadership Attitudes and Motivation	2
			<u>15</u>
<b>Second Term</b>			
3	SOC 100	Principles of Sociology	3
2	PLS 150	State and Local Government and Politics	3
3	BUS 111	Business Law	3
2	ENG 111	English Composition I or	3-4
	ENG 122	English Composition II or Elective**	
	MGT 208	Principles of Management or	
	MGT 110	Organizational Leadership	3
			<u>15-16</u>
<b>Third Term</b>			
5	SPH 101	Fundamentals of Speaking	3
4	CIS 100	Introduction to Computers or	
	CIS 111	Computer Concepts*	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
4	BUS 207	Business Communication	3
4	MGT 210	Organizational Management or	
		other Business Elective	3
			<u>15</u>
<b>Fourth Term</b>			
6	EC 111	Consumer Economics or	
	EC 211	Principles of Economics	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
6	MGT 240	Personnel Management	3
7		Elective**	3
8		Elective**	3
			<u>18</u>

**Total Credit Hours for Program: 64-65**

\*Meets 6 hours per week for 7½ weeks.

\*\*Electives may be chosen from the following recommended courses:

BUS 107	Women in the Workplace	1
MGT 200	Human Relations in Business and Industry	3
MGT 150	Labor-Management Relations	3
PSY 209	Psychology of Adjustment	3
CIS 105	Microcomputer Programming for Beginners	2
CIS 112	Computer Functions	3
MGT 210	Organizational Management	3
ECON 222	Principles of Economics	3
MGT 230	Supervisory Management	3

## SECRETARIAL AND OFFICE CAREERS

### Clerk-Typing

One-Year Program: Code 562

Advisors: Eleanor Charlton, Jerry Patt, Evelyln Wilson, Wanda Burch

A one-year program providing career training as a clerk-typist. The clerk-typist performs clerical duties of moderate difficulty; combines typing with filing, sorting mail, answering telephone, and other general office work; may produce master copies, such as stencils on machines similar to typewriters; types letters, reports, tabulations, and other material in which set up and terms are generally clear and follow a standard pattern. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	SO 101 or 102 or 203	Typewriting	3
3	BUS 140	Introduction to Business	3
3	MTH 090	Occupational Mathematics or Mathematics Elective	3
4	ENG 100	Communication Skills Business Elective	4 3
			<u>16</u>
<b>Second Term</b>			
2	SO 102 or 203	Typewriting and/or Elective*	3
2	BUS 207	Business Communications	3
4	SO 130	Business Machines	3
	SO 107	Clerical Methods and Procedures	4
6	IE 200	Internship-Externship or Business Elective	3
			<u>16</u>

**Total Credit Hours for Program: 32**

\*Typewriting credit and contact hours are progressive in accordance with student progress and proficiency level. (See catalog course description.)

## Medical Secretary

**Two-Year Program: Code 565**

**Advisors: Wanda Burch, Eleanor Charlton, Marie Juster, Jerry Patt**

A two-year program providing career training as a medical secretary. This person performs the duties of a secretary and receptionist, but has some medical background; prepares medical charts and reports for doctor or hospital personnel, utilizing knowledge of medical terminology; may prepare and send bills to patients and schedule appointments; would be working with Blue Cross policies and other forms of medical insurance; may serve as office manager; may also do routine technical duties like sterilizing instruments or taking temperatures. A knowledge of Latin is helpful in understanding the terminology. Besides training in the office skills and medical transcription curricula, the program includes a number of science courses, study of medical terminology, and the accounting procedures common to medical offices. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	SO 101, 102, or 203	Typewriting	3
1	CIS 105	Microcomputer Programming for Beginners	3
3	ENG 100	Communication Skills	4
2	HS 113	Introduction to Medical Science	2
3	BIO 105	Medical Terminology	2
4	MTH 090	Occupational Mathematics	3
			<u>16</u>
<b>Second Term</b>			
2	SO 102 or 203	Typewriting	3
6	BIO 111 BIO 102	Anatomy and Physiology or Human Biology	4
4	PSY 100	Introduction to Psychology	3
5	SO 152	Word Processing Applications/ Dictation Equipment or	
	SO 153	Word Processing Applications/ Basic Practice	4
	IE 200	Internship-Externship or Business Elective: Shorthand 131 or Accounting 090 or 111 or CIS 133 or SO 151	3
			<u>17</u>
<b>Third Term</b>			
3	SO 210	Medical Transcription	3
5	SO 107	Clerical Procedures	4
7	PLS 108	Government and Society	3
4	IE 200	Intern-Externship or Business Elective	3
	SO 130	Business Machines	3
			<u>16</u>
<b>Fourth Term</b>			
4	SO 250	Office Systems and Procedures	4
6	SO 223	Medical Typewriting (insurance/office forms)	3
6	BUS 207	Business Communication	3

5	IE 200	Intern-Externship or Business Elective	3
	BUS 200	Independent Directed Study	3
			<u>16</u>

**Total Credit Hours for Program: 65**

### Secretarial Technician

#### Two-Year Program: Code 561

**Advisors: Eleanor Charlton, Jerry Patt, Evylyn Wilson, Wanda Burch**

A two-year program providing training as a secretarial technician. Typically, the technician relieves an employer of routine duties so that he/she can work on more important matters: reads and routes incoming mail; transcribes dictation from shorthand or dictaphone; composes, types, and files correspondence and other records; answers telephone; makes appointments; greets visitors, ascertains nature of business, and conducts visitors to employer or appropriate person; may arrange travel schedules and reservations; may compile and type statistical reports; may supervise clerical workers, and may keep personnel records. *Very high employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	SO 101, 102 or 103	Typewriting	3
1	SO 131, 132 or 231	Shorthand	3-4
2	BUS 140	Introduction to Business	3
1	MTH 090	Occupational Mathematics or Mathematics Elective	3
3	ENG 100	Communication Skills	4
			<u>16-17</u>
<b>Second Term</b>			
2	SO 102 or 203	Typewriting and/or Elective*	3
2	SO 132 or 231	Shorthand	3
3	SO 130	Business Machines	3
7	PLS 108	Government and Society	3
5	SPH 101	Fundamentals of Speaking	3
			<u>15</u>
<b>Third Term</b>			
3	SO 231	Shorthand and/or Elective*	3
3	CIS 100	Introduction to Computers or	
	CIS 105	Microcomputer Programming for Beginners	2-3
7	SO 151	Word Processing or SO 152	3
6	BUS 111	Business Law	3-4
5	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
	SO 153	Word Processing Applications/ Basic Practice	2
			<u>14-16</u>



<b>Fourth Term</b>			
4	SO 250	Office Systems and Procedures	4
6	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
8	BUS 207	Business Communication	3
3	MGT 200	Human Relations in Business	3
8	IE 200	Internship-Externship or Business Elective	3
			<u>16</u>

**Total Credit Hours for Program: 61-64**

\*Typewriting and shorthand credit and contact hours are progressive in accordance with student progress and proficiency level. (See catalog course description.)

ELECTIVES may be chosen from the following recommended courses:

EC 211	Principles of Economics
BUS 122	Business Law
MGT 230	Office Management
DP 111D	Data Processing/Programming B.A.S.I.C.

**Word Processing**

**Two-Year Program: Code 564**

**Advisors: Jerry Patt, Eleanor Charlton, Wanda Burch, Marie Juster**

A two-year program providing career training as a word processing specialist. The word processing specialist, part of the most innovative change in today's office, must know the basic skills of typing and English. The specialist operates the newest of text-editing machines in a teamwork environment and must have the ability to think logically, work with others, and organize work, completing it in order of priority. Proofreading and transcription skills are also needed. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	SO 151	Word Processing Principles	3
1	SO 102	Typewriting	3
1	MTH 090	Occupational Mathematics or Mathematics Elective	3
5	ENG 100	Communication Skills	4
	CIS 100	Introduction to Computers	3
			<u>16</u>
<b>Second Term</b>			
2	SO 152	Word Processing Applications/Transcription Equipment	2
2	SO 153	Word Processing Applications/Basic Practice	2
2	SO 203	Typewriting and/or	
	BUS 140	Introduction to Business	3
7	IE 200	Internship-Externship or Business Elective*	3
3	CIS 133	BASIC** or	
	CIS 105	Microcomputer Programming for Beginners	2-3
			<u>15-16</u>

**Third Term**

3	SO 214	Word Processing Applications/Advanced Practice	3
4	SO 250	Office Systems and Procedures	4
5	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
6	BUS 207	Business Communication	3
8	IE 200	Intern-Externship or Business Elective	3
			<u>16</u>

**Fourth Term**

4	SO 225	Word Processing Systems and Procedures	3
6	SPH 101	Fundamentals of Speaking	3
7	MGT 230	Supervisory Management	3
8	MGT 200	Human Relations in Business and Industry	3
8	PLS 108	Government and Society	3
			<u>15</u>

**Total Credit Hours for Program: 63**

\*Suggested business electives via program advisor consultation:

SO 130 Business Machines

SO 107 Clerical Methods and Procedures

\*\*Meets 6 hours per week for 7½ weeks.

**GENERAL STUDIES PROGRAM**

A program of course work that can transfer to four-year institutions and/or can lead to an Associate Degree in General Studies can be developed involving the following instructional areas:

Computer Science

English

Humanities:

Art

French

German

Film and Broadcasting

Philosophy

Spanish

Music

Russian

Speech

Mathematics

Natural Sciences:

Biology

Astronomy

Chemistry

Geology

Physics

Pre-engineering

Social Sciences:

Anthropology

Economics  
 History  
 Political Science  
 Geography  
 Psychology  
 Sociology

Principal objectives of the General Studies Program include the development of reading, writing, thinking, listening and speaking skills.

## HEALTH OCCUPATION CAREERS

### DENTAL AUXILIARY CAREERS

#### Dental Assisting

Certificate Program: Code 711

Advisors: Betty Finkbeiner, LaRuth Edwards-Martin

A two-year program (three or four term options available) providing career training as a dental assistant. There are two types of educated dental assistants: the Certified Dental Assistant (C.D.A.) and the Registered Dental Assistant. The assistant is a second pair of hands at chairside for the dentist, thus the term four-handed dentistry. The C.D.A. assists in preparation and actively participates in all functions of dentistry, while the R.D.A. in the State of Michigan is qualified to perform some intra-oral functions normally performed by the dentist, such as temporary crown placement and removal, rubber dam placement and removal, and oral inspection. Both of the assistants are qualified to work in various areas such as private dental offices, dental schools, Armed Forces, dental insurance companies and many others. If an individual is not interested in full-time employment, dental assisting offers many opportunities for part-time work. *High employability.*

Course	Description	Hrs.
<b>First Term</b>		
DA 110	Introduction to Dental Assisting—First 7 weeks	3
DA 114	Clinical Dental Assisting—Second 7 weeks	3
DA 113	Dental Materials—14 weeks	2
DA 111	Dental Science—14 weeks	4
BIO 111	Anatomy and Physiology—14 weeks	4
BIO 112	Anatomy and Physiology Lab—14 weeks	1
ENG 091	English Fundamentals <i>or</i>	
ENG 111	English Composition I	4
		<u>21</u>
<b>Second Term</b>		
D A 122	Advanced Dental Science—14 weeks	4
DA 124	Advanced Clinical Dental Assisting—First 7 weeks	3
DA 120	Oral Diagnosis—14 weeks	2
DA 126	Dental Laboratory Procedures—Second 7 weeks	4
DA 125	Dental Roentgenology	2
SO 101	Typewriting*	3
DA 103	Nutrition and Prevention	2
		<u>20</u>

### Third Term

DA 200	Clinical Practice—First 7 weeks	3
DA 202	Advanced Clinical Practice—Second 7 weeks	3
DA 201	Dental Specialties	3
DA 215	Advanced Dental Roentgenology	2
DA 212	Dental Office Procedures	4
PSY 100	Psychology	3
		<u>18</u>

**Registered Dental Assistant Program**  
and  
**Associate Degree Program**  
**Two-Year Program: Code 712**

### Fourth Term

DA 224	Expanded Duties	3
PLS 150	State and Local Government <i>or</i>	
PLS 108	Government and Society	3
MTH 090	Occupational Mathematics <i>or</i>	
MTH 165	Health Science Mathematics	
	Elective	3-4
		<u>12-13</u>

**Dental Office Manager**  
and  
**Associate Degree Program**  
**Two-Year Program: Code 713**

### Alternate Fourth Term

CIS 100	Introduction to Computers <i>or</i>	
CIS 111	Computer Concepts	3
PLS 150	State and Local Government <i>or</i>	
PLS 108	Government and Society	3
ACC 111	Principles of Accounting	3
DA 222	Advanced Dental Practice Management	3
BUS 111	Business Law <i>or</i>	
MGT 209	Small Business Management <i>or</i> Elective	3-4
		<u>15-16</u>

**Total Credit Hours for Program: 87-89**

\*Or elective if one year of typing has been taken in high school or typing skill is 35 words per minute.

## **EMERGENCY MEDICAL SERVICE CAREERS**

**Emergency Medical Technology**  
**One-Year Program: Code 751**  
**Advisor: Craig Dunham**

A one-year program providing career training as an Emergency Medical Technician. Emergency Medical Technicians work on ambulance crews, in hospitals,

for police and fire departments, and in the military, providing first aid. After arriving on the scene of an emergency or accident, an EMT first determines the nature and extent of victims' illnesses or injuries, then establishes priorities for emergency medical care. Patients receive appropriate medical care such as opening and maintaining an airway, restoring breathing, controlling bleeding, treating for shock, immobilizing fractures, bandaging, assisting in childbirth, managing mentally-disturbed patients, and giving initial care to poison and burn victims. They may transport patients to a hospital and perform necessary medical attention during the trip. EMT's are responsible for maintaining a clean, well-equipped ambulance. *Average employability.*

Course	Description	Hrs.
<b>First Term</b>		
EMT 101	EMT Principles I	3
EMT 102	EMT Techniques I	3
EMT 105	Patient Care Procedures	3
EMT 111	Psychological Assessment for EMT	3
		<u>12</u>
<b>Second Term</b>		
EMT 103	EMT Principles II	3
EMT 104	EMT Techniques II	3
EMT 106	EMT Clinical Practicum	3
		<u>9</u>

**Total Credit Hours for Program: 21**

High school graduation or G.E.D. Valid, current certification of courses in Advanced First Aid and Emergency Care and Cardiopulmonary Resuscitation are required before admission. Completion of a course in Medical Terminology and Anatomy and Physiology highly desirable. A physical is also required. This program is conducted in conjunction with: St. Joseph Mercy Hospital, University of Michigan Medical Center, Beyer Memorial Hospital, Huron Valley Ambulance Service and Livingston County Ambulance Service.

Program has special application procedures. Contact Admissions Office for details. Only 25 students accepted per section.

**Advanced Emergency Medical Technology**  
**Two-Year Program: Code 751**  
**Advisor: Craig Dunham**

The Advanced Emergency Medical Technician training program consists of two academic semesters taken sequentially. Successful completion of the program will qualify the student to write the state licensing exam for advanced Emergency Medical Technicians.

Course	Description	Hrs.
<b>Third Term</b>		
EMT 201	Advanced EMT Lecture and Practice	8
		<u>8</u>
<b>Fourth Term</b>		
EMT 202	Advanced Cardiac Life Support Procedures	8
EMT 206	Advanced Clinical Experience	4
		<u>12</u>

**Total Credit Hours for Program: 41**

# NURSING CAREERS

## Nursing

**One-Year Practical Nurse Program: Code 761**

**Two-Year Associate Degree Program: Code 762**

**Advisors: Barbara Goodkin, Judith Vanderveen, Gladys Knoll**

The Washtenaw Community College Nursing Program is a career mobility, ladder-concept program. It consists of a one-year practical nurse program, and a two-year associate degree registered nurse program. The associate degree program is based on the practical nurse program. All new (basic) students complete the same first year of study (Level I). The decision to continue into Level II to complete the associate degree program is made by basic students at the beginning of the third semester. Basic students are admitted in the Fall Term only. Advanced standing students (Licensed Practical Nurses) are admitted in both the Fall and Winter semesters. Nursing courses in the nursing program must be taken in sequence. Course requirements in non-nursing departments (marked with asterisks) may be taken before entrance to the program. This program has a special application procedure and limited enrollment. Contact the Counseling Office for details. (Please note: high school chemistry or its equivalent, with a grade of "C" or better, is one of the requirements for admission to all of the nursing programs.) A "D" in any program course is considered unsatisfactory. A 2.0 average is required for graduation from the program. **Priority is given to Washtenaw County residents.**

### **Level I—Practical Nursing First Level of Associate Degree Nursing**

A one-year program providing career training as a licensed practical nurse. Licensed practical nurses help care for the physically or mentally ill or infirm. Under the direction of physicians and registered nurses, they provide nursing care that requires technical knowledge but not the professional education of a registered nurse. In hospitals, licensed practical nurses provide much of the bedside care needed by patients. They take and record blood pressure and temperatures, change dressings, administer certain prescribed medicines, and help bed patients with bathing and other personal hygiene. They assist physicians and registered nurses in examining patients and in carrying out nursing procedures. They assist in the delivery, care and feeding of infants, and help registered nurses in recovery rooms. Some help supervise hospital attendants. Licensed practical nurses who work in private homes provide day-to-day patient care. They may teach family members how to perform simple nursing tasks. In doctors' offices and in clinics, licensed practical nurses prepare patients for examination and treatment. They also record information, make appointments, and teach clients about self-care. *High employability.*

<b>Course</b>	<b>Description</b>	<b>Hrs.</b>
<b>First (Fall) Term</b>		
*BIO 111	Anatomy and Physiology	4
*BIO 112	Anatomy and Physiology Laboratory	1
NUR 100	Nursing Fundamentals with Laboratory	4
NUR 110	Nursing Clinical Experience	1
ENG 100	Communication Skills or	
ENG 111	English Composition I	4

*HS 117	Nutrition	2
NUR 111	Pharmacology I	1
NUR 118	Personal and Community Health	1
		<u>18</u>

### Second (Winter) Term

NUR 125	Basic Medical-Surgical Nursing with Laboratory (first 7½ weeks)	3
NUR 120	Basic Medical-Surgical Nursing Practice (first 7½ weeks)	3
NUR 126	Intermediate Medical-Surgical Nursing with Laboratory (second 7½ weeks)	3
NUR 121	Intermediate Medical-Surgical Nursing Practice (second 7½ weeks)	3
NUR 122	Pharmacology II	2
PSY 100	Introduction to Psychology	3
		<u>17</u>

### Third (Spring-Summer) Semester

NUR 135	Parent-Child Nursing with Laboratory (first 8 weeks)	3
NUR 130	Parent-Child Nursing Practice (first 8 weeks)	3
NUR 145	Advanced Medical Surgical Nursing with Laboratory (second 6 weeks)	2
NUR 140	Advanced Medical Surgical Nursing Practice (second 6 weeks)	3
*HS 147	Growth and Development	3
NUR 133	Pharmacology III	2
		<u>16</u>

### Total Credit Hours for Level I: 51

\*Priority is given to Washtenaw County residents.

\*\*ENG 111 will meet the English Composition requirement for transfer to a four-year institution.

## Level II—Associate Degree Completion (Fall Admission)

A two-year program providing career training as registered nurse. 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. Acute care includes emergency nursing, major surgery and skilled operating room nursing, coronary and general intensive care, intensive specialty care, such as trauma, medical-surgical, pediatric, cardiac, and respiratory, and natural and civil disaster nursing. Acute 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. *Very high employability.*

### First (Fall) Semester

*HS 220	Pathophysiology	4
*BIO 237	Microbiology	4
*CEM 105	Fundamentals of Chemistry	4
NUR 200	Nursing Role Transition	4
		<u>16</u>

**Second (Winter) Term**

NUR 225	Mental Health Nursing Theory	3
NUR 250	Mental Health Nursing Practice (12 hours per week—7½ weeks)	2
NUR 235	Advanced Parent-Child Nursing Theory	3
NUR 230	Advanced Parent-Child Nursing Practice (12 hours per week—7½ weeks)	2
*HS 244	Medical Ethics	2
*SOC 100	Principles of Sociology	3
		<u>15</u>

**Third (Spring) Half-Semester**

NUR 245	Complex Medical-Surgical Theory	3
NUR 240	Complex Medical-Surgical Practice (20 hours per week—7½ weeks)	3
*PLS 260	Political Science Requirement (108, 122 or 150)	3
NUR 260	Nursing Management and Trends	2
		<u>11</u>

\*Priority is given to Washtenaw County residents.

**Level II—Associate Degree Completion  
(Winter Admission)**

Course	Description	Hrs.
<b>First (Winter) Semester</b>		
*HS 220	Pathophysiology	4
*BIO 237	Microbiology	4
*CEM 105	Fundamentals of Chemistry	4
NUR 200	Nursing Role Transition	4
		<u>16</u>
<b>Second (Spring) Half-Semester</b>		
NUR 255	Mental Health Nursing Theory	3
NUR 250	Mental Health Nursing Practice	2
*HS 244	Medical Ethics	2
*SOC 100	Principles of Sociology	3
		<u>10</u>
<b>Third (Fall) Semester</b>		
NUR 235	Advanced Parent-Child Nursing Theory	3
NUR 230	Advanced Parent-Child Nursing Practice (12 hours per week—7½ weeks)	2
NUR 245	Complex Medical-Surgical Theory	3
NUR 240	Complex Medical-Surgical Practice (20 hours per week—7½ weeks)	3
*PLS	Political Science Requirement (108, 112 or 150)	3
NUR 260	Nursing Management and Trends	2
		<u>16</u>

**Total Credit Hours for Level II: 42**

\*Priority is given to Washtenaw County residents.

**Program Total: 93**



# RADIOGRAPHY CAREERS

## Radiography

Two-Year Program: Code 741

Advisors: Robert Nelson, Gerald Baker

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

Course	Description	Hrs.
<b>First (Summer) Term—7 weeks</b>		
RAD 100	Introduction to Radiography	2
RAD 101	Methods of Patient Care	2
MTH 165	Health Science Math	3
		<u>7</u>
<b>Second (Fall) Term—15 weeks</b>		
RAD 110	Clinical Education (second 7 weeks)	1
RAD 111	Fundamentals of Radiography (first 7½ weeks)	2
RAD 112	Radiographic Positioning	2
RAD 113	Radiographic Processing (second 7½ weeks)	2
BIO 111	Anatomy and Physiology	4
BIO 112	Anatomy and Physiology Laboratory	1
BIO 105	Medical Terminology	2
		<u>16</u>
<b>Third (Winter) Term—15 weeks</b>		
RAD 120	Clinical Education	2
RAD 123	Radiographic Positioning	2
RAD 124	Principles of Radiographic Exposure	3
RAD 125	Radiologic Procedures and Anatomy	3
RAD 127	Principles of Radiographic Exposure Laboratory	1
ENG	English Elective	4
		<u>15</u>
<b>Fourth (Spring) Term—7 weeks</b>		
RAD 135	Pathology for Radiographers	2
RAD 130	Clinical Education	2
		<u>4</u>
<b>Fourth (Summer) Term—7 weeks</b>		
RAD 140	Clinical Education	2
		<u>2</u>

## SECOND YEAR

### Fifth (Fall) Term—15 weeks

RAD 217	Clinical Education	3
RAD 215	Radiography of the Skull	2
RAD 218	Radiation Biology (first 7½ weeks)	2
RAD 219	Radiation Protection (second 7½ weeks)	2
PHY 141	Radiologic Physics I	3
PSY	Psychology Elective	3
		<hr/> 15

### Sixth (Winter) Term—15 weeks

RAD 225	Clinical Education	3
RAD 228	Supervisory Management	2
PHY 142	Radiologic Physics II	3
PLS	Political Science Elective	3
SOC	Sociology Elective	3
		<hr/> 14

### Seventh (Spring) Term—7 weeks

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

### Total Credit Hours for Program: 74

High School Biology, Physics, and/or Chemistry, Algebra required for entrance.

ACT required if applicant has no prior college.

Program has special application procedure. Contact Admissions Office or Counseling Office for details. Limited number of students accepted each year. One entrance date—SUMMER.

A minimum of 1680 hours of structured clinical work experience is required.

Student must maintain a 2.0 GPA in all RAD courses to qualify for graduation and to take the National Registry Examination.

## RESPIRATORY THERAPY CAREER

### Respiratory Therapy

Two-Year Program: Code 721

Advisors: Carl Hammond, Martin Redick

A two-year (also a one-year technician transfer program) program providing career training as a respiratory therapist. Respiratory therapists treat persons with respiratory problems, and 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. *Very high employability.*

Course	Description	Hrs.
<b>First (Fall) Term</b>		
*BIO 111	Anatomy and Physiology	4

*BIO 112	Anatomy and Physiology Lab	1
*PHY 131	Physics for Respiratory Therapy	3
*RDG 115	Medical Terminology	2
*RTH 106	Chemistry for Respiratory Therapy	3
RTH 121	Basic Equipment and Procedures	4
		<u>17</u>

### Second (Winter) Term

RTH 148	Pharmacology	3
RTH 122	Respiratory Physiology	2
RTH 123	Respiratory Physiology Lab & Recitation	3
RTH 149	Pathology for Respiratory Therapy	3
RTH 198	General Clinical Practice I	3
		<u>14</u>

### Third (Spring/Summer) Term

RTH 213	Intensive & Rehabilitative Respiratory Care	3
RTH 212	Ventilators & Diagnostic Tests	3
RTH 214	Cardiodiagnostics	3
RTH 199	General Clinical II	3
		<u>12</u>

### Fourth (Fall) Term

BIO 237	Microbiology	4
PSY	Psychology Elective (PSY 100, 107 or 108)	3
PLS	Political Science Elective (PLS 108, 112 or 150)	3
RTH 219	Pediatric Respiratory Therapy	3
RTH 200	Advanced Clinical Practice	4
		<u>17</u>

### Fifth (Winter) Term

*ENG	Eng. Comp. Elective (ENG 091, 100, 107, 111)	4
*SOC	Sociology Elective (SOC 100, 201, 202, 207 or 250)	3
RTH 217	Seminar—Respiratory Therapy	2
RTH 201	Specialty Clinical Practice	4
		<u>13</u>

### Total Credit Hours for Program: 73

Three prerequisite courses must be completed before admission to the program: Math 165, Chemistry 105, and Biology 102. This program in Respiratory Therapy 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.

Program has special application procedure. Contact advisor for details. Only forty students accepted each year.

# HUMAN SERVICES CAREERS

## FOOD AND HOSPITALITY CAREERS

### Culinary Arts

Two-Year Program: Code 641

Advisors: James Beaton, Don Garrett, Jillaine Beauchamp

A two-year program providing career training as a culinary arts technician. This technician supervises and coordinates activities of workers engaged in preparing, cooking, serving food, cleaning premises, and washing dishware; 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; may participate in preparing and cooking meals; may choose to assume responsibilities in the "front of the house," (This means supervising food service and dining room employees.); may choose to enter the field of food and equipment wholesale and retail. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First (Fall) Term</b>			
1	CUL 100	Introduction to Hospitality Industry Management	3
1	CUL 110	Sanitation and Hygiene	3
3	CUL 118	Principles of Nutrition	3
4	CUL 111	Elementary Food Preparation or	
4	CUL 150	Dining Room Management	6
			<u>15</u>
<b>Second (Winter) Term</b>			
5	CUL 122	Quantity Food Production	6
8	CUL 120	Organization and Management	3
6	HMT 100	Hospitality Industry Accounting	3
2	PLS 108	Government and Society	3
			<u>15</u>
<b>Third (Spring) Term</b>			
9	CUL 227	Advanced Culinary Arts Technique	6
<b>Fourth (Fall) Term</b>			
7	CUL 224	Economics of Volume Feeding	4
2	CUL 150	Dining Room Management	6
10	CUL 228	Layout and Equipment	4
			<u>14</u>
<b>Fifth (Winter) (Spring) Term</b>			
11	CUL	Electives (Choose 2)	7-8
	CUL 219	Elementary Baking	(4)
	CUL 210	Garde-Manger	(4)
	CUL 225	Advanced Baking and Pastry	(4)
	CUL 250	Advanced Service Technique	(3)
12	ENG 100	Communication Skills	4

13	CUL 199	On-the-Job Training—20 hours per week, 15 weeks	3
12	CIS 100	Introduction to Computers	3
			17-18

**Total Credit Hours for Program: 68-69**

### **Food Services**

**One-Year Program: Code 642**

**Advisors: James Beaton, Don Garrett, Jillaine Beauchamp**

A one-year program providing training as a Food Service Specialist. This specialist assists workers engaged in preparing foods for hotel, restaurants, or institutional establishments by performing any combination of the following tasks: preparing such foods as vegetables, fruits, meat, poultry and seafood for consumption by either cutting, washing, peeling, or grinding, or any other task required for cooking; stores foods in designated areas, utilizing knowledge of temperature requirements and food spoilage; cleans work areas and equipment; may distribute supplies; and makes soups and sauces. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First (Fall) Term</b>			
1	CUL 100	Introduction to Hospitality Industry Management	3
4	CUL 111	Elementary Food Preparation	6
1	CUL 110	Sanitation and Hygiene	3
2	CUL 118	Principles of Nutrition	3
			15
<b>Second (Winter) Term</b>			
5	CUL 122	Quantity Food Preparation	6
3	ENG 100	Communication Skills	4
2	MTH 107	Occupational Mathematics	3
6	CUL	Electives (Choose 1)	3-6
	CUL 150	Dining Room Management	(6)
	CUL 219	Elementary Baking	(4)
	CUL 210	Garde-Manger	(4)
	HMT 100	Service Industry Accounting	(3)
			16-19
<b>Third (Spring) Term</b>			
6	CUL 227	Advanced Culinary Arts Techniques	6
			6

**Total Credit Hours for Program: 37-40**

### **Hotel/Motel Management**

**Two-Year Program: Code 661**

**Advisors: James Beaton, Don Garrett, Jillaine Beauchamp**

A two-year program providing career training as a hotel-motel management technician. Hotel-motel managers are responsible for satisfying guests and operating their establishments profitably. They direct the operation of the kitchen

and dining rooms and manage the housekeeping, accounting, and maintenance departments of the hotel. They will also handle unexpected problems. Managers who work in small hotels or motels may do much of the front office clerical work, such as taking room reservations and assigning rooms. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First (Fall) Term</b>			
1	CUL 100	Introduction to Hospitality Industry Management	3
4	CUL 111	Elementary Food Preparation or	
	CUL 150	Dining Room Management	6
2	CUL 110	Sanitation and Hygiene	3
1	CUL 118	Principles of Nutrition	3
			<u>15</u>
<b>Second (Winter) Term</b>			
5	CUL 122	Quantity Food Production	6
2	HMT 100	Service Industry Accounting	3
6	CUL 224	Economics of Volume Feeding	4
3	ENG 100	Communication Skills	4
			<u>17</u>
<b>Third (Spring) Term</b>			
9	PSY 100	Introduction to Psychology	3
9	PLS 108	Government and Society	3
			<u>6</u>
<b>Fourth (Fall) Term</b>			
7	CUL 120	Organization and Management	3
7	CUL 150	Dining Room Management	6
10	CIS 100	Introduction to Computers	3
			<u>12</u>
<b>Fifth (Winter) Term</b>			
8	HMT 230	Hospitality Law	4
8	HMT 222	Lodging Management and Promotion	3
10	HMT223	Practicum in Lodging Management	3
8	CUL 250	Advanced Service Techniques	3
			<u>13</u>

**Total Credit Hours for Program: 63**

## **PUBLIC SERVICE CAREERS**

### **Child Care**

**Two-Year Program: Code 640**

**Advisor: Phillip A. Ludos, Patricia Travis**

A two-year program providing 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 them simple painting, drawing, handiwork,

songs, and similar activities; directs children in eating, resting, and toileting; helps children develop habits of caring for 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. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	CCW 101	Child Development	3
1	CCW 108	Educational Experiences in Expressive Arts*	3
1	CCW 105	Practicum I*	3
2	ENG 111	English Composition I or	
	ENG 091	English Fundamentals	4
2	SPH 101	Fundamentals of Speaking	3
			<u>16</u>
<b>Second Term</b>			
2	CCW 103	Alternative Programs in Child Care	3
2	CCW 110	Social/Emotional Development	3
4	PSY 107	Black Psychology	3
4	ENG 210	Children's Literature	3
4	**	Elective	3
			<u>15</u>
<b>Third Term</b>			
3	CCW 107	Educational Experiences in Science and Math*	3
3	CCW 106	Practicum II*	3
3	CCW 200	Staff/Parent Interpersonal Relations	3
5	PLS 150	State and Local Government or	
5	PLS 108	Government and Society	3
	**	Elective	3
			<u>15</u>
<b>Fourth Term</b>			
6	CCW 100	Exceptional Pre-School Child	3
6	CCW 114	Practicum III*	4
6	CCW 111	Day Care Administration or	
	CCW 116	Seminar in Infant Care*	3
8	CUL 118	Principles of Nutrition or	
	PE 120	Healthful Living	3
7	PE 130	American Red Cross	2
			<u>15</u>

**Total Credit Hours for Program: 61**

\*These courses must be taken concurrently.

\*\*ELECTIVES APPROVED:

HST 150	Afro-American History	3
MUS 183	Music of the African-American culture	3
CCW 109	Language and Communication	3
EC 111	Consumer Economics	3
HUM 101	Introduction to Humanities	3
PSY 100	Introduction to Psychology	3
PSY 200	Child Psychology	3
SOC 100	Principles of Sociology	3

**Criminal Justice**  
**Two-Year Program: Code 651**  
**Advisor: Phillip A. Ludos**

A two-year program providing career training as a criminal justice technician. Upon completion of the criminal justice program, a student has laid the groundwork to further his/her studies toward a bachelor's degree in criminal justice. In addition, he/she may be employed in such fields as police work, probation and parole, and juvenile work. The studies involve a combination of sociological theory and pragmatic application which is required of all those in the system of criminal justice. Law enforcement, police and community relations, psychology, and other aspects of criminal law are also studied. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
4	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
1	PSY 100	Introductory Psychology	3
3	PLS 150	State and Local Government	3
	CJ 100	Introduction to Criminal Justice*	3
6	SOC 100	Introductory Sociology	3
			<u>16</u>
<b>Second Term</b>			
4	PSY 108	Dynamics of Behavior or	
	PSY 209	Psychology of Adjustment	3
1	CJ 111	Police Community Relations	3
5	SOC 250	Juvenile Delinquency or	
	CJ 223	Juvenile Justice	3
5	SOC 202	Criminology	3
2	PSY 107	Black Psychology or	
	SOC 205	Racial and Ethnic Relations	3
			<u>15</u>
<b>Third Term</b>			
7	CJ 209	Criminal Law	3
7	CJ 224	Criminal Investigation	3
6	CJ 205	Applied Psychology for Police or	
	PSY 257	Abnormal Psychology	3
4	SPH 101	Fundamentals of Speech	3
		<i>One of the following:</i>	
		History	
		Political Science	
		Economics	
		Logic	3
			<u>15</u>
<b>Fourth Term</b>			
3	CJ 210	Introduction to Criminalistics	3
3	CJ 122	Correctional Systems	3
8	CJ 225	Seminar in Criminal Justice	3
8	CJ 208	Evidence and Procedure	3
		Elective (open choice)	3
			<u>15</u>
<b>Total Credit Hours for Program: 61</b>			

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



**Fire Protection**  
**Two-Year Program: Code 631**  
**Advisor: Phillip A. Ludos**

A two-year program providing career training as a fire protection technician. Under completion of the fire protection technician program, the student will be familiar with the various aspects of fire protection and fire prevention. This will include studies of industrial and public buildings, homes, and other properties. Factors such as water supplies and delivery will be discussed. Students in this program may seek employment in both the public and private sector involving fire protection training and other related areas. There is some training in the chemistry of combustibles. *Average to high employability.*

**Full Time Sequence\***

<b>Course</b>	<b>Description</b>	<b>Hrs</b>
<b>First Term</b>		
FP 100	Introduction to Fire Protection	3
FP 101	Hydraulics I	3
FP 109	Fire Operation Strategy	3
FP 103	Fire Chemistry and Hazardous Materials	3
MTH 090	Occupational Mathematics	3
		15
<b>Second Term</b>		
FP 122	Fire Prevention Theory and Application	3
FP 124	Fire Protection Systems I	3
FP 112	Fire Company Supervision	3
FP 116	Building Construction for Fire Service	3
ENG 100	Communication Skills	4
	Electives	3
		19
<b>Third Term</b>		
FP 209	Advanced Strategy/Fire Ground Command	3
FP 211	Hydraulics II	3
FP 213	Fire Investigation and Arson Detection	3
FP 099	Labor Relations in the Public Sector	3
PSY 100	Introduction to Psychology	3
		15
<b>Fourth Term</b>		
FP 210	Introduction to Fire Administration	3
FP 224	Fire Protection Systems II	3
FP 216	Legal Aspects of Fire Protection	3
PLS 150	State and Local Government	3
	Electives	6
		18

**Total Credit Hours for Program: 67**

\*An advisor can suggest a part-time sequence.

**ELECTIVES**

FP 150	F.F.T.C.—240 Hour Course	3
FP 208	Emergency Medical Technician	6
FP 108	Fire Fighter First Responder	3
FP 250	Educational Methodology	3
SOC 100	Principles of Sociology	3
PHY 105	Introductory Physics	4
CIS 100	Introduction to Computers	3

# TECHNICAL AND INDUSTRIAL CAREERS

## AUTOMOTIVE SERVICE CAREERS

### Automotive Body Repair

One-Year Program: Code 812

Advisors: Edward Cammet, Lester Jordan

A one-year program providing career training as an auto body repairer. Auto body repairers are the workers who straighten bent frames, remove dents, and replace crumpled 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 such tools 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. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	ABR 111	Auto Body Repair Fundamentals	4
2	ABR 112	Auto Refinishing Fundamentals	4
1	ABR 113	Light Body Service	1
1	ABR 114	Applied Auto Body Welding	1
1	WF 101	Acetylene Welding	2
2	MTH 090	Occupational Mathematics	3
			<u>15</u>
<b>Second Term</b>			
3	ABR 123	Auto Body Repair Applications	4
4	ABR 124	Auto Refinishing Applications	4
3	ABR 127	Major Repair Fundamentals	2
4	WF 102	Arc Welding	2
3	ENG 100	Communication Skills	4
			<u>16</u>
<b>Spring/Summer</b>			
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame and Body Alignment	2
			<u>4</u>

**Total Credit Hours for Program: 35**

### Automotive Body Service

Two-Year Program: Code 811

Advisors: Edward A. Cammet, Lester Jordan

A two-year program providing 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 one becomes a master technician. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ABR 111	Auto Body Repair Fundamentals	4
2	ABR 112	Auto Refinishing Fundamentals	4
1	ABR 113	Light Body Service	1
1	ABR 114	Applied Auto Body Welding	1
1	WF 101	Acetylene Welding	2
2	MTH 090	Occupational Mathematics	3
			<u>15</u>
<b>Second Term</b>			
3	ABR 123	Body Repair Applications	4
3	ABR 124	Auto Refinishing Applications	4
4	ABR 127	Major Repair Fundamentals	2
4	WF 102	Arc Welding	2
4	AS 110	Light Service Repair	2
			<u>14</u>
<b>Spring/Summer</b>			
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Alignment	2
			<u>4</u>
<b>Third Term</b>			
6	ABR 219	Major Repair Applications	4
7	ABR 220	Enamel Refinishing Practices	4
7	AS 124	Wheel Balancing and Alignment	3
6	ENG 100	Communication Skills	4
			<u>15</u>
<b>Fourth Term</b>			
8	ABR 230	Specialized Study	4
9	ABR 199	On-The-Job Training	4*
8	AS 227	Heating and Air Conditioning	2
9	PLS 108	Government and Society	3
			<u>13</u>
<b>Total Credit Hours: 61</b>			

\*Additional 4 hours ABR 230 Specialized Study or Approved Elective may be substituted for ABR 199 On-The-Job Training.

## **Automotive Mechanic Technology**

### **Two-Year Program: Code 815**

**Advisors: Kenneth Barron, Thomas Hopper, John Mann, Richard Weid**

A two-year program providing training as an auto mechanic technician. Job tasks are similar to those of an automotive mechanic, but this program takes it further. Upon completion, students have the knowledge to pass the state and national exams to become a certified Master Mechanic. The following is a list of tests one would be prepared to take: Engine Repair, Automotive Transmissions, Manual Transmissions and Rear Axle, Front End, Brakes, Electrical Systems, Heating and Air Conditioning, and Engine Tune-Up. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	AS 110	Light Service Repair	2
1	AS 111	Engine Repair	4
3	AS 116A	Electrical Systems	2
3	WF 101	Acetylene Welding	2
6	MTH 090	Occupational Mathematics	3
4	AS123	Transmissions and Power Trains	2
			<u>15</u>
<b>Second Term</b>			
2	AS 124	Wheel Balancing and Alignment	3
2	AS 125	Brake Systems	3
4	AS 128	Fuel Systems	3
8	PHY 110	Applied Physics	4
4	AS116B	Electrical Systems	2
			<u>15</u>
<b>Third Term</b>			
5	AS 212	Automatic Transmissions-Mechanical	2
5	AS 214	Steering and Suspension Systems	3
7	AS 218	Tune Up and Emissions	4
9	ENG 100	Communication Skills	4
7	AS 220	Applied Automotive Welding	2
		Approved Elective*	3
			<u>18</u>
<b>Fourth Term</b>			
6	AS 222	Automatic Transmissions-Hydraulic	2
6	AS 227	Heating and Air Conditioning	2
8	AS 230	Practical Field Experience	5
10	AS 240	Measurement of Vehicle Performance	2
10	PLS 108	Government and Society	3
8	AS 250	New Car Products	2
			<u>16</u>

**Total Program Credit Hours: 64**

\*Approved List of Electives: PSY 150 Industrial Psychology, AS 199 On-Job-Training, AS 189 Study Problems, MGT 160 Principles of Salesmanship, MGT 209 Small Business Management, FIN 100, EC 111 Consumer Economics, and any Math class numbered over 97.

**Automotive Mechanics**  
**One-Year Program: Code 816**  
**Advisors: Kenneth Barron, Eugene Brown**  
**Thomas Hopper, John Mann, Richard Weid**

A one-year program providing career training as an auto mechanic. The mechanic must have the ability and skill to make a quick and accurate diagnosis of a mechanical problem. This requires good reasoning ability as well as a thorough knowledge of automobiles. He/she may test drive a car or use testing equipment, such as engine analyzers, to locate a problem. The mechanic performs minor repairs and tune-up of motor vehicles; replaces and adjusts fuel, electrical, and cooling system components. Replaces and adjusts system components parts. Replaces defective chassis parts such as shock absorbers, tie rod

ends, ball joint suspension, brakeshoes, and wheel bearings; and installs automobile accessories. Upon completion of program, he/she will be prepared to take the following certification tests: Engine Repair, Brakes, Engine Tune-Up, Front End, and Manual Transmission. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	AS 110	Light Service Repair	2
1	AS 111	Engine Repair	4
3	AS 116A	Electrical Systems	2
3	WF 101	Acetylene Welding	2
5	MTH 090	Occupational Mathematics	3
4	AS 123	Transmissions and Power Trains	2
			15
<b>Second Term</b>			
2	AS 124	Wheel Balancing and Alignment	3
2	AS 125	Brake Systems	3
4	AS 128	Fuel Systems	3
5	AS 218	Tune Up and Emissions	4
3	ENG 100	Communication Skills	4
4	AS 116B	Electrical Systems	2
			19

**Total Credit Hours in Program: 34**

**Automotive Spray Painting**  
**One-Year Program: Code 813**  
**Advisors: Edward Cammet, Lester Jordan**

A one-year program providing 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 or brush. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
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
2	WF 101	Acetylene Welding	2
3	MTH 090	Occupational Mathematics	3
			15
<b>Second Term</b>			
2	ABR 124	Auto Refinishing Applications	4
3	ABR 230	Specialized Study	4
4	ABR 199	On-The-Job Training	2*
4	ENG 100	Communication Skills	4
			14
			91

**Total Credit Hours for Program: 31**

\*Additional two hours ABR 230 Specialized Study or approved elective may be substituted for ABR 199 On-The-Job Training.

## **ARCHITECTURAL DRAFTING AND CONSTRUCTION TECHNOLOGY CAREERS**

### **Architectural Drafting Two-Year Program: Code 821 Advisors: David Byrd, Michael Pogliano**

A two-year program providing 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 followed, and other information to carry out 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. *Average to high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ARC 111	Architectural Drawing	6
4	SO 090	Fundamentals of Typewriting	1
1	ARC 117	Construction Materials	3
5	MTH 152	Applied Geometry and Trigonometry	4
6	ENG 091	English Fundamentals or	
	ENG III	English Composition I	4
			18
<b>Second Term</b>			
2	ARC 122	Architectural Drawing	6
2	ARC 120	Mechanical and Electrical Systems	3
6	ARC 109	Site Layout or	
	ARC 209	Surveying	3
3	ARC 100	Specifications	1
5	ARC 150	Presentation Drawings and Models	4
			17
<b>Third Term</b>			
3	ARC 213	Architectural Drawing	6
4	ARC 210	Structure in Architecture	2
5	ARC 207	Estimating Construction Costs	2
3	PHY 111	Introductory Physics	4
2	ENG 100	Communication Skills	4
			18

<b>Fourth Term</b>			
4	ARC 224	Architectural Drawing	6
6	ARC 208	Estimating Construction Costs	2
7	PLS 108	Government and Society	3
7	PSY 150	Industrial Psychology	3
			<hr/>
			14

**Total Credit Hours for Program: 67**

**Architectural Drafting Detailing**  
**One-Year Program: Code 822**  
**Advisors: David Byrd, Michael Pogliano**

A one-year program providing 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 giving dimensions, materials, and other information to make the drawing clear and complete. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ARC 111	Architectural Drawing	6
3	SO 090	Fundamentals of Typewriting	1
2	ARC 117	Construction Materials	3
4	MTH 169	Intermediate Algebra	4
5	ENG 091	English Fundamentals or	
	ENG 111	English Composition I	4
			<hr/>
			18
<b>Second Term</b>			
2	ARC 122	Architectural Drawing	6
3	ARC 120	Mechanical and Electrical Systems	3
6	ARC 150	Presentation Drawings and Models	4
5	ARC 109	Site Layout or	
	ARC 209	Surveying	3
4	ARC 100	Specifications	1
			<hr/>
			17

**Total Credit Hours for Program: 35**

**Construction Specialist**  
**One-Year Program: Code 823**  
**Advisors: David Byrd, Mike Pogliano**

A one-year program providing career training as a construction specialist. The construction specialist is also called a contractor of construction. He/she is trained in subjects that render him/her proficient in construction supervising, and is generally skilled in one or more building trades. His/her training is in specifications—enabling him/her to estimate business real estate, improve his/her performance as a superintendent or obtain State of Michigan approval as a licensed person in his/her chosen phase of building contracting. *Average employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	ARC 111	Architectural Drawing	6
1	ARC 117	Construction Materials	3
2	ARC 207	Estimating Construction Costs	2
1	BPR 100	Blueprint Reading for Construction Trades	2
4	BUS 111	Business Law	3
			<u>16</u>
<b>Second Term</b>			
3	ARC 109	Site Layout	3
3	ARC 208	Estimating Construction Costs	2
2	ARC 100	Specifications	1
2	BPR 110	Blueprint Reading for Construction Trades	2
3	PSY 150	Industrial Psychology	3
4	ENG 100	Communication Skills	4
			<u>15</u>

**Total Credit Hours for Program: 31**

**Construction Technology (Lighting)  
Two-Year Program: Code 829  
Advisors: David Byrd, Clarence Helzerman**

A two-year program providing training as a construction lighting specialist. The construction lighting specialist installs necessary wiring for lightweight construction. He/she installs all components of a complete electric service in new and remodeled work. Finally, he/she is capable of testing his/her work to insure its proper functioning. He/she has to have knowledge of the different types of fixtures and their uses. He/she must be able to read blueprints and use such test instruments as volt and amp meters. *Average employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	CT 131	Electric House Wiring	4
2	BPR 100	Blueprint Reading for Construction Trades	2
1	MTH169A	Intermediate Algebra	3
2	EE 101	Servicing Techniques I	4
2	ENG 100	Communication Skills	4
			<u>17</u>
<b>Second Term</b>			
3	CT 231	Electric Wiring	4
1	ARC 117	Construction Materials	3
3	ARC 100	Specifications	1
2	MTH169B	Intermediate Algebra	3
1	EE 111	Electrical Fundamentals I	4
			<u>15</u>
<b>*Six Weeks Internship</b>			
	CT 199	On-the-Job Training—40 hour week (Between 2nd and 3rd term)	6
			<u>6</u>



<b>Third Term</b>			
2	EE 122	Electrical Fundamentals II	4
3	BPR 110	Blueprint Reading for Construction Trades	2
4	PSY 150	Industrial Psychology	3
3	EE 102	Servicing Techniques II	4
			<u>13</u>

<b>Fourth Term</b>			
4	CT 263	Building Wiring, Electric Calculations	4
4	ARC 207	Estimating Construction Costs	2
4	EE 220	Electrical Installation and Maintenance Practices	4
3	PLS 108	Government and Society	3
			<u>13</u>

**Total Credit Hours for Program: 64**

\*Or Approved Elective

### **Construction Technology (Wood, Plastics, Metal)**

**Two-Year Program: Code 828**

**Advisors: David Byrd, Clarence Helzerman**

A two-year program providing career training as a construction technician. Carpentry work falls into two main categories—the first (rough work) includes erecting basic wood framework, some concrete sheathing, and scaffold erection; the second (finish work) encompasses interior wood trim work and demands craftsmanship. The expert carpenter can handle both rough and finish carpentry. The carpenter uses such modern tools as power saws, drills, and ramset guns. Hand tools, however, are still vital to this work. Although wood is still the main building material, the carpenter also installs woods, plastics, and nonferrous metals. The majority of carpenters are employed by contractors and builders. Some are self-employed, and others may alternate between working for contractors on large jobs and working for themselves on small ones. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ARC 117	Construction Materials	3
1	CT 121	Carpentry—Framing	4
1	ENG 100	Communication Skills	4
1	MTH 151	Applied Algebra	4
			<u>15</u>
<b>Second Term</b>			
2	BPR 100	Blueprint Reading for Construction Trades	2
2	CT 221	Carpentry—Finishing	4
2	ARC 100	Specifications	1
2	MTH 169	Intermediate Algebra	4
			<u>11</u>
<b>Six Weeks Internship</b>			
3	CT 199	On-the-Job Training—40 hour week	6
3	CT 199	On-the-Job Training—40 hour week	6
			<u>12</u>

<b>Third Term</b>			
3	CT 242	Carpentry—Woods, Plastics, Nonferrous Metals	4
4	BPR 110	Blueprint Reading for Construction Trades	2
4	ARC 109	Site Layout	3
4	ARC 207	Estimating Construction Costs	2
4	PSY 150	Industrial Psychology	3
			<u>14</u>
<b>Fourth Term</b>			
5	CT 262	Carpentry—Building Component Fabrication	4
5	ARC 208	Estimating Construction Costs	2
5	PLS 108	Government and Society	3
5	SPH 101	Fundamentals of Speaking	3
			<u>12</u>

**Total Credit Hours for Program: 64**

**Drafting Detailing**  
**One-Year Program: Code 827**  
**Advisors: R. James Packard, Augustus Stager**

A one-year program providing career training as a drafter detailer. The drafter prepares clear, complete, and accurate working plans and detail drawings from rough sketches, specifications, and calculations of engineers and designers to be used for engineering or manufacturing purposes. His/her drawings usually provide a number of different views of the object, must be exact and accurate and usually include information concerning the materials to be used. He/she uses a variety of instruments including protractors, compasses, triangles, squares, drawing pens, and pencils. He/she may specialize in a particular field such as mechanical, electrical, electronic, and aeronautical drafting. Drafting-detailers are those individuals who make complete drawings giving dimensions, materials, and any other necessary information of each part shown on the layout.  
*High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ID 111	Industrial Drafting I	4
2	ID 112	Descriptive Geometry	4
3	MT 111	Machine Shop Theory and Practice	4
4	MTH	Mathematics Elective	4
			<u>16</u>
<b>Second Term</b>			
3	TCA 100	Perspective and Parallel Projection	4
2	ID 114	Industrial Drafting II	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	MT 103	Introduction to Materials	3
4	ENG	English Elective	4
			<u>18</u>

**Total Credit Hours for Program: 34**

**Industrial Drafting (Product Option)**  
**Two-Year Program: Code 826**  
**Advisors: R. James Packard, Augustus Stager**

A two-year program providing career training as an industrial drafting technician. Employing techniques of a drafter, this technician must have a working knowledge of all drafting implements and measuring devices. He/she assists mechanical and electrical engineers in executing drawings dealing with product improvement, new product development preparing the necessary drawings, sub-assembly drawings, assembly drawings and parts lists. He/she may perform follow-up documentation on new products. *High to very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ID 111	Industrial Drafting I	4
3	MT 111	Machine Shop Theory and Practice	4
2	ID 112	Descriptive Geometry	4
1	MTH 151	Applied Algebra	4
			16
<b>Second Term</b>			
2	PHY 110	Applied Physics	4
2	ID 114	Industrial Drafting II	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	MT 103	Introduction to Materials	3
2	MTH 152	Applied Geometry and Trigonometry	4
			18
<b>Third Term</b>			
3	ID 107	Mechanisms	4
4	ID 251	Fundamentals of Electronic Drafting I	3
5	TCA 100	Perspective and Parallel Projection	4
6	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
6	PSY 150	Industrial Psychology	3
			19
<b>Fourth Term</b>			
5	ID 240	Fundamentals of Product Design	4
6	ID 206	Fundamentals of Plant Layout*	3
7	ID 252	Fundamentals of Electronic Drafting II	4
7	PLS 108	Government and Society or	
	PLS 112	Introduction to American Government or	
	PLS 150	State and Local Government	
6	ID 230	Fundamentals of Machine Design	4
			18
<b>Total Credit Hours for Program: 70</b>			<b>18</b>

\*ID 199 On the Job Training may be substituted for ID 206 Fundamentals of Plant Layout.

**Industrial Drafting (Tooling Option)**  
**Two-Year Program: Code 825**  
**Advisors: R. James Packard, Augustus Stager**

A two-year program providing 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. He/she 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. *Average employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	ID 111	Industrial Drafting I	4
3	MT 111	Machine Shop Theory and Practice	4
2	ID 112	Descriptive Geometry	4
1	MTH 151	Applied Algebra	4
			<u>16</u>
<b>Second Term</b>			
2	PHY 110	Applied Physics	4
2	ID 114	Industrial Drafting II	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	MT 103	Introduction to Materials	3
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>18</u>
<b>Third Term</b>			
3	ID 107	Mechanisms	4
5	ID 213	Fundamentals of Die Drafting	4
5	TCA 100	Perspective and Parallel Projection	4
6	NC 100	Introduction to Numerical Control	3
6	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
			<u>19</u>
<b>Fourth Term</b>			
5	ID 206	Fundamentals of Plant Layout	3
5	ID 224	Fundamentals of Industrial Tooling*	3
7	NC 121	Programming for Numerical Control	3
7	PLS 108	Government and Society	3
7	PSY 150	Industrial Psychology	3
			<u>15</u>

**Total Credit Hours for Program: 67**

\*ID 199 On the Job Training may be substituted for ID 224 Fundamentals of Industrial Tooling.

**Mechanical Design Technology**  
**Two-Year Program: Code 825**  
**Advisors: R. James Packard, Augustus Stager**

A two-year program providing career training as a mechanical design technologist. Design technology is that part of the technological field which requires application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities. The Mechanical Design Technician will assist the engineer in designing, preparation of necessary

drawing and documentation in old or new product development, machinery and material handling equipment. He/she may also work as technical sales representatives, field engineering assistants, design specialists, engineering aides, draftspersons or as research and development technicians who build, test and experiment with mechanical apparatus. *High to very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	MTH 169	Algebra	4
2	PHY 111	Physics	4
1	ID 111	Industrial Drafting I	4
3	MT 111	Machine Shop Theory and Practice	4
			<u>16</u>
<b>Second Term</b>			
2	MTH 177	Trigonometry	4
2	PHY 122	Physics	4
2	ID 112	Descriptive Geometry	4
4	MLG 101	Industrial Materials	2
7	PLS 108	Government and Society or	
	PLS 112	Political Science or	
	PLS 150	State and Local Government	3
			<u>17</u>
<b>Third Term</b>			
3	ID 107	Mechanisms	4
6	FLP 111	Fluid Power Fundamentals*	4
5	ID 121	Fundamentals of Jigs and Fixtures	4
6	ENG 100	Communication Skills or	
	ENG. 111	English Composition I	4
7	PSY 100	Industrial Psychology	3
			<u>19</u>
<b>Fourth Term</b>			
4	ID 260	Statistics and Strength	4
6	ID 240	Fundamentals of Product Design	4
6	ID 230	Fundamentals of Machine Design	4
7	CPS 187	FORTTRAN Programming	4
			<u>16</u>

**Total Credit Hours for Program: 68**

\*ID 199 On the Job Training may be substituted for FLP 111 Fluid Power Fundamentals.

## **ELECTRICITY AND ELECTRONICS CAREERS**

**Digital Equipment Technology Program**  
**Two-Year Program: Code 835**  
**Advisors: Albert D. Robinson, Philip G. Mullins**

A two-year program designed to provide career training as a digital electronics technologist. Graduates of this program will: work effectively as a member of a

technical team in an open and objective manner; communicate effectively with programmers, engineers, other technicians, managers and customers using acceptable oral and written English; use the system documentation, diagnostic aids, and test equipment to effectively troubleshoot system problems after completing an on-the-job training program at his/her place of employment; apply basic electrical, electronic, electro-mechanism and information processing principles to the solution of practical servicing, maintenance and test problems; perform work in an ethical and professional manner; observe and apply the principles of electrical safety to protect personnel, test equipment and system components from injury or damage; adapt to the pace of constantly changing digital equipment technology by using manufacturers' technical information and vendors' training programs in order to maintain technical competence; be knowledgeable about where, how, and why digital equipment techniques are used for increased awareness of ethical, social and economic implications; have the training, experience, maturity and self-confidence to succeed at entry-level jobs on large computing systems.

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
4	EE 101	Servicing Techniques	4
1	EE 110	Electrical Applications I	2
1	EE 111	Electrical Fundamentals I	4
3	EE 137	Switching Logic	3
3	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
			<u>17</u>
<b>Second Term</b>			
2	EE 120	Electrical Applications	2
2	EE 122	Electrical Fundamentals II	4
4	EE 139	Computer Systems I	4
3	EE 211	Basic Electronics	4
		Approved Non-Technical Elective	3
			<u>17</u>
<b>Third Term</b>			
5	EE 230	Computer Systems II	4
4	EE 221	Computer Peripherals	3
5	EE 222	Digital Electronics I	4
7	EE 241	Digital Electronics II	4
9	PLS 108	Government and Society	3
			<u>18</u>
<b>Fourth Term</b>			
7	EE 235	Computer Systems III	4
8	EE 238	Electronic Analog Circuits	4
6	EE 240	Career Practices Seminar	2
7	EE 250	Microprocessors	4
		Approved Non-Technical Elective	3
			<u>17</u>
<b>Total Credit Hours for Program: 69</b>			

## Electrical Engineering Technology

Two-Year Program: Code 831

Advisors: William Cleary, Larry Kramer, Gary Downen, Phillip G. Mullins,  
Dean Russell, Albert Robinson, David Weyant, Kenneth Wheeler

A two-year program providing career training as an electrical engineering technician. An assistant electrical engineering technician works primarily in large manufacturing plants. His/her expertise is electrical power distribution within the plant, rotating machinery and the controls thereon. His/her training includes electrical fundamentals, transistor and other device theory, basic electrical code and construction practices as well as such basics as English, government, and psychology. *Average employability.*

*It may be necessary for students to enroll in Spring, Spring-Summer sessions to complete Associate degree requirements.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	EE 110	Electrical Applications I	2
1	EE 111	Electrical Fundamentals I	4
7	EE 137	Switching Logic	3
5	ID 102	Technical Drawing	4
1	MTH 169	Intermediate Algebra	4
			<hr/> 17
<b>Second Term</b>			
2	EE 120	Electrical Applications II	2
2	EE 122	Electrical Fundamentals II	4
3	EE 127	Industrial Electricity	4
3	EE 211	Basic Electronics	4
2	PSY 150	Industrial Psychology	3
			<hr/> 17
<b>Third (Fall) Term</b>			
3	EE 139	Computer Systems I	4
3	EE 210	Measurements and Instrumentation	4
6	EE 220	Electrical Installation and Maintenance Practices	4
8	ENG 100	Communication Skills or	4
	ENG 111	English Composition I	4
		Non-Technical Elective	3
			<hr/> 19
<b>Fourth (Winter) Term</b>			
8	EE 102	Servicing Techniques	4
	EE 238	Electronic Analog Circuits	4
8	EE 239	Electrical Design	3
8	EE 240	Career Practices	2
7	PLS 108	Government and Society	3
			<hr/> 16

**Total Credit Hours for Program: 69**

## ENGINEERING CAREERS

### Pre-Engineering Majors

#### Two-Year Program

Advisors: D. Billa, R. Bottorff, G. Kapp

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
	<b>First Term</b>		
1	MTH 191	Calculus I	5
	CPS 187	FORTRAN Programming	3
	ENG 111	English Composition I	4
	CEM 111	General Chemistry	4
			16
	<b>Second Term</b>		
	MTH 192	Calculus II	4
	CEM 122	General Chemistry	4
	ENG 122	English Composition II or an approved elective	3
	PLS 108	Government and Society or	
	PLS 112	Introduction to American Government or	
	PLS 150	State and Local Government	3
			14
	<b>Third Term</b>		
	MTH 293	Calculus III	4
	MTH 197	Linear Algebra	3
	PHY 211	Analytical Physics	5
	ENG 212	English Literature I or an approved elective	3
			15
	<b>Fourth Term</b>		
	MTH 295	Differential Equations	4
	PHY 222	Analytical Physics	5
	ENG 213	World Literature I or an approved elective	3
	ID 100	Technical Drafting or	
	ID 111	Industrial Drafting	4
			16
<b>Total Credit Hours for Program: 61</b>			

## COMPUTER SCIENCE CAREERS

### Computer Science

#### Two-Year Transfer Program

Advisors: Roger Palay, Janet Remen, Martha Showalter

Full-Time Sequence	Course	Description	Hrs.
<b>First Term</b>			
	CPS 188	Introduction to ALGOL Programming or	4



CPS 166	Introduction to PASCAL Programming	
MTH 191	Calculus I	5
PLS 108	Government and Society or	3
PLS 112	Introduction to American Government or	
PLS 150	State and Local Government	
ENG 111	English Composition I	4
		<u>16</u>
<b>Second Term</b>		
CPS 288	Advanced ALGOL Programming or	4
CPS 286	Advanced PASCAL Programming	
MTH 192	Calculus II	4
PHY 211	Analytical Physics I	5
ENG 122	English Composition II	3
		<u>16</u>
<b>Third Term</b>		
CPS 290	Systems Design	4
EE 137	Switching Logic	3
MTH 293	Calculus III	4
PHY 222	Analytical Physics II	5
		<u>16</u>
<b>Fourth Term</b>		
Choice of two courses from:		
CPS 291	File Structures	
CPS 292	Assembler Language Programming	8
CPS 294	Comparative Languages	
PSY 100	Introduction to Psychology	3
	3 credits of approved electives in Humanities	3
		<u>14</u>
<b>Total Credit Hours for Program: 62</b>		

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

## INDUSTRIAL TECHNOLOGY CAREERS

### Electro-Mechanical Technology

**Two-Year Program: Code 854**

**Advisor: George Agin**

A two-year program providing career training as an electro-mechanical technician. The 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. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
3	EE 111	Electrical Fundamentals I	2
3	EE 110	Electrical Applications I	4
1	MT 111	Machine Shop Theory and Practices	4
1	MTH 151	Applied Algebra	4
6	ENG 100	Communication Skills	
	ENG 111	English Composition I	4
			<u>18</u>
<b>Second Term</b>			
4	EE 120	Electrical Applications II	2
4	EE 122	Electrical Fundamentals II	4
1	ID 111	Industrial Drafting	4
2	MT 122	Machine Tool Operation and Set-Up	4
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>18</u>
<b>Third Term</b>			
2	NC 100	Introduction to Numerical Control	3
2	FLP 111	Fluid Power Fundamentals	4
1	EE 127	Industrial Electricity	4
6	PLS 108	Government and Society	3
5	MLG 101	Industrial Materials	2
			<u>16</u>
<b>Fourth Term</b>			
3	MT 123	Machine Tool Operation and Set-Up	4
5	EE 137	Switching Logic	3
5	WF 100	Fundamentals of Welding	2
5	NC 121	Manual Programming for Numerical Control	3
2	PHY 111	General Physics	4
			<u>16</u>
<b>Total Credit Hours for Program: 68</b>			

**Fluid Power Technology  
Two-Year Program: Code 841  
Advisor: George Agin**

A two-year program providing 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. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	FLP 111	Fluid Power Fundamentals	4
1	FLP 214	Basic Hydraulic Circuits	3
4	EE 111	Electrical Fundamentals I	4
1	MTH 169	Intermediate Algebra	4
			<u>15</u>
<b>Second Term</b>			
2	FLP 122	Hydraulic Pumps	3
2	FLP 226	Pneumatics	3
3	MT 111	Machine Shop Theory and Practice	4
3	WF 100	Fundamentals of Welding	2
7	SPH 101	Fundamentals of Speaking	3
			<u>15</u>
<b>Third Term</b>			
3	FLP 213	Hydraulic Controls	3
2	NC 100	Introduction of Numerical Control	3
5	ID 100	Technical Drawing	4
6	PHY 110	Applied Physics	4
7	ENG 100	Communication Skills	4
			<u>18</u>
<b>Fourth Term</b>			
4	FLP 225	Advanced Hydraulic Circuits	3
		Elective in Industrial Technology	4
6	MT 122	Machine Tool Operation and Set-Up	4
8	PLS 108	Government and Society	3
8		Elective	3
			<u>17</u>

**Total Credit Hours for Program: 65**

**Hydraulic Assembly**  
**One-Year Program: Code 842**  
**Advisor: George Agin**

A one-year program providing 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. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	FLP 111	Fluid Power Fundamentals	4

2	FLP 214	Basic Hydraulic Circuits	3
3	WF 111	Welding and Fabrication	4
4	MTH 151	Applied Algebra	4
			<u>15</u>

**Second Term**

2	FLP 122	Hydraulic Pumps	3
1	FLP 226	Pneumatics	3
2	BPR 101	Blueprint Reading	3
4	MT 100	Machine Shop Theory	3
4	SPH 101	Fundamentals of Speaking	3
			<u>15</u>

**Total Credit Hours for Program: 30**

**Mechanical-Engineering Technology**

**Two-Year Program: Code 851**

**Advisors: Burton Lowe, Roger Dick**

A two-year program providing career training as a mechanical engineering technician. The technician's duties include: applying theory and principles of mechanical engineering to develop and test machinery and equipment under the direction of an engineering staff; reviewing project instructions and blueprints to determine test specifications, procedures, and objectives; testing equipment and reviews problems involved to provide possible solutions; preparing detailed drawings or sketches for the drafting room or by request for fabrication by machine, wood, or sheet metal shops; setting up and conducting tests and experiments of complete units and components to investigate engineering theories regarding improvement in design or performance of equipment; analyzing indicated and calculated test results against design or rated specification and objectives of tests and modifies equipment to meet specifications; recording test procedures, results, and suggestions for improvement; preparing engineering drawings, charts, and graphs. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
	<b>First Term</b>		
1	MT 111	Machine Shop Theory and Practice	4
1	BPR 101	Blueprint Reading	3
1	MTH 151	Applied Algebra	4
5	PHY 110	Applied Physics	4
3	ENG 111	English Composition I or	
	ENG 100	Communication Skills	4
			<u>19</u>
	<b>Second Term</b>		
2	MT 122	Machine Tool Operation and Set-Up	4
2	ID 111	Industrial Drafting	4
2	MTH 152	Applied Geometry and Trigonometry	4
	NC 100	Introduction to Numerical Control	3
			<u>15</u>
	<b>Third Term</b>		
3	MT 103	Introduction to Materials	3
5	EE 111	Electrical Fundamentals I	4
5	FLP 111	Fluid Power Fundamentals	4

3	MT 123	Machine Tool Operation and Set-Up	4
5	NC 122	N/C Machine Tool Operation	3
			<hr/> 17
	<b>Fourth Term</b>		
4	MT 201	Machine Tool Technology	4
4	MLG 123	Electrical	2
4	FLP 214	Basic Hydraulic Circuits	3
6	PLS 108	Government and Society	3
	NC 121	Manual Programming for Numerical Control	3
			<hr/> 15

**Total Credit Hours for Program: 66**

**Numerical Control Machine Operation**  
**One-Year Program: Code 872**  
**Advisor: George Agin**

A one-year program providing career training as a numerical control machine operator. The numerical control machine operator runs machines which are controlled by input from various sources. He/she pushes buttons to make the machine do a variety of functions including setting the tool in position, boring, turning, drilling, or cutting. He/she must have a knowledge of what tool (bit, drill, etc.) is designed to do what function. He/she also must acquaint himself/herself with his/her machine and its maintenance. He/she must know how to read blueprints and be able to use precision measuring devices. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
	<b>First Term</b>		
1	NC 100	Introduction to Numerical Control	3
1	MT 111	Machine Shop Theory and Practice	4
3	ID 100	Technical Drawing or	
	ID 111	Industrial Drafting	4
1	MTH 151	Applied Algebra	4
			<hr/> 15
	<b>Second Term</b>		
2	NC 121	Manual Programming for Numerical Control	3
2	NC 122	Numerical Control Machine Tool Operator	3
3	MT 122	Machine Tool Operator and Set-Up	4
4	ENG 100	Communication Skills	4
4	MTH 152	Applied Geometry and Trigonometry	4
			<hr/> 18

**Total Credit Hours for Program: 33**

**Numerical Control Technology**  
**Two-Year Program: Code 871**  
**Advisor: George Agin**

A two-year program designed to provide career training as a numerical control technician. The numerical control technician has to be able to perform all the

duties of the numerical control machine operator and more, in that he/she must also be able to program the machine to do its proper functions. He/she must be able to make minor repairs to the machine and maintain it. He/she also must have a knowledge of blueprints and be able to use precision measuring instruments. He/she is responsible for the part set up and the designing of the part holding fixture. The numerical control technician must be good with trigonometry and must be able to program the controls either manually or with the assistance of a computer. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	NC 100	Introduction to Numerical Control	3
1	MT 111	Machine Shop Theory and Practice	4
3	ID 100	Technical Drawing or	
	ID 111	Industrial Drafting	4
1	MTH 151	Applied Algebra	4
			<u>15</u>
<b>Second Term</b>			
2	NC 121	Manual Programming for Numerical Control	3
2	NC 122	N/C Machine Tool Operation	3
4	MT 122	Machine Tool Operation and Set-Up	4
4	ID 112	Descriptive Geometry	4
1	MTH 152	Applied Geometry and Trigonometry	4
			<u>18</u>
<b>Third Term</b>			
3	NC 213	Compact II Computer Programming	4
5	ID 121	Theory of Jigs and Fixtures	2
7	PLS 108	Government and Society	3
6	ENG 100	Communication Skills	4
6	CPS 187	FORTRAN Programming	3
			<u>16</u>
<b>Fourth Term</b>			
4	NC 224	APT III Computer Programming	4
4	NC 225	Numerical Control Graphics	4
2	NC 111	Manufacturing Processes for N/C	4
		Elective*	3
			<u>15</u>

**Total Credit Hours for Program: 64**

\*Electives as Recommended by Advisor

### **Toolroom Machine Operation** **One-Year Program: Code 853** **Advisors: Roger Dick**

A one-year program designed to provide career training as a toolroom machine operator. As a toolroom machine operator, the worker finds himself/herself in the largest group of the metalworking trades. Machine tools are stationary, power-driven machines which hold the metal that is to be cut, shaved, ground or drilled. Some of the more common are engine lathes, turret lathes, grinding machines,

drilling machines, and milling machines. Machine tool operators use these tools to shape metal to exact dimensions. A semi-skilled worker operates a machine tool on which the speeds and operation sequence have been set by a more skilled employee. He/she places the metal stock in the machine and makes sure it is secured tightly. He/she then checks to make sure that the machine has done a proper job through the use of simple measuring devices. A skilled operator usually works with a single type of machine. He/she plans and sets up the correct sequence of operation based on blueprint information. He/she adjusts speed and other controls and selects the proper cutting tools or instruments for the operation. He/she must also know how to use all the special attachments for the machine, plus be able to use precision measuring instruments. *High employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	MT 111	Machine Shop Theory and Practice	4
1	BPR 101	Blueprint Reading	3
3	MT 103	Introduction to Materials	3
1	MTH 151	Applied Algebra	4
3	ENG 100	Communication Skills	4
			<u>18</u>
<b>Second Term</b>			
2	MT 122	Machine Tool Operation and Set-Up	4
2	NC 100	Introduction to Numerical Control	3
3	ID 100	Technical Drawing	4
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>15</u>

**Total Credit Hours for Program: 32**

**Welding Technology**  
**Two-Year Program: Code 891**  
**Advisors: Daniel Gray, William Figg, Clyde Hall**

A two-year program designed to provide 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 learn all phases of welding: positioning, fitting, and welding 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; selecting equipment and planning layout, assembly and welding, applying knowledge of geometry, physical properties of metal, effects of heat, allowances for thicknesses, machining weld shrinkage, and welding techniques, laying out, positioning, aligning, and fitting components together; securing parts in position for welding; setting up equipment and welding parts using arc, gas-shielded arc, tig and mig, submerged arc, or gas-welding equipment; assembling/repairing parts or products; using cutting torch, straightening press and handtank. Upon completion of this program, he/she can also be a foreman, sales representative, or specialist. *Very high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	WF 111	Welding (Basic Oxy-Acetylene)	4
2	WF 112	Welding (Basic Arc)	4
7	MT 100	Machine Shop Theory	3
7	BPR 101	Blueprint Reading	3
3	ENG 091	English Fundamentals or	
	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
			<u>18</u>
<b>Second Term</b>			
3	WF 123	Welding (Advanced Oxy-Acetylene)	4
4	WF 124	Welding (Advanced Arc)	4
1	MTH 151	Applied Algebra	4
6	ID 100	Technical Drawing	4
			<u>16</u>
<b>Third Term</b>			
5	WF 215	Welding (Tig)	4
4	PSY 150	Industrial Psychology	3
5	ID 112	Descriptive Geometry	4
4	WF 210	Welding Metallurgy	3
			<u>14</u>
<b>Fourth Term</b>			
6	WF 226	Welding (Specialized)	4
9	FLP 111	Fluid Power Fundamentals	4
8	MTH 152	Applied Geometry and Trigonometry	4
9	PLS 108	Government and Society	3
8	WF 227	Basic Fabrication	3
			<u>18</u>

**Total Credit Hours for Program: 66**

**Welding and Mechanics Combination**  
**One-Year Program: Code 892**  
**Advisors: Daniel Gray, William Figg, Clyde Hall**

A one-year program designed to provide career training as a combination welder-mechanic. The welder-mechanic welds metal parts together according to layouts, blueprints, or work orders using gas welding or brazing and any combination of arc-welding processes. He/she performs related tasks such as frame cutting and grinding. He/she also may repair broken or cracked parts, fill holes, and increase size of metal parts. *High Employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	WF 111	Welding (Basic Oxy-Acetylene)	4
2	WF 112	Welding (Basic Arc)	4
4	ENG 091	English Fundamentals	4
1	ID 100	Technical Drawing	4
			<u>16</u>



<b>Second Term</b>			
3	WF 123	Welding (Advanced Oxy-Acetylene)	4
4	WF 124	Welding (Advanced Arc)	4
5	MTH 151	Applied Algebra	4
5	ID 112	Descriptive Geometry	6
			<u>16</u>

**Total Credit Hours for Program: 32**

## **VISUAL ARTS CAREERS**

### **Commercial Art**

**Two-Year Program: Code 882**

**Advisor: Dennis Guastella and John Martin**

A two-year program providing career training as a commercial artist. The commercial artist deals with an interesting and exciting variety of professional people who will include executives, associates, clients, specialists, editors, copywriters, and representatives of supplying organizations such as typographers, papermakers, platemakers, printers, binders and other specialists in the reproduction arts. A commercial artist is an artist for commerce—not a fine artist; however, a great number of artists and designers work in the field commonly known as "graphic arts". These creative people have one thing in common: they accept and work on projects and commissions with definite objectives for clients and employers. The objects and items of their creations are planned to entertain, inform, instruct, or sell. A few of the areas the commercial artist may work in are package design, professional publications, crafts, industrial design, book illustrations, annual reports, textile design, magazines, TV advertising, jewelry design, trade publications, display design, automotive design, in-house publications, and medical illustration. Multi-talented individuals who can write copy, who are experienced in design and reproduction of material, and who understand marketing techniques and data processing are in greatest demand and will command the highest salaries. A special 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, lettering, knowledge of materials (paper, ink, print), fundamental design, and illustration will be minimum prerequisites for obtaining job experience. *Average to high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
2	TCA 110	Lettering and Layout	4
2	TCA 100	Prospective Drawing	4
1	ART 112	Basic Design	3
1	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
2	MTH 090	Occupational Mathematics or	
	PHY 110	Applied Physics	3-4
			<u>18-19</u>
<b>Second Term</b>			
1	ART 112	Basic Design	3

3	TCA 121	Advertising Layout	4
3	PHO 111	Photography	4
4	PSY 150	Industrial Psychology	3
	PLS 108	Government and Society	3
			<u>7</u>
	<b>Third Term</b>		
5	TCA 101	Technical Illustration	4
5	ART 140	Life Drawing	3
6	TCA 122	Technical Rendering	4
6	TCA 226	Commercial Display	4
			<u>15</u>
	<b>Fourth Term</b>		
7	TCA 120	Commercial Rendering	4
7	TCA 228	Airbrush Techniques	4
8	TCA 236	Specialized Study*	4
8	PLS 108	Government and Society	3
8	PSY 150	Industrial Psychology	3
			<u>3</u>
			<u>18</u>

**Total Credit Hours for Program: 66-67**

\*PHO 218 may be substituted for 3 credits of TCA 236.

**Photographic Assisting**  
**One-Year Program: Code 886**  
**Advisors: J. Raymond Steinbach**

A one-year program providing career training as a photographic assistant. The photographic assistant helps the photographer by being able to perform the following: process negative and positive prints, 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. *Average to high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
	<b>First Term</b>		
1	PHO 111	Photography	4
3	ART 112	Basic Design	3
1	MTH 090	Occupational Mathematics	3
4	ENG 100	Communication Skills	4
5	PLS 108	Government and Society	3
			<u>17</u>
	<b>Second Term</b>		
2	PHO 112	Darkroom Techniques	5
4	PHO 114	Basic Color Photography	3
4	TCA 227	Graphic Reproduction	4

3	PHO 115	Photo Retouching	2
2	PHO 113	Studio Techniques	3
			<u>17</u>

**Total Credit Hours for Program: 34**

**Photographic Technology**  
**Two-Year Program: Code 885**  
**Advisors: J. Raymond Steinbach**

A two-year program with two options providing career training as a photographic technician. 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, he/she solves problems 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. *High employability.*

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
<b>First Term</b>			
1	PHO 111	Photography	4
3	ART 112	Basic Design	3
1	MTH 090	Occupational Mathematics	3
4	ENG 100	Communication Skills	4
6	PLS 108	Government and Society	3
			<u>17</u>
<b>Second Term</b>			
2	PHO 112	Darkroom Techniques	5
2	PHO 113	Studio Techniques	3
6	PHO 114	Basic Color Photography	3
4	TCA 227	Graphic Reproduction	4
2	PHO 115	Photo Retouching	2
			<u>17</u>
<b>Third Term</b>			
5	PHO 220	Advanced Studio Techniques	3
5	PHO 221	Advanced Darkroom Techniques	3
7	PHO 222	Advanced Color Photography	3
7	PHO 223	Photographic Occupations	2
3	MGT 209	Small Business Management	3
			<u>14</u>
<b>Fourth Term</b>			
9	PHO 229	Freelance Operations	3
8	PHO 230	Specialized Studies in Photography	2-4
9	PHO 231	Portfolio Seminar	2
7	PSY 150	Industrial Psychology	3
		1 elective (3 credit minimum)	3
			<u>13-15</u>

**Total Credit Hours for Program: 61-63**

**Photographic Technology  
(Marketing Option)  
Two-Year Program: Code 887  
Advisors: J. Raymond Steinbach**

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
1	PHO 111	Photography	4
1	MTH 090*	Occupational Mathematics	3
4	BUS 140	Introduction to Business	3
4	ENG 100	Communication Skills	4
5	PLS 108	Government and Society	3
			17
<b>Second Term</b>			
2	PHO 112	Darkroom Techniques	5
2	PHO 113	Studio Techniques	3
5	PHO 114	Basic Color Photography	3
3	MGT 209	Small Business Management	3
5	ACC 091	Fundamentals of Accounting	3
			17
<b>Third Term</b>			
3	PHO 220	Advanced Studio Techniques	3
3	PHO 221	Advanced Darkroom Techniques	3
6	PHO 222	Advanced Color Photography	4
6	PHO 223	Photographic Occupations	3
6	MGT 160	Principles of Salesmanship	3
			16
<b>Fourth Term</b>			
8	PHO 229	Freelance Operations	3
7	EC 211	Principles of Economics	3
7	BUS 111	Business Law	3
7	MGT 250	Principles of Marketing	3
8	MGT 260	Sales Management	3
			15
<b>Total Credit Hours for Program: 65</b>			

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

**Technical Illustration  
Two-Year Program: Code 884  
Advisor: John Martin, Dennis Guastella**

A two-year program providing career training as a technical illustrator. The technical illustrator program places emphasis on the design and execution of a portfolio of finished art of the type found in newspaper and magazine advertisements, editorials and story illustrations, posters, point-of-purchase displays, window displays, product and package displays. The ability to understand and visualize technical information, attention to detail and artistry, and a liking for precision drawing are essential skills for this occupation. Graduates may be

employed in art studios which serve advertising agencies, art studios in the automotive business, display studios, the art departments of newspapers, and art studios of department stores. *Average to high employability.*

<b>Part-Time Sequence</b>	<b>Full-Time Course</b>	<b>Sequence Description</b>	<b>Hrs.</b>
<b>First Term</b>			
2	TCA 110	Lettering and Layout	4
1	ART 111	Basic Drawing	3
2	ID 100	Technical Drawing or	
	ID 111	Industrial Drafting	4
1	BPR 100	Blueprint Reading for Construction Trades or	
	BPR 101	Blueprint Reading	2-3
1	MTH 090	Occupational Mathematics or	
	PHY 110	Applied Physics	3-4
			16-18
<b>Second Term</b>			
3	TCA 100	Perspective Drawing	4
4	TCA 227	Graphic Reproduction	4
4	PHO 111	Photography	4
3	ENG 100	Communication Skills or	
	ENG 111	English Composition I	4
			16
<b>Third Term</b>			
5	TCA 101	Technical Illustration	4
6	BPR 103	Sheet Metal Blueprint Reading and Layout or	
	ID 112	Descriptive Geometry	3-4
5	TCA 122	Technical Rendering	4
6	TCA 236	Specialized Study*	2
6	PSY 150	Industrial Psychology	3
			16-17
<b>Fourth Term</b>			
7	TCA 226	Commercial Display	4
7	TCA 120	Commercial Rendering	4
8	TCA 236	Specialized Study*	2
8	PLS 108	Government and Society	3
8	TCA 228	Airbrush Techniques	4
			17

**Total Credit Hours for Program: 65-68**

\*PHO 115 may be substituted for 3 credits of TCA 236.

## **APPRENTICE AND EMPLOYEE TRAINING AND TRADE RELATED INSTRUCTION**

*What is apprenticeship?* 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.

Brief references to apprenticeship as a method for training skilled workers are found in histories of Greece, Rome, and China, but its golden age was the 12th century when European Guilds developed rigid training standards and requirements. American apprenticeships existed in Colonial times although the many skilled artisans arriving from the Old World probably limited the need to develop additional craftsmen. The Fitzgerald Act, passed by Congress in 1937, signaled the development of national standards for apprenticeship training, and the endeavor became a co-operative one supported by federal and state governments, labor unions, other employee groups, and employers. Today, apprentices are trained in over 300 occupations.

Apprenticeships offer an alternative route to training and employment, and 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. Fifth, because national standards have been established, geographic mobility is assured and employers throughout the United States will recognize the apprenticeship certificate.

### **Manufacturing and Construction**

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

### **Apprentice Training and Employee Training**

Required related instruction is provided for most apprenticable trades. The College's TRI coordinator 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, and the Michigan State Department of Education.

Sponsoring firms are invited to contact the College concerning individual employees who wish to participate.

### **Pre-Apprenticeship Training**

Individuals who desire to enter an apprenticeship program, but who have not passed the required entrance examination are invited to contact the College counseling staff or the TRI coordinator. An individual pre-apprenticeship curriculum can be arranged which will help 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 Program for Skilled Tradesmen**

The Associate Degree can be awarded to skilled tradesmen upon earning sixty (60) hours or more of credit and complying with other College requirements. All credits earned in the Trade Related Instruction Program may be applied to the Degree. Credit earned at other institutions offering trade related subjects will be evaluated and may be applicable.



## **CURRICULUM**



# CURRICULUM

*In this section descriptions of all credit courses offered at Washtenaw Community College are listed alphabetically. The number of hours each class meets per week is indicated if it is different from the number of credit hours for the class (i.e., 3 credit hours = 3 hours of class per week). This applies to a 15 week session. During short terms the number of class hours per week increases.*

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

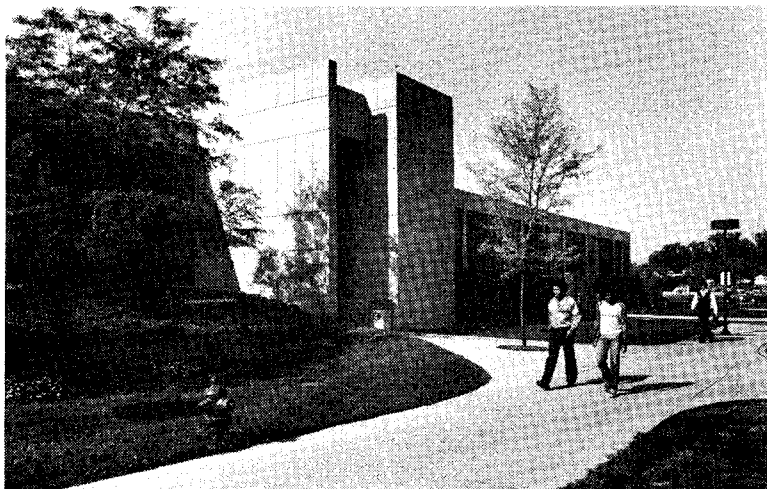
## **189. STUDY PROBLEMS** . . . . . 2-8 credit hours

Prerequisite: Consent of area coordinator

Directed activities in major occupational and selected general education areas; a period of concentrated effort to an assigned problem working with faculty or a recognized specialist in the occupation; the demonstration of the individual's understanding and skill development within the selected occupation or area.

## **199. ON-THE-JOB TRAINING** . . . . . 1-6 credit hours

The College offers cooperative occupational experience programs to interested and qualified students in both the Occupational and General Education areas. These programs are designed to produce a learning situation (training station) which would not be possible to reproduce in a campus environment.





The student may be placed in a training station in business and industrial firms as well as educational, institutional and governmental establishments. Training station assignments may be arranged on (a) a half-day basis (b) daily alternating work and study (c) alternating work and study each semester (d) a summer experience program.

Students planning to enroll for credit must first review their plans with their advisors and the Instructional Coordinator or Associate Deans to obtain approval. No more than six credits may be applied to a certificate of achievement and no more than twelve credits may be applied to Associate Degree requirements.

## **ACCOUNTING (ACC 41)**

### **ACC 091. FUNDAMENTALS OF ACCOUNTING I . . . . . 3 credit hours**

Prerequisite or Corequisite: MTH 090

Introduces the student to the theory and practice of modern double-entry accounting systems and procedures. Emphasis placed on journalizing and posting, adjusting and closing books and the preparation of financial statements. Designed for the non-accounting major; does not give transfer college credit.

### **ACC 092. FUNDAMENTALS OF ACCOUNTING II . . . . . 3 credit hours**

Prerequisite: ACC 091

A continuation of Fundamentals of Accounting 091, which includes purchases, sales, inventories, depreciation, accruals, and the end of the year procedures with financial statements. Designed for non-accounting majors and does not give transfer college credit.

### **ACC 111. PRINCIPLES OF ACCOUNTING I . . . . . 3 credit hours**

Prerequisite or Corequisite: MTH 163 or MTH 167

An introductory course of accounting principles and theory with emphasis on the accounting cycle, receivables and payables, depreciation, inventories, payroll, deferrals and accruals, systems and controls. Required of all Accounting majors and Business Administration transfer students.

### **ACC 122. PRINCIPLES OF ACCOUNTING II . . . . . 3 credit hours**

Prerequisite: ACC 111

A continuation of Principles of Accounting 111 covering partnerships, corporations, and an introduction to cost accounting, budgets and analysis of financial reports. Required of all Accounting majors and Business Administration transfer students.

**ACC 200. PERSONAL TAX ACCOUNTING . . . . . 3 credit hours**

Prerequisite: ACC 111 or equivalent

An introductory course in federal and state personal income taxes, federal and state payroll taxes, and other general taxes.

**ACC 213. INTERMEDIATE ACCOUNTING . . . . . 3 credit hours**

Prerequisite: ACC 122

Further study of generally accepted accounting principles as they apply to financial statements, cash, and temporary investments, receivables, current liabilities, fixed assets, long-term investments, capital and earnings. Required of all Accounting majors. Offered Fall Semester only.

**ACC 225. COST ACCOUNTING . . . . . 3 credit hours**

Prerequisite: ACC 122

Principles and procedures for measuring and controlling costs. Cost-volume profit relationships, job order accounting, budgets, standard costs, relevant costs, process accounting. Required of Accounting majors. Offered Winter Semester only.

## **ANTHROPOLOGY (ANT 01)**

**ANT 150. RELIGIONS OF THE WORLD . . . . . 3 credit hours**

A study of the religions of non-literate peoples and of the major religions of the world from an anthropological perspective. Emphasis on the relationship between religious systems and other socio-cultural systems and on the role of religion in the inner and outer lives of individuals.

**ANT 160. CULTURES OF LATIN AMERICA . . . . . 3 credit hours**

Provides understanding of current events and processes in Latin America. Familiarizes students with pre-Columbian civilizations of Mexico and Peru and Spanish-Portugese civilization as a background for understanding such contemporary developments as economic underdevelopment and cultural dependence. Dilemmas of modern peasantry and destruction of Amazonian tribes receive special emphasis.

**ANT 201. INTRODUCTION TO CULTURAL ANTHROPOLOGY . . . . . 3 credit hours**

A study of the stages of man's cultural development beginning with hunting and gathering and ending with the development of the state. Change in contemporary peasant societies will also be studied.

**ANT 202. INTRODUCTION TO PHYSICAL ANTHROPOLOGY** . . . . . 3 credit hours

A study of primate behavior and evolution from Prosimian to man. Particular attention will be given to the part environment plays in molding behavior characteristics of a species. A number of films will be used in the process of considering the question of what is human nature and how does it differ from qualities we share with other primate species such as chimpanzees?

**ANT 207. SOURCES OF INDIAN TRADITION** . . . . . 3 credit hours

An introduction to the traditions of India with emphasis on the role experiential knowledge has played in Indian culture. The art, science and philosophy of Indian classical dance, yoga and meditation will be examined.

**ANT 211. INTRODUCTION TO THE PHILOSOPHY AND PRACTICE OF YOGA** . . . . . 3 credit hours

An introduction to the philosophy of experiencing knowledge. This course will deal with classical writings, the practice of yoga and lectures on the relationship of anatomy and physiology to yoga practice.

**ANT 222. PHILOSOPHY AND PRACTICE OF YOGA II** . 3 credit hours

Prerequisite: ANT 211

A continuation of Anthropology 211. More time will be spent relating the knowledge gained from practicing the yoga asanas.

**ANT 223. PSYCHO-PHYSIOLOGY OF YOGA** . . . . . 3 credit hours

Prerequisite: ANT 222

Research on the psychological and physiological changes brought about by the practice of yoga asanas.

## **ARCHITECTONICS (ARC 61)**

**ARC 100. SPECIFICATIONS** . . . . . 1 credit hour

Prerequisite: ARC 117

An introduction to building construction specifications. The organization and preparation of specifications for construction contracts.

**ARC 109. SITE LAYOUT** . . . . . 3 credit hours

A lecture and field course dealing with the principles of site layout of construction projects. Approved site plans, builders level transit, tape chain and preferred equipment are demonstrated and used.

**ARC 111. ARCHITECTURAL DRAWING I. . . . . 6 credit hours**

An introduction to light frame construction and requirements including the preparation of working drawings for the construction of structures classified as "Light Frame Structures." (12 hours per week)

**ARC 117. CONSTRUCTION MATERIALS. . . . . 3 credit hours**

A survey 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 BUILDINGS. . . . . 3 credit hours**

The drafting of mechanical and electrical systems in buildings from prepared design data is emphasized. A laboratory course with lectures related to the laboratory. Students must have drafting instruments.

**ARC 122. ARCHITECTURAL DRAWING II. . . . . 6 credit hours**

Prerequisite: ARC 111

Preparing architectural presentation drawings from diagrammatic sketches, pictures, surveys and conference notes. The student is taught to develop preliminary studies, presentation drawings and working drawings for an architectural project utilizing masonry construction. (12 hours per week)

**ARC 150. PRESENTATION DRAWINGS AND MODELS. . . . . 4 credit hours**

Comprehensive knowledge of and 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, 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 and ARC 120

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 included.

**ARC 208. ESTIMATING CONSTRUCTION COSTS II. . . 2 credit hours**

Prerequisite: ARC 207

Advanced course in estimating construction cost. For large scale construction projects using methods taught in Construction Estimating 207.



**ARC 209. SURVEYING** . . . . . 3 credit hours

Prerequisite: MTH 151

A lecture and field course on the process of surveying and the analysis of survey data. (4 hours per week)

**ARC 210. STRUCTURE IN ARCHITECTURE** . . . . . 2 credit hours

Prerequisite: PHY 111 recommended

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

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. (12 hours per week)

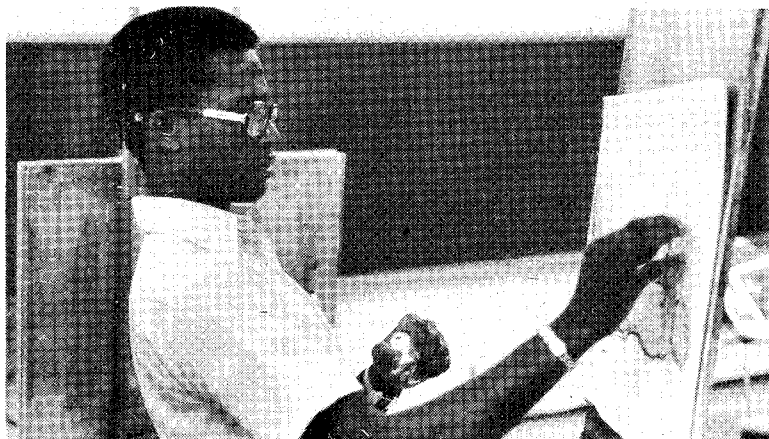
**ARC 224. ARCHITECTURAL DRAWING IV** . . . . . 6 credit hours

Prerequisite: ARC 213

Major problems in architectural drawing are studied through the preparation of program and drawings for a large size building project such as a shopping center or multi-story structure. (12 hours per week)

**ARC 226. REPROGRAPHICS** . . . . . 4 credit hours

Lecture and laboratory course on how to incorporate photography into architectural presentation and working drawings. (6 hours per week)



## **ART (ART 17)**

**ART 034. COPPER ENAMELING** . . . . . 3 credit hours  
 A study and application of the art of copper enameling.

**ART 101. DRAWING AND PAINTING** . . . . . 3 credit hours  
 For students with no previous studio work who wish to experience an introductory art course and develop individual creative expression. Instruction in the fundamentals of color and composition involving basic use of art media. Not intended to take the place of Basic Drawing III or Painting 114.

**ART 106. BASIC JEWELRY MAKING** . . . . . 2 credit hours  
 An introductory course in basic jewelry making and design techniques working with metals and other jewelry materials. For the inexperienced art student. (3 hours per week)

**ART 111. BASIC DRAWING I** . . . . . 3 credit hours  
 Introduction to fundamentals of drawing. Through projects students are given experience in basic problems and issues of drawing. Emphasis on the training of the eye and the hand. Course serves as a basis for those who wish to improve their ability to think and articulate in visual terms. (6 hours per week)

**ART 112. BASIC DESIGN** . . . . . 4 credit hours  
 Study 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. Emphasis on experimentation and imagination to arrive at visual ordering. (6 hours per week)

**ART 113. BLACK DRAWING AND PAINTING . . . . . 3 credit hours**

Brings the drawing and painting talents of students into the arena of the Black experience. Work with layout composition, mural painting, water color, oil, pastel and ink drawing. Correlates art work into a Black concept and bridges some of the gaps between the various communities through visual means. (6 hours per week)

**ART 114. PAINTING . . . . . 3 credit hours**

The necessary skills of controlling the application of colored pigments to achieve a unified two dimensional surface. Emphasis on development of sustaining attitudes toward painting regardless of subject matter or style. (6 hours per week)

**ART 120. PORTRAIT PAINTING AND LIFE DRAWING . . . . . 3 credit hours**

Working from live models, students study anatomy, techniques in drawing and painting and visual expression. Multi-media. Clay modeling. Prefer some art background, although not required. (6 hours per week)

**ART 122. BASIC DRAWING II . . . . . 3 credit hours**

Prerequisite: ART 111

Complex problems of drawing are explored with greater emphasis placed on individual solutions. Several new media are introduced. (6 hours per week)

**ART 130. ART APPRECIATION . . . . . 3 credit hours**

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. Class discussion, short papers and projects.

**ART 140. LIFE DRAWING . . . . . 3 credit hours**

Drawing of the nude to develop visual acuity and self awareness. Emphasis on, but not limited to, gesture and contour drawing as a means towards graphic, conceptual and emotional communication through figure studies. (6 hours per week)

**ART 141. ART OF BLACK FOLKS . . . . . 3 credit hours**

Use of the visual concept of art to aid in the emergence of Black people in America. Covers the necessity to think, to develop and to manifest intelligence using art as the medium.

**ART 143. ART AND CULTURE OF  
AFRO-AMERICA**.....3 credit hours

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. Anthropological approach used to recognize the importance of history in understanding the present. Multi-media methods. Skill development and aesthetic competence emphasized.

**ASSESSMENT ADMINISTRATION  
(AA 45)**

**AA 111. ASSESSMENT ADMINISTRATION—BASIC** . . .3 credit hours

History of Property Taxation; Basic Administration; Public and Human Relations, (3 hours); Personal Property, (3 hours); Local Government Finance, (3 hours); General Property Tax Law, (6 hours); Assessment, Equalization and Appeals, (6 hours); Valuation Concepts, (3 hours); Property Descriptions, (3 hours); Agricultural Appraisals and/or Appraising Timber Lands, (3 hours).

**AA 122. ASSESSMENT ADMINISTRATION—  
INTERMEDIATE**.....3 credit hours

Prerequisite: AA 111

Continuation of Assessment Administration 111, including Property Descriptions, Parcel Numbering and Tax Mapping, (12 hours); Assessment, Equalization and Appeals, (9 hours); Aerial Photographic Interpretation, (6 hours); Local Government Finance, (3 hours).

**AA 123. ASSESSMENT ADMINISTRATION—  
ADVANCED**.....3 credit hours

Prerequisite: AA 122

Continuation of Assessment Administration 122, including Personal Property and Accounting Principles, (12 hours); Appeal Procedures, (12 hours); Assessment of Special Use Properties, (6 hours).

**AA 223. APPRAISAL—ADVANCED**.....3 credit hours

Prerequisite: AA 222

Continuation of Appraisal 222, including Aerial Photographic Interpretation, (3 hours); Income Approach to Value, (9 hours); Agricultural Appraisals, (3 hours); Commercial Appraisals, (6 hours); Industrial Appraisals, (6 hours); Appraising Timber Lands, (3 hours).



## **ASTRONOMY (AST 32)**

### **AST 100. INTRODUCTORY ASTRONOMY . . . . . 1 credit hour**

The sun, moon, planets and stars observed with telescope and through films and slides. Astronomy presented as a hobby as well as a basic science. No prior knowledge of astronomy is required. (2 hours per week, 7 weeks)

### **AST 111. GENERAL ASTRONOMY . . . . . 3 credit hours**

Survey of the solar system and the universe, designed for both transfer and vocational students. No previous mathematics or science 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. (4 hours per week)

### **AST 122. MODERN ASTRONOMY . . . . . 3 credit hours**

Prerequisite: MTH 097 and AST 111

A continuation of Astronomy 111, but with a more quantitative approach. Includes stellar evolution, quasars, black holes, UFOs and time travel. Students discover that truth is in fact stranger than fiction. (4 hours per week)

## **AUTO BODY REPAIR (ABR 59)**

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

### **ABR 111. AUTO BODY REPAIR FUNDAMENTALS . . . 4 credit hours**

Repairs made on damaged body panels while studying the working properties of automobile sheet metal and basic damage conditions. Analyzing typical damage conditions and establishing accepted repair procedures are part of course. (8 hours per week)

### **ABR 112. AUTO REFINISHING FUNDAMENTALS . . . 4 credit hours**

Methods and procedures used with automobile refinishing materials. 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. (8 hours per week)

**ABR 113. LIGHT BODY SERVICE . . . . . 1 credit hour**

Principles of alignment and servicing of body components. Students 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. (4 hours per week, 7½ weeks)

**ABR 114. APPLIED AUTO BODY WELDING . . . . . 1 credit hour**

Demonstration-lab course develops basic welding skills used in auto body repair. Types of welded joints used to repair or replace damaged panels with special emphasis on joint construction and heat control. (4 hours per week, 7½ weeks)

**ABR 123. BODY REPAIR APPLICATIONS . . . . . 4 credit hours**

Prerequisite: ABR 111

Continuation of Auto Body Repair 111. Lab work includes actual repair jobs to develop all of the basic bumping skills. Emphasis placed on quality and work habits. (8 hours per week)

**ABR 124. AUTO REFINISHING APPLICATIONS . . . . . 4 credit hours**

Prerequisite: ABR 112

Continuation of units in Auto Body Repair 112. Lab assignment on actual automobiles provides opportunity to improve skills, matching of high metallic colors using modern spot repair and color blending techniques, as well as overall refinishing. (8 hours per week)

**ABR 125. FLAT RATE ESTIMATING . . . . . 2 credit hours**

Prerequisite: Consent

Use of flat-rate manuals to determine parts and labor prices in estimating damaged automobiles. Emphasis on procedures used to establish complete and accurate prices in preparing the estimate. (3 hours per week)

**ABR 126. FUNDAMENTALS OF FRAME AND BODY ALIGNMENT . . . . . 2 credit hours**

Prerequisite: Consent

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. (4 hours per week)

**ABR 127. MAJOR REPAIR FUNDAMENTALS . . . . . 2 credit hours**

Prerequisite: ABR 111 and WF 101

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. (4 hours per week)

**ABR 130. CUSTOM PAINTING** . . . . .1 credit hour

Prerequisite: ABR 112

This course will provide the student with an understanding of the art of custom painting. The learner will become familiar with the tools and techniques used in the field. It covers the use of candy apple, pearl and metal flake paints. Also the use of air brushes and custom murals on vans as well as other specialized techniques.

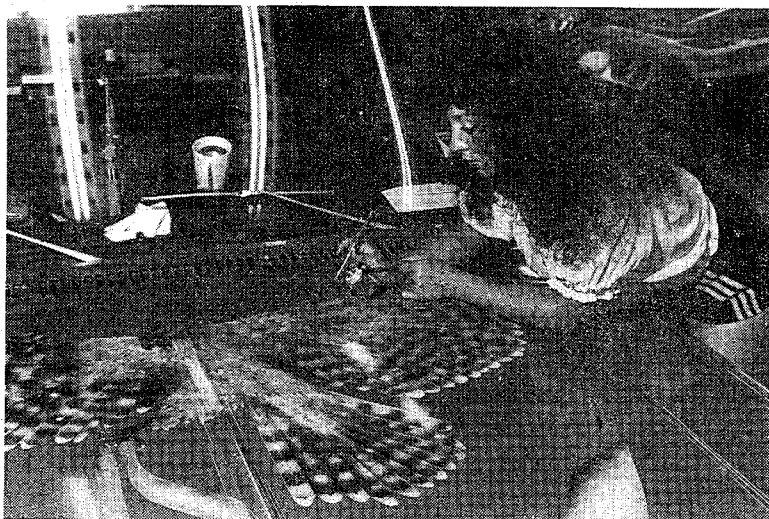
**ABR 131. ADVANCED CUSTOM PAINTING** . . . . .2 credit hours

Prerequisite: ABR 130

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. (8 hours per week for 7½ weeks)

**ABR 219. MAJOR REPAIR APPLICATIONS** . . . . .4 credit hours

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 to provide the student diversified experience on body trim and hardware, replacement and aligning various body components. (8½ hours per week)



**ABR 220. ENAMEL REFINISHING PRACTICES . . . . . 4 credit hours**

Prerequisite: ABR 124

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. (8 hours per week)

**ABR 230. SPECIALIZED STUDY . . . . . 2-8 credit hours**

Prerequisite: Consent

Students utilize periods of concentrated effort on assignments in selected areas of the auto body repair field. Students work with instructor consultation to demonstrate development within the selected area of general collision service, body shop organization and management, or estimating automobile physical damage. (8-16 hours per week)

## **AUTOMOTIVE SERVICE (AS 60)**

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

**AS 043. BASIC TUNE-UP I . . . . . 1 credit hour**

This course deals with the procedure of doing a minor tune-up. It will cover theory of the ignition system (both conventional and electronic.) There will be time provided to perform these service operations on your own vehicles. Operations will include replacing spark plugs, replacing and adjusting ignition points and condenser, setting ignition timing and adjusting the carburetor.

**AS 043A. BASIC TUNE-UP II . . . . . 1 credit hour**

This course covers the proper procedure for tuning up vehicles with current electronic ignition systems and emission controls. An understanding of the basic ignition system, engine, and fuel system is a necessary prerequisite for this course. The equipment required for these procedures will be introduced as needed. Also included is an introduction to the automotive oscilloscope.

**AS 059. CONSUMER CAR CARE . . . . . 1 credit hour**

This course is an introduction to the basic principles of operation and service of today's automobiles. (Does not include tune-up.) The course will include 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.

**AS 110. LIGHT SERVICE REPAIR** . . . . . 2 credit hours

Fundamentals of automotive tools, service equipment and light repairs. Areas of concentration are the theory and practical application and/or use and care of hand tools, shop safety, measuring devices, cooling systems, exhaust systems, tire servicing, lubrication and body fittings. (4 hours per week)

**AS 111. ENGINE REPAIR** . . . . . 4 credit hours

Prerequisite or corequisite: AS 110

The design, construction and operating principles of modern gasoline engines are studied in detail. Procedure and techniques for disassembly, cleaning and inspecting of basic parts and also specialized instruction in procedures to rebuild an engine. Machine operations such as valve grinding, cylinder boring, piston pin fitting and rod and cap reconditioning stressed. (8 hours per week)

**AS 116A. ELECTRICAL SYSTEMS I** . . . . . 2 credit hours

Prerequisite: AS 110 or currently

Theory, diagnosis, and servicing of automotive electrical systems. Includes fundamentals of electricity, storage batteries, cranking systems, and charging systems.

**AS 116B. ELECTRICAL SYSTEMS II** . . . . . 2 credit hours

Prerequisite: AS 116A

Theory, diagnosis, and servicing of automotive electrical systems. Includes ignition and accessory circuits.

**AS 123. TRANSMISSIONS AND POWER TRAINS** . . . . 2 credit hours

Prerequisite: AS 110

Theory, diagnosis and repair of standard transmissions, driveshafts and final drive units. (4 hours per week)

**AS 124. WHEEL BALANCING AND ALIGNMENT** . . . . 3 credit hours

Prerequisite: AS 110

Defines the various types of noise, vibration and harshness conditions associated with tires and drive trains. Wheel alignment and balancing included with students performing wheel and steering diagnosis and repairs on actual units. (6 hours per week)

**AS 125. BRAKE SYSTEMS** . . . . . 3 credit hours

Prerequisite: AS 110

Drum and disc brake systems. The theory, servicing of drums, rotors, master cylinders, calipers, wheel cylinders, linings, and warning

systems. Wherever possible, work performed on actual vehicles. (6 hours per week)

**AS 128. FUEL SYSTEMS . . . . . 3 credit hours**

Prerequisite: AS 110

Theory, diagnosis and repair procedures of automotive carburetors, fuel pumps, fuel injection systems and the emission controls that regulate or directly affect the fuel system (6 hours per week)

**AS 160. SMALL ENGINE REPAIR . . . . . 2 credit hours**

This course covers the complete teardown and assembly of a small air cooled engine. It covers in detail 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.

**AS 212. AUTOMATIC TRANSMISSIONS—  
MECHANICAL . . . . . 2 credit hours**

Prerequisite: AS 123

Automatic transmissions study with emphasis placed on the principles of operation. Instruction coordinated with servicing actual units, including complete transmission overhaul. (4 hours per week)

**AS 214. STEERING AND SUSPENSION SYSTEMS . . . 3 credit hours**

Prerequisite: AS 124

Manual and power steering systems and front and rear suspension systems. Principles of operation, diagnosing and servicing procedures. Practical experience on actual vehicles. (6 hours per week)

**AS 218. TUNE UP AND EMISSIONS . . . . . 4 credit hours**

Prerequisite: AS 116 and AS 128

Testing, diagnosing and servicing of the engine, ignition, fuel, cranking and charging systems and emission controls using the latest test equipment and procedures available. (8 hours per week)

**AS 220. APPLIED AUTOMOTIVE WELDING . . . . . 2 credit hours**

Prerequisite: WF 101

Applying the fundamentals of gas and acetylene welding to the automobile working on actual vehicles. (4 hours per week)

**AS 222. AUTOMATIC TRANSMISSION—  
HYDRAULIC . . . . . 2 credit hours**

Prerequisite: AS 212

Automatic transmission hydraulic systems. Emphasis on testing, diagnosis and servicing actual units. (4 hours per week)

**AS 227. HEATING AND AIR CONDITIONING . . . . . 2 credit hours**

Prerequisite: Consent

Theory, diagnosis and servicing of actual heating and air conditioning systems and controls. Emphasis on testing and servicing vehicle units. (4 hours per week)

**AS 230. PRACTICAL FIELD EXPERIENCE . . . . . 5 credit hours**

Prerequisite: Consent

Provides 120 hours of work experience in the field alongside an experienced licensed mechanic. Includes a one hour per week seminar to discuss experiences the student encounters in the world of work. (Seminar 1 hour per week; Field 120 hours total)

**AS 240. MEASUREMENT OF VEHICLE PERFORMANCE . . . . . 2 credit hours**

Prerequisite: Consent

Engine and vehicle performance factors and operating characteristics. Emphasis on testing and servicing actual cars to achieve the optimum performance of the ignition, fuel suspension, steering and emission systems. (4 hours per week)

**AS 250. NEW CAR PRODUCTS . . . . . 2 credit hours**

Prerequisite: Consent

Covers new features that come on cars each model year. The content of class is changed each year to reflect these new changes. (2 hours per week)

**BIOLOGY  
(BIO 27)**

**BIO 101. CONCEPTS OF BIOLOGY . . . . . 4 credit hours**

Basic principles and concepts of biology studied in lecture and laboratory with emphasis on their practical application and their effects on the environment. For the non-science student, but basic introduction for advanced biology courses. Lecture and laboratory. (6 hours per week)

**BIO 102. HUMAN BIOLOGY . . . . . 4 credit hours**

Structure, function and the place of humans in the biological world studied in lecture and laboratory. Practical application and the effect on human beings and their environment. Microscope, dissection, observation and measuring techniques. An introduction to human biology for the beginning student. (6 hours per week)

**BIO 107. FIELD ECOLOGY**..... 3 credit hours

The activities stress the wooded areas, ponds, fields and Huron River system found on the campus, supplemented by laboratory work and investigation of off-campus environmental problems.

**BIO 108. HUMAN ECOLOGY**..... 3 credit hours

Problems of population, pollution, energy and environmental control for the non-science student. Basic background in evolution of environmental problems, ecological concepts, current ecological problems and the outlook for the future will be investigated.

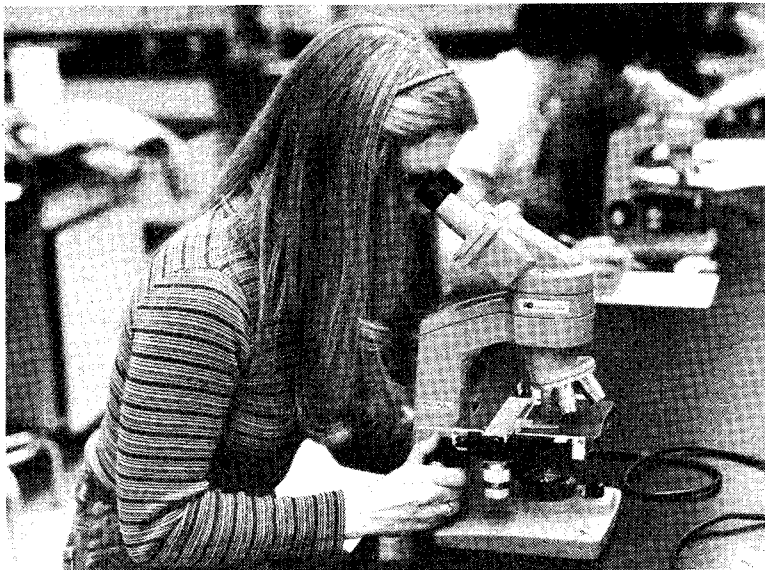
**BIO 111. BASIC ANATOMY AND PHYSIOLOGY**..... 4 credit hours

Survey of the basic structures, functions and the dysfunctions of the human body designed for students pursuing a Health Occupations curriculum. Coverage of the systems of the body is in a logical sequence with emphasis on practical applications to various health fields.

**BIO 112. BASIC ANATOMY & PHYSIOLOGY LABORATORY**..... 1 credit hour

Corequisite: BIO 111

Relevant applications of materials and principles introduced in Basic Anatomy and Physiology. Intended to give the Health Occupations student meaningful laboratory experiences and skills. (2 hours per week)





**BIO 123. PHYSIOLOGY**..... 1 credit hour

Prerequisite: BIO 101 or permission

Intended for those who require a five credit course in human biology.

**BIO 127. BOTANY**..... 4 credit hours

Prerequisite: BIO 101 or permission

Field and laboratory investigations providing detailed study of plant structure and function. For the student with a general interest in plants and to provide a basis for further work in botany. Lecture and laboratory. (6 hours per week)

**BIO 128. ZOOLOGY**..... 4 credit hours

Prerequisite: BIO 101 or permission

Field and laboratory investigations providing a detailed study of classification, evolutionary relationships, structure and function of the animal kingdom considered in lecture and laboratory. For the student with a general interest in animals and to provide a basis for further work in zoology. (6 hours per week)

**BIO 131-139. APPLIED PLANT SCIENCE SEQUENCE**

A series of courses designed to enable students to apply basic botanical information relating to indoor and outdoor gardening. The courses study plants of economic importance to humans for food as well as pleasure in the home and outside. Practical experience in the College's greenhouse and gardens.

Designed for the non-specialist with interest in plants, their propagation, growth, maintenance, harvesting and utilization. Students are encouraged to enroll in the sequence beginning with Biology 131 and Outdoor Garden Preparation in the Winter Semester, continuing through Spring and Summer Semesters into the Fall Semester with Biology 132, Biology 133 and Biology 134. See individual courses below.

**BIO 131. OUTDOOR GARDEN PREPARATION**..... 3 credit hours

The Winter Semester course deals with the propagation of plants from cuttings and seeds. The maintenance and care of indoor plants. Most class sessions will be held in the College Greenhouse. All plants used will be identified and students will be able to increase their collections of houseplants and grow vegetable plants for transplanting in the garden when weather permits. Identification and control of insect pests discussed along with soil testing and proper use of fertilizers.

**BIO 132. GARDEN PLANTING**..... 3 credit hours

The Spring Semester deals with seed bed and planting area preparation. Further opportunities for germination of seeds indoors for transplanting

in prepared areas are available in the early weeks of the semester. Transplanting of seedlings and direct planting of selected varieties of seeds will highlight this semester with emphasis on proper care. Scheduling of plantings for continuous yield and plant rotation techniques will be demonstrated in each student's garden area. Control of pests will be an item of concern.

**BIO 133. GARDEN CARE . . . . . 3 credit hours**

The Summer Semester emphasizes continued care and maintenance of plants being grown. Planting schedules for continuous yield are an integral part of this semester's activities. Irrigation practices discussed are utilized. Pest control practices will continue from the previous semester. Harvesting and utilization of selected plants for food and ornamental purposes highlight semester's activities.

**BIO 134. GARDEN HARVEST . . . . . 3 credit hours**

The Fall Semester will begin the week following the conclusion of the Summer Semester and end earlier than the regular Fall Semester. The harvesting of plants grown in the gardens will be the main concern during this time. This will include those grown for food and ornamental purposes. Irrigation practices will be applied along with continued control of insect pests. This semester will involve the termination of the active growth period of most plants grown. Follow-up practices in preparation for next year's garden will be of concern. There will be demonstrated methods of preserving food by various methods such as canning, freezing, drying and maintaining certain root crops in the ground for winter harvesting.

**BIO 135. CANNING, FREEZING, DRYING  
GARDEN FOODS . . . . . 3 credit hours**

This course is designed for those who garden and would like to preserve the food they have grown for use later. Correct procedures for the canning, freezing and drying of various plant crops will be discussed and demonstrated. Techniques such as cold-packing and hot-packing in glass jars will be stressed along with the advantages of using a pressure cooker. Procedures will stress the importance of proper methods to assure that the canned or frozen food will be free from organism that may spoil the food and make it unsafe for human consumption.

**BIO 137. ORNAMENTAL INDOOR PLANTS . . . . . 2 credit hours**

This course is designed for the person who enjoys houseplants and wants to learn more about them. Selection and growth of ornamental indoor plants from seeds and cuttings will highlight the course. Every student should be able to increase his or her collection of houseplants by at least fifteen different varieties. Proper care of houseplants will be stressed, relating to soil, potting, transplanting, watering, fertilizers, insects, control of growth and flowering.

**BIO 138. ADVANCED INDOOR GARDENING . . . . . 3 credit hours**

Prerequisite: BIO 137

This course is designed primarily for those students who have taken the Ornamental Indoor Plants course. Growth of plants from seeds and cuttings will be a concern with some of the more difficult and expensive varieties being used. Specialty gardening techniques for more involved indoor plantings will be discussed and demonstrated, including terraria, hanging gardens and solarium plantings. Visits will be conducted to demonstrate what can be accomplished with plants indoors.

**BIO 147. HOSPITAL MICROBIOLOGY . . . . . 1 credit hour**

A survey of the morphology, physiology, and immunology for pathogenic organisms with emphasis on infection, aseptic and sterilizing procedures. (3 hours per week, five weeks)

**BIO 189. STUDY PROBLEMS IN BIOLOGY AND ECOLOGY . . . . . 1 to 8 credit hours**

Prerequisite: Consent of biology instructor

Directed activities in the biological sciences. These activities may be laboratory centered, field studies or small groups using seminars to investigate special problems. (Hours arranged)

**BIO 200. CURRENT TOPICS IN BIOLOGY . . . . . 3 credit hours**

An examination from a biological point of view of the state of current studies and the extent of our knowledge in such controversial fields as human genetic engineering, the biology of human behavior and human cycles, the biology of learning, the biology of sleep and the biology of cancer. Relationship of such knowledge to future technology and possible social and political implications also discussed.

**BIO 208. GENETICS I . . . . . 4 credit hours**

Basic principles of heredity and their applications to plants and animals, including classical genetic techniques as well as modern discoveries in human genetics. Laboratory studies using living and prepared materials. (6 hours per week)

**BIO 208A. GENETICS II . . . . . 3 credit hours**

Basic principles of heredity and their applications to plants and animals. No laboratory. (3 hours per week)

**BIO 237. MICROBIOLOGY . . . . . 4 credit hours**

Prerequisite: BIO 101 or permission of instructor.

Micro-organisms and their activities studied in lecture and laboratory. (9 hours per week)

**BIO 239. APPLIED PLANT SCIENCE. . . . . 1 credit hour**

Students will carry out individually developed projects related to the subjects of Botany, Horticulture, Floriculture and/or Agriculture.

**BIO 240-289. FIELD STUDY BIOLOGY SEQUENCE**

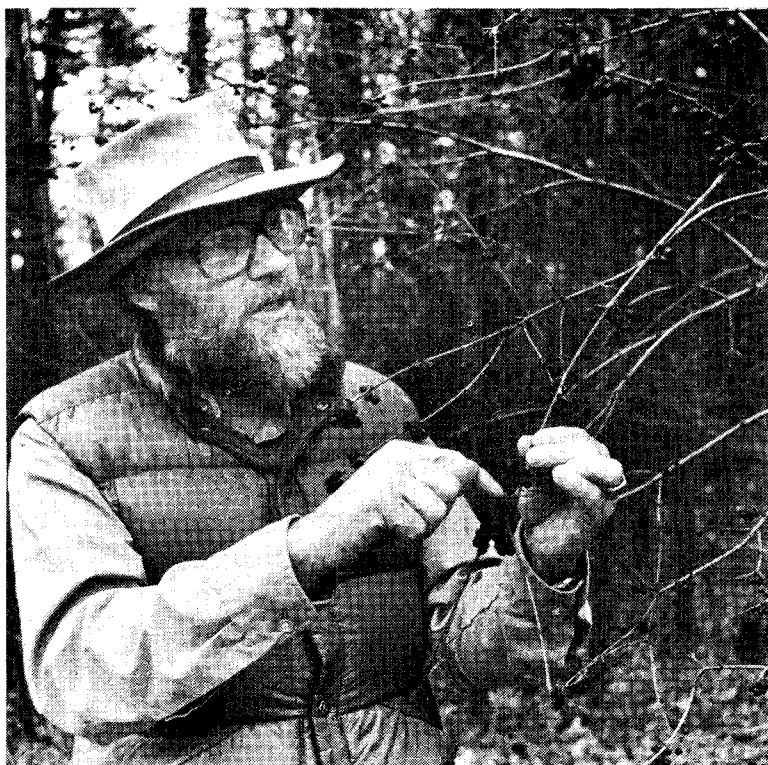
Students who enjoy outdoor activities will find the following courses to their liking. They are real nature study for one credit. Most courses meet outdoors involving a three hour block of time for five weeks. See individual courses below.

**BIO 240. FIELD STUDY OF INVERTEBRATES. . . . . 1 credit hour**

Stresses field recognition of the organisms and their habits.

**BIO 247. FIELD STUDY OF INSECTS. . . . . 1 credit hour**

Recognition of insects and their habits is stressed. Primarily conducted in the field.



- BIO 248. FIELD STUDY OF REPTILES AND AMPHIBIANS**..... 1 credit hour  
 Reptiles and amphibians studied in the field with stress on recognition and habits.
- BIO 249. FIELD STUDY OF BIRDS**..... 1 credit hour  
 Identification of birds and their songs and nesting habits.
- BIO 250. FIELD STUDY OF MAMMALS**..... 1 credit hour  
 The habits, food, behavior and life history of mammals.
- BIO 256. FIELD STUDY OF MOSSES AND FERNS**..... 1 credit hour  
 Stress is on the identification and habitat of mosses and ferns.
- BIO 257. FIELD STUDY OF MUSHROOMS**..... 1 credit hour  
 Stresses identification of flowerless plants.
- BIO 258. FIELD STUDY OF TREES AND SHRUBS**..... 1 credit hour  
 Identification and habitat study of woody plants.
- BIO 259. FIELD STUDY OF COMMON PLANTS**..... 1 credit hour  
 Non-woody higher plants are studied with emphasis on identification.
- BIO 260. SPRING WILD FLOWERS**..... 1 credit hour  
 The Spring flora is studied with emphasis placed on recognition.
- BIO 267. WINTER FIELD STUDY**..... 1 credit hour  
 Biological organisms are studied in their winter conditions.
- BIO 270. NATURE PHOTOGRAPHY**..... 1 credit hour  
 A practical course in photographing nature. Several approaches are used to give the student experience with different techniques and films. Use of a camera for taking pictures and film is required.
- BIO 288. ADVANCED BEEKEEPING**..... 2 credit hours  
 Deals with stocking the hive, ordering bees, handling the queen and the commercial aspects of beekeeping.
- BIO 289. FIELD BEEKEEPING**..... 2 credit hours  
 Field beekeeping is a practical approach to learning about honeybees on Saturday mornings during May, June and July. The first of the eight sessions will be at the College building, but the next seven sessions will be conducted in the apiaries located in the College area. In case of

inclement weather, alternate activities will be planned.

This course is primarily for those who have taken a beekeeping course or who own at least one colony of honeybees.

## **BLACK STUDIES (BLS 10)**

### **BLS 102. BLACK WOMEN . . . . . 3 credit hours**

Study of Black women throughout our history. Role of the Black woman examined in areas of society; the family, the church, politics, community, education, etc. All these factors are considered in determining how Black women's roles differ from those of other women.

### **BLS 143. ART AND CULTURE OF AFRO-AMERICA . . . . . 3 credit hours**

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. Anthropological approach used to recognize the importance of history in understanding the present. Skill development and aesthetic competence emphasized.

### **BLS 201. PAN AFRICANISM . . . . . 3 credit hours**

A contemporary analysis of the Pan-African movement from its earliest forerunners through today's activists. Emphasis on the translation of Pan-Africanist theory into practical organization.

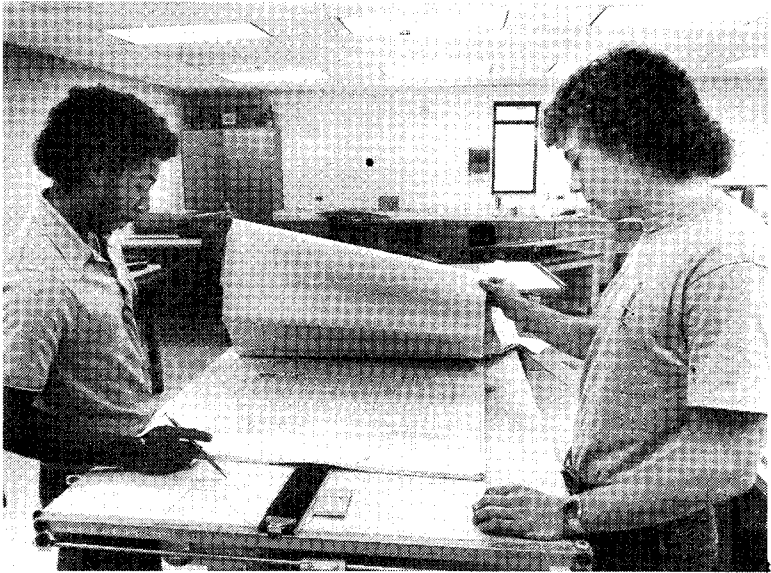
## **BLUEPRINT READING (BPR 64)**

### **BPR 100. BLUEPRINT READING I . . . . . 2 credit hours**

Elementary blueprint reading for the construction trades. Emphasis is on the development of visualization skills and the study of practices and symbols for interpreting construction prints. Smaller scale construction projects studied.

### **BPR 101. BLUEPRINT READING II . . . . . 3 credit hours**

Fundamentals of blueprint reading as applied to the manufacturing industry. Basic drafting principles studied as applied to specific problems. Designed for pre-engineers, draftsmen, machine operators, machine repairmen, inspectors, welders and supervisors.



**BPR 102. BLUEPRINT READING/FACILITIES**

**MAINTENANCE**.....3 credit hours

A basic course in reading engineering plans and drawings. Understanding electrical, mechanical, and fluid power systems through use of schematic diagrams. Major units covered: elements of machine drawings, hydraulic and pneumatics, building drawings, electrical drawings, sheet metal drawings, piping drawings, and welding processes and symbols.

**BPR 103. SHEET METAL BLUEPRINT READING**

**AND LAYOUT**.....3 credit hours

Elementary sheet metal layout. Emphasis is placed on developing sheet metal patterns by standard short cut methods. 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. (4 hours per week)

**BPR 105. SHEET METAL BLUEPRINT READING**

**AND LAYOUT—ADVANCED**.....3 credit hours

Advanced sheet metal layout teaches the actual development of more difficult sheet metal fittings. Triangulation and parallel line methods of development. The development of and fabrication of the fittings most often needed in today's modern heating, ventilating and air conditioning systems emphasized. (4 hours per week)

**BPR 110. BLUEPRINT READING FOR CONSTRUCTION TRADES**.....2 credit hours

Advanced blueprint reading for persons in the construction trades. Emphasis on the application of blueprint reading, principles and fundamentals to the construction process. Large scale construction projects are the base of instruction.

**BUSINESS  
(BUS 46)**

**BUS 100. INVESTMENTS**.....1 credit hour

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

**BUS 107. WOMEN IN THE WORKPLACE**.....1 credit hour

An inquiry into the economic and social factors affecting women in the workplace. An opportunity to become familiar with current literature on the working woman and to examine attitudes towards women and attitudes of working women.

**BUS 111. BUSINESS LAW I**.....3 credit hours

Text and case study of the general laws applicable to business covering the nature of law, courts and court procedures, crimes and taxes, contracts, agency, labor relations and partnerships.

**BUS 122. BUSINESS LAW II**.....3 credit hours

Prerequisite: BUS 111

The study of corporations, property, sales, negotiable instruments, insurance and bankruptcy.

**BUS 140. INTRODUCTION TO BUSINESS**.....3 credit hours

Functions, objectives, problems, organization, and management of modern business. 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.

**BUS 140. IT'S EVERYBODY'S BUSINESS  
(Television Course)**.....3 credit hours

As a college-credit introduction to business, It's Everybody's Business surveys the complex range of operations which constitute the contem-



porary United States business scene. As a telecourse, it provides the involvement of live interviews. Administrators of federal agencies, editors of national publications, chairmen of multi-million corporations, union leaders, and advertising specialists are all part of the collection of experts whose experience and acumen make It's Everybody's Business an exciting inside view of the multi-faceted American business world. On location visits to various business operations bring Wall Street, truck yards, assembly lines, computer centers, warehouses, showrooms, government agencies, and union halls into perspective. The latest business theories, as well as brief historical backgrounds, complete this overview of the way today's business community provides goods and services within the legal, ethical, and economic framework of the United States. (30 color programs, 30 minutes long)

**BUS 200. INDEPENDENT DIRECTED STUDY . . . . . 2-8 credit hours**

Prerequisite: Consent. Credit hours determined prior to registration

A planned program of study in selected business-industrial occupational career subject matter under the guidance and direction of a regular staff member. Supplements classroom study in a way that will enhance the student's total occupational career educational experience. Includes readings, analyses, conferences and reports. (Hours to be arranged)

**BUS 207. BUSINESS COMMUNICATION . . . . . 3 credit hours**

Oral and written communication skills as they relate to business enterprise. Emphasis on social and psychological aspects and the public relations function of business communication. Importance of clarity, conciseness, accuracy and appropriateness of tone in all types of business communication. Includes business correspondence and reports and the gathering, preparation, organization and presentation of data.

## **CHEMISTRY (CEM 33)**

**CEM 057. INTRODUCTORY CHEMISTRY . . . . . 3 credit hours**

A preparatory course for the student with no background in high school science or algebra. May be taken by students wishing to improve their chemistry background before taking Chemistry 111, Chemistry 105, or by the student desiring an exposure to chemistry. Introductory Chemistry Laboratory 058 is recommended. (3 hours per week)

**CEM 058. INTRODUCTORY CHEMISTRY  
LABORATORY . . . . . 1 credit hour**

Prerequisite or Corequisite: CEM 057

A laboratory experience in basic chemical laboratory practices and pro-

cedures. Introductory Chemistry Laboratory 058 should be elected to accompany Introductory Chemistry 057. (3 hours per week)

**CEM 097. CHEMISTRY OF COMBUSTIBLES . . . . . 3 credit hours**

Designed for students in the Fire Protection Program. The course concentrates on the chemistry of flammable and explosive materials with special emphasis on hazards. (3 hours per week)

**CEM 105. FUNDAMENTALS OF CHEMISTRY . . . . . 4 credit hours**

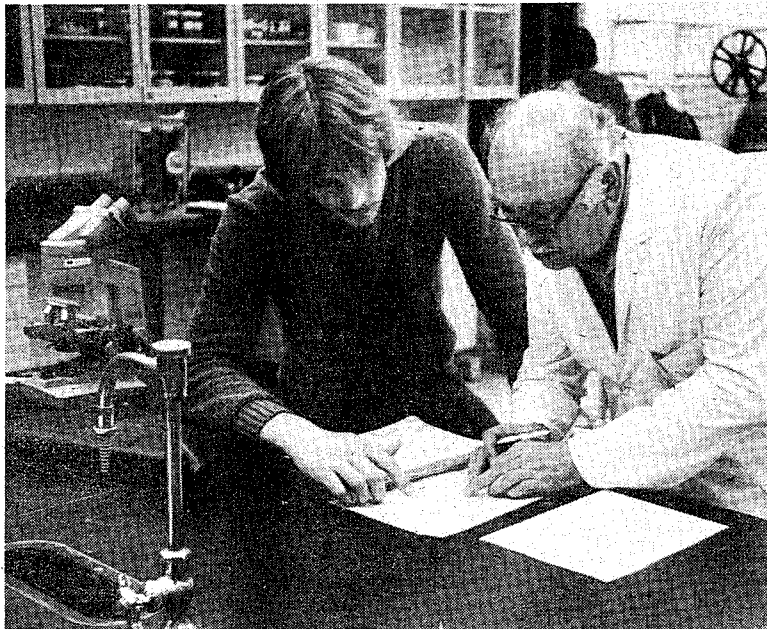
Prerequisite: High school chemistry or CEM 057

A study of the principles of chemistry surveying the major topics in chemistry. For students not needing a major or minor in chemistry, or with interests in nursing or other health related areas. May also serve as a general science elective. (6 hours per week)

**CEM 111. GENERAL CHEMISTRY I . . . . . 4 credit hours**

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

A beginning general college chemistry course. Includes the laws of chemical combination, states of matter, atomic and molecular structure, bonding and other basic principles. Lectures and laboratory. (6 hours per week)



**CEM 122. GENERAL CHEMISTRY II** . . . . . 4 credit hours

Prerequisite: CEM 111

A continuation of General Chemistry 111, including ionic equilibria, qualitative analysis and quantitative analysis. Laboratory work includes the qualitative identification of unknown substances and quantitative determinations using elementary instrumental techniques. (8 hours per week)

**CEM 140. ORGANIC BIOCHEMISTRY** . . . . . 4 credit hours

Prerequisite: CEM 105 or CEM 111

Course stressing organic chemistry and biochemistry for those going into nursing and the health services. This is a terminal course. Lectures and laboratory. (6 hours per week)

**CEM 211. ORGANIC CHEMISTRY I** . . . . . 3 credit hours

Prerequisite: CEM 111

A lecture course dealing with nomenclature, stereo-chemistry and reactions of aliphatic and aromatic compounds. Normally offered Fall Semester only.

**CEM 218. ANALYTICAL AND INSTRUMENTAL CHEMISTRY** . . . . . 4 credit hours

Prerequisite: CEM 122

Quantitative and qualitative analysis in the modern chemistry laboratory through the use of gravimetric, volumetric, optical, electrometric, gas chromatographic and spectroscopic instrumental methods of analysis. Instrument design and principles included.

For the chemical technician or as a refresher course for those already working in the field of chemistry. Lectures and laboratory. (8 hours per week)

**CEM 222. ORGANIC CHEMISTRY II** . . . . . 5 credit hours

Prerequisites: CEM 211 and CEM 122

A continuation of Organic Chemistry 211 involving the study of the derivatives of aliphatic and aromatic compounds. Laboratory will stress techniques used in the preparation and handling of organic compounds. Lectures and laboratory. Normally offered Winter Semester only. (9 hours per week)

**CEM 230. CHEMICAL LITERATURE** . . . . . 1 credit hour

Prerequisite: CEM 122

Intended both for the chemical technician and the chemical engineer, the course gives a systematic introduction to the uses of chemical literature. Audiotutorial. (1 hour per week)

# CHILD CARE WORKER (CCW 76)

## **CCW 100. THE EXCEPTIONAL CHILD . . . . . 3 credit hours**

For those with no background in special education. 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. Various community, state, and national resources to assist exceptional children identified.

## **CCW 101. CHILD DEVELOPMENT . . . . . 3 credit hours**

A general overview of the physical, social, emotional and intellectual development of the child from conception to maturity with emphasis on the preschool years. Examines the environmental, ethnic and familial factors that make for group differences and individuality of growth and current research in these areas.

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

Philosophy and theory of programs in child care. Exploration of traditional and innovative programs with special emphasis and evaluation of the cognitive curriculum, language training curriculum and Montessori program.

Combination practicum and seminar. Observation at various child care centers combined with seminar evaluation of each program.

## **CCW 105. PRACTICUM I . . . . . 3 credit hours**

Supervised teaching at the WCC Children's Center. Students work in the classroom, supervised by a qualified teacher at the center. One hour per week is spent attending a practicum seminar. Opportunities for observation, planning and participation dependent on the student's readiness. Recommended that CCW 105 be taken concurrently with CCW 107 or CCW 108. Credit may be arranged for students already working with young children in other settings. Contact the coordinator to arrange credit. (9 hours per week)

## **CCW 106. PRACTICUM II . . . . . 3 credit hours**

A continuation of Child Care Work 105. Recommended that CCW 106 be taken concurrently with CCW 107 or CCW 108. (9 hours per week)

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

Integrated curriculum workshops introduce the theory of math and

science experiences for the young child. 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**

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

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

Theories of language development. Consideration given to non-verbal communication and cultural differences. Basic methods, activities and materials in communication skills developed and experienced.

**CCW 110. SOCIAL/EMOTIONAL DEVELOPMENT . . . . 3 credit hours**

A multi-cultural approach to the study of the personality development during the first six years of life. Exploration of the characteristics and needs that emerge with each developmental stage with emphasis on methods, suggestions and practical guides for meeting these needs. Emphasis on child management in the child care setting.

**CCW 111. DAY CARE ADMINISTRATION . . . . . 3 credit hours**

Practical aspects of starting and operating a child care center. Proposal writing, equipment selection, accounting, administrative forms, taxes, insurance, operational management, interpersonal relationships within a center and staff training.





**CCW 114. PRACTICUM III. . . . . 4 credit hours**

A continuation of Child Care Work 106. Recommended that CCW 114 be taken concurrently with CCW 111 or CCW 116. (10 hours per week)

**CCW 116. SEMINAR IN INFANT CARE. . . . . 3 credit hours**

The development of the infant. Theories of growth examined and related to the characteristics and needs of the infant in group or individual setting. Explores maternal care needs and facilities.

**CCW 200. STAFF/PARENT INTERPERSONAL RELATIONS. . . . . 3 credit hours**

Explores the many facets of parent and staff involvement in the child care setting. The various forms of parent participation, ways of increasing positive communication with parents, cultural differences and goals of parents, and planning parent education programs. Emphasis given to the individual parent/teacher conference, preparation, mechanics and techniques.

# COMPUTER INFORMATION SYSTEMS (CIS 40)

## **CIS 100. INTRODUCTION TO COMPUTERS. . . . .3 credit hours**

Occupational uses of computers. Computer development and early computer devices. Students describe and operate components of a remote time sharing system; study computer applications in business, education, government, health and law enforcement; observe computer uses in the above areas by writing simple programs and/or by touring local computer sites and describing the impact of computers on present and future societies.

## **CIS 100. INTRODUCTION TO COMPUTERS (Television Course). . . . .3 credit hours**

"MAKING IT COUNT" presents a broad overview of data processing concepts and problems. Fundamentals of hardware and software, programming languages, and programming logic are covered. Many data processing terms are introduced and defined in context. Heavy emphasis is placed on computer applications. For instance, three lessons on system analysis show how a computer system is developed to solve a typical user problem. Aspects explored include the role of computers in management decision making and how to acquire computing capability. Other topics examined are word processing, microcomputers, distributed processing, and future developments in data processing.

## **CIS 105. MICROCOMPUTER PROGRAMMING FOR BEGINNERS. . . . .2 credit hours**

Student will gain insight to computer organization, how it works in layman terms, develop (through lectures and exploring graduated exercises and assignments) skills necessary to identify problems and develop simple programs to solve them.

## **CIS 111. COMPUTER CONCEPTS. . . . .3 credit hours**

Electronic data processing. Basic terminology and concepts of data processing applications. Introduction to systems analysis and design and computer concepts including card disk and tape processing. Students will develop familiarity with terminal and small computer operation and will be introduced to operating systems and data communications.

## **CIS 112. COMPUTER FUNCTIONS. . . . .3 credit hours**

Prerequisites: CIS 111

Continuation of CIS 111. Principles of computer programming. Program flowcharting, program documentation and an overview of high level programming languages is developed. Social implications of the computer are discussed. Some simple programming is required.

**CIS 115. PROGRAMMING LOGIC**.....3 credit hours

Prerequisites: CIS 112

Development of structured solutions to business computer problems using ANSI flowcharting symbols, pseudocode and decision tables. No programming required.

**CIS 135. PL/1 PROGRAMMING**.....3 credit hours

Prerequisites: First year required CIS courses

An introduction to the PL/1 language. Topics covered will include input/output formats, branching statements, and the use of variables. Students will write programs demonstrating the basic structures of PL/1.

**CIS 137. RPG**.....3 credit hours

Prerequisites: CIS 112

A problem oriented approach is used to develop skills in using the Report Program Generator language. This course covers arithmetic operations, comparing, table handling and file building on auxiliary storage media.

**CIS 141. COMPUTER OPERATIONS**.....3 credit hours

Prerequisites: None

Study of computer systems including input/output devices, mass storage, the central processing unit and software with emphasis on their operation. The role of personnel in computer operations and relationships between operations and other functional areas within the data processing department are covered. Other topics include the importance of job documentation, standards manuals and error logs.

**CIS 142. COMPUTER OPERATIONS II**.....3 credit hours

Prerequisites: CIS 141

Features and advanced concepts of various operating systems are studied. Students perform an in-depth project for a complete job run involving scheduling, documentation, job monitoring, response to console messages and forms maintenance.

**CIS 199. ON-THE-JOB TRAINING**.....3 credit hours

Prerequisites: Two data processing courses. Employment in data processing related job.

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 data processing related seminar activities.



**CIS 238. ASSEMBLER** ..... 3 credit hours

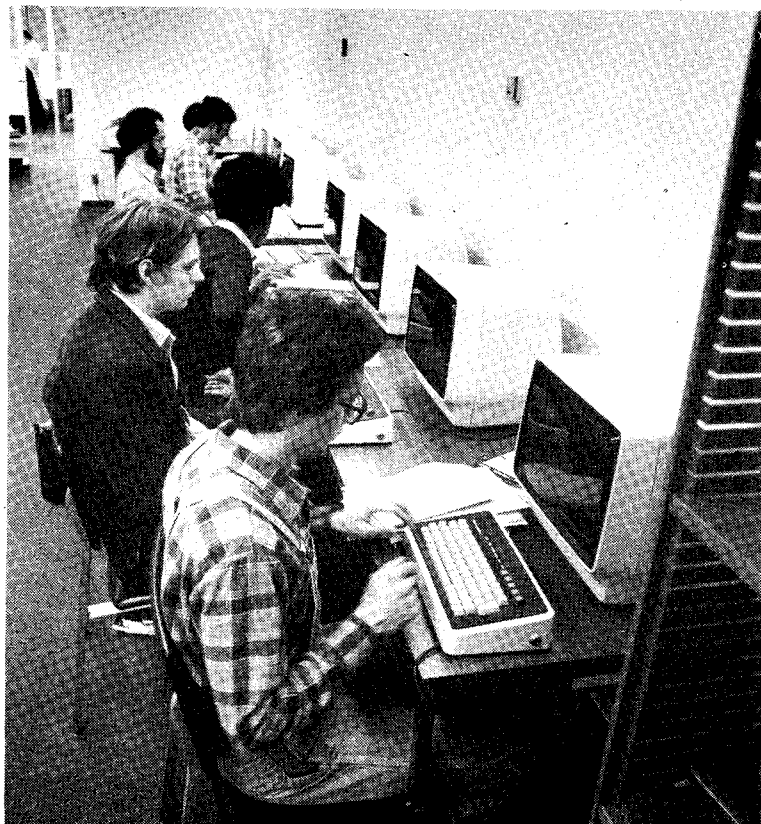
Prerequisites: First year required CIS courses

Principles of Assembler language. Course will emphasize use of the 8086 Assembler on the IBM PC. The 8086 microprocessor organization to machine code will be discussed as preliminary information to the use of the Assembler.

**CIS 271. INTRODUCTORY COBOL** ..... 3 credit hours

Prerequisites: First year required CIS courses

A study of the input and output procedures of the COBOL language using structured techniques. Basic mathematical statements, final totals and the comparing function. Additional topics covered. Students write programs with input data supplied on disk. Some programs require full documentation packages.





**CIS 272. INTERMEDIATE COBOL . . . . . 3 credit hours**

Prerequisites: CIS 271

A study of additional COBOL language features including additional input and output forms using structured techniques. Students learn conditional names, headings, print overflow, major-intermediate-minor totals, programs, some of which will utilize multiple input and output forms. Full documentation packages required for some program assignments.

**CIS 273. ADVANCED COBOL . . . . . 3 credit hours**

Prerequisites: CIS 272

This course covers advanced topics in the COBOL language. Students will use alternate input and output devices including magnetic disk and access methods for sequential and indexed files. Emphasis will be placed on structured program design including implementation and documentation. Students write programs.

**CIS 282. DATA BASE.....3 credit hours**

Prerequisites: First year required CIS courses

Learning of database concepts and the working of database system environments. Study database models with emphasis on relational, D.B.T.G. COSDAYL model and hierarchical model. Analysis of case studies and design of database project.

**CIS 284. DATA COMMUNICATIONS.....3 credit hours**

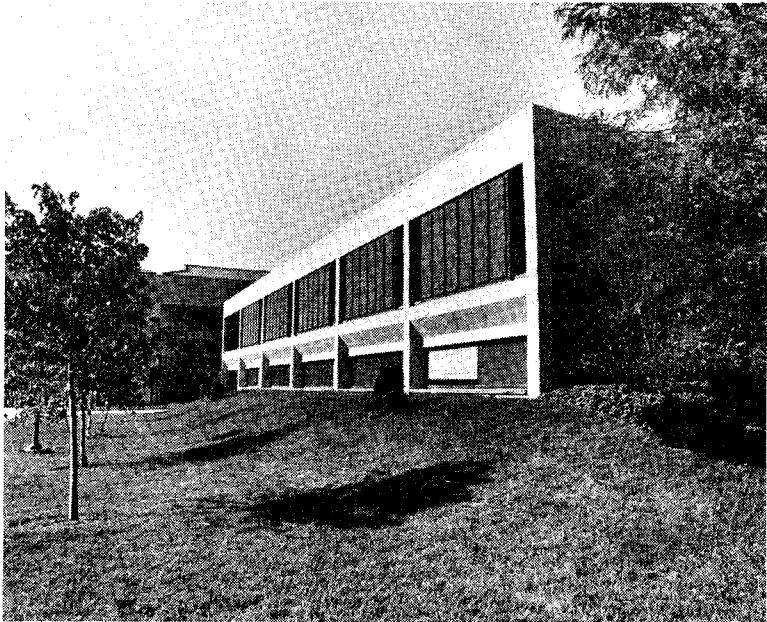
Prerequisites: First year required CIS courses

Introduction to design issues in a network configuration, basic terminology and methodology. Typical applications and uses of teleprocessing networks. Detailed look at typical building blocks and types of network organizations. Common carrier services, tariffs, transmission facilities and signal conversion devices will be studied.

**CIS 286. OPERATING SYSTEMS.....3 credit hours**

Prerequisites: First year required CIS courses

Concepts and technical knowledge of an operating system and utilities are presented. The internal functions of an operating system are analyzed. Training is given in the use of IBM Job Control Language and utilities as well as the Burroughs system.



# COMPUTER SCIENCE (CPS 31)

## **CPS 114. COMPUTER ASSISTANCE FOR SPECIAL NEEDS** . . . . . 1-6 credit hours

Prerequisites: Instructor permission

This course provides assistance to students with special needs (i.e., strengthening in certain areas, handicapped students...) via microcomputers and/or terminals. The course is project oriented with activities centered primarily around mathematics classes. Projects include: typing notes and homework assignments, word-processing, writing computer programs, solving mathematical problems, using Data Base Management systems, and strengthening in a particular area. (6 hours per week)

## **CPS 130. SURVEY OF COMPUTER SCIENCE** . . . . . 3 credit hours

For persons who have an interest in computer science and technology but do not necessarily have any previous background. Includes how a computer works, the influence of computers on society and problems encountered with these machines. Some programming included but this is not a programming course.

## **CPS 133. BASIC PROGRAMMING** . . . . . 4 credit hours

Prerequisite: MTH 097

This course acquaints students with features and capabilities of programming in the BASIC language, the language of most home computers. Includes how to use a time-sharing computer system, writing and executing assigned programs of general and practical interest.

## **CPS 134. ADVANCED PROGRAMMING** . . . . . 4 credit hours

Prerequisite: CPS 133 or knowledge of BASIC

The primary purpose of this course is to acquaint the student with the uses of microcomputers. The course includes some advanced concepts (e.g., user defined functions, sorting procedures, data management), use of prewritten software, and special projects to be arranged with the instructor.

## **CPS 166. INTRO TO PASCAL PROGRAMMING** . . . . . 4 credit hours

Prerequisite: MTH 169

An introduction to PASCAL programming for computer science majors who will transfer to a 4-year college. Includes constants and variables, input and output, subscripted variables, subroutines, and programming practices using the PASCAL language.

**CPS 187. FORTRAN PROGRAMMING . . . . . 4 credit hours**

Prerequisite: MTH 169

FORTRAN programming language for the science or vocational student who will use the computer as a tool in sorting, classifying, scheduling, performing complex or repetitive calculations, or evaluating models through simulation. Emphasis on learning and using most of the features of the FORTRAN language. Opportunity to develop algorithms and write and execute selected programs. (4 hours per week)

**CPS 188. INTRO TO ALGOL PROGRAMMING . . . . . 4 credit hours**

Prerequisite: MTH 169

Using the ALGOL programming language to construct and test algorithms. For students considering future work in computer science. An opportunity to develop algorithms, and to test algorithms by writing and executing ALGOL programs. (4 hours per week)

**CPS 286. ADVANCED PASCAL PROGRAMMING . . . . 4 credit hours**

Prerequisites: CPS 166

An advanced course in PASCAL programming that assumes a basic knowledge of PASCAL programming or another block structured programming language. Includes looping subroutine linkage, indexing and advanced programming techniques.

**CPS 287. ADVANCED FORTRAN PROGRAMMING . . . 4 credit hours**

Prerequisite: CPS 187

This course assumes a basic knowledge of FORTRAN. The more advanced features of FORTRAN and of scientific and data structure programming in general (e.g. interactive programming, I/O to and from disk and tape files, direct access I/O, implementation of stacks, queues, linked lists, trees, hash tables, simulation, and character manipulation in FORTRAN). All work done with a standard FORTRAN compiler to increase the portability of the programs, routines and concepts developed. (4 hours per week).

**CPS 288. ADVANCED ALGOL PROGRAMMING . . . . . 4 credit hours**

Prerequisite: CPS 188

This course assumes a basic knowledge of ALGOL or another block structured language. The more advanced features of ALGOL and of scientific and data structure programming in general are covered (e.g. I/O to and from disk and tape files, recursion, implementation of stacks, queues, linked lists, trees, hash tables, and graphs). Students will write and execute several programs to implement the above concepts. (4 hours per week)

**CPS 290. SYSTEMS ANALYSIS AND DESIGN . . . . . 4 credit hours**

Prerequisite: CPS 287 or CPS 288

Techniques and methodologies of designing computer programs. The course will illustrate the importance of a good design in the implementation of any large computer program. Topics include structured programming and program testing and debugging methods. Students will design and implement a large computer program. (4 hours per week)

**CPS 291. FILE STRUCTURE . . . . . 4 credit hours**

Prerequisite: CPS 287 or CPS 288

This course deals with data representation and manipulation on bulk storage devices. Both disk and tape files will be considered. The various organizational and indexing techniques available with these devices will be discussed. Topics include sequential, indexed, and linked organizations, ISAM files, hashing, buffering, blocking, fixed and variable sized records, and storage management. (4 hours per week)

**CPS 292. MICROPROCESSOR ASSEMBLER . . . . . 4 credit hours**

Prerequisite: CPS 287 or CPS 288

Students will have the opportunity to program in assembler language using a common microprocessor. The basic architecture of microcomputers will be discussed including the physical and logical components of a microcomputer system. Processing, control, and I/O will be dealt with and programmed using most of the instruction set of a microprocessor. (4 hours per week)

**CPS 294. COMPARATIVE LANGUAGES . . . . . 4 credit hours**

Prerequisite: CPS 287 or CPS 288

A course designed to compare and contrast the characteristics of several popular programming languages. Each language will be discussed separately and evaluated in terms of criteria such as general application area, efficiency, portability, ease of programming, and ease of maintenance. Students will write short programs in most of the languages discussed. Languages will include BASIC, COBOL, FORTRAN, ALGOL, and PASCAL.

**CPS 299. INTERACTIVE COMPUTER GRAPHICS . . . . 3 credit hours**

Prerequisite: CPS 187

Principles of interactive computer programming using graphical input-output devices. Covers graphical devices, interactive methods, dynamic array management, data structures, error recovery, file manipulation, graphical techniques, dynamic compilation-loading-execution of program segments. Emphasis on production programming. (4 hours per week)



## **CONSTRUCTION TECHNOLOGY (CT 62)**

*Students enrolling in the Construction Trades will be required to furnish basic tool sets. Tools are necessary for laboratory practice. Students should accumulate tools during training to be equipped for employment upon completion of their program.*

### **CT 050. CABIN CONSTRUCTION . . . . . 2 credit hours**

A practical informative course on how light frame structures are built. Hand tools are furnished by the student. (3 hours per week)



**CT 111. FUNDAMENTALS OF PAINTING AND DECORATING** ..... 4 credit hours

In addition to the basics of vocabulary, tools and materials, an introduction to paints, varnishes, solvents, wallpaper, natural wood finishes, preparations for painting walls and floors, interior and exterior surfaces. Discussion of fire retardant materials, antiquing techniques demonstrated. (6 hours per week)

**CT 121. CARPENTRY—FRAMING** ..... 4 credit hours

A practical course in the use of woodworking hand tools. The development of basic skills in Light Frame Construction is emphasized. The use of framing square, line, plumb bob, and builder's level. (6 hours per week)

**CT 122. COMMERCIAL PAINTING AND DECORATING** ..... 4 credit hours

Prerequisite: CT 111

Technical details, specifications of materials and techniques of preparing surfaces, finishing and refinishing of construction materials and structures. The profit and loss aspect of "contract work" are presented as well as the utilization of scaffolding, swing staging and other equipment identified with the commercial painting industry. Safety and safe working practices are stressed. (6 hours per week)



**CT 131. ELECTRIC HOUSE WIRING . . . . . 4 credit hours**

A practical course in the use of tools and materials for power supply installation, lighting and electrically operated domestic equipment. In light frame residential construction the National Electric Code is used as a guide for all practical trade operations. (6 hours per week)

**CT 161. BLOCK LAYING I . . . . . 4 credit hours**

A basic course in the laying of standard sizes of block masonry units to construct masonry block foundations and piers; establishment of masonry work to modular height and length is taught. The art of using the tools of the trade. (6 hours per week)

**CT 171. WOODWORKING I . . . . . 4 credit hours**

Lecture and laboratory course in woodworking as it relates to furniture and cabinetry. Knowledge and skills necessary for working with hand and machine tools are developed. Projects are worked on and completed during class time. Hand tools and materials are furnished by the student. (6 hours per week)

**CT 181. BUILDING DRAIN SYSTEMS . . . . . 4 credit hours**

Installation of water supply and building drainage systems for small buildings. Pipe fitting and fixture installation taught in addition to drain service and repairs to existing system. (6 hours per week)

**CT 213. COMMERCIAL AND INDUSTRIAL PAINTING . . . . . 4 credit hours**

Prerequisite: CT 122

An advanced study of the materials and procedural specifications of finishing and maintaining structural steel, water and radio type towers. Applications of various cleaning methods, i.e., steam, water and sand blasting are included. OSHA Standards, color codes and materials for piping and electrical conduit are emphasized. Shipyard maintenance: ships, drydock and dredging equipment as well as the maintenance techniques for hospitals, nursing homes, restaurants and similar institutions are stressed. Sound business practices for organizing contract jobs regarding quality and profit. (6 hours per week)

**CT 221. CARPENTRY—FINISHING . . . . . 4 credit hours**

Prerequisite: CT 121

A practical course in the use of machines and hand tools in the process of work necessary in light wood frame construction, alterations, and maintenance. The scope of the work shall include the repair and replacement of major structural elements. Methods of aligning floors, walls, and ceiling. The restoration of architectural woodwork and component parts. Insulating and fire protecting old construction. (6 hours per week)



**CT 231. ELECTRIC WIRING** ..... 4 credit hours

Prerequisite: CT 131

A practical course in wiring and installing components used in building construction to provide light and power including creating effects with lights, installation of conduits and raceways. (6 hours per week)

**CT 242. CARPENTRY—WOOD, PLASTICS,  
NON FERROUS METALS** ..... 4 credit hours

Prerequisite: CT 221

A practical course in working materials used in the manufacturing and fabrication of building components. (6 hours per week)

**CT 261. BLOCK LAYING II** ..... 4 credit hours

Prerequisite: CT 161

The laying of block masonry units to form necessary wall corners, wall stretchers, piers, pilasters and setting of lintels and reinforcement in masonry. Handling of concrete is demonstrated as it relates to masonry laying procedures. (6 hours per week)

**CT 262. CARPENTRY—BUILDING  
COMPONENT FABRICATION** ..... 4 credit hours

Prerequisite: CT 242

A practical course in the fabrication of cabinets and building components using wood, plastics and nonferrous metals. Furniture making and design. (6 hours per week)

**CT 263. BUILDING WIRING, ELECTRIC CALCULATIONS**..... 4 credit hours

Prerequisite: CT 231

A practical course in designing and installing illumination for various situations: residential, commercial, ecclesiastical, etc. and extensive practice to qualify for Journeyman's examination as an electrician. (6 hours per week)

**CT 265. BRICKLAYING**..... 4 credit hours

Prerequisite: CT 261

A basic course in the laying of brick. An introduction to brick as masonry units used in construction. Brick masonry elements in light frame construction including chimneys, fireplaces, piers and brick veneering. (6 hours per week)

**CT 271. WOODWORKING II**..... 4 credit hours

Prerequisite: CT 171

More advanced and complex projects are designed and developed. Student skills and knowledge of materials and techniques are improved. (6 hours per week)

**CRIMINAL JUSTICE  
(CJ 78)**

**CJ 100. INTRODUCTION TO CRIMINAL JUSTICE**..... 3 credit hours

An indepth look at the Criminal Justice System to include Law Enforcement, Courts and Corrections. With a study as to their individuality and purposes.

**CJ 111. POLICE/COMMUNITY RELATIONS**..... 3 credit hours

Role of individual officer and the department in achieving and maintaining public support. Customs, culture, and problems of ethnic and minority groups. Public information services. Techniques for the alleviation of community tensions.

**CJ 122. THE CORRECTIONAL SYSTEM**..... 3 credit hours

The correctional system from historical to contemporary times. Includes probation, parole and new treatments which are geared to deal with the first offender and repeater.

**CJ 205. APPLIED PSYCHOLOGY FOR POLICEMEN**..... 3 credit hours

Prerequisite: PSY 100

Principles of psychology, relevant to specific applications in law

enforcement, major psychological theories viewed from perspective of their application to law enforcement practices.

**CJ 207. TRAFFIC ADMINISTRATION AND CONTROL . . . . . 3 credit hours**

The course is designed to introduce the student to the purpose and design of traffic administration. Includes coverage of the motor vehicle law, traffic engineering, control devices and accident investigation.

**CJ 208. CRIMINAL EVIDENCE AND PROCEDURE . . . 3 credit hours**

Prerequisite: CJ 209

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. Principles of constitutional, federal and state laws as applied to law enforcement.

**CJ 209. CRIMINAL LAW . . . . . 3 credit hours**

For either lawyer or layman. Designed to broaden the understanding of the student concerning the various agencies involved in the administration of criminal law. Emphasis on the more important law enforcement functions from arrest to executive pardon.

**CJ 210. INTRODUCTION TO CRIMINALISTICS . . . . . 3 credit hours**

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. (3 hours per week).

**CJ 218. CORRECTIONAL COUNSELING . . . . . 3 credit hours**

Casework method of diagnosing and treating criminal offenses. A variety of counseling models and their application to correctional casework discussed.

**CJ 223. JUVENILE JUSTICE . . . . . 3 credit hours**

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.

**CJ 224. CRIMINAL INVESTIGATION . . . . . 3 credit hours**

A basic overview of investigative techniques as they pertain to many criminal justice agencies, to include the police. Course deals with the

practical applications at crime scenes.

**CJ 225. SEMINAR IN CRIMINAL JUSTICE . . . . . 3 credit hours**

Prerequisite: 15 hours completed in program

A unifying experience and evaluation of criminal justice systems, policies and practices. Preparation of a concluding research paper is required in this course.

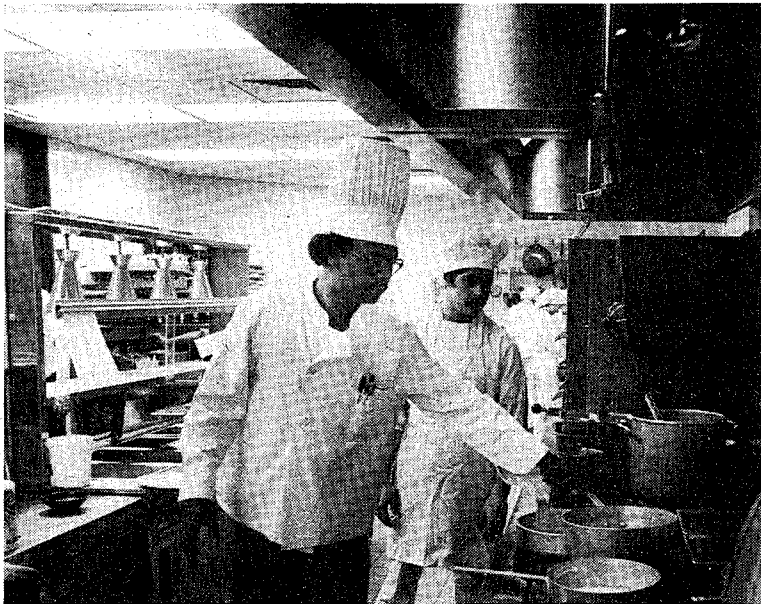
**CJ 227. SEMINAR IN CORRECTIONS . . . . . 3 credit hours**

An overall look at the system of corrections; includes discussions on alternative methods, parole, probation and community based corrections. A research effort is required in this course.

## **CULINARY ARTS (CUL 74)**

**CUL 100. INTRODUCTION TO HOSPITALITY  
INDUSTRY MANAGEMENT . . . . . 3 credit hours**

Designed to give the student the history of the hospitality industry, trends, developments and opportunities in the industry today. An introduction to the study of the organizational structure and functions of management.



**CUL 110. SANITATION AND HYGIENE.....3 credit hours**

Communicates the importance of sanitation to the hospitality worker, layman's bacteriology, communicable diseases, food poisoning, pest control, cleaning and sanitizing; 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**

Development of standards of food preparation, portion control, service techniques, sanitation, receiving and storage of food and materials. Students identify foods and equipment and demonstrate proper use. (Laboratory and lecture, 14 hours per week)

**CUL 118. PRINCIPLES OF NUTRITION.....3 credit hours**

General principles of nutrition 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 health menu planning.

**CUL 120. ORGANIZATION AND MANAGEMENT OF HOSPITALITY INDUSTRY.....3 credit hours**

Prerequisite: CUL 100

Types of organization and functions of management, tools of management recruitment, selection, training and evaluation, labor policies and collective bargaining; human relation techniques in personnel management.

**CUL 122. QUANTITY FOOD PRODUCTION.....6 credit hours**

Prerequisite: CUL 111

Application of techniques learned in Elementary Food Production course. Students have opportunities throughout course to learn expert preparation of soups, sauces, meats, breads, desserts, salads, appetizers and vegetables. (14 hours per week)

**CUL 150. DINING ROOM MANAGEMENT.....6 credit hours**

Focusing on the point of sale, the students will be provided with an opportunity to apply managerial responsibility in the "front of the house."

Special emphasis is placed on various styles of table service sales and promotion, training, follow up and supervisory skills. (Laboratory and lecture, 12 hours per week)

**CUL 199. ON-THE-JOB TRAINING.....1-6 credit hours**

A total of 300 hours will be spent working in a commercial kitchen under supervised conditions.

**CUL 210. GARDE MANGER . . . . . 4 credit hours**

Prerequisite: CUL 111

Building upon elementary cold food preparation procedures, students progress to more complex, classical preparations, techniques and presentations. Food material utilization, buffet salads, vegetable carving, food decorating techniques and garnish techniques. (6 hours per week)

**CUL 217. INTERNATIONAL FOOD PREPARATION . . . 4 credit hours**

Prerequisite: CUL 111

Designed for those who would like to increase their awareness of ethnic cuisine. Preparations in Italian, Chinese, French, German traditions are suggested areas of research and preparation. (6 hours per week)

**CUL 219. ELEMENTARY BAKING . . . . . 4 credit hours**

Prerequisite: CUL 111

A course in baking including yeast doughs, hot breads, muffins, puff pastry doughs, fillings, glazes, basic cake decorating and desserts. (6 hours per week)

**CUL 224. ECONOMICS OF VOLUME FEEDING . . . . . 4 credit hours**

Selection and purchasing of foods and materials used in the hospitality industry. Cost control involved in the production and service of food will be covered in detail. Field trips are an integral part of this course. (4 hours per week)

**CUL 225. ADVANCED BAKING AND PASTRY . . . . . 4 credit hours**

Prerequisite: CUL 219

Experience through involvement in production using advanced baking skills, cake decorating, piping gel, puff pastry, Danish and breads, including work with pastry buffet display pieces, such as pas tillage, nougat work, pulled sugar and other classical pastry items. (6 hours per week)

**CUL 227. ADVANCED CULINARY TECHNIQUES . . . . . 6 credit hours**

Prerequisite: CUL 122

A culmination of experiences for the advanced student. Hors d'oeuvres, chaud-froid, ballontine and soufflé, tallow and salt carvings, aspics, ice carving, gum paste and decorating techniques become familiar to the student. (20 hours per week, 7 week semester)

**CUL 228. LAYOUT AND EQUIPMENT . . . . . 4 credit hours**

Prerequisite: CUL 122

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. (6 hours per week)

**CUL 250. ADVANCED SERVICE TECHNIQUES. . . . . 3 credit hours**

Wine and liquor identification and service, tableside preparation and flambe are covered in this advanced service techniques course. The students will learn how to satisfy the more discriminating diner.

## **DANCE (DN 16)**

**DN 101. BEGINNING MODERN DANCE I. . . . . 2 credit hours**

Warmup stretches, strengthening exercises and movement sketches introduce the student to the range of modern dance movement. Students learn to become aware of their own bodies and the infinite range of creative movement possible to them.

**DN 102. BEGINNING MODERN DANCE II. . . . . 2 credit hours**

Prerequisite: DN 101 or equivalent

The basic outline of stretches, strengthening exercises and movement work continues at a more challenging level. A complete routine is taught.

**DN 103. BEGINNING TAP DANCE I. . . . . 1 credit hour**

An opportunity to learn basic tap dance vocabulary which will be incorporated into traditional steps and dance routines. Total body awareness and rhythmical enjoyment will be emphasized.

**DN 104. BEGINNING TAP DANCE II. . . . . 1 credit hour**

Prerequisite: DN 103 or equivalent

A more advanced class designed for those who have had tap level one and wish to work on proficiency as well as learning more intricate steps and routines.

**DN 105. BEGINNING JAZZ DANCE I. . . . . 2 credit hours**

This course will give the student a wide range of movement to use for self expression and physical enjoyment. Jazz exercise and dances will stretch and tone the body while developing better coordination and rhythm.

**DN 106. BEGINNING JAZZ DANCE II. . . . . 2 credit hours**

Prerequisite: DN 105 or equivalent

A moving experience intended for the student with dance background



who wants to work on proficiency of jazz movement and stylized dancing.

**DN 107. BEGINNING BALLET I. . . . . 2 credit hours**

An overview of ballet technique and steps intended for the student who wants to work on body awareness and alignment and skillful execution of movement while enjoying ballet's inherent beauty.

**DN 108. BEGINNING BALLET II. . . . . 2 credit hours**

A continuation of beginning ballet steps and movement for the student who wants to work on improving proficiency of execution.

**DN 110. AFRO-AMERICAN DANCE. . . . . 1 credit hour**

An introductory dance course with emphasis on movements commonly used in African and Black-American dance.

**DN 122. BALLROOM DANCE. . . . . 1 credit hour**

Students will learn the basics of good social dance so that they can feel comfortable in any dance situation. They will learn how to lead, follow, and dance the most popular and most useful dances: fox trot, waltz, swing, cha-cha, rumba, polka and hustle. Designed for those with limited or no experience or for those who wish to review the basics.

**DN 123. DANCE EXERCISE I. . . . . 1 credit hour**

Designed for the student who is looking for a slower paced dance exercise program, this choreographed program of stretching, simple dance routines, and reducing, all set to various types of music, will help trim and recondition the body while providing an excellent starting or re-entry point for a fitness program. Students will be encouraged to develop a total fitness program. Discussion of nutrition and the learning of simple relaxation techniques will also be a part of this class where no prior dance or exercise experience is required.

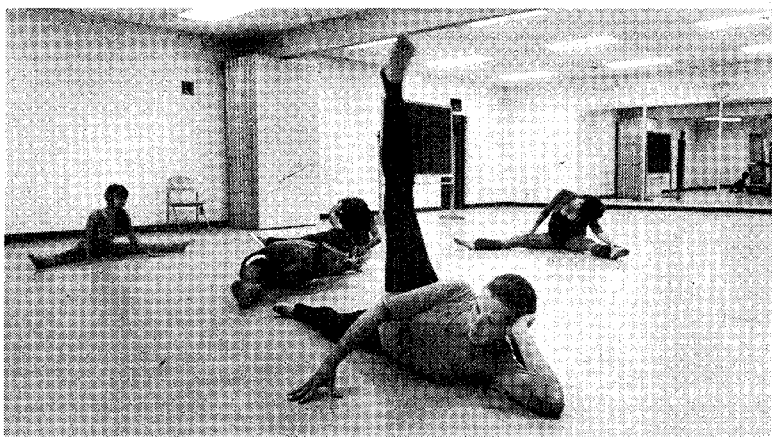
**DN 124. CREATIVE MOVEMENT. . . . . 2 credit hours**

Prerequisite: Previous dance experience

Develop the body as an expressive tool while exploring a wide range of creative movement. Students will experiment with a variety of movement ideas, based on response to sounds, ideas, memories, feelings, and perceptions. Also covered will be some principles of choreography.

**DN 201. CLASSICAL DANCES OF INDIA. . . . . 2 credit hours**

An opportunity to learn the dance forms that were systematized by the sages of India centuries ago. Dances are performed to Indian music and incorporate many Yoga postures. This class is for anyone interested in Indian mythology, philosophy and Yoga.



**DN 223. DANCE EXERCISE II . . . . . 1 credit hour**

Prerequisites: DN 123 or permission

This class is designed for the student who is in reasonable physical shape. Students in this dance exercise class will learn choreographed warm-up, aerobic, reducing, and cool down routines that will help strengthen 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 will be included.

## **DENTAL ASSISTING (DA 51)**

*(Enrollment priority for these courses is granted students admitted to this program.)*

**DA 103. NUTRITION AND PREVENTION I . . . . . 2 credit hours**

Prerequisite: Admission to the Dental Assisting Program or permission of instructor

A course designed to give dental assisting students an in-depth awareness of Nutrition and Preventive dentistry. The etiology, prevention, and control of dental caries, and oral hygiene instructions will be emphasized.

**DA 110. INTRODUCTION TO DENTAL ASSISTING . . . 3 credit hours**

Prerequisite: Admission to the Dental Assisting Program

This course is an orientation to dental assisting. This is a study of the

history of dentistry, professional organizations, ethics, and the role of the modern dental health team. The student will be introduced to the dental operator, equipment, and basic procedures used in four-handed dentistry. Each student will be assigned to clinical experiences in the Washtenaw Community College Dental Clinic.

**DA 111. DENTAL SCIENCE** . . . . . 4 credit hours

Prerequisite: Admission to the Dental Assisting Program

This is an introductory course to head and neck anatomy. This is a study of 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.

**DA 113. DENTAL MATERIALS** . . . . . 2 credit hours

Prerequisite: Admission to the Dental Assisting Program

This course is designed to give the dental assistant student a general knowledge of the uses and properties (chemical and physical) of the most commonly used dental materials.

**DA 114. CLINICAL DENTAL ASSISTING** . . . . . 3 credit hours

Prerequisite: Admission to the Dental Assisting Program, a 2.0 Grade Point Average in DA 110

This course is an introduction to the clinical role of the dental assistant. It is a study of the procedure and instrumentation of common dental operative procedures. The student will be introduced to the basic techniques used in the operative procedures. Each student will be assigned to clinical experiences in the Washtenaw Community College Dental Clinic.

**DA 120. ORAL DIAGNOSIS** . . . . . 2 credit hours

Prerequisite: A 2.0 Grade Point Average in DA 111 and DA 114

A clinical course designed to actively involve the student in applying his/her knowledge of recording diagnostic data and treatment plans. Complete clinical records including referral letter will be written on actual clinical cases being treated in the College Dental Clinic. Each student will be assigned to clinical experiences in the Washtenaw Community College Dental Clinic.

**DA 122. ADVANCED DENTAL SCIENCE** . . . . . 4 credit hours

Prerequisite: A 2.0 Grade Point Average in DA 111

Continuation of Dental Science 111. A study of the relationship of systemic health to oral health and oral pathology.

**DA 124. ADVANCED CLINICAL DENTAL ASSISTING .3 credit hours**

Prerequisite: A 2.0 Grade Point Average in DA 114

A continuation of Clinical Dental Assisting 114. A study of more complex operative procedures and the instrumentation necessary to perform them. Each student will be assigned to clinical experiences in the Washtenaw Community College Dental Clinic.

**DA 125. DENTAL ROENTGENOLOGY . . . . .2 credit hours**

Prerequisite: Admission to the Dental Assisting Program or permission of instructor

The principles, techniques, precautions, and the operation of the x-ray equipment are studied. Film processing methods and mounting are covered.

**DA 126. DENTAL LABORATORY PROCEDURES . . . . .4 credit hours**

Prerequisite: Admission to the Dental Assisting Program or permission of instructor.

A demonstration and laboratory course in which the student constructs various dental devices for diagnosis and impression taking. Emphasis is placed on impression for the fabrication of diagnostic models, model trimmings and the fabrication of custom acrylic impression trays. The construction baseplates and occlusal rims, temporary crowns and bridges will be demonstrated.

**DA 200. ADVANCED CLINICAL PRACTICE I . . . . .3 credit hours**

Prerequisite: DA 200. A 2.0 Grade Point Average in all Dental Assisting courses

This course is an orientation to a clinical environment. The student will actively utilize all previous dental courses in a controlled clinical environment. Practical experience in private office.

**DA 201. DENTAL SPECIALTIES . . . . .3 credit hours**

Prerequisite: A 2.0 Grade Point Average in all Dental Assisting courses

This course is designed to orient the dental assisting students to the various dental specialties and their relationship to one another.

**DA 202. ADVANCED CLINICAL PRACTICE II . . . . .3 credit hours**

Prerequisite: A 2.0 Grade Point Average in all Dental Assisting courses

The student will actively participate in a variety of clinical settings. It is structured according to the students' areas of interest and geographic access in dentistry. The student becomes acquainted with a number of office routines, procedures, equipment, and patient and staff relationships.

**DA 203. NUTRITION AND PREVENTION II . . . . . 2 credit hours**

Prerequisite: Admission to the Dental Assisting Program or permission of instructor

A course 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 will be emphasized.

**DA 212. OFFICE PROCEDURES . . . . . 4 credit hours**

Prerequisite: 1 year of high school typing or Typing 101

This course is an introduction to the dental business office. This is a study of the systems of management used in dentistry, interpersonal communications, basic concepts of third party payment, and machines utilization.

**DA 215. ADVANCED DENTAL ROENTGENOLOGY . . . 2 credit hours**

Prerequisite: A 2.0 Grade Point Average in DA 125

A clinical course in making x-ray exposures using the manikin and patients participating in the WCC Dental Clinic Program.

**DA 222. ADVANCED DENTAL PRACTICE MANAGEMENT . . . . . 3 credit hours**

Prerequisite: A 2.0 Grade Point Average in DA 212 or permission of instructor

This course is designed for the student interested in advanced dental practice management. This course includes management systems, decision making, office design, equipment selection, word processing, and data processing as it is used in the modern dental office.

**DA 224. EXPANDED DUTIES . . . . . 3 credit hours**

Prerequisite: A 2.0 Grade Point Average in all Dental Assisting courses

A course designed to provide dental assisting students with knowledge and skill in performing intraoral functions as outlined in the Michigan State Dental Practice Act.

## **ECONOMICS (EC 02)**

**EC 107. ECONOMICS OF MONEY MANAGEMENT . . . 2 credit hours**

Independence through budget controls, needed and unneeded insurance, consumer buying skills, no risk investments, savings on food, nutrition and health, housing dollars, self reliance income, tax savings, pensions and social security, inflation hedges, security by public policy.

**EC 111. CONSUMER ECONOMICS** . . . . . 3 credit hours

A general education course in economics relating to the consumer, production, national income and growth, banking and credit, markets and prices. For those not majoring in Business Administration or Social Science.

**EC 111. CONSUMER ECONOMICS (Television Course)** . . . . . 3 credit hours

The wise use of financial resources today requires more than an income-producing job and simple subtraction skills. In today's world, an individual must approach his or her financial needs with the savvy of an investment counselor managing the affairs of the company's most important client. With the guidance of finance author and lecturer Bob Rosefsky, students will learn the basics of budgeting and buying, the intricacies of home ownership, income tax, and investments, and the wise use of insurance, wills, and trusts.

**EC 150. LABOR RELATIONS** . . . . . 3 credit hours

Discusses our changing labor force, development, structure and philosophy of U.S. unionism; collective bargaining; bargaining power and the role of the strike; union-management issues, public labor policies. The economics of labor market; comparison with foreign labor movements; operation of labor market; productivity and wages; economic development and the role of the labor force are also discussed.

**EC 211. PRINCIPLES OF ECONOMICS I** . . . . . 3 credit hours

Study of the American economic system including the nature of economics, resources, business organization in the United States, pricing and allocation of resources, distribution of income. Required of all Business Administration transfer students.

**EC 222. PRINCIPLES OF ECONOMICS II** . . . . . 3 credit hours

Prerequisite: EC 211

Continuation of principles including money, banking, price levels, volume of economic activity, public finance, international economics and economic growth. Required of all Business Administration transfer students.

**ELECTRICAL / ELECTRONICS  
(EE 65)**

*The Electrical/Electronic Department is unable to offer every class every semester due to space and faculty limitations. Students should use the following information in planning their schedules.*

The following courses are normally offered in the Fall, Winter and Spring-Summer Terms:

- EE 101. Servicing Techniques I
- EE 110. Electrical Applications I
- EE 111. Electrical Fundamentals I
- EE 120. Electrical Applications II
- EE 122. Electrical Fundamentals II
- EE 127. Industrial Electricity
- EE 137. Switching Logic
- EE 139. Computer Systems I
- EE 211. Basic Electronics

The following courses are normally offered in the Fall Term *only*.

- EE 230. Computer Systems II
- EE 200. Circuit Analysis
- EE 210. Measurements and Instrumentation
- EE 220. Electrical Installation
- EE 221. Computer Peripherals
- EE 222. Digital Electronics I
- EE 241. Digital Electronics II

The following courses are normally offered in the Winter Term *only*.

- EE 102. Servicing Techniques II
- EE 235. Computer Systems III
- EE 238. Electronic Analog Circuits
- EE 239. Design Practices and Standards
- EE 240. Career Practices Seminar
- EE 250. Microprocessors

**EE 040. KNOW YOUR HOME'S ELECTRICAL SYSTEM. . . . . 2 credit hours**

This course has been designed to help the consumer better understand his or her home's electrical system. During the class sessions, the student will evaluate his or her home's existing electrical system in an effort to understand the capabilities and limitations of the system. A great deal of "hands on" time will be offered and will be devoted to working with the wiring materials and constructing circuits of the type found in the home. Typical of the kinds of circuits that will be discussed and wired by the students are: duplex outlet circuits, dimmer circuits, three and four way switch circuits, lawn and garden lighting circuits, electric dryer and electric stove circuits. (3 hours per week, 10 weeks)

**EE 055. APPLIANCE REPAIR. . . . . 2 credit hours**

This course has been developed to offer instruction in the repair of small, portable electrical appliances. All three classes of appliances (heat-producing, motor-driven, combination heat-producing motor-driven) will be considered. Adequate lab time will be provided to enable students to repair appliances of the types discussed in class. (10 weeks)

**EE 070. USING THE OSCILLOSCOPE. . . . . 2 credit hours**

A short course on the theory of operation and practical use of a dual-trace laboratory cathode ray oscilloscope.

Students will learn how to properly adjust and calibrate an oscilloscope, how to connect an oscilloscope to a circuit with minimum disturbance to the quantity being observed, how to display a waveform, how to interpret the results of oscilloscope measurements and the functions of all the oscilloscope controls. (4 hours per week, 7½ weeks)

**EE 095. BASIC ELECTRICAL BLUEPRINT READING. . . . . 2 credit hours**

An introductory level course on reading basic electronic/electrical manufacturing drawings to determine if the hardware complies with the engineering design requirements. Students will 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 will be studied.

**EE 100. ELECTRICAL ANALYSIS. . . . . 4 credit hours**

Prerequisite: Two years of high school algebra, or MTH and EE 111

Analysis of D.C. and A.C. circuits; the use of determinants to systematize the use of Kirchhoff's Laws; the application of phasors in the analysis of RLC circuits. Electronic calculator operations are integrated with all topics of study.

**EE 101. SERVICING TECHNIQUES I. . . . . 4 credit hours**

Development of techniques for service and maintenance of electrical/electronic systems. Use and care of tools and measuring instruments. Splicing, soldering, simple printed circuit layout and fabrication. The study of and working with materials and circuits found in residential wiring systems and common electronic equipment. Lecture and Lab. (6 hours per week)

**EE 102. SERVICING TECHNIQUES II. . . . . 4 credit hours**

Prerequisite or Corequisite: EE 111

Basic electrical circuits and devices used to operate and control electromechanical systems. Use of hand tools, electrical instruments and the special servicing techniques required for maintenance and repair. Includes the procedures necessary for troubleshooting, testing and servicing fractional horsepower A.C. motors. Lecture and Lab. Winter offering. Winter offering. (6 hours per week)

**EE 110. ELECTRICAL APPLICATIONS I. . . . . 2 credit hours**

Corequisite: EE 111

Closely parallels Electrical Fundamentals 111 but from a more



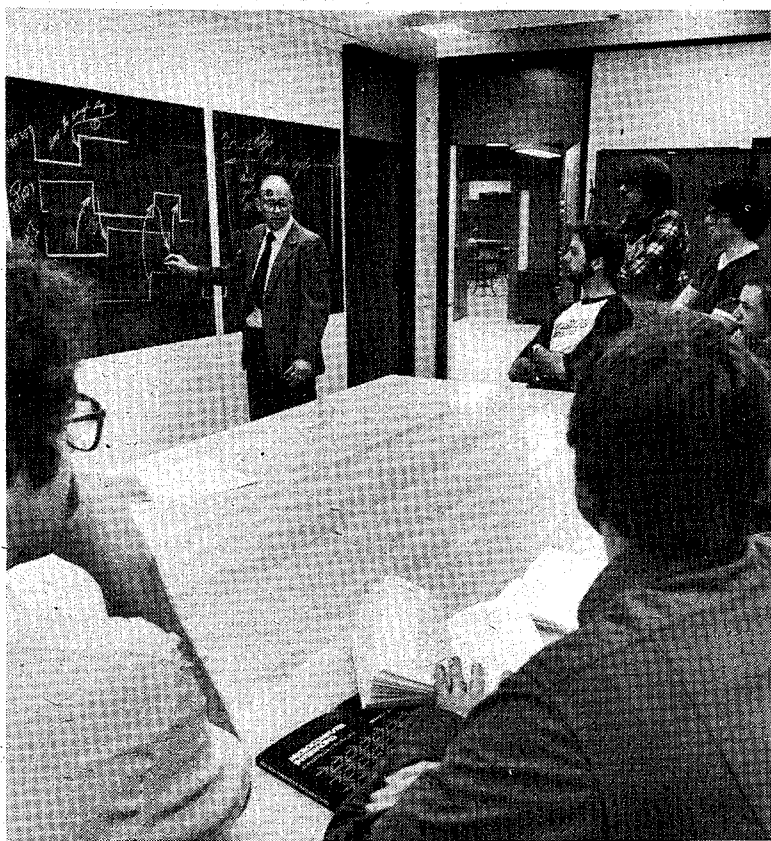
mathematical standpoint. Use of computation aids for electrical calculations. Required in all EE Associate degree programs. (3 hours per week)

**EE 111. ELECTRICAL FUNDAMENTALS I. . . . . 4 credit hours**

Prerequisite: One year of high school algebra or math proficiency test;  
Corequisite: MTH 097

*Note: All EE Associate degree students must simultaneously enroll in EE 110.*

A beginning level course in electricity. Theoretical topics covered are: analysis of series, parallel and compound DC circuits using Ohms Law and Kirchoff's Laws. AC circuits are also introduced covering inductance and capacitance. Lab topics include wiring circuits, measuring voltage current and resistance with a VOM; introduction to use of an oscilloscope. (6 hours per week)



basic generation of A.C. and D.C. electrical power and the operations of transformers. Basic theorems for circuit analysis introduced and employed. Lecture and Lab. (6 hours per week)

**EE 127. INDUSTRIAL ELECTRICITY** . . . . . 4 credit hours

Prerequisite: EE 111; preceded or accompanied by EE 122

Electrical wiring diagrams, direct-current generator and motor principles for shunt, series and compound wound machines; single-phase and three-phase transformer circuits, industrial rectifiers; single-phase and three-phase A.C. motors; standard motor controls. Lecture and lab. (6 hours per week)

**EE 137. SWITCHING LOGIC** . . . . . 3 credit hours

Prerequisite: One year high school algebra or math proficiency test; Corequisite: EE 111 or consent

Fundamentals of digital logic: number systems, digital codes, Boolean algebra, and gate minimization techniques. The functional and logical operations of basic logic gates, combinational logic, flip-flops, sequential logic, memories and arithmetic logic are studied. Lecture and Lab. (4 hours per week)

**EE 139. COMPUTER SYSTEMS I** . . . . . 4 credit hours

Prerequisite: EE 137; preceded or accompanied by EE 211

This course is an introduction to the physical and logical makeup of a computer system. The major functional units of a computer system and their relationship with each other are examined. Topics include coding systems, data storage, data representation, central processor architecture, input/output devices, input/output techniques, bus structures, programming concepts, flow-charting, machine language programming and software components. The laboratory provides hands-on experience with computer equipment. Lecture and Lab. (6 hours per week)

**EE 200. CIRCUIT ANALYSIS** . . . . . 3 credit hours

Prerequisite: EE 120

Application of Thevenin's and Norton's theorems, super position, and reciprocity and other analytical techniques of D.C. and A.C. networks. Four terminal networks, transient analysis of RC, RL, and RCL circuits, common logarithms, natural logarithms, decibels, and power reference levels are also studied. The "j" operator used extensively. Lecture. Fall offering. (3 hours per week)

**EE 210. MEASUREMENTS AND INSTRUMENTATION** . . . . . 4 credit hours

Prerequisite: EE 211

Theoretical and practical aspects of electrical measurements. The basic

characteristics of a measurement, sources of errors, electrical measurement standards, D.C. meters, A.C. meters, voltmeters, ohmmeters; D.C. bridges, A.C. bridges, oscilloscopes, digital multimeters, and selected transducers. Laboratory exercises in the care, application and selection of electrical instruments. Lecture and Lab. Fall offering. (6 hours per week)

**EE 211. BASIC ELECTRONICS**..... 4 credit hours

Prerequisites: EE 111, MTH 151, 169, or EE 100; preceded or accompanied by EE 122

Semiconductor devices and circuits. Semiconductor materials, the PN junction diode, power supplies, bipolar junction transistor, characteristic curves, operating regions, common-emitter circuit, common-base, common-collector circuits, transistor switch, small signal amplifiers, load lines, biasing techniques, temperature characteristics and trouble shooting procedures. Lecture and Lab. (6 hours per week)

**EE 220. ELECTRICAL INSTALLATION AND MAINTENANCE PRACTICES**..... 4 credit hours

Prerequisite: EE 122

Industrial and commercial electrical installation and maintenance. Selected National Electrical Code requirements, conductor selection, grounding, ground fault protection, motor circuits, illumination, circuits and calculations. Introductions to relay controls, solid state controls and programmable controllers. Lecture and Lab. Fall offering. (6 hours per week)

**EE 221. COMPUTER PERIPHERALS**..... 3 credit hours

Prerequisite: EE 139

Input/output devices of a typical computer system including printers, displays, tape and disc drives. The lecture includes the theory of operation of the devices, their control units and their interaction with the central processor. The laboratory activities are presented with the object of stressing the mechanical, electronic and logical principles of operation. Fall offering. (4 hours per week)

**EE 222. DIGITAL ELECTRONICS I**..... 4 credit hours

Prerequisites: EE 122, 137, 211

Theory, analysis and application of pulse and digital circuits. Includes pulse parameters, waveform analysis, RC integrators, RC differentiators, clippers, clampers, the bipolar junction transistor inverter, the CMOS inverter, flip-flops, the Schmitt trigger, sweep and sampling circuits. Lecture and Lab. Fall offering. (6 hours per week)

**EE 120. ELECTRICAL APPLICATIONS II. . . . . 2 credit hours**

Prerequisite: EE 111; Corequisite: EE 122

The analysis of A.C. and D.C. circuits using the "j" operator and basic network theorems. Parallels Electrical Fundamentals 122. Required in all EE Associate degree programs. (3 hours per week)

**EE 122. ELECTRICAL FUNDAMENTALS II. . . . . 4 credit hours**

Prerequisite: EE 111, MTH 151 or MTH 169 or EE 100

*Note: All EE Associate degree program students must simultaneously enroll in EE 120.*

Basic electrical theory and practice designed to provide more detailed consideration of the origin, effects and interactions of resistance, inductance, capacitance and magnetism in electrical circuits. Also includes

**EE 230. COMPUTER SYSTEMS II. . . . . 4 credit hours**

Prerequisite: EE 139 and EE 211

The operation, servicing and troubleshooting of a digital computer



system based on the PDP-11 minicomputer. This course emphasizes the operation of the CPU, and the topics include addressing modes, instruction sets, assemble language programming, business operation, CPU organization, main memory, I/O techniques and PDP-11 families. The architecture, implementation and operation of the KD-11A CPU is studied. Lecture and Lab. (6 hours per week).

**EE 235. COMPUTER SYSTEMS III . . . . . 4 credit hours**

Prerequisites: EE 230 and EE 221

A more detailed study of digital computer system operation and servicing based on the PDP-11/40 system. Topics include mainframe maintenance, peripheral devices and interfacing, disk operation, troubleshooting techniques and use of diagnostic programs. Lecture and lab. (6 hours per week)

**EE 238. ELECTRONIC ANALOG CIRCUITS . . . . . 4 credit hours**

Prerequisites: EE 122 and EE 211

The theory of operation and characteristics of JFET's and MOSFET's, biasing techniques for FET's and FET amplifier characteristics. The principles of negative feedback and closed-loop gain. The operation and characteristics of IC operational amplifiers when used as inverting amps, non-inverting amps and differential amps. The application of IC op amps for signal processing, comparators and oscillators are also studied. Lecture and lab. (6 hours per week)

**EE 239. DESIGN PRACTICES AND STANDARDS . . . . . 3 credit hours**

Prerequisite: For graduation candidates only

Fabrication and checkout of electrical/electronic equipment. Group study of current electrical practices, manufacturing techniques, component standards, major sources of commercial design standards, device standards, PC board fabrication and wire wrap techniques. Familiarization with catalogs, products and component sources. A design project is selected by students and constructed outside of regular class period. Winter offering. (3 hours per week)

**EE 240. CAREER PRACTICES SEMINAR . . . . . 2 credit hours**

Covers career options available in the electrical/electronic industry, professional ethics, customer relations, hiring practices, resume preparation, interviewing skills, salary negotiations, how to succeed on the job, how to increase productivity and how to develop a career plan. Winter offering. (2 hours per week)

**EE 241. DIGITAL ELECTRONICS II . . . . . 4 credit hours**

Prerequisite: EE 222; preceded or accompanied by EE 222

Digital electronic circuits. The characteristics of modern integrated cir-

circuits and applications in digital systems. The operation, important electrical parameters, and application of basic logic gates with emphasis on the TTL and CMOS logic families. Extensive use made of manufacturer's specification sheets. Digital adders, subtractors, shift registers, counters, timing circuits, decoders, encoders, memories and control waveform generation. Experience in the use, operation, testing and troubleshooting of integrated logic circuits. Lecture and Lab. Winter offering. (6 hours per week)

**EE 242. HIGH FREQUENCY TRANSMISSION . . . . . 4 credit hours**

Prerequisites: EE 200 and 211

High frequency transmission line and antenna techniques. Students introduced to transmission line analytical concepts; measurement techniques; the use of the Smith Chart; and high frequency generating sources. Study of antennas includes basic antenna measurement and analytical techniques to determine such antenna properties as gain, radiation patterns and impedance; various antenna types and typical applications. Lecture and Lab. (6 hours per week)

**EE 246. CONTROL SYSTEM FUNDAMENTALS . . . . . 4 credit hours**

Prerequisite: EE 238

An introductory technician level course on the theory and hardware of feedback control systems. Covers the concepts of feedback equations, block diagrams, transfer functions, stability, errors and step response. Servomechanism transducers, motors and actuators are included as well as techniques of digital control.

**EE 250. MICROPROCESSORS . . . . . 4 credit hours**

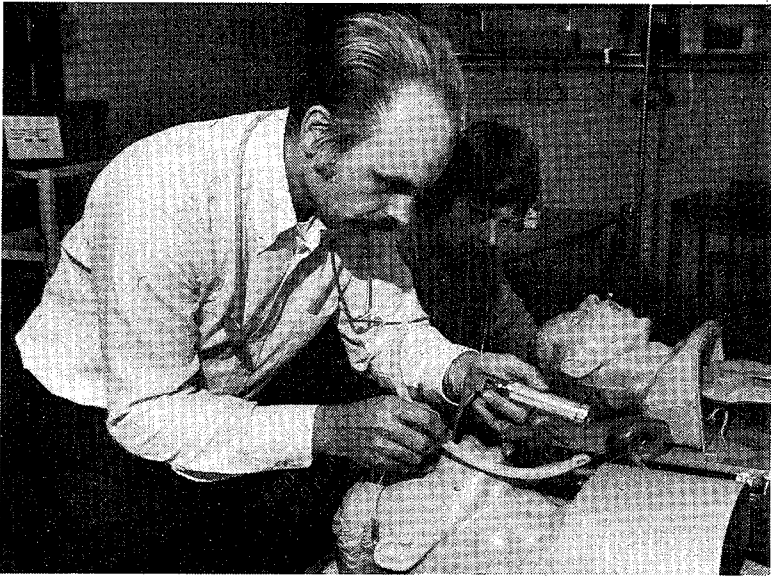
Prerequisites: EE 137, 139, 211; Corequisite: EE 241

An introductory technician level course on the theory, hardware, software and applications of microprocessors. Includes microprocessor architecture, programming, input/output interfacing and peripherals. Laboratory exercises emphasize the Intel 8080 microprocessor chip that contains an 8-bit data bus and a 16 bit address bus. Lecture and Lab. Fall offering. (6 hours per week)

**EE 255. DIGITAL DATA COMMUNICATIONS I . . . . . 3 credit hours**

Prerequisite: EE 137 or permission of instructor

Fundamental topics in practical digital data communication, intended to introduce a student to specialized techniques and equipments employed in the interchange of digital data between computers or data processing equipments. Considerable attention devoted to the special techniques involved when using telephone circuits.



## **EMERGENCY MEDICAL TECHNOLOGY (EMT 55)**

### **EMT 037. EMERGENCY FIRST AID . . . . . 1 credit hour**

Designed to train first responders in basic first aid procedures to be used before an ambulance or doctor arrives. Skills taught include artificial respiration, bleeding control and splinting; treating poisoning, burns and fainting.

### **EMT 097. EMERGENCY MEDICAL REVIEW . . . . . 3 credit hours**

Designed to update and refresh the skills and techniques of practicing EMTs. Meets requirements of the Michigan Department of Public Health for continuing education to maintain state licensure.

### **EMT 101. EMERGENCY MEDICAL TREATMENT PRINCIPLES I . . . . . 3 credit hours**

Corequisites: EMT 102, 105

Theoretical aspects of Basic Life Support including C.P.R., cardiac care and adjuncture devices used in field EMT practice. Diagnostic skills, medical emergencies and environmental emergencies discussed by experts in the field. Concepts on water safety, practical aspects of auto extrication among other basic principles are included in lecture sessions.

**EMT 102. EMERGENCY MEDICAL TREATMENT  
TECHNIQUES I**..... 3 credit hours

Corequisites: EMT 101, 105

Correct procedures of emergency intervention learned through laboratory and field exercises. Emphasis placed on techniques such as cardio-pulmonary resuscitation, treatment of soft tissue injuries, burns, spinal and head injuries, shock, fractures, emergency childbirth, automobile extrication, backboarding and water safety.

**EMT 103. EMERGENCY MEDICAL TREATMENT  
PRINCIPLES II**..... 3 credit hours

Corequisites: EMT 104, 106

A continuation of EMT Principles I. Lectures by medical experts on other concepts of medical emergencies.

**EMT 104. EMERGENCY MEDICAL TREATMENT  
TECHNIQUES II**..... 3 credit hours

Corequisites: EMT 103, 106

A continuation of EMT Techniques I. New techniques and further skills acquired in the first semester.

**EMT 105. PATIENT CARE PROCEDURES**..... 3 credit hours

Corequisites: EMT 101, 102

Course includes patient assessment and diagnostic techniques, patient handling skills and some lab practice in basic techniques such as taking vital signs, airway management, special interview skills, etc. Also included are several hours of observation time in a hospital emergency room. (3 hours per week)

**EMT 106. EMERGENCY MEDICAL TREATMENT  
CLINICAL PRACTICUM**..... 3 credit hours

Corequisites: EMT 103, 104

The clinical and field experience will expose students to real life emergencies in hospital emergency rooms and the ambulance field. (2 hours per week)

**EMT 111. PSYCHOLOGICAL ASSESSMENT—  
EMERGENCY MEDICAL TREATMENT**..... 3 credit hours

Presents principles of the treatment and evaluation of psychological needs of the patient and the EMT. The student is taught basic concepts of evaluation, strategies, and treatment of individuals exhibiting various emotional and mental disturbances and disorders.



**EMT 112. EMERGENCY MEDICAL SERVICE ISSUES** ..... 2 credit hours

This class identifies some of the problems and issues involved with Emergency Medical Service, and explores possible solutions and alternatives to meet the needs of practicing EMTs.

**EMT 114. BEGINNING EKG TECHNIQUE**..... 3 credit hours

This course is designed to teach the principles of the electrocardiogram, the conduction system and the techniques of taking the EKG.

**EMT 115. EMERGENCY MEDICAL TECHNOLOGY SPECIALIST**..... 5 credit hours

This course is designed to provide currently licensed Emergency Medical Technicians with the additional skill and knowledge necessary for them to fulfill the role of Emergency Medical Technician Specialists within a limited advanced life support system.

**EMT 120. AMERICAN RED CROSS FIRST AID**..... 3 credit hours

Prerequisites: None

Consists of lectures, textbooks and practice work in first aid outlined by the American Red Cross. A certificate awarded to each student completing the course successfully.

**EMT 130. EMERGENCY MEDICAL SERVICES DEVELOPMENT AND OPERATIONS**..... 2 credit hours

The course consists of an overview of the development of the Medical Emergency Services on the national, regional and local levels. Emphasis is placed on the dynamics of EMS operation and impact at the local and national levels, international EMS and career development.

**EMT 131. CARDIOPULMONARY RESUSCITATION**.... 1 credit hour

The student is taught the skills necessary to aid or maintain vital body functions in those persons suffering from heart attack or cardiopulmonary arrest. Certification is offered via the Michigan Heart Association and the American Red Cross. (2 hours per week)

**EMT 132. CARDIOPULMONARY RESUSCITATION INSTRUCTION TRAINING**..... 1 credit hour

Students who have completed Health Sciences 131 learn how to be effective instructors of cardiopulmonary resuscitation. Participants will be certified by the Michigan Heart Association as CPR instructors. The course is offered only when there is sufficient demand. (2 hours per week)

**EMT 133. CARDIOPULMONARY RESUSCITATION INSTRUCTIONAL TRAINER. . . . . 1 credit hour**

A course preparing people to train resuscitation instructors. Includes updating of information and skills as well as teaching techniques. Meets Michigan Heart Association standards.

**EMT 134. ADVANCED FIRST AID. . . . . 3 credit hours**

The course provides the student with information necessary to improve and develop first aid knowledge, skill ability and personal judgment. Upon successful completion the student will be awarded certification by the American Red Cross. Classroom is devoted to didactic and practical objectives.

**EMT 148. ELEMENTARY PHARMACOLOGY. . . . . 2 credit hours**

A survey of basic pharmacology. General aspects of drug administration, metabolism, excretion are discussed. Mechanisms of action, indication and contraindications and side effects of broad list of drugs are presented.

**EMT 149. ELEMENTARY PATHOLOGY. . . . . 1 credit hour**

An introduction to the study of pathology; correlations with clinical medicine are emphasized. Topics include infectious diseases, tumors, chemical injuries, respiratory and cardiovascular diseases.

**EMT 161. CRASH INJURY MANAGEMENT. . . . . 3 credit hours**

Provides training for the functioning law enforcement officer in all aspects of emergency medical care required at the scene of a traffic accident. Upon successful completion of the course the officer will be awarded certification by the U.S. Department of Transportation.



**EMT 201. ADVANCED EMERGENCY MEDICAL TECHNOLOGY**.....8 credit hours

Consists of didactic and practical training as well as observation time spent on an Advanced Life Support Unit. The class meets biweekly for four hours per session. The first half semester involves didactic and laboratory experiences including anatomy, physiology and medical terminology. Specialized subject areas such as psychological emergencies, pediatrics, cardiovascular emergencies, unconscious states and their management. The second half consists of didactic and practical training in specialized skill areas such as I.V. administration, pharmacology, intubation and administration of medication.

**EMT 202. ADVANCED LIFE SUPPORT PROCEDURES**.....8 credit hours

Corequisites: EMT 202 and 206

Consists of lecture, practical application, recitation and review of case studies. The first half of the semester is dedicated to an in-depth study of cardiology. The second half is devoted to the practical application of information gathered in EMT 201 and the first half of EMT 202. This is achieved through recitation, use of Advanced Cardiac Life Support slide set, mannequins and cardiac arrhythmia simulators.

**EMT 206. ADVANCED CLINICAL EXPERIENCE**.....4 credit hours

Corequisite: EMT 202

Consists of the clinical application and practice of skills gained in EMT 201. The student will participate in 16 hours of clinical practice weekly for the semester. He/she will be directly responsible to the clinical instructor. Grades will be awarded on a PASS/FAIL basis. At the discretion of the clinical instructor, and based on the student's ability to perform the skills listed in the Michigan Department of Public Health Clinical Performance Objectives. Observation time will consist of two (eight hour) shifts on an Advanced Life Support Unit. The observation schedule is flexible and every effort will be made to arrange a mutually agreeable time for the student and the Advanced Life Support provider.

**ENGLISH  
(ENG 24)**

**ENG 010. WRITING PRACTICUM**.....1 credit hour

Provides individualized instruction in a particular writing skill. Students may be referred to this course by their instructor to remove a specific deficiency in their writing. Students may enroll in<sup>2</sup> course to improve writing or receive help in completing writing assignments in English or other college courses requiring writing.

college. Students work with a lab instructor on a sequence of writing assignments and/or exercises tailored to their specific needs. Grading: pass/fail. English 010 is offered concurrently with sections of English 000.

**ENG 030. BASIC ENGLISH I . . . . . 4 credit hours**

For students not prepared for the regular English college parallel composition class. Students work at their own speed with materials appropriate to their capabilities. Emphasis on sentences and paragraphs.

**ENG 031. BASIC ENGLISH II . . . . . 4 credit hours**

A continuation of English 030 with an individualized program of studies in basic writing skills.

**ENG 050. ENGLISH FOR THE FOREIGN BORN I . . . . . 2 credit hours**

Individualized instruction for foreign born residents who wish to feel more comfortable and confident in their English skills, with special application to personal, social and business situations. Offers intensive practice in understanding, speaking, pronouncing and writing basic America English. Special attention to spelling and slang usages. (3 hours per week)

**ENG 051. ENGLISH FOR THE FOREIGN BORN II . . . . . 2 credit hours**

A continuation of all of the aspects covered in English 050. (3 hours per week)

**ENG 085. REVIEW OF ENGLISH GRAMMAR . . . . . 3 credit hours**

For the student who wishes to review English and refine his/her mastery of it. Assumes a student's competence as a writer, but may be taken in conjunction with English 091, 100, 111 or 122. Review of the basics of our grammatical system and a look at some more complex problems of the language. Helps student be more precise and effective as a writer and aids in the development of copy editing skills.

**ENG 090. PARENTS: CHILDREN'S READING . . . . . 2 credit hours**

For parents who are concerned about their children's reading. Special attention to methods for preparing preschoolers for reading using the home as a learning environment. Focus on reading related to home and school problems. (3 hours per week)

**ENG 091. ENGLISH FUNDAMENTALS . . . . . 4 credit hours**

A course for writers who have mastered most of the grammar and mechanics skills (spelling and punctuation) necessary for successful college writing. Course focuses on longer paragraph and short narrative essays. Individualized instruction provided to prepare student for a 100-level writing course. Student must select a writing lab section with this course.

**ENG 100. COMMUNICATION SKILLS** . . . . . 4 credit hours

Prerequisite: ENG 091 Competency

Students receive practice in a variety of writing assignments relevant to their program area. Assignments include letter writing for a variety of situations (eg. job application, complaint, commendation, courtesy), memos written in response to situations students are likely to encounter on the job, resumes fitted to the student's particular background (work and educational experience), and other writing forms. During the first week of class, students must demonstrate a writing proficiency at the ENG 091 level. Primarily for native speakers of English. Students must select a writing lab section with this course.

**ENG 102. LIBRARY/RESEARCH PAPER** . . . . . 2 credit hours

Individualized instruction for the student engaged in preparing a research paper for any WCC class. Step by step help in topic selection, information gathering and organizing, compiling notes, writing a term paper and preparing a bibliography.

**ENG 107. TECHNICAL WRITING** . . . . . 3 credit hours

Prerequisites: EE 091 and 100

A continuation of writing skills and situations presented in ENG 100, Communication Skills. Emphasis on writing longer and more sophisticated occupational communication and oral presentations.

**ENG 111. ENGLISH COMPOSITION I** . . . . . 4 credit hours

Developing skills in written composition (from paragraphs to expository essays and documented papers), logical thinking and reasoning, and critical reading. Methods of organization and development. Students write both in-class and outside themes frequently. Reading materials serve as basis for papers and for classroom discussions.

**ENG 122. ENGLISH COMPOSITION II** . . . . . 3 credit hours

Prerequisite: ENG 111 or equivalent

A continuation of English 111 with emphasis on research and critical literary papers along with narrative and persuasive writing.

**ENG 140. SCIENCE FICTION** . . . . . 3 credit hours

Relevancy of science fiction as prophecy and as a guide to shaping future societies. Course centers around a series of short stories while also permitting students to select and read several novel length books independently. Included are science fiction films and guest lectures though most of the class activity consists of dialogue among members.

**ENG 145. WOMEN WRITERS** . . . . . 3 credit hours

A survey of poetry, fiction, drama and essays by women, with an emphasis on 20th Century writers. 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**

Study of poetic and dramatic literature designed to give an understanding of literature through close reading and discussion of selected works of poetry and drama. In both English 160 and 170 students are encouraged to evolve criteria for assessing the value of literary works. Specially designated sections of English 160 emphasize poetry or drama.

**ENG 170. INTRODUCTION TO LITERATURE:  
SHORT STORY AND NOVEL . . . . . 3 credit hours**

Students explore short stories and the novel as they provide blueprints for living, self-discovery and recreation. Each student helped in strengthening reading and writing skills. Specially designated sections of English 170 emphasize popular literature, science fiction, biography, mystery, westerns or images of women in literature. Readings and discussion consider the cultural relevance of writings and the structural design and the effects upon the reader.

**ENG 181. BLACK LITERATURE . . . . . 3 credit hours**

A critical analysis of Black emotions in the world of literature with the goal of raising the level of Black consciousness. Introduction to contemporary Black literature, letters, and thought.

**ENG 200. SHAKESPEARE . . . . . 3 credit hours**

Introductory reading and discussion of the varieties of Shakespeare's plays: comedy, history, tragedy and dramatic romance. All periods of Shakespeare's work represented. Wherever possible, the opportunity to witness performances, either live or on film, is made available.

**ENG 207. LITERATURE OF THE BIBLE . . . . . 3 credit hours**

Content and literary forms of the Old and New Testaments, their influence on the literatures of the world to the present day.

**ENG 210. CHILDREN'S LITERATURE . . . . . 3 credit hours**

Survey of prose, poetry and illustrated books suitable for the preschool, elementary, and early adolescent child. Required of students entering elementary education. Also for library studies or work, teacher aide program, nursery and day care work and as general education for parents.

**ENG 211. AMERICAN LITERATURE I . . . . . 3 credit hours**

Our nation's literature from the beginnings to the Civil War, stressing the major authors of the period. Relates trends of the period to contemporary problems and readings.

**ENG 212. ENGLISH LITERATURE I . . . . . 3 credit hours**

English literature from the Anglo-Saxon period through the Eighteenth Century. Readings stress the major authors from Chaucer to Johnson.

**ENG 213. WORLD LITERATURE I . . . . . 3 credit hours**

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**

A continuation of American Literature 211, covering the period from the Civil War to the present. Relates trends of the period to problems and writings occurring before the Civil War.

**ENG 223. ENGLISH LITERATURE II . . . . . 3 credit hours**

English Literature 212 continued. A study of representative writers of the Romantic, Victorian and Modern periods.

**ENG 224. WORLD LITERATURE II . . . . . 3 credit hours**

A continuation of World Literature 213. Explores some of the great literary experiences since the Renaissance with attempts to show how they have contributed to our present cultural heritage.

**ENG 225. INTERMEDIATE EXPOSITION . . . . . 3 credit hours**

Prerequisite: ENG 111

For freshmen and sophomores who have taken English 111. Includes a review of fundamentals of composition with further practice in writing expository prose, materials being drawn in part from the student's special field of interest.

**ENG 230. NATURE OF ENGLISH LANGUAGE . . . . . 3 credit hours**

The nature and development of the English language. Consideration of English from its beginning to the present. Language examined in its social context and also in terms of dialects, speech and formal structure.

**ENG 260. JOURNAL WORKSHOP I . . . . . 3 credit hours**

Prerequisite: ENG 111 or consent

Workshop features intensive in-class writing as a means to self-reliance and self-discovery. Students begin lifelong habit of reflection and writing. Journals remain confidential but students are required to write additional papers about the problems and experiences encountered when attempting to reflect the movement and continuity of their inner lives. Student descriptions of this class are available in the Writing Lab.

**ENG 261. JOURNAL WORKSHOP II . . . . . 3 credit hours**

Prerequisites: ENG 260

A continuation of English 260 Journal Workshop, for students who have already completed 260, and who wish to continue to develop their skills and produce additional written work.

**ENG 270. CREATIVE WRITING I . . . . . 3 credit hours**

A course in the fundamentals of creative writing through the analysis of various forms of writing and frequent written exercises in poetry, fiction, basic playwriting and non-fiction. Students encouraged to develop writing skills according to personal interests and abilities. A course assumption is that understanding of the skills involved in creative writing promotes better reading of literature. Also designated for persons seeking an avocation in creative writing with interest in learning the fundamentals of the craft.

**ENG 271. CREATIVE WRITING II . . . . . 3 credit hours**

Prerequisite: ENG 270

A continuation of English 270, Creative Writing, for those students who have already completed 270 and who wish to continue to develop their skills and produce additional written work.

## **FINANCE (FIN 43)**

**FIN 100. PERSONAL AND CONSUMER FINANCE . . . 3 credit hours**

Role of the individual as consumer: cost of establishing and maintaining a household; problems of personal consumer credit, installment buying; taxes; basic finance concepts; insurance; investments; health services; governmental influence and protection; personal-consumer savings; banking.

**FIN 220. PRINCIPLES OF FINANCE . . . . . 3 credit hours**

Prerequisite: ACC 122

A survey of the whole field of finance, both private and public. Emphasis on 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 and money markets and financing state and federal governments.



# **FIRE PROTECTION (FP 79)**

**FP 097. CHEMISTRY OF COMBUSTIBLES. . . . . 3 credit hours**

Designed for students in the Fire Protection Program. The course concentrates on the chemistry of flammable and explosive materials with special emphasis on hazards.

**FP 099. LABOR RELATIONS  
IN THE PUBLIC SECTOR. . . . . 3 credit hours**

Labor relations as it applies to the public sector. Simulated collective bargaining procedures and case studies discussed. A field study report required.

**FP 100. INTRODUCTION  
TO FIRE PROTECTION. . . . . 3 credit hours**

Prerequisite: Consent of department

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.

**FP 101. HYDRAULICS. . . . . 3 credit hours**

Prerequisite: Consent of department

Basic skills relevant to fire service hydraulics operation. Emphasis on types and styles of pumps, construction, testing and maintenance procedures.

**FP 103. FLAMMABLE HAZARDOUS MATERIALS. . . . 3 credit hours**

For students in the Fire Protection Program. The chemistry of flammable and explosive materials with special emphasis on hazards.

**FP 112. FIRE COMPANY SUPERVISION. . . . . 3 credit hours**

Prerequisite: Consent of department

The theory and practice of supervision. The relationship of supervision to leadership; leadership styles; individual differences; problems of morale and motivation; interpersonal communication; instructional basics; supervision and strategy.

**FP 116. BUILDING CONSTRUCTION FOR  
FIRE SERVICE. . . . . 3 credit hours**

Prerequisites: Consent of department

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. A study of the fundamental concepts of building design and construction; site selection, code compliance, architectural plans; terminology; explorations of design with emphasis focused on fire protection concerns.

**FP 122. FIRE PREVENTION THEORY AND APPLICATIONS . . . . . 3 credit hours**

Prerequisite: FP 100 or consent of department

The development of fire prevention laws and ordinances for elimination of fire hazards; inspection organization, practices and procedures; theory and application of laws and ordinances in modern concepts of fire prevention.

**FP 209. ADVANCED STRATEGY . . . . . 3 credit hours**

Prerequisite: Consent of department

Covers fireground operations, strategy and judgments involving questions, such as when to call for additional equipment, why buildings collapse, when to retreat, when or when not to ventilate, how to best augment systems which are installed in the building and factors or conditions which affect and determine a department's operations.

**FP 210. INTRODUCTION TO FIRE ADMINISTRATION . . . . . 3 credit hours**

Prerequisite: Consent of department

A study of the practical application of records, reports, and training; 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. Also, the budget and purchasing practices; a study of rating and systems and their application to the fire service; and ways to handle personnel problems and employee suggestions.

**FP 213. FIRE INVESTIGATION AND ARSON . . . . . 3 credit hours**

Prerequisite: Consent of department

The fire fighter's role in arson investigations. 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. Covers Michigan laws, alibis, motives and proving the corpus delicti; preparation of the case, court testimony, reports and records and juvenile fire setters.

**FP 224. PROTECTION SYSTEMS . . . . . 3 credit hours**

Attitudes prevalent in industry toward fire protection; development of fire

and safety organizations in industry; relationships between private and public fire protection organizations. Also includes industrial obligations to communities in regard to fire and safety; current trends, deficiencies, and possible solutions for fire protection problems facing industry today.

## **FLUID POWER (FLP 67)**

**FLP 111. FLUID POWER FUNDAMENTALS . . . . . 4 credit hours**

Basic components of hydraulic and pneumatic systems as well as a general understanding of the basic laws and formulas. Pumps, control valves, actuators, ANSI symbols are used for circuit construction and print reading. Laboratory experiences include assembly and disassembly of components and construction of hydraulic circuits. (5 hours per week)

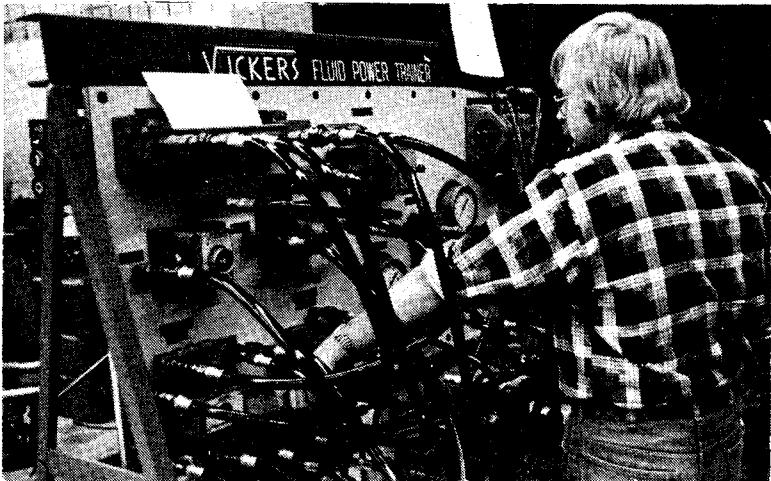
**FLP 122. HYDRAULIC PUMPS . . . . . 4 credit hours**

Prerequisite: FLP 111 or consent

Experience with a variety of different types and styles of pumps including piston, vane, gear and combination pumps. Construction, testing and maintenance procedures, laboratory experiences. (5 hours per week)

**FLP 201. PLUMBING AND PIPEFITTING I . . . . . 3 credit hours**

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 included.



**FLP 202. PLUMBING AND PIPEFITTING II. . . . . 4 credit hours**

A continuation of Plumbing and Pipefitting 201 involving the study of water supply, waste disposal, drainage, venting, unit sanitation equipment and plumbing codes.

**FLP 213. HYDRAULIC CONTROLS. . . . . 3 credit hours**

Components used in the control of hydraulic fluids studied with emphasis placed on pressure, direction and volume control assemblies. Manual, electrical, pneumatic, mechanical and hydraulically operated valves studied and demonstrated in typical circuits. (4 hours per week)

**FLP 214. BASIC HYDRAULIC CIRCUITS. . . . . 3 credit hours**

Prerequisite: FLP 111 or consent

The fundamentals, review of components and necessary computations for basic hydraulic circuits. Trouble-shooting techniques in the hydraulic circuit, including line component malfunctions stressed. (4 hours per week)

**FLP 224. PROTECTION SYSTEMS. . . . . 3 credit hours**

Attitudes prevalent in industry toward fire protection; development of fire and safety organizations in industry; relationships between private and public fire protection organizations. Also includes industrial obligations to communities in regard to fire and safety; current trends, deficiencies, and possible solutions for fire protection problems facing industry today.

**FLP 225. ADVANCED HYDRAULIC CIRCUITS. . . . . 3 credit hours**

Prerequisite: FLP 214 or consent

The operations, applications and maintenance of hydraulic circuits to typical machines such as lathe, broach, mill and die-cast machines. Circuit design and trouble-shooting stressed. (4 hours per week)

**FLP 226. PNEUMATICS. . . . . 3 credit hours**

Basic air systems as a control medium in industrial applications such as presses, clamps, transfer devices, etc. Valves, cylinders, motors, compressors, regulators, filters and other power components included. (4 hours per week)

**FRENCH  
(FRN 18)**

**FRN 111. FIRST YEAR FRENCH I. . . . . 3 credit hours**

Designed for those beginning or who wish to review their foreign language study. Emphasis on the oral-aural approach. A fully equipped language lab is used. (4 hours per week)

**FRN 120. CONVERSATIONAL FRENCH . . . . . 2 credit hours**

Basic French course mainly conversational in approach, assumes no previous knowledge of the language, is chiefly for persons interested in adding to their enjoyment of foreign travel through a basic knowledge of spoken and written French, as well as an appreciation and awareness of contemporary French culture. French 120 may also be taken as a preview for students entering the First Year College French studies or students already enrolled in first year course.

**FRN 121. CONVERSATIONAL FRENCH II. . . . . 2 credit hours**

Prerequisite: FRN 120

Continuation of French 120. Provides vocabulary expansion and cultural insights through student involvement in the conversation practice sessions.

**FRN 122. FIRST YEAR FRENCH II. . . . . 3 credit hours**

Prerequisite: FRN 111 or consent

A continuation of French 111. Class conversation, elementary readings and language laboratory practice stress the spoken language and help develop a basis for further study. (4 hours per week)

**FRN 213. SECOND YEAR FRENCH/  
BUSINESS FRENCH. . . . . 3 credit hours**

Prerequisites: FRN 122 or consent

A review of first year French language and culture, as well as an introduction to business and commercial French. Students with good high school backgrounds or previous language experience in French may be eligible for admission without French 111 and 122.

**FRN 224. SECOND YEAR FRENCH II. . . . . 3 credit hours**

Prerequisite: FRN 213 or consent

A continuation of French 213. Short-wave broadcasts and language laboratory practice augment the oral-aural method. Covers aspects of Canadian as well as French cultural life.

**GENERAL STUDIES  
(GS 15)**

**GS 019. BASIC ENGLISH  
COMMUNICATION . . . . . 3 credit hours**

The course is designed primarily for speakers of Vietnamese, Cambodian, Lao and Hmong who have previous schooling and also achieved a

fair degree of competence in English. Instruction is designed to review basic structures and vocabulary and to increase fluency. It is assumed that students in this class are already employed or are employable, but need assistance in developing sufficient communicative and job-seeking skills to allow them to find work in their chosen fields or to advance to a level which makes full use of their skills. Emphasis is therefore placed on job-search techniques, resume preparation, interview techniques, etc.

**GS 111. FIRST YEAR RUSSIAN** . . . . . 3 credit hours

A beginning 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. No prerequisite is necessary.

**GS 120. CONVERSATIONAL RUSSIAN** . . . . . 2 credit hours

Designed to be a short term, seven week, non-sequential conversational course. It 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. No prerequisite is necessary.

**GS 122. FIRST YEAR RUSSIAN II** . . . . . 3 credit hours

Prerequisite: Russian I or consent

This is a continuation of Russian 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. (4 hours per week)

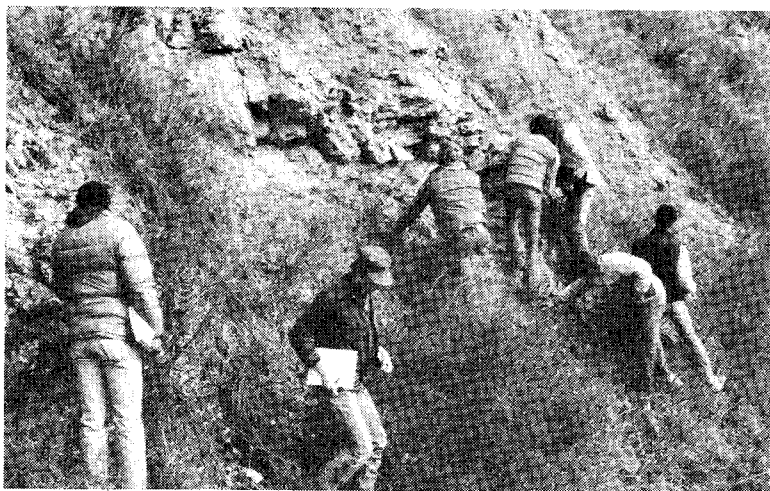
## **GEOGRAPHY (GEO 03)**

**GEO 100. GEOGRAPHY AND ENVIRONMENT** . . . . . 3 credit hours

Survey of contemporary global society by region; emphasizes economic development as related to water, soil, climatological, mineral, and historical influences.

**GEO 200. MICHIGAN GEOGRAPHY** . . . . . 3 credit hours

Survey of the various types of natural resources and regions within the state and of the cultural adjustment man has made to natural conditions. Emphasis on points of history with geographic interest. The economic, social and political development of the territory as part of the history of the Great Lakes area.



## **GEOLOGY (GLG 34)**

### **GLG 100. INTRODUCTION TO THE EARTH SCIENCES. . . . . 4 credit hours**

For students who desire to obtain a broad perspective of the science. Practical training in earth science, including work with soils, minerals, glaciers, volcanism, maps, meteorology, astronomy, and oceanography and a field trip to points of interest is included in the three hour weekly laboratory. (5 hours per week)

### **GLG 103. FIELD GEOLOGY. . . . . 3 credit hours**

Geology taught in the field. Study processes and land forms that have formed or are forming the landscape in the Ann Arbor area carried out on weekly afternoon field trips.

### **GLG 104. WEATHER. . . . . 3 credit hours**

Atmospheric processes and phenomena that produce the day-to-day weather changes experienced throughout the world. Emphasis on empirical observation of cloud type, development and movement as well as weather map interpretation and analysis to learn elementary weather forecasting techniques. Includes laboratory and field trips.

### **GLG 109. COMMON ROCKS AND MINERALS. . . . . 3 credit hours**

Involved is the identification of rocks and minerals and study of local exposures revealing rocks and minerals. Useful for prospective elementary school teachers.

**GLG 114. PHYSICAL GEOLOGY** . . . . . 4 credit hours

Prerequisite: GLG 100 or permission

Physical features of the earth with special reference to their origin and significance along with interpretation of topographic maps and the study of common rocks and minerals. A three day weekend field trip to Northern Michigan is required with food and housing expenses the responsibility of the student. Two hours of lecture and three hours of laboratory each week.

**GLG 125. HISTORICAL GEOLOGY** . . . . . 4 credit hours

Prerequisite: GLG 114

Development of North America as a typical continent, covering the formation of mountains, plains, and evolution of life on land and water, and the identification of fossils and interpretation of geologic maps. Field trips are involved. (5 hours per week)

## **GERMAN (GRM 11)**

**GER 120. CONVERSATIONAL GERMAN** . . . . . 2 credit hours

Conversational in approach. Assumes no previous knowledge of the language and 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 preview for students entering the first year College German studies or students already enrolled in first year course. (2 hours per week)

**GER 122. FIRST YEAR GERMAN** . . . . . 3 credit hours

A continuation of German 111 which will extend the aural-oral approach. Class conversation, short reading and written assignments, and language laboratory practice develop a basis for continued study.

## **HEALTH SCIENCE (HS 56)**

**HS 113. INTRODUCTION TO MEDICAL SCIENCES** . . . 2 credit hours

This course provides an overview of the health professions, how and why diseases occur, vital signs, death and dying. The course content may vary according to student interest.



**HS 117. NUTRITION** ..... 2 credit hours

Presents normal nutrition and its relation to health. Includes nutritional needs for various age groups and introduces therapeutic nutrition. Emphasis on the importance of nutrition in the growth and functioning of the human body.

**HS 121. INTERPERSONAL DYNAMICS OF PATIENT CARE** ..... 2 credit hours

Studies in interpersonal dynamics in patient care; concepts of dyadic relationships and team relationships, responsibilities of the health worker as a helping person and as a member of the helping team; developing understanding of self and human behavior in general.

**HS 147. GROWTH AND DEVELOPMENT** ..... 3 credit hours

Corequisite: NUR 135 or consent of faculty

Study of the physical, psychological and social growth of the individual from birth to death. Includes the study of the family in society.

**HS 220. PATHOPHYSIOLOGY** ..... 4 credit hours

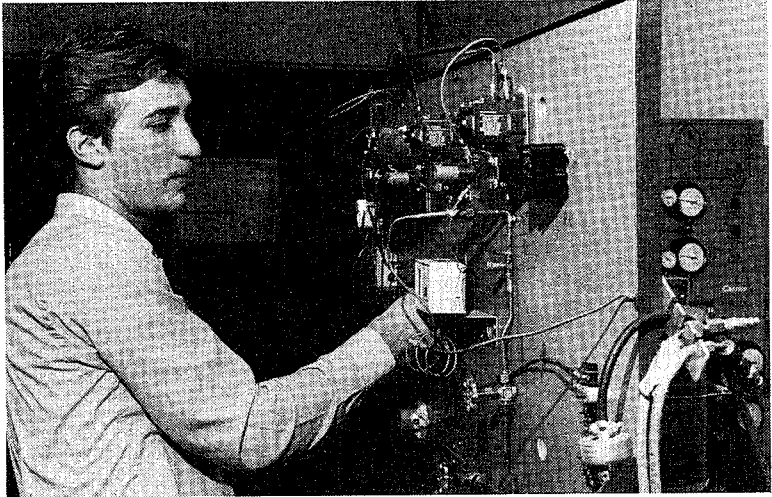
The focus of this course is the study of disease processes in humans. The course includes identification of the etiology and pathogenesis of disease, alterations in normal body function, and the reaction and adaptation of the body to disease.

**HS 244. MEDICAL ETHICS** ..... 2 credit hours

Exploration of various philosophies of ethics (Kantian, utilitarian, natural law). Models for decision making using a multifaceted approach and incorporating philosophy, values clarification, and legal aspects, will be used to examine current ethical issues. Among topics to be discussed are: patient rights, confidentiality, informed consent, abortion, genetic manipulation, experimental procedures, treatment of defective newborns and euthanasia.

## **HEATING (HTG 81)**

*The following list of heating courses are offered primarily as trade-related instruction to train and up-grade individuals currently employed in licensed occupations; i.e., heating/air conditioning or as boiler operators in power plants. Courses are theory presentations with little or no laboratory. Students who desire to enter these occupations are welcome providing they understand the nature of the courses. Consult the program advisor as to licensing requirements and qualifications.*



**HTG 100. BOILER OPERATIONS** ..... 3 credit hours

Prerequisite: Employment working with boilers or consent

First in a series of courses to aid the student in passing examinations to obtain low pressure and high pressure operator's license. Boiler terminology, construction and function, as well as the fundamental application of physics; heat, steam, water, pressures, etc. Safety is included, along with basic codes governing the operation of boilers.

**HTG 101. BOILER ACCESSORIES** ..... 3 credit hours

Prerequisite: HTG 100 or consent

Devoted to boiler settings, combustion equipment, fuels, heating surfaces, stokers, pumps, safety valves, steam traps, separators, and other accessories. Keeping of records, logs and inspection preparation.

**HTG 102. BOILER AUXILIARIES** ..... 3 credit hours

Prerequisite: HTG 101 or consent

Continuing the study of accessories and auxiliaries covering injectors, feedwater heaters, deaerators and evaporators, economizers, air preheaters, cooling towers, etc.

**HTG 103. POWER PLANT ENGINES AND TURBINES** ..... 3 credit hours

Prerequisite: HTG 102 or consent

Principles of operation and maintenance practices of steam engines and turbines are presented. Studying construction, mechanisms, engine indicators, governors, engine rating and efficiency.

**HTG 104. POWER PLANT REFRIGERATION . . . . . 3 credit hours**

A basic refrigeration course for Boiler Operators and Power Plant Engineers covering fundamentals of refrigeration including: terminology, cycle, mechanics of compression, fundamentals of energy, elementary thermo-dynamics, refrigerators and lubricating oils.

**HTG 105. POWER PLANT AIR CONDITIONING SYSTEMS . . . . . 3 credit hours**

Prerequisite: HTG 104

The continuation of Heating 104 devoted to Power Plant cooling systems covering centrifugal, reciprocating cascade and absorption systems, evaporators, controls and metering devices, cooling towers, water problems and treatment.

**HTG 106. POWER PLANT ELECTRICITY I . . . . . 3 credit hours**

Prerequisite: Employed Operating Boilers or consent

Introduces operator 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, etc.) sub-stations, transformers, etc.

**HTG 107. POWER PLANT ELECTRICITY II . . . . . 3 credit hours**

Prerequisite: HTG 106 or consent

A continuation of Heating 106. Types of motors and generators employed in Power Plants to generate electricity. 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 discussed.

*Note: Basically this is 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. Membership in the Educational Society of the Refrigeration Service Engineers (RSES) is required. Initiation fee and dues are approximately \$45. Consent of advisor is required for registration.*

**HTG 109. REVIEW FOR BOILER EXAMINATIONS . . . . 3 credit hours**

Prerequisite: Employed operating boilers or consent

Reviewing major units of boiler operations and refrigeration which will assist operators in passing the licensing examination for Boiler Operator, High Pressure, Third Class, and for Third Class refrigeration operator.

**HTG 111. HEATING FUNDAMENTALS** . . . . . 5 credit hours

Prerequisite: Refrigeration Service Engineers Society membership required

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 SYSTEMS** . . . . . 5 credit hours

Prerequisite: HTG 111 or consent and Refrigeration Service Engineers Society membership

Building upon Heating 111, Heating Systems covers applications, installation and start-up of heating equipment, oil, gas, electric warm air and hydronic.

**HTG 213. HEATING CONTROLS** . . . . . 5 credit hours

Prerequisite: Refrigeration Service Engineers Society membership and HTG 122

The third course focuses on controls and troubleshooting heating equipment and systems.

**HTG 214. HEATING CODES** . . . . . 3 credit hours

Prerequisite: 2 years experience or HTG 213.

National and local codes, covering materials, installation and operation of heating equipment and systems, discussed and interpreted.

**HTG 215. HEAT PUMP SERVICING** . . . . . 5 credit hours

Prerequisite: Refrigeration Service Engineers Society membership and demonstrated knowledge of basic refrigeration, air conditioning and electricity through a prerequisite test.

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 the individual will be awarded a certificate of completion, with the stipulation that he or she will be required to reappear for the examination every three years.

**HTG 228. PNEUMATIC TEMPERATURE CONTROLS** . . . . . 2 credit hours

Develops understanding of the installation, maintenance and function of pneumatic temperature control systems. 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 04)

**HST 101. WESTERN CIVILIZATION TO 1600** . . . . . 3 credit hours

Development of the cultures and institutions of the ancient Near East and Classical, Medieval and Renaissance civilizations.

**HST 102. WESTERN CIVILIZATION FROM 1600 TO THE PRESENT** . . . . . 3 credit hours

Cultural developments and the growth of institutions from the Renaissance to the present. Emphasis on the expansion of European civilizations.

**HST 149. AFRICAN HISTORY AND THE WESTERN WORLD** . . . . . 3 credit hours

History of the people of Africa; their various cultures and their common human bonds; the impact of the slave trade on the African people and cultural factors that were exploited to facilitate the slave trade. Also the reciprocal influences of Africa and the Western world, mainly Europe, North and South America.

**HST 150. AFRO-AMERICAN HISTORY** . . . . . 3 credit hours

Survey and analysis of 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 FILM** . . . . . 3 credit hours

Development of American cinema. The films, viewed in class, discussed in terms of content and of the development of cinematic technique. Relates American cinema to trends in American culture.

**HST 200. MICHIGAN HISTORY** . . . . . 3 credit hours

Major economic, social and political developments in Michigan from pre-historic times to the present. Emphasis on period prior to Twentieth Century.

**HST 201. UNITED STATES HISTORY, 1500-1865** . . . . . 3 credit hours

The American peoples and their growth from early colonization to the close of the Civil War. Re-examining both the dominant themes in American life as well as the conflicts oppressed minorities faced in seeking their needs and ambitions in America.

**HST 202. UNITED STATES HISTORY,  
1865—PRESENT . . . . . 3 credit hours**

American society and politics since the Civil War. Examination of social and cultural unrest of growing America to better understand and to deal with stresses of the present. A continuation of U.S. 1500-1865.

**HST 203. GROWTH OF AMERICAN LABOR . . . . . 3 credit hours**

Present concerns of labor in historical perspective. Major themes emphasized are history of American labor, how the historical origins of labor affect industrial relations and special contemporary concerns of labor.

**HST 204. ORAL HISTORY . . . . . 3 credit hours**

Tape recording the memoirs of people around us. Oral history project initiation and management via lectures, guest speakers. Special emphasis on class participation and practical field work. Guidance given to persons developing individual projects for themselves or their sponsoring institutions.

## **HOTEL / MOTEL MANAGEMENT (HMT 75)**

**HMT 100. HOSPITALITY INDUSTRY ACCOUNTING . . 3 credit hours**

Provides basic knowledge of bookkeeping and accounting skills and orientation to office procedures as related to hospitality industry.



**HMT 104. SERVICE INDUSTRY EQUIPMENT AND UTILITIES** . . . . . 4 credit hours

Engineering in food and lodging industry emphasizing utilities, machinery characteristics, effective preventive programs as well as maintenance procedures. Offers certificate of completion from the Institute of Hotel/Motel Association.

**HMT 222. LODGING MANAGEMENT AND PROMOTION** . . . . . 3 credit hours

Prerequisite: HMT 100

This course is designed to zero in on both "front office" and "back of the house" management. A special emphasis will be placed on sales and promotion of the Hotel/Motel Operation dealing with related activities as banquet sales, convention planning and holiday packages. Official Certificate of Completion from Institute of Hotel/Motel Management.

**HMT 223. PRACTICUM IN LODGING MANAGEMENT** . . . . . 3 credit hours

Three hundred hours of actual work experience in the hospitality industry. Supervised application of theory in practical situations. (20 hours per week)

**HMT 230. HOSPITALITY LAW** . . . . . 4 credit hours

Contract Law as a foundation for anticipating legal difficulties and making the best use of legal advice. Functional hotel problems, policy problems, and the legal resolution of a controversy. The origin and development of common statutory and constitutional law and of the functioning of the judicial system.

## **HUMANITIES (HUM 22)**

**HUM 101. INTRODUCTION TO HUMANITIES** . . . . . 3 credit hours

Exploration of the humanities considering the creative nature of man with its focus on art, literature, music, philosophy, human thought and man's relationship to his culture.

**HUM 103. HUMANITIES WORKSHOP** . . . . . 3 credit hours

A workshop study of the humanities and man's life relationships, course draws on various humanistic fields examining man's beliefs and values and the creative insights and forms of expression through which he tries to understand himself and his relation to the world and his fellow-man. Individualized projects and guest speakers.

**HUM 105. SURVIVAL OF HUMANITY . . . . . 3 credit hours**

Course bias centers upon the proposition that the human being is and ought to remain the highest value. Focus on those issues which support continuity and growth of the human being as the highest value. Issues include loneliness, freedom and self-transcendence.

**HUM 135. LIFE: WORK AND LEISURE . . . . . 3 credit hours**

Different way of thinking about life, work and leisure through reading and discussions. Student experience and aspirations considered and serve as a basis for statements about our ways of living.

**HUM 139. MORAL ISSUES: PEACE AND WAR . . . . . 3 credit hours**

A wide range of thought, both classical and modern, dealing with moral decisions related to differences among peoples. A brief but relatively comprehensive insight into the historical nature of viewpoints on these critical issues.

**HUM 150. INTERNATIONAL CINEMA . . . . . 3 credit hours**

A survey of important foreign films and film makers. Emphasizes development of the art of seeing, the heightening of the student's appreciation of the nature of the film medium.

**HUM 160. AMERICAN FILM . . . . . 3 credit hours**

Development of American cinema. The films, viewed in class, discussed in terms of content and of the development of cinematic technique. Relates American cinema to trends in American culture.

**HUM 265. PHILOSOPHY OF LIFE . . . . . 2 credit hours**

Learning to look at your fundamental beliefs and assumptions (about life, the world, yourself, other people) from a philosophical point of view. Emphasizes expressing and developing the philosophy you live by. Includes a discussion of various approaches that may be helpful in the process of personal growth and development.

**INDUSTRIAL DRAFTING AND DESIGN  
(ID 63)**

**ID 100. TECHNICAL DRAWING . . . . . 4 credit hours**

An introduction to the graphic language, use of drafting materials and instruments. Drawings will include geometry of technical drawing, orthographic views, auxiliary views, section views, pictorial drawings and developments. (6 hours per week)



**ID 102. TECHNICAL DRAWING FOR ELECTRICAL PROGRAM STUDENTS . . . . . 4 credit hours**

An introduction to the graphic language, use of drafting materials and instruments. Drawings will include geometry of technical drawings, orthographic views, auxiliary views, section views, pictorial drawing and developments, electrical block diagrams, logic diagrams and schematics. (6 hours per week)

**ID 105. PICTORIAL DRAFTING . . . . . 2 credit hours**

Prerequisites: ID-100 Technical Drawing (or equivalent)

Development of perspective and isometric drawings suitable for engineering studies, parts catalogs, and assembly and service manuals. Emphasis is placed on rapid methods of drawing development using typical manufactured parts as subjects.

**ID 107. MECHANISMS . . . . . 4 credit hours**

Prerequisite: MTH 151 or consent

The principles of linkages, cams, displacements and motions, vectors and bolts, sprocket and gear drives computed and presented graphically.

**ID 111. INDUSTRIAL DRAFTING I . . . . . 4 credit hours**

Prerequisite: ID 100 or consent

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. Advanced dimensioning and tolerancing and the use of drafting materials in the preparation of assembly drawings, drawings and parts lists. (6 hours per week)

**ID 112. DESCRIPTIVE GEOMETRY . . . . . 4 credit hours**

Prerequisite: ID 100 or consent

Points, lines and planes and their relationships in space. Emphasis on practical application of principles to actual problems in industry. (6 hours per week)

**ID 114. INDUSTRIAL DRAFTING II . . . . . 4 credit hours**

Prerequisite: ID 100 or consent

Drafting practices and procedures in the preparation of exploded view drawings, preparation of charts, graphs for visual displays and hydraulic schematics. (6 hours per week)

**ID 121. THEORY OF JIGS AND FIXTURES . . . . . 2 credit hours**

The various types of jigs and fixtures and their combined use. Development of skills in the proper location and clamping of a part. Emphasis on

practical application of design considerations. The use of standard parts catalogs in researching. (4 hours per week)

**ID 122. FUNDAMENTALS OF JIGS AND FIXTURES . . . 3 credit hours**

Prerequisites: ID 111

A continuation of ID 121 including detailing and preparation of assembly drawings. (6 hours per week)

**ID 206. FUNDAMENTALS OF PLANT LAYOUT . . . . . 3 credit hours**

Prerequisite: ID 111 or consent

The nomenclature and basic approaches to power distribution, environmental and mechanical services, product flow, equipment utilization and building layout. Also the basic principles of material handling and the various types of material-handling equipment. (4 hours per week)

**ID 212. THEORY OF DIES . . . . . 2 credit hours**

Prerequisite: For apprentices in Tool and Die Making

The nomenclature and the basic types, principles and standards used in the design of dies is studied. Special attention is given to the use of standard parts catalogs and the standard die detailing and assembly drawing practices. (6 hours per week)

**ID 213. FUNDAMENTALS OF DIE DRAFTING . . . . . 3 credit hours**

Prerequisite or Corequisite: ID 122

The nomenclature and the basic types, principles and standards used in the design of dies. Special attention given use of standard parts catalogs and the standard die detailing and assembly drawing practices. (6 hours per week)

**ID 216. INTRODUCTION TO COMPUTER AIDED DESIGN . . . . . 2 credit hours**

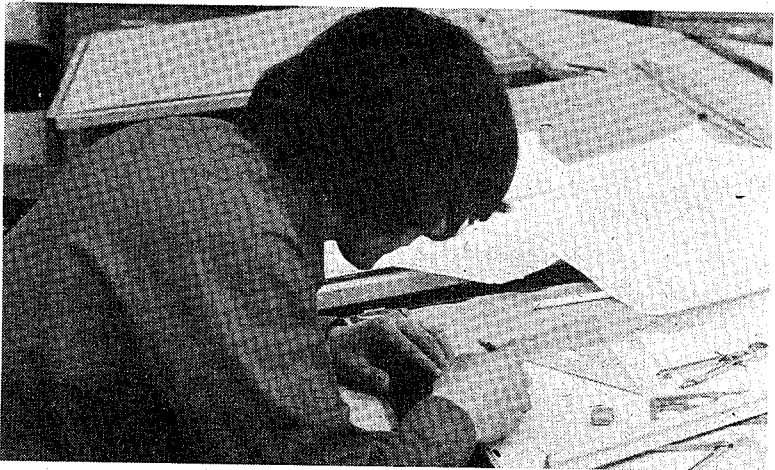
Prerequisites: ID 111 and ID 112

The principles and applications of computer-aided drafting systems, familiarity with the hardware components of the CAD system. Use of the interactive graphic software, development of input and output skills, and familiarity with software, languages and systems hierarchy.

**ID 224. FUNDAMENTALS OF INDUSTRIAL TOOLING . . . . . 3 credit hours**

Prerequisite: ID 122

The nomenclature and the basic principles of industrial tool design, including preparing tooling specifications, cost analysis, practice production scheduling and basic drafting standards for numerical controlled machining. (6 hours per week)



**ID 230. FUNDAMENTALS OF MACHINE DESIGN . . . 4 credit hours**

Prerequisite: ID 107 and 111 or consent

Development of a machine from conception stage, through the design and layout stages to the preparation of working drawings. Emphasis on preparation of a layout drawing of the machine incorporating maximum of commercially available components as is or modified, fastening techniques, use of standard and special materials, always keeping maintenance of the machine as a design criteria.

**ID 240. FUNDAMENTALS OF PRODUCT LAYOUT AND DESIGN . . . . . 4 credit hours**

Prerequisite: ID 107 and 111 or consent

Development of a product from the layout stage to the preparation of working drawings. Emphasis on preparation of a layout drawing with a maximum use of standard components, fastening techniques, product serviceability and the proper material and finish specifications. (4 hours per week)

**ID 250. STATICS AND STRENGTH OF MATERIALS . . . . . 4 credit hours**

Prerequisite: MTH 177, ID 111 or consent

The technician will identify and define internal stresses and deformation of elastic bodies, as a result of internal and external forces. The technician will apply the principles of strength of materials in the design of structures, machines, products. He/she will identify and define the properties of materials as related material elasticity, tensile and compression stresses, torsion stresses, joints and connection as it pertains to the object being worked on.

**ID 251. FUNDAMENTALS OF ELECTRONIC DRAFTING I** ..... 4 credit hours

Prerequisite: ID 100 or consent

Principles and practices of basic electronic drafting including the use of block diagrams, electronic symbols, schematic drawings, logic diagrams, electronic component and hardware identification. Basic materials, finishes and component board layouts and assemblies. (4 hours per week)

**ID 252. FUNDAMENTALS OF ELECTRONIC DRAFTING II** ..... 4 credit hours

Prerequisite: ID 251 or consent

Principles of laying out and preparing tape masters for single and double sided printed circuit board, preparing printed circuit assemblies, preparation of wire lists and cable harness drawings for electronic unit interfacing and studying the basic principles and techniques for laying out control panels. (4 hours per week)

## **INTEGRATED MANUFACTURING (IM 36)**

**IM 121. ROBOTICS I** ..... 3 credit hours

An introductory exposure to robotic components, capability and application. The sociological impact of robots in the work place and economy will be reviewed.

**IM 212. ROBOTICS II** ..... 4 credit hours

Prerequisite: Robotics I

This class will be primarily a hands-on experience. Work on hydraulics, pneumatic, and electronic devices will be performed by the student. Basic design in pneumatic and electronic circuitry will be stressed.

**IM 223. ROBOTICS III** ..... 4 credit hours

Prerequisite: Robotics I and II

The method of diagnosing problems relating to robotic functions and manipulators will be presented. Emphasis will be placed on servo-systems related to hydraulics. Air logic circuits will be designed and assembled. Special emphasis will be placed on programmable controllers and numerical control.

**IM 224. ROBOTICS IV** ..... 4 credit hours

Prerequisite: Robotics I, II, and III

This course will offer a hands-on experience in programming,

maintenance, troubleshooting and service. Many types of robots, their characteristics, and applications will be explored.

## **INTERNSHIP-EXTERNSHIP (IE 44)**

**IE 200. INTERNSHIP-EXTERNSHIP** . . . . . 2-6 credit hours

To be assigned prior to registration

Prerequisites: Consent of I-E Coordinator

Internships are for the purpose of acquiring work experience in the student's business-related occupational program area. Students are expected to work between 15 and 20 hours per week and attend a one-hour weekly seminar. Students in a two-year program must have completed a minimum of one year of their program before becoming eligible for Internship-Externship. Opportunities may be available on or off campus; however, there is no guarantee of placement. Normally students earn three credits each for I-E in Fall and Winter semesters and two credits each for Spring and Summer terms. A maximum of 12 credit hours may be applied toward the Associate Degree, and 6 credit hours toward a one-year Certificate of Achievement. Externships are programs of study designed for full time employees for occupational upgrading purposes and are integrated with their job activities. Students planning to enroll for Internship-Externship credit should first review their plans with their program advisor and with the Internship-Externship Coordinator to ensure proper program planning and to secure the appropriate permission.

## **MANAGEMENT AND MARKETING (MGT 47)**

**MGT 100. LEADERSHIP: ATTITUDES AND  
MOTIVATION** . . . . . 2 credit hours

Through total personal involvement in 74 group interaction projects, the participant will experience an effective "whole person" approach to self-discovery, growth and self-realization, and find enriching new dimensions in assessing personal leadership aptitudes. (10 weeks)

**MGT 110. ORGANIZATIONAL LEADERSHIP** . . . . . 3 credit hours

This basic course is designed to have the student gain knowledge and skills pertaining to a specific community organization through classroom presentation on specific organizational objectives, structure and organization. Organizational assignments and responsibilities will be studied and the student will be required to work within the specified organization, completing such assignment with a satisfactory rating or better.

**MGT 150. LABOR-MANAGEMENT RELATIONS . . . . . 3 credit hours**

Fundamental forces affecting the labor-management relationship. Development of insights into the growth, objectives and methods of organized labor and the significant managerial problems involved in dealing with labor. Analysis of the legal and institutional framework for collective bargaining; the nature, content, and problem areas of the collective bargaining process.

**MGT 160. PRINCIPLES OF SALES . . . . . 3 credit hours**

Prerequisite: BUS 140

Principles and concepts of the sales function in modern business-industrial enterprise in the marketing of goods and services. Analysis of sales techniques, the sales "cycle," sales demonstrations, as well as personal career salesmanship. Emphasis on creativity in selling, and the impact of socio-economic and psychological factors related to consumer needs, motivations and product performance as they affect the sale of consumer and/or industrial goods and services.

**MGT 200. HUMAN RELATIONS IN BUSINESS AND INDUSTRY . . . . . 3 credit hours**

Prerequisite: BUS 140

Modern concepts of administrative principles and practices with emphasis on the human relations aspect of management responsibility as it affects employee attitudes, morale and productivity. Major emphasis 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.

**MGT 208. PRINCIPLES OF MANAGEMENT . . . . . 3 credit hours**

Principles of management at the administrative, staff and operational levels of modern business enterprise. Develops an understanding of the universality of management functions and principles and insights into the historical development of management concepts and their evolution into a modern management philosophy.

**MGT 208. PRINCIPLES OF MANAGEMENT (Television Course) . . . . . 3 credit hours**

"THE BUSINESS OF MANAGEMENT" is for the man or woman who has decided upon a career in business, government, or educational management. This television course provides a valuable introduction to the concepts of management and business. It is designed for the managerial candidate who is newly graduated or who has worked but not had formal training in business management as well as for the undergraduate student. The course is intended to provide essential skills in planning and organizing, staffing and directing, controlling, decision-making,

motivating, communicating and applying managerial skills to business and other types of organizations.

**MGT 209. SMALL BUSINESS MANAGEMENT . . . . . 3 credit hours**

The application of the principles of management to the planning, organization and control of the small business enterprise. Practices and procedures pertaining to the establishment and operation of the small business firm. Factors influencing small business management: the small business environment; small business initiation; small business administrative and fiscal control; small business marketing programs and policies; small business operations management; small business legal and governmental relations.

**MGT 210. ORGANIZATIONAL MANAGEMENT . . . . . 3 credit hours**

Designed to build upon the basic course, MGT 110 Organizational Leadership, by preparing the student to better execute the delegated and implied duties and responsibilities associated with organizational leadership positions (officers, etc.). The student should gain knowledge and skills pertaining to a specific community organization through classroom presentations and seminar groups on specific organization objectives, communications, and management procedures. Management concepts, methods and ideas which will enable the leaders to better accomplish the organizational missions will be studied. Organizational assignments in responsible positions within community organizations will be required, completing such assignments with a satisfactory rating or better.

**MGT 211. SMALL BUSINESS MANAGEMENT FOR WOMEN . . . . . 4 credit hours**

A combination of MGT 209 Small Business Management and WS 102, Growth Experiences for Women. Developed in conjunction with AAWC-JC specifically for women considering entrepreneurship.

**MGT 230. SUPERVISORY MANAGEMENT . . . . . 3 credit hours**

The application of the principles of management to the planning, organization and control of work. Direction and control of services and performance, simplification of procedures and methods and the establishment of standards included.

**MGT 240. PERSONNEL MANAGEMENT . . . . . 3 credit hours**

Prerequisites: BUS 140 and MGT 208

An exposition of the fields of activity covered in modern personnel work. Covers employment techniques, wages and hours, job evaluation, training, employer ratings, collective bargaining, employment counseling, and collateral benefits such as pensions and fringe benefits.

**MGT 250. PRINCIPLES OF MARKETING . . . . . 3 credit hours**

The institutions and functions developed for carrying on commercial trade operations, retail and wholesale agencies, elements of marketing efficiency, the cost of marketing, price maintenance, unfair competition and the relationship of government to marketing.

**MGT 260. SALES MANAGEMENT . . . . . 3 credit hours**

Prerequisites: BUS 140 and MGT 160

Managerial functions of planning, organization, and direction of sales effort; the management of sales and services. Personnel and control of sales operations emphasized.

**MGT 270. ADVERTISING PRINCIPLES . . . . . 3 credit hours**

Prerequisite or Corequisite: MGT 250

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. 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.

## **MATHEMATICS (MTH 30)**

**MTH 036. MATHEMATICS ANXIETY . . . . . 1 credit hour**

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 problem-solving skills. 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 (1 hour per week).

**MTH 037. INDEPENDENT STUDY . . . . . 1-3 credit hours**

Student works on a mathematical project or weakness for the primary purpose of strengthening a specific area. Not intended to replace the formal study or another mathematics course. Requires approval and designation of the number of credit hours by the instructor.

**MTH 039. BASIC MATHEMATICS . . . . . 3 credit hours**

A self-paced course taught in the Mathematics Laboratory. For the student who desires a review of basic arithmetical operations before study-



ing another mathematics course. Does not meet the mathematics requirement of any one- or two-year occupational program. Includes whole number, common fractions, decimals and the three types of percent problems.

**MTH 090. OCCUPATIONAL MATHEMATICS . . . . . 3 credit hours**

Prerequisite: MTH 039

A self-paced course taught in the Mathematics Laboratory. Fulfills the mathematics requirement of many of the one- and two-year occupational programs. Includes computational skills commonly encountered in occupational areas, practical algebra, solving simple equations, geometry, measurement, ratio and proportion, graphing and statistics.

**MTH 097. INTRODUCTORY ALGEBRA . . . . . 4 credit hours**

Prerequisite: MTH 039

Beginning algebra; approximately equivalent to first-year high school algebra. Intended as a lead to Intermediate Algebra (Math 169) but also serves as a terminal algebra course for some programs of study. Includes properties of real numbers, operations with algebraic expressions, polynomials, solving simple equations, ratio and proportion, linear equations and inequalities, systems of equations, rational algebraic expressions, roots and radicals, quadratic equations, graphing and applications. (5 hours per week)

**MTH 097A. INTRODUCTORY ALGEBRA . . . . . 3 credit hours**

Prerequisite: MTH 039

The first half of Introductory Algebra (Math 097). A self-paced course taught in the Mathematics Laboratory. Equivalent to first-semester high school algebra. Includes properties of real numbers, operations with algebraic equations, polynomials, rational algebraic expressions, roots and radicals, quadratic equations, graphing and applications.

**MTH 097B. INTRODUCTORY ALGEBRA . . . . . 3 credit hours**

Prerequisite: MTH 097A

The second half of Introductory Algebra (Math 097). A self-paced course taught in the Mathematics Laboratory. Equivalent to second-semester high school algebra. Includes linear equations and inequalities, systems of equations, polynomials, rational algebraic expressions, roots and radicals, quadratic equations, graphing and applications.

**MTH 099. THE METRIC SYSTEM OF MEASUREMENT . . . . . 2 credit hours**

Prerequisite: MTH 039

For students wishing to familiarize themselves with the metric system of measurement. Includes English and metric conversions, reading

uniform scales of measuring devices and indirect measurements resulting from calculations.

**MTH 110. HANDHELD CALCULATOR** . . . . . 2 credit hours

Individualized course providing instruction in the use of handheld calculators of either inner-fix logic or post-fix logic. Emphasizes concepts and properties as they apply to techniques of calculation. Includes basic operations, approximations, scientific notation, powers and roots, and equations and formulas. Optional work available in trigonometric functions, logarithmic functions, and business applications.

**MTH 151. APPLIED ALGEBRA** . . . . . 4 credit hours

Prerequisite: MTH 039

Designed for technical students. Includes percents, ratio and proportion, operations with algebraic expressions, solution of simple equations, solution of quadratic equations, graphing and trigonometric functions. (5 hours per week)

**MTH 152. APPLIED GEOMETRY AND TRIGONOMETRY** . . . . . 4 credit hours

Prerequisite: MTH 097 or MTH 151

For technical students. Development of geometric and trigonometric concepts needed for solving technical problems of triangulation. Includes basic theorems of geometry, formulas for areas and volumes, trigonometric functions, solution of right triangles, law of sines and law of cosines and solution of oblique triangles.

**MTH 154. LAYOUT MATHEMATICS** . . . . . 3 credit hours

Prerequisite: MTH 039

Application of basic mathematics to problems of job layout for skilled tradesmen. Emphasizes mathematical techniques used in the preparation of materials for welding, cutting, drilling, etc. Includes review of basic arithmetical operations, measurement, economy layout, uses of layout tools, estimation, patterns and templates, fabrications, and applications of trigonometric functions to right triangles.

**MTH 155. PLANE GEOMETRY** . . . . . 4 credit hours

Prerequisite: MTH 097 or MTH 151

Plane Euclidean geometry. Includes concepts of logic, similarity, parallelism, areas, circles, Euclidean constructions and applications.

**MTH 158. MATHEMATICS FOR ELEMENTARY TEACHERS** . . . . . 4 credit hours

Prerequisite: MTH 039

Designed for students in elementary education. An intuitive approach

that emphasizes teaching aids and methods of teaching certain concepts and topics. Includes sets, whole numbers, integers, rational numbers, number systems and plane geometry.

**MTH 160. BASIC STATISTICS** . . . . . 4 credit hours

Prerequisite: MTH 097

A non-theoretical introductory course for students in business, education, psychology, or a social science who need only one course in statistics. May serve as a stepping-stone to other more sophisticated statistics courses. Includes tabulation of data, graphic representation, measure of dispersion, probability, sampling, estimation of parameters, test of hypotheses and correlation.

**MTH 161. CHESS PRACTICE AND THEORY** . . . . . 1 credit hour

In recognition of the profound hold chess has over the imagination of people everywhere in the world, this course covers the complete rules of chess, principles of play and popular strategies. Logical thinking is promoted by discussion of illustrative games between masters, and students' own games. Equipment is provided. (3 hours per week)

**MTH 162. ADVANCED CHESS** . . . . . 1 credit hour

Intensive study of openings, middlegame and endgame strategies. Combinational as well as positional theory is developed by analysis of illustrative master games. Tournament techniques developed; culminating in an official USCF tournament. Diversions into chess curiosities, chess in literature and history and the psychology of chess. (3 hours per week)

**MTH 163. BUSINESS MATHEMATICS** . . . . . 3 credit hours

Prerequisite: MTH 039

Designed for students on certain one- and two-year business programs. May also serve as a foundation for other mathematics courses in a transfer program. Emphasizes business applications. Includes algebraic concepts, measurement, the metric system, interest, payroll, discounts, installment purchases, graphs, and statistics.

**MTH 165. HEALTH SCIENCE MATHEMATICS** . . . . . 3 credit hours

Prerequisite: MTH 039

Mathematics necessary for many health-related careers. Satisfies requirement for certain one- and two-year programs and is the foundation for more advanced mathematics used in four-year programs. Includes applications of fractions and decimals, percent, geometry, the metric system, the apothecary system, integers, equation solving, ratio and proportion, instrumentation, graphs, statistics and logarithms.

**MTH 167. FINITE MATHEMATICS** . . . . . 4 credit hours

Prerequisite: MTH 097

Algebra course designed for the student on a transfer business program. Includes set theory, linear equations and equalities, linear programming, systems of linear equations, matrix algebra, probability and statistics.

**MTH 169. INTERMEDIATE ALGEBRA** . . . . . 4 credit hours

Prerequisite: MTH 097

A second course in beginning algebra equivalent to second-year high school algebra. Concepts developed in Algebra 097 are extended. Intended as lead to Precalculus (Math 179) but may also serve as a terminal algebra course for some programs of study. Includes properties of the real number system, polynomials, rational expressions, linear equations, linear inequalities, absolute value, radicals, complex numbers, quadratic equations and inequalities, functions and their inverses, systems of equations and determinants.

**MTH 169A. INTERMEDIATE ALGEBRA** . . . . . 3 credit hours

Prerequisite: MTH 097

The first half of Intermediate Algebra (Math 169). A self-paced course taught in the Mathematics Laboratory. Equivalent to third-semester high school algebra. Includes properties of the real number system, polynomials, rational expressions, linear equations, linear inequalities and absolute value.

**MTH 169B. INTERMEDIATE ALGEBRA** . . . . . 3 credit hours

Prerequisite: MTH 169A

The second half of Intermediate Algebra (Math 169). A self-paced course taught in the Mathematics Laboratory. Equivalent to fourth-semester high school algebra. Includes radicals, complex numbers, quadratic equations and inequalities, functions and their inverses, systems of equations and determinants.

**MTH 177. TRIANGLE TRIGONOMETRY** . . . . . 3 credit hours

Prerequisite: MTH 097

Provides background in triangle trigonometry for study of physics and certain technical courses. Includes degree and radian measures, trigonometric functions, the pythagorean theorem, solving right triangles, the law of sines and the law of cosines, solving oblique and acute triangles, arc length and angular velocity, complex numbers, polar form of a complex number and vector applications. Use of a handheld calculator encouraged.

**MTH 178. GENERAL TRIGONOMETRY** . . . . . 3 credit hours

Prerequisite: MTH 169

Intended for students who plan to study calculus. Trigonometric functions are presented both as circular functions and angular functions. Includes definitions of trigonometric functions, graphs of trigonometric functions, inverses of trigonometric functions, trigonometric identities and equations, solution of triangles and complex numbers.

**MTH 179. PRECALCULUS** . . . . . 4 credit hours

Prerequisite: MTH 169

A college level algebra course designed to provide the algebra background needed for the calculus sequence. Also serves as a terminal algebra course, fulfilling the mathematics requirement of certain transfer programs. Includes set theory, properties of real numbers, relations and functions, graphs, rational functions, exponential and logarithmic functions, inverse functions, the remainder and factor theorems, and conic sections.

**MTH 179A. PRECALCULUS** . . . . . 3 credit hours

Prerequisite: MTH 169

The first half of Precalculus (Math 179). A self-paced course taught in the Mathematics Laboratory. Includes sets, properties of real numbers, relations and functions, graphs, rational functions, and inverse functions.

**MTH 179B. PRECALCULUS** . . . . . 3 credit hours

Prerequisite: MTH 179A

The second half of Precalculus (Math 179). A self-paced course taught in the Mathematics Laboratory. Includes the remainder and factor theorems, exponential and logarithmic functions, and conic sections.

**MTH 191. CALCULUS I** . . . . . 5 credit hours

Prerequisites: MTH 178 and 179

The first of a three-course sequence in elementary calculus. For the transfer student who plans to major in mathematics, science or engineering. Also serves as a terminal calculus course fulfilling the mathematics requirement of other programs of study. Includes continuity, limits, the derivative, the definite integral, and geometric and practical applications.

**MTH 192. CALCULUS II** . . . . . 4 credit hours

Prerequisite: MTH 191

The second course of a three-course sequence in elementary calculus.

Topics are: applications of the definite integral; differentiation and integration of exponential, trigonometric and hyperbolic functions; techniques of integration; sequences and series.

**MTH 197. LINEAR ALGEBRA** . . . . . 4 credit hours

Prerequisite: MTH 191

For the student who has had at least one course in elementary calculus. Includes vector spaces, linear transformations, matrices, determinants, orthogonality and applications.

**MTH 243. INTRODUCTORY NUMERICAL ANALYSIS** . . . . . 3 credit hours

Prerequisites: MTH 192

Mathematical methods of numerical approximations that are applicable to computer programming. Includes finite differences, numerical integration and differentiation, solution of non-linear equations and solution of differential equations with initial conditions. Students write programs in the FORTRAN language and execute via terminals.

**MTH 293. CALCULUS III** . . . . . 4 credit hours

Prerequisite: MTH 192

The third course of a three-course sequence in elementary calculus. Topics are: polar coordinates, indeterminate forms, Taylor's formula, vector calculus, calculus of several variables, multiple integration and applications.

**MTH 295. DIFFERENTIAL EQUATIONS** . . . . . 4 credit hours

Prerequisite: MTH 192

Techniques of solving ordinary differential equations. Includes equations of the first order and first degree, equations of the first order and higher degree, linear differential equations. Applications from physics and chemistry part of the course.

## **MECHANICAL TECHNOLOGY (MT 68)**

**MT 100. MACHINE SHOP THEORY** . . . . . 3 credit hours

Precision and semi-precision instruments and their applications; and use of basic principles of machine tool operations. Films supplement the laboratory experiences.

**MT 101. MILLWRIGHT THEORY . . . . . 2 credit hours**

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.

**MT 103. INTRODUCTION TO MATERIALS . . . . . 3 credit hours**

Introduction to the basic terms, processes and structures of materials. Hardness testing, classification systems and demonstrations of testing equipment. Principles of heat treatments are studied and demonstrated. (3 contacts per week)

**MT 111. MACHINE SHOP THEORY AND PRACTICES . . . . . 4 credit hours**

Precision and semi-precision instruments and their applications; basic principles of machine tool operation. Selected films used to supplement the laboratory experiences. Practical experience provided on the lathe, mill, shaper, drill press and surface grinder.

**MT 122. MACHINE TOOL OPERATIONS AND SET-UP I . . . . . 4 credit hours**

Prerequisite: MTE 111 or consent of the instructor

Students continue study of advanced lathe, mill, surface grinding and measurement techniques. In addition, I.D.-O.D. grinding, carbide tooling, turret lathe, optical comparator are presented. Students experience demonstrations, discussion and laboratory experience. (6 hours per week)



**MT 123. MACHINE TOOL OPERATIONS AND SET-UP II. . . . . 4 credit hours**

A continuation of Mechanical Technology 122. Emphasis placed on the student's individual goals and proficiencies of specific machining operations. Student will choose a challenging product to manufacture using several advanced machining techniques to meet goals set by student. Gear cutting, I.D. grinding, EOM are emphasized. (6 hours per week)

**MT 201. MACHINE TOOL TECHNOLOGY. . . . . 4 credit hours**

Prerequisite: MT 122

Advanced methods of setting up and operating common machine tools. Typical industrial applications to demonstrate measuring instruments, gauges, thread cutting, gear cutting, speeds and feeds, tolerances, tool grinding and indexing. (6 hours per week)

**MT 205. DIE CAST, DIE AND MOLD DESIGN FUNDAMENTALS. . . . . 3 credit hours**

Basic fundamentals of mold construction and the fundamental processes and basic construction of plastic molds (compression, transfer, and injection), molds for die castings (pressure moldings of non-ferrous alloys), and rubber molds.

**MT 240. PLANT LAYOUT AND MATERIAL HANDLING SYSTEMS. . . . . 4 credit hours**

Prerequisite: ID 100

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.

**MUSIC  
(MUS 20)**

**MUS 100. BAND. . . . . 1 credit hour**

A course in performance open to all students and the public upon registration for the class. May be repeated for credit up to a maximum of four times. (2 hours per week)

**MUS 103. STAGE BAND: ENSEMBLE. . . . . 1 credit hour**

A course in performance open to those who desire to read, improvise and perform. Audition necessary for registration. May be repeated for credit up to a maximum of four times. (2 hours per week)



**MUS 106. JAZZ COMBO** . . . . . 1 credit hour

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. The group is a performing one and offers concerts in the community.

**MUS 109. BRASS ENSEMBLE** . . . . . 2 credit hours

An ensemble course designed for brass quartets, quintets, depending on class instrumentation. This class is also a performing group.

**MUS 135. CHORUS** . . . . . 1 credit hour

A course in performance open to all students and the public upon registration for the class. May be repeated for credit up to a maximum of three times.

**MUS 140. BASIC MUSICIANSHIP** . . . . . 3 credit hours

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 aim of developing musical skills and understanding. No musical experience necessary.

**MUS 143. COMPOSITION: THEORY AND ARRANGEMENT** . . . . . 2 credit hours

Designed to enable students to develop skills and techniques in music composition, orchestration and arranging for all musical mediums.

**MUS 146. CREATIVE IMPROVISATION: SONG WRITING** . . . . . 3 credit hours

For the prospective song writer, 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, and the music industry and its procedures concerning how to get a song published and recorded. Other areas of study include recording, the recording-studio, record pressing and copyright procedures.

**MUS 149. SIGHT SING/EAR TRAINING** . . . . . 2 credit hours

An approach to listening to and reading music designed to develop composing and listening skills. An introduction in training the ear to identify intervals, chords, scales and chord progressions.

**MUS 152. MUSIC THEORY** . . . . . 3 credit hours

An in-depth study of melodic, harmonic and rhythmic aspects of tonal music related to various styles: European, rock, jazz, ballads and the Blues. Aimed to equip the student with a theoretical knowledge to ex-



tend and cultivate musical understanding and creativity while giving primary emphasis to the harmonic aspects of music.

**MUS 157. JAZZ IMPROVISATION**..... 2 credit hours

A course in jazz theory that provides the student with techniques of melody, harmony and rhythm that would excite spontaneous creativity in the jazz style.

**MUS 158. BLACK MUSIC, CREATIVE IMPROVISATION**..... 3 credit hours

Students create music through improvisation which is an integral part of Black music. Skills in basic musicianship used depending on the student's musical proficiency. Focuses on the development of Black music from Africa to the Americas.

**MUS 159. SOUTH INDIAN MUSIC**:..... 3 credit hours

Theory and practice of South Indian music. Sacred and secular roles of music in the Indian culture. The basic notes and their variations; definition of terms; the analysis of the basic melody; musical terms; instruments of South India, such as the veena, flute, tabla and mridangam. A brief history of Indian music, short biographies of noted Indian musicians such as Purandara Dasa and Tyagaraja and their contributions to South Indian Music.

**MUS 161. CONDUCTING**..... 3 credit hours

Deals with various styles and techniques of conducting ensembles. Covers styles of all music periods. Hand position, metric conducting, dynamics and such other techniques as score reading and musical phrasing techniques discussed.

**MUS 170. AUDIO RECORDING TECHNOLOGY . . . . . 3 credit hours**

Designed to provide the student with the fundamentals necessary for a career-oriented study in creative audio recording. Audio-visual presentations of professional studio recordings and lectures on automated recording.

**MUS 180. MUSIC APPRECIATION . . . . . 3 credit hours**

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 styles of music covered. Presentations deal with the growth and development of musical forms and different styles through recordings and demonstrations.

**MUS 183. MUSIC OF THE AFRICAN-AMERICAN CULTURE . . . . . 3 credit hours**

An ethnomusicology approach to African-American music aimed to combine the resources of history, anthropology, psychology and musicology to examine the music and its meaning within Black cultures. Deals with the socio-cultural aspects of the Black man's life style, traditions and mores as the motivation for Black expression in the arts.

**MUS 186. PIANO LITERATURE . . . . . 3 credit hours**

A lecture-demonstration course which surveys piano literature from the 18th to the 20th Century. Teaching skills will be emphasized to help the piano teacher.

**MUS 187. HISTORY OF OPERA . . . . . 3 credit hours**

The aim of this course is to acquaint the student with the development of opera in European history. Presentations will include operas of Monteverdi, Mozart, Wagner, Verdi, Puccini, Strauss, Britten and many others. Assignments will include listening during class and attending professional performance of opera.

**MUS 200. BEGINNING RECORDER . . . . . 2 credit hours**

An applied course in the basic techniques of recorder playing (soprano, alto, tenor, and bass). Ensemble playing. Music from the various periods of European music history such as the Medieval and Renaissance will be performed.

**MUS 203. INTRODUCTION TO VOICE . . . . . 2 credit hours**

Learn techniques in performing songs. Opportunities to work with musicians and sound equipment.

**MUS 204. VOICE . . . . . 2 credit hours**

Vocal techniques in depth. An extension of Introduction to Voice.

**MUS 206. VOCAL PERFORMANCE** . . . . . 1 credit hour

Learn techniques in performing songs. Opportunities to work with musicians, sound equipment and with groups.

**MUS 210. FUNCTIONAL PIANO** . . . . . 2 credit hours

A piano class 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 fundamentals of piano technique, basic musicianship, elementary keyboard harmony, sight reading, pedal technique, aids to memorization and keyboard application of subjects studied in music classes.

**MUS 213. INTERMEDIATE PIANO** . . . . . 2 credit hours

A continuation of Music 210, this course provides piano studies beyond the elementary or beginning stage. For those with some experience in piano playing.

**MUS 216. PIANO: JAZZ AND BLUES** . . . . . 2 credit hours

A piano course designed to cover such styles as Blues and elementary jazz improvisation techniques. Music theory in terms of chord progression and improvisational techniques will be part of the course of study.

**MUS 220. APPLIED MUSIC: BRASS** . . . . . 2 credit hours

Introductory group instruction in brass instruments. Instruction geared to student's level.

**MUS 225. BEGINNING JAZZ DRUM** . . . . . 2 credit hours

Rudimentary skills in jazz drumming. Includes study of historical styles such as Swing, Be-Bop, and South American and African rhythms. For the experienced drummer.

**MUS 226. STEEL DRUM MUSIC** . . . . . 3 credit hours

An applied laboratory demonstration in the making and performance of the steel drum.

**MUS 230. FOLK GUITAR** . . . . . 2 credit hours

Learning of techniques necessary to play folk music and folk songs. For those with some experience in guitar playing, keyed to interests and needs of students.

**MUS 233. BEGINNING GUITAR** . . . . . 2 credit hours

Designed for those with limited or no experience playing the guitar. Basic chords and techniques as well as folk and Blues songs. Class keyed to interests and needs of students.

**MUS 236. INTERMEDIATE GUITAR** . . . . . 2 credit hours

For the student with a basic knowledge of guitar playing. There will be opportunity to learn more difficult techniques as well as learning about song arrangements and some theory. Class will be keyed to interests and needs of students.

**MUS 239. JAZZ GUITAR** . . . . . 2 credit hours

Designed to enable students to develop skills necessary to play the guitar. In different jazz styles. Includes improvisation work and chording. Requires basic guitar playing experience.

**MUS 242. BASS GUITAR** . . . . . 2 credit hours

A course in applied music (bass) designed specifically for jazz enthusiasts who want to learn techniques of jazz bass performance. Melodic, harmonic and rhythmic theory will be used to develop styles of jazz bass performance. You must have your own instrument.

**MUS 243. INTRODUCTION TO JAZZ BASS** . . . . . 2 credit hours

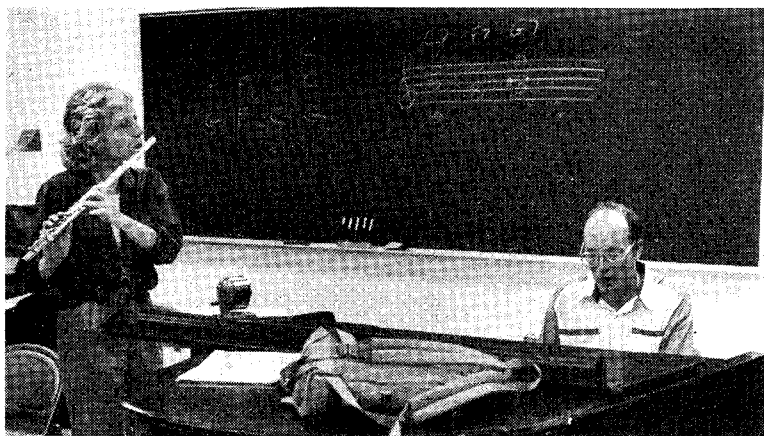
An introductory course to jazz bass whereby the student learns technically how to create good bass lines, good bass ostinatos, interpretation of chords, good solo techniques and concepts of big band and small ensemble playings.

**MUS 246. BEGINNING BANJO** . . . . . 2 credit hours

Group instruction for beginners in banjo to provide the necessary skills for performing elementary banjo music.

**MUS 249. INTRODUCTION TO JAZZ FLUTE** . . . . . 2 credit hours

An introductory course in jazz flute for students of varying ability.



**MUS 250. BEGINNING FLUTE/SAX** . . . . . 2 credit hours

A beginning flute class to familiarize students with primary musical jargon and the basics of flute and sax playing. Basic flute playing will include sound production, reading musical notation, knowing flute and saxophone fingering, performance of basic major scales and a combination of reading and performance of simple tunes involving both classical and jazz music.

**MUS 266. SAXOPHONE (CLASSICAL)** . . . . . 2 credit hours

An applied music course in saxophone technique, and performance of classical literature for saxophone. Requires basic playing experience and auditions.

**MUS 269. SAXOPHONE (JAZZ)** . . . . . 2 credit hours

Introductory group instruction in jazz saxophone techniques and various styles. Requires basic saxophone playing experience.

## **NUMERICAL CONTROL (NC 66)**

**NC 100. INTRODUCTION TO  
NUMERICAL CONTROL** . . . . . 3 credit hours

The principles, history and applications of numerical control with special emphasis on tape formats and programming techniques. Point to point and continuous path programs written, studied and demonstrated. (3 hours per week)

**NC 111. MANUFACTURING PROCESSES  
FOR NUMERICAL CONTROL** . . . . . 4 credit hours

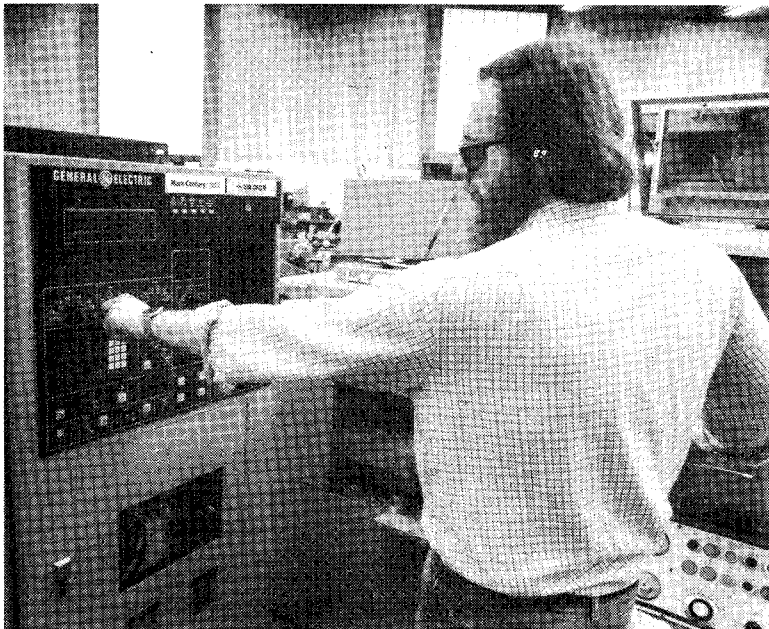
Prerequisite: NC 122

Numerical Control part hold techniques, feed and speeds for Numerical Control machining, cutting tools used for Numerical Control, stock removal techniques, and comparisons of manual versus computer programming. Special emphasis placed on part processing including per unit cost analysis. (4 hours per week)

**NC 121. MANUAL PROGRAMMING FOR  
NUMERICAL CONTROL** . . . . . 3 credit hours

Prerequisite: MTH 152, NC 100, MT 111

Manual programming for Numerical Control machines including tab sequential, word address and fixed sequential formats. Special emphasis placed on part holding for Numerical Control machining including complete part processing. (4 hours per week)



**NC 122. NUMERICAL CONTROL MACHINE**

**TOOL OPERATION** . . . . . 3 credit hours

Prerequisites: NC 121, MT 111

Precision set-up and operation of Numerical Control machine tools. Special emphasis placed on the time-saving techniques used in profitable Numerical Control machine tool operation. (4 hours per week)

**NC 213. COMPACT II COMPUTER PROGRAMMING** . . 4 credit hours

Prerequisite: NC 122; cannot be taken concurrently with NC 224

The Compact II language studied and demonstrated. Special emphasis placed on the use of the terminal and plotter to solve Numerical Control problems with the aid of Compact II. Computer tape preparation and verification techniques practiced. (4 hours per week)

**NC 224. APT III COMPUTER PROGRAMMING** . . . . . 4 credit hours

Prerequisite: NC 122; cannot be taken concurrently with NC 213

APT language studied; each student writes computer programs using each of the various APT language capabilities. Problems solved with the aid of a terminal and plotter. The students use computer to solve Numerical Control problems verified on the plotter terminal and Numerical Control machine tools. (4 hours per week)

**NC 225. NUMERICAL CONTROL GRAPHICS . . . . . 4 credit hours**

Prerequisites: NC 213 and/or NC 224

Numerical Control graphic capabilities studied, demonstrated and practiced on all available terminals and plotters. Compact II and APT III Plotting packages both used. (4 hours per week)

**NC 226. APT IV COMPUTER PROGRAMMING . . . . . 4 credit hours**

Computer assist programming techniques including all of the latest features. Specific N/C program de-bugging techniques to enhance the N/C programmer. (4 hours per week)

**NUM 227. NUMERICAL CONTROL COORDINATE MEASUREMENT . . . . . 3 credit hours**

A study of numerically controlled measuring instruments. Students will become proficient in programming and operating computer controlled inspection equipment. Courses taught on site at DEA Corporation, a large manufacturer of coordinate measuring instruments in Livonia.

**NC 229. TOOLING . . . . . 3 credit hours**

N/C machine tool selection techniques, machining hints, tool performance, tool wear analysis, chip control. All common forms necessary for a well organized N/C Tooling office will be studied in this course.

**NC 230. GRAPHIC PROGRAMMING . . . . . 4 credit hours**

Numerical Control Graphic solutions to part programming including part geometry and tool path. Graphic methods will be demonstrated. Students will be given terminal time to improve their understanding of the concepts.

## **NURSING (NUR 57)**

*Enrollment 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 nursing division after review of previous transcripts.*

**NUR 029. PHARMACOLOGY REVIEW . . . . . 1 credit hour**

Prerequisites: NAPNES approved pharmacology course

Designed for persons who successfully completed a NAPNES pharmacology course but have not passed the NAPNES challenge exam. Includes a review of safe drug administration, drug actions, uses, and effects, as well as drug abuses. The NAPNES challenge exam is taken at the end of the course. (Instructor consent required.)



**NUR 039. STATE BOARD PREPARATION . . . . . 1 credit hour**

Assists graduates of the Practical Nursing Program to prepare for the State Board of Nursing Examination. Emphasis placed on reviewing learned materials and on taking national competitive examinations. (Limited to WCC graduates or by consent)

**NUR 050. PHARMACOLOGY PREPARATION . . . . . 2 credit hours**

Intended to prepare Licensed Practical Nurses for taking their first courses in pharmacology and drug administration. Includes a review of mathematics and an introduction to drug therapy.

**NUR 100. NURSING FUNDAMENTALS WITH LABORATORY . . . . . 4 credit hours**

Presents principles of nursing with emphasis on social, psychological, and physical needs of the patient. Includes units on first aid, geriatric nursing, nursing history and organizations.

**NUR 110. NURSING CLINICAL EXPERIENCE . . . . . 1 credit hour**

Supervised clinical experience in a long term health care facility applying basic nursing skills in simple nursing situations.

**NUR 111. PHARMACOLOGY I . . . . . 1 credit hour**

Study of metric and apothecary systems, drug classification and legislation. Provides for practice in solving drug dosage problems. Introduces principles of safe drug administration.

**NUR 118. PERSONAL AND COMMUNITY HEALTH . . . 1 credit hour**

Presents concepts of personal health. Survey of resources available in the community for the promotion of health. Includes survey of current public health problems.

**NUR 120. BASIC MEDICAL SURGICAL NURSING PRACTICE . . . . . 3 credit hours**

Prerequisite: 1st semester courses; Corequisite: NUR 125  
Clinical experience in caring for adult patients with medical-surgical problems. Includes experience in the operating room, recovery room, emergency room and outpatient department. (23 hours per week, 7½ weeks)

**NUR 121. INTERMEDIATE MEDICAL-SURGICAL NURSING PRACTICE . . . . . 3 credit hours**

Prerequisite: NUR 120 and 125; Corequisite: NUR 126  
Clinical experience in caring for adult patients with medical-surgical problems. Includes experience in the operating room, recovery room, emergency room and the outpatient department. Also includes clinical

experience in the administration of medications. (23 hours per week, 7½ weeks)

**NUR 122. PHARMACOLOGY II** . . . . . 2 credit hours

Prerequisite: NUR 111

Study of drug action, uses and effects in the administration of drug therapy. Includes a unit on drug abuse.

**NUR 125. BASIC MEDICAL-SURGICAL NURSING THEORY** . . . . . 3 credit hours

Prerequisite: First semester courses; Corequisite: NUR 120

Study of the adult patient with common medical-surgical problems. Includes principles and skills that assist the student in meeting the needs of the patient in the clinical situation. Pharmacology and diet therapy inter-related with the study of disease conditions. (7½ weeks)

**NUR 126. INTERMEDIATE MEDICAL-SURGICAL NURSING THEORY** . . . . . 3 credit hours

Prerequisite: NUR 120 and 125; Corequisite: NUR 121

Continued study of the adult patient with common medical-surgical problems. Includes principles and skills that assist the student in meeting the needs of the patient in the clinical situation. Pharmacology and diet therapy inter-related with the study of disease conditions. (7½ weeks)



**NUR 130. PARENT-CHILD NURSING PRACTICE** . . . . . 3 credit hours

Prerequisite: NUR 120 and 125; Corequisite: NUR 135  
Clinical experience in obstetric and pediatric units of the hospital and outpatient clinic to develop skills in caring for parents and children. (18 hours per week, 8 weeks)

**NUR 133. PHARMACOLOGY III** . . . . . 2 credit hours

Prerequisite: NUR 111 and 122  
Continued study of drug action, uses and effects, with emphasis on body systems.

**NUR 135. PARENT-CHILD NURSING THEORY** . . . . . 3 credit hours

Prerequisite: NUR 120 and 125; Corequisite: NUR 130  
Study of the nursing care of mothers during the reproductive cycle, the care of the newborn and the care of ill children. (8 weeks)

**NUR 140. ADVANCED MEDICAL-SURGICAL NURSING PRACTICE** . . . . . 3 credit hours

Prerequisite: NUR 121 and 126; Corequisite: NUR 145  
Provides for the practice of nursing skills including the administration of medications and assisting in the teaching of patients preparing for discharge from the health care agency. (23 hours per week, 6 weeks)

**NUR 144. PHARMACOLOGY FOR LICENSED PRACTICAL NURSES** . . . . . 5 credit hours

Designed for Licensed Practical Nurses who are currently practicing. Includes a study of safe drug administration, drug action, uses and effects of drug therapy, as well as drug abuses. The student also receives laboratory practice in preparing and administering medicines. NAPNES challenge exam taken at end of course. (5 hours per week)

**NUR 145. ADVANCED MEDICAL-SURGICAL NURSING THEORY** . . . . . 2 credit hours

Prerequisite: NUR 121 and 126; Corequisite: NUR 140  
Study of medical-surgical problems in the specialty areas. Prepares the student for the role of the practical nurse, including legal and ethical implications. (6 weeks)

**NUR 150. EXTENDED CARE NURSING** . . . . . 3 credit hours

Includes essentials of the nursing process related to geriatrics and care of the long-term chronically ill patient. Patient's psychological needs, nutrition problem solving, rehabilitation and maintenance regimes examined through case studies and special student projects. Designed for

the advanced student nurse or for the graduate nurse working in or intending to work in private duty, nursing home or extended care setting.

**NUR 200. NURSING ROLE TRANSITION . . . . . 4 credit hours**

Prerequisite: Successful completion of all Nursing 100 level courses or LPN accepted into Level II of the program

Study of nursing history and development of associate degree nursing programs, nursing roles, change theory and individual reactions to change. Also included will be an introduction to general systems theory and advanced study of the nursing process. The laboratory components will include nursing skills review/update, CPR update and nursing assessment practice.

**NUR 230. ADVANCED PARENT-CHILD NURSING PRACTICE . . . . . 2 credit hours**

Prerequisites: Successful completion of all Nursing 100 level courses or LPN accepted into Level II of the program, NUR 200; Corequisites: NUR 235

Application of parent-child nursing concepts developed in NUR 235. Includes hospital and community situations. Students will have experience with high and low-risk families across the childbearing cycle, including antepartum, intrapartum, and postpartum periods. Experience with the childrearing family will include opportunities for health teaching.

**NUR 235. ADVANCED PARENT-CHILD NURSING . . . 3 credit hours**

Prerequisites: Successful completion of all Nursing 100 courses or LPN accepted into Level II of the program, HS 220, BIO 237, NUR 200 and CEM 105; Corequisite: NUR 230

Further study of the family with parent-child health related needs. Focus will be 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, will be discussed.

**NUR 240. COMPLEX MEDICAL-SURGICAL NURSING PRACTICE . . . . . 3 credit hours**

Prerequisites: Successful completion of all first and second semester Level II courses.

This course emphasizes the application of the nursing process in 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.

**NUR 244. MEDICAL ETHICS . . . . . 2 credit hours**

Exploration of various philosophies of ethics (Kantian, utilitarian, natural

law). Models for decision making using a multifaceted approach and incorporating philosophy, values clarification, and legal aspects, will be used to examine current ethical issues. Among topics to be discussed are: patient rights, confidentiality, informed consent, abortion, genetic manipulation, experimental procedures, treatment of defective newborns and euthanasia.

**NUR 245. COMPLEX MEDICAL-SURGICAL NURSING THEORY . . . . . 3 credit hours**

Prerequisites: Successful completion of all first and second semester Level II courses.

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.

**NUR 250. MENTAL HEALTH NURSING CLINICAL PRACTICE . . . . . 2 credit hours**

Prerequisites: Successful completion of all Nursing Level I courses or LPN, HS 220, BIO 237, NUR 200, CEM 105; Corequisites: NUR 255 and SOC 100

Application of mental health nursing concepts developed in NUR 255. Includes hospital and community situations. The student will have experience with current methods of prevention, maintenance and treatment.

**NUR 255. MENTAL HEALTH NURSING . . . . . 3 credit hours**

Prerequisites: Successful completion of all Nursing Level I courses or LPN and NUR 200; Corequisites: NUR 250 and SOC 100

Development of knowledge and skills necessary to provide basic mental health nursing care to selected clients in hospital or community settings who demonstrate common mental health problems. The central focus will be to help the student become more sensitive to human behavior and to use himself/herself in a therapeutic manner. Prevention of mental illness, and maintenance and restoration of mental health will be discussed.

**NUR 260. NURSING MANAGEMENT AND TRENDS . . . . . 2 credit hours**

Prerequisites: Successful completion of all first and second semester Level II courses; corequisite: NUR 240

This course includes leadership and management concepts in relation to organizing care of groups of patients. Emphasis will be placed on communication, decision making and motivation as it relates to entry level nursing responsibilities. Legal aspects of supervision will be

studied, as well as trends and current problems in the nursing profession. Clinical practice of management skills will be integrated into the Complex-Medical-Surgical Nursing Practice.

## **PHILOSOPHY (PHL 14)**

### **PHL 101. INTRODUCTION TO PHILOSOPHY . . . . . 3 credit hours**

The general nature of philosophical thought, its basic methods, problems, goals. 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. Uses philosophical concepts to help understand oneself, other people and the world around us. Focuses on formulating and defending individual viewpoints and developing personal skills in abstract thinking.

### **PHL 200. EXISTENTIALISM . . . . . 3 credit hours**

A general introduction to the existentialist tradition of philosophy as it is presented in the works of such representative thinkers as Nietzsche, Kierkegaard, Heidegger, Sartre and Camus. Special attention 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**

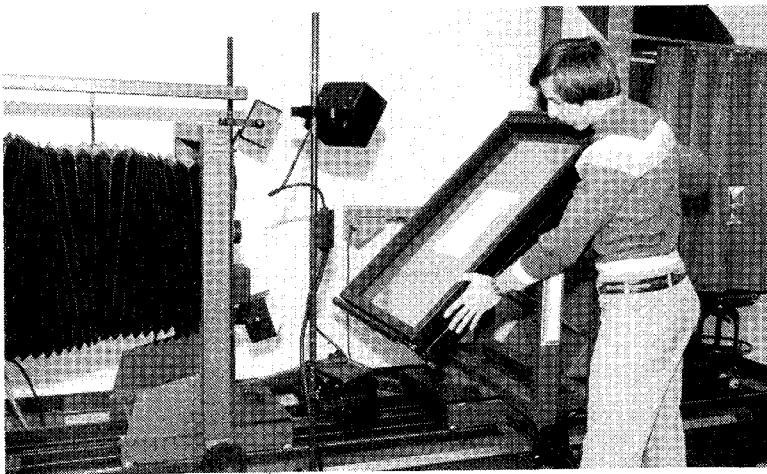
An introduction to the analysis of valuing behaviors. Deals with social values and aesthetic values. Some writing will be required in which the student will give evidence of his increased capacity to make distinctions in these areas.

### **PHL 250. LOGIC . . . . . 3 credit hours**

An introduction to the nature of logical reasoning, especially as found in examples of everyday thought. 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. Emphasizes developing habits of good reasoning, as well as the ability to recognize and avoid bad reasoning.

### **PHL 265. PHILOSOPHY OF LIFE . . . . . 2 credit hours**

Learning to look at your fundamental beliefs and assumptions (about life, the world, yourself, other people) from a philosophical point of view. Emphasizes expressing and developing the philosophy you live by. Includes a discussion of various approaches that may be helpful in the process of personal growth and development.



## **PHOTOGRAPHY (PHO 72)**

### **PHO 090. GENERAL PHOTOGRAPHY . . . . . 2 credit hours**

A course for individuals who have an interest in photography. Primary emphasis is on picture taking, composition, lighting, films, etc. No darkroom work is included in the course. Students should own or have the use of some type of camera.

### **PHO 100. PORTRAIT PHOTOGRAPHY . . . . . 2 credit hours**

Prerequisite: PHO 220 and PHO 221

An indepth study and appreciation of the art of portrait photography through lecture, demonstration and field trips to commercial portrait studios.

### **PHO 101. PHOTOGRAPHY AND ENVIRONMENT . . . 3 credit hours**

A study of the methods of documenting various types of environments with the camera. This will include 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**

Designed to introduce students to the history of photography, with the development of the important processes for making photographs and with the philosophy of the most significant photographers of the 19th and 20th centuries.

**PHO 111. PHOTOGRAPHY** . . . . . 4 credit hours

Principles, practices, basic application and limitations of photography as a communication form used in business and industry. Assigned field practices in the use of the small format camera, composing, lighting, exposure and photo darkroom processing. (6 hours per week)

**PHO 112. DARKROOM TECHNIQUES** . . . . . 5 credit hours

Prerequisite: PHO 111; Corequisite: PHO 113

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, handling and equipment maintenance practiced. (7 hours per week)

**PHO 113. STUDIO TECHNIQUES** . . . . . 3 credit hours

Corequisite: PHO 112

Specialized instruction in large format photography under controlled lighting situations. Use of various types of lights emphasized along with lighting for various situations. (4 hours per week)

**PHO 114. BASIC COLOR PHOTOGRAPHY** . . . . . 3 credit hours

Prerequisite: PHO 111

An introduction to the various color photography processes in common use today. Emphasis placed on the production of color transparencies, color negatives and color prints and off-easel color print correction techniques. (4 hours per week)

**PHO 115. PHOTO RETOUCHING** . . . . . 2 credit hours

Prerequisite: PHO 112

Manual spotting techniques and associated materials as applied to the retouching and processing of photographic prints and negatives. (3 hours per week)

**PHO 201. INTRODUCTION TO FASHION PHOTOGRAPHY** . . . . . 2 credit hours

The student will learn through lecture, shooting sessions, critique and lab practice, the basic techniques of black and white fashion photography. Lighting, posing, model selection, printing fashion, and basic business practices will be studied. (3 hours per week)

**PHO 213. ADVANCED PHOTO RETOUCHING** . . . . . 2 credit hours

This class will prepare students to solve most problems which occur to prints which he or she cannot rephotograph.

**PHO 219. PHOTOGRAPHIC DESIGN** . . . . . 3 credit hours

Prerequisite: PHO 111

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. (4 hours per week)

**PHO 220. ADVANCED STUDIO TECHNIQUES. . . . . 3 credit hours**

Prerequisite: PHO 113; Corequisite: PHO 221

A detailed study of the various types of cameras and their uses. Roll and sheet film cameras emphasized as well as the more unusual applications of the medium format camera. (4 hours per week)

**PHO 221. ADVANCED DARKROOM TECHNIQUES. . . 3 credit hours**

Prerequisite: PHO 113; Corequisite: PHO 220

Specialized instruction in the problems faced by the darkroom technician. How to produce acceptable results under difficult situations the major emphasis. (6 hours per week)

**PHO 222. ADVANCED COLOR PHOTOGRAPHY. . . . . 3 credit hours**

Prerequisite: PHO 114

A continuation of the studies begun in Basic Color Photography 114. Emphasis placed on color correction from unusual situations and color distortion to achieve special effects and experience in automated color production techniques and equipment. (6 hours per week)

**PHO 223. PHOTOGRAPHIC OCCUPATIONS. . . . . 2 credit hours**

Prerequisite: PHO 113

A survey of photographic occupations with guest lecturers, field trips and discussion. (3 hours per week)

**PHO 224. PHOTOGRAPHY QUALITY CONTROL TECHNOLOGY. . . . . 2 credit hours**

Prerequisites: PHO 112, 113, 114

The student will, through lecture, demonstration, and lab practice, utilize a variety of photographic quality control techniques and related equipment, specifically the use of the densitometer; study of development variation, contrast control, and plotting; identifying individual variation through experimentation; analysis of the C-41/K-2 processes and comparisons; study of the elimination process of contaminants.

**PHO 226. COLOR LABORATORY OPERATIONS AND TECHNIQUES. . . . . 2 credit hours**

Prerequisite: PHO 222

The student will, through lecture, demonstration, and lab practice, utilize automated color and printing and processing equipment both with color

positive, negative, and reversal materials. Color lab production techniques, demands, and operations will be studied and a portion of the class meetings will be held within an operating professional color laboratory environment.

**PHO 229. FREELANCE OPERATIONS** . . . . . 3 credit hours

Prerequisite: PHO 220

A survey of the types of photographic assignments and environments in which the freelance photographer is involved as a one-person/site proprietor operation. Outside speakers and visits to various types of freelance studios included as well as an in-depth study of the problems involved in operating a free lance photographic business. (4 hours per week)

**PHO 230. SPECIALIZED STUDIES  
IN PHOTOGRAPHY** . . . . . 2-5 credit hours

Credits to be assigned prior to registration

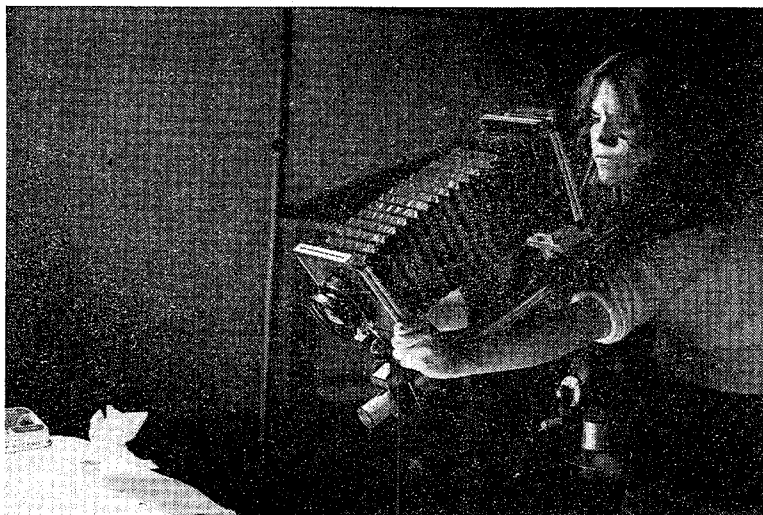
Prerequisite: Advisor approval only

An opportunity for students to work independently with faculty consultation in major areas of photography.

**PHO 231. PORTFOLIO SEMINAR** . . . . . 2 credit hours

Prerequisite: Consent

Development of materials and samples to be presented for employment. Professional critiques conducted and evaluations made. Offered Spring term only. (4 hours per week)



## **PHYSICAL EDUCATION (PE 28)**

### **PE 100. CONDITIONING ACTIVITIES . . . . . 1 credit hour**

A basic course to develop an understanding of the role and importance of physical activities in daily living. The student will develop a fitness program based upon an analysis of his/her fitness status. (2 hours per week)

### **PE 110. PRINCIPLES OF SAFETY . . . . . 2 credit hours**

Stress placed on the scope of safety problems in school, home and industry, along with securing and evaluating up-to-date information on the safety needs of individuals.

### **PE 120. HEALTHFUL LIVING . . . . . 3 credit hours**

Provides information to help the student make intelligent decisions regarding his or her health and the health of those affected. Designed to provide the students with an awareness and understanding of the functions of their bodies and to direct them toward an intelligent concern for the health and welfare of those around them. (3 hours per week)

### **PE 137. TECHNIQUES OF OFFICIATING . . . . . 2 credit hours**

Consists of a study of the rules and techniques involved in officiating various interscholastic sports. The official's duties, personal characteristics, relationships with coaches and school administrators emphasized. Course will consist of classroom and laboratory experiences. Some practical experience will be gained by officiating in intramural games, intercollegiate meets and scrimmages.

## **PHYSICAL EDUCATION ACTIVITIES (PEA 29)**

### **PEA 105. INDEPENDENT SPORTS . . . . . 2 credit hours**

Provides opportunities for the student to become adept in one or more activities with high carry-over value, and acquire skills which will be a source of healthful and recreational exercise. These typically include classes for Archery, Bowling, Canoeing, Camping and Hiking, Golf, Karate, Racquetball, Tae Kwon Do and Tennis. (2 hours per week)

## **PHYSICS (PHY 35)**

### **OPEN LABORATORY**

*Physics courses numbered 105, 111, 122, 131, 141, and 142 operate under an open laboratory format. This means that the laboratory is open*

*from thirty to forty hours per week for students to use at their convenience. Laboratory equipment is set out at specified stations ready for use, and instructors are available.*

**PHY 105. INTRODUCTORY PHYSICS** . . . . . 4 credit hours

Prerequisite: MTH 090 or equivalent; Corequisite: MTH 097 or equivalent

Designed for both transfer and vocational students who have had no previous physics. Course surveys the major topics of physics: motion, heat, waves, electricity, magnetism, light, atomic energy. A conceptual approach with a minimum of mathematics used to obtain a working knowledge of the principles of physics. This course will transfer as a general science or vocational credit. (Lecture, 3 hours open laboratory per week)

**PHY 110. APPLIED PHYSICS** . . . . . 4 credit hours

Prerequisite: MTH 090 or equivalent

An introductory course for technical-vocational students with no previous physics course. Course surveys the major topics in physics: matter and measurements; mechanics; electricity and magnetism; heat and light. Important ideas of physics presented through laboratory experiments, supplemented by lectures and films. Technical vocabulary translated to understandable English with everyday work applications of the basic ideas of physics and how they affect our life and work. (6 hours per week)

**PHY 111. GENERAL PHYSICS I** . . . . . 4 credit hours

Prerequisite: MTH 097; Corequisite: MTH 169 and MTH 177A

For both pre-professional transfer students and liberal arts students. No previous physics necessary. Course surveys the topics of mechanics, heat and wave motion. Three hours of open laboratory each week enable students to learn the use of basic scientific instruments and the techniques used in the science laboratory. (6 hours per week)

**PHY 122. GENERAL PHYSICS II** . . . . . 4 credit hours

Prerequisite: MTH 169 and PHY 111

A continuation of General Physics 111 with topics including electricity, light and atomic energy. (3 hours lecture and recitation, 3 hours open laboratory per week)

**PHY 131. PHYSICS FOR RESPIRATORY THERAPY** . . . 3 credit hours

Prerequisite: MTH 090

A one-semester course in basic physics, designed primarily for students in the respiratory therapy program. No previous knowledge of physics assumed. Topics discussed are the use of energy in body processes,

mechanics of fluids, electrical devices used in the hospital and the effects of radiation on living matter. (2 hours discussion, 2 hours open laboratory per week)

**PHY 141. RADIOLOGIC PHYSICS I . . . . . 3 credit hours**

Prerequisite: MTH 165

Physical principles underlying the operation of an X-ray machine discussed in lecture and illustrated in laboratory exercises. Basic concepts of mechanics, energy and electrical circuitry covered the first semester, to be followed by Physics 142. (2 hours discussion, 2 hours open laboratory per week)

**PHY 142. RADIOLOGIC PHYSICS II . . . . . 3 credit hours**

Prerequisite: PHY 141

Continuation of Physics 141 with topics including the production of X-rays and their effects on tissue, the X-ray tube, the X-ray circuit, and the nature and use of radioactivity. (2 hours discussion, 2 hours open laboratory per week)

**PHY 211. ANALYTICAL PHYSICS I . . . . . 5 credit hours**

Prerequisite: PHY 105 and MTH 191

For students intending to major in science or engineering, and for those liberal arts students with calculus background. Uses calculus to develop concepts in mechanics, heat and wave motion. (3 hours laboratory, 4 hours lecture and recitation per week)

**PHY 222. ANALYTICAL PHYSICS II . . . . . 5 credit hours**

Prerequisite: PHY 211

Continues to develop mathematical methods for understanding physical phenomena in the areas of electromagnetism, light and modern physics. (3 hours laboratory, 4 hours of lecture and recitation per week)

**POLITICAL SCIENCE  
(PLS 05)**

*Political Science 108, 112, and 150 all meet the minimum requirements of Michigan Law for the Associate Degree.*

**PLS 108. GOVERNMENT AND SOCIETY . . . . . 3 credit hours**

Particular emphasis placed on the nature and operation of American national government. Techniques, processes, and machinery of popular control (public opinion, interest groups, parties and elections); ex-

ecutive, legislative, and judicial functions. A course in understanding the power applications of public issues that affect one's life.

**PLS 112. INTRODUCTION TO AMERICAN GOVERNMENT . . . . . 3 credit hours**

The forms and functions of American government with emphasis on national government. Decision-making process in the Congress, the Presidency and the federal court system studied. Relationship of political parties and public opinion to the electoral process.

**PLS 150. STATE AND LOCAL GOVERNMENT AND POLITICS . . . . . 3 credit hours**

Forms and functions of state and local governments in the United States. Relationships of development of the urban community to the politics of metropolitan areas analyzed. Theories of studying community decision-making evaluated.

**PLS 200. INTRODUCTION TO INTERNATIONAL POLITICS . . . . . 3 credit hours**

The instruments of world politics from the perspective of current international issues with emphasis on major power relations and attempts at international organization.

**PLS 211. INTRODUCTION TO COMPARATIVE GOVERNMENT . . . . . 3 credit hours**

A survey of the political systems of Great Britain, France, Italy, Germany and the Soviet Union.

**PLS 230. POLITICAL PARTIES AND PRESSURE GROUPS . . . . . 3 credit hours**

An analysis of American political parties and pressure groups; emphasizes their origins, functions, organization, methods and the relationship between party politics and public opinion.

**PSYCHOLOGY  
(PSY 08)**

**PSY 100. INTRODUCTORY PSYCHOLOGY . . . . . 3 credit hours**

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.

**PSY 100. INTRODUCTORY PSYCHOLOGY (Television Course) . . . . . 3 credit hours**

“UNDERSTANDING HUMAN BEHAVIOR” is a college credit introduction to psychology that encourages an understanding and appreciation of the scientific approach to the study of human behavior. An integrated learning system, this telecourse surveys the physiological, intra-psychic, and social-behavioral perspectives on human thought and behavior; sensation and perception; motivation; learning and memory; maturation and development; personality theory and psychotherapy; and social psychology.

**PSY 106. PSYCHOLOGY OF AGING . . . . . 3 credit hours**

An overview of the Psychology of Aging: study of personality traits, emotional problems and adjustments common in the process of aging; general psychological theories related to the problems experienced by the aged.

**PSY 107. BLACK PSYCHOLOGY . . . . . 3 credit hours**

Psychological dynamics of the Black experience. An assessment of sociocultural factors that determine the Black psyche.

**PSY 109. PSYCHOLOGY OF MID-LIFE CAREERS. . . . . 2 credit hours**

Finding your interests and aptitudes; life review and 300 job options; multiple career planning to meet present and future manpower needs; goals for mid-life and pre-retirement; life-time learning and creativity; group interaction; individual counseling.

**PSY 111. AGING PARENTS . . . . . 3 credit hours**

An exploration into the problems of the adult child and his/her relationship with aging parents. Emphasis will be placed on intergenerational living, role reversals and problem solving.

**PSY 130. BASIC ALCOHOLISM . . . . . 3 credit hours**

The 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.

**PSY 150. INDUSTRIAL PSYCHOLOGY . . . . . 3 credit hours**

Human relations in business and industry. Special attention given to occupational information, personnel selection, training and development and employee appraisal. A practical introduction to the psychological dimensions and implications of the modern working world.

**PSY 160. COPING WITH STRESS . . . . . 3 credit hours**

“Coping” is a course designed to help integrate the highs and lows of

life. Two approaches are utilized. The first develops a conceptual framework within which we can view our emotional and spiritual needs. The second involves techniques for fulfilling these needs. Thus, the course will be equally conceptual and experiential. It will draw on concepts and experiences integral to psychology, psychoanalysis, primatology and Eastern Thought.

**PSY 200. CHILD PSYCHOLOGY . . . . . 3 credit hours**

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 207. SOCIAL PSYCHOLOGY . . . . . 3 credit hours**

Designed to give students an understanding of the influence of social interaction upon the development of personality. Interaction between the individual and society stressed. Includes emphasis on group dynamics and sensitivity training.

**PSY 209. PSYCHOLOGY OF ADJUSTMENT . . . . . 3 credit hours**

A study of the processes involved in the adjustment of the individual to the problems of everyday living. Emphasis given to the study of the development of techniques or adjustment to meet conflict situations in the social environment. Includes consideration of adjustment mechanisms of major societal institutions.

**PSY 257. ABNORMAL PSYCHOLOGY . . . . . 3 credit hours**

A course dealing with the abnormalities of certain types of personalities, their origin, symptoms, developments and treatment, short of psychiatric competence. Main topics—simple maladjustment; disturbances of emotional nature, of perception, memory, judgment, thought, disorders of mobility, speech, etc.; early symptoms of schizophrenia.

## **QUALITY CONTROL (QC 70)**

**QC 097. QUALITY: AN OVERVIEW . . . . . 2 credit hours**

Goals are to provide the student with a total concept of quality and its relationship to the work environment. Topics include: who determines quality; what is quality requirement; when is quality economical; where are quality requirements determined; why quality requirements; and how quality requirements are implemented.



**QC 101. PROCESS QUALITY CONTROL . . . . . 3 credit hours**

The concepts of variation and methods of measuring, evaluating and interpreting industrial data. An in-depth working knowledge of process control imparted through the use of capability analysis and statistical control charts. Industrial applications are presented and class participation is used extensively in workshops.

**QC 107. APPLIED STATISTICS: PROCESS MEASUREMENT AND CONTROL . . . . . 3 credit hours**

Prerequisite: Basic Algebra preferred

A basic course designed to acquaint Ford employees with company statistical control programs. Students develop a working knowledge of elementary statistical concepts such as normal distribution and standard deviation, of the common/special causes of variability. Students work in groups to construct, maintain and interpret X and R charts using data from in-plant operations.

**QC 122. SAMPLING QUALITY CONTROL . . . . . 3 credit hours**

Prerequisite: MTH 169

The theory of probability and basic concepts of statistical sampling. The development of sampling plans, effect of sample size and acceptance number on the probability of acceptance, and the use of interpretation of sampling acceptance plans discussed. Military 105D, sequential, and variable sampling are introduced and their effectiveness and industrial applications are analyzed.

**QC 213. QUALITY CONTROL BY STATISTICAL METHODS . . . . . 3 credit hours**

Prerequisite: QC 101 and QC 122

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 solved in the classroom to illustrate the techniques presented.

**QC 224. QUALITY CONTROL PROBLEM SOLVING . . . 3 credit hours**

Prerequisite: QC 213 and knowledge of basic algebra

A basic course designed to acquaint Ford employees with company statistical control programs. Students develop a working knowledge of elementary statistical concepts such as normal distribution and standard deviation, of the common/special causes of variability. Students work in groups to construct, maintain and interpret X and R charts using data from in-plant operations.

**QC 225. QUALITY CONTROL MANAGEMENT . . . . . 3 credit hours**

The total quality control concept in planning, organizing and implementing an effective system. Details of how to plan a quality system, set up the organizational structure, integrate the support activities, install controls, and measure the 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.

**QC 226. DIMENSIONAL METROLOGY AND TESTING . . . . . 3 credit hours**

A general introduction into the more important aspects of nondestructive testing as related to inspection and quality control. Included are the scientific techniques and instrument applications in determining dimensional measurement as practiced by skilled tradesmen, inspectors and quality control technicians.

## **RADIOGRAPHY (RAD 53)**

*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. RADIOGRAPHY REVIEW . . . . . 1 credit hour**

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

The history of radiography, medical specialties, health care delivery, organizational structure of a radiology department, professional development and ethics will be covered. Introductory course for the beginning radiographer with emphasis on acquainting the student with the goals, philosophies and organizations of the radiography program and radiology department. (4.2 hours per week, 7 weeks)

**RAD 101. METHODS OF PATIENT CARE . . . . . 2 credit hours**

Prerequisite: Admission to the Radiography Program

Designed to teach the radiographer how to interact with the patient, to provide for his or her physical and emotional needs, how to assist in



moving patients by using various transfer methods. Some lab practice in basic techniques such as taking vital signs, blood pressure and airway management. (4.2 hours per week, 7 weeks)

**RAD 110. CLINICAL EDUCATION . . . . . 1 credit hour**

Corequisite: RAD 112

Structured clinical experience, application of knowledge and skill in positioning the upper extremity, chest and abdomen; demonstrate knowledge concerning professional ethics, courtesy and empathy in handling patients, film processing and darkroom procedures. (16 hours per week, 7½ weeks)

**RAD 111. FUNDAMENTALS OF RADIOGRAPHY . . . . . 2 credit hours**

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 will be understood. (4 hours per week, 7½ weeks)

**RAD 112. RADIOGRAPHIC POSITIONING I . . . . . 2 credit hours**

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. (3 hours per week)

**RAD 113. RADIOGRAPHIC PROCESSING . . . . . 2 credit hours**

Covers the principles of processing to include 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. (4 hours per week, 7½ weeks)

**RAD 120. CLINICAL EDUCATION** . . . . . 2 credit hours

Corequisite: RAD 123

Structured clinical experience, application of knowledge and skill in positioning the upper and lower extremities, chest, abdomen, trunk, spine, and selected contrast studies, demonstrate knowledge on the design and operational characteristics of equipment and accessories in a general radiographic room. (16 hours per week)

**RAD 123. RADIOGRAPHIC POSITIONING II** . . . . . 2 credit hours

Prerequisite: RAD 112

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.(3 hours per week)

**RAD 124. PRINCIPLES OF RADIOGRAPHIC EXPOSURE** . . . . . 3 credit hours

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

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

Corequisite: RAD 124

Structured laboratory experience conducted to illustrate film response to various exposure techniques. Emphasis on evaluation of exposure techniques used in obtaining diagnostic information on x-ray film. (2 hours per week)

**RAD 130. CLINICAL EDUCATION I** . . . . . 2 credit hours

Structured clinical experience 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 demonstrate knowledge of the components and operational characteristics of the fluoroscopic unit. (32 hours per week, 7 weeks)

**RAD 135. PATHOLOGY FOR RADIOGRAPHERS** . . . . 2 credit hours

A survey of basic pathology. A study of the disease process and how various diseases alter the appearance and function of human

organisms; includes infectious diseases, tumors, chemical injuries and the conditions of illness involving the systems of the body. (4.2 hours per week)

**RAD 140. CLINICAL EDUCATION . . . . . 2 credit hours**

Continuation of Clinical Education 130; demonstrate knowledge of orthopedic radiography. (32 hours per week, 7 weeks)

**RAD 215. RADIOGRAPHY OF THE SKULL . . . . . 2 credit hours**

A study of the anatomy and radiography of the skull designed so that the student can correlate the relationship of external landmarks and positioning lines to specific internal structures. Includes laboratory experience in skull positioning. (3 hours per week)

**RAD 217. CLINICAL EDUCATION . . . . . 3 credit hours**

Corequisite: RAD 215

Structured clinical experience application of knowledge and skill in positioning the upper and lower extremities, chest, abdomen, trunk, spine, procedures requiring the use of a contrast medium, skull and demonstrate knowledge of the components and operational characteristics of the radiographic equipment used in skull radiography. (24 hours per week)

**RAD 218. RADIATION BIOLOGY . . . . . 2 credit hours**

To acquaint the student with the effects of ionizing radiation on the cells which form human tissue. (4 hours per week, 7½ weeks)

**RAD 219. RADIATION PROTECTION . . . . . 2 credit hours**

Covers 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. (4 hours per week, 7½ weeks)

**RAD 220. SUPERVISORY MANAGEMENT . . . . . 2 credit hours**

An analysis of the role and responsibilities of the supervising radiographer in the hospital and related facilities; involves managerial functions of planning, organizing, staffing, directing and influencing. The student obtains practical experience in writing job descriptions and resumes.

**RAD 225. CLINICAL EDUCATION . . . . . 3 credit hours**

Structured clinical experience in all areas of radiography. Electives in specialized areas i.e., ultrasound, C.T. Scanner, demonstrate knowledge of mobile and surgery radiography. (24 hours per week)

**RAD 240. CLINICAL EDUCATION** . . . . . 2 credit hours  
Internship in Clinical Education. (32 hours per week, 7 weeks)

**RAD 255. QUALITY ASSURANCE IN RADIOGRAPHY** . . . . . 3 credit hours

A course designed to update the practicing radiographer on current techniques in quality assurance testing and procedures. The participant will learn to use quality assurance tools, processor monitoring techniques, sensitometry/densitometry and planning retake analysis that are applicable to the learner's department. Practical experience in using quality assurance instruments will be provided through laboratory experience. Lectures and discussions on special imaging areas—computed tomography, angiography, NMR and future state-of-the-art radiological procedures are included in the course.

## **READING (RDG 25)**

### **READING CENTER**

*A laboratory designed to improve the student's reading and learning skills. Students enrolled in reading classes are encouraged to use the facility regularly during the semester. Those not enrolled in reading classes may be referred for individual help. Reading consultant services are available.*

**RDG 040. READING** . . . . . 3 credit hours

To provide the remedial reader with basic reading skills. A program of instruction individually designed for each student based on his or her diagnostic reading test and a personal interview.

**RDG 090. PARENTS: CHILDREN'S READING** . . . . . 2 credit hours

Designed for parents who are concerned about their children's reading. Special attention given to methods for preparing preschoolers for reading using the home as a learning environment. Also focuses on reading-related home and school problems. (3 hours per week)

**RDG 100. SPELLING AND VOCABULARY POWER** . . . 2 credit hours

Designed for the student interested in strengthening spelling skills and expanding vocabulary. Emphasis placed on meeting the individual student's needs. Not a remedial course; students in need of basic spelling and/or vocabulary skills should elect Reading 040. Class meets for half a regular semester. (3 hours per week)

**RDG 103. STUDY SKILLS**.....3 credit hours

Prerequisite: High School Reading Ability

Designed for the student interested in improving study and note taking skills. Reading and note taking techniques appropriate to specific course materials stressed. Essential for a student electing this course to be enrolled also in English, Humanities, Social or Exact Science course to which the student shall apply his or her newly learned study skills.

**RDG 104. STUDY SKILLS**.....2 credit hours

Designed for the student interested in improving study and note taking skills. Reading and note taking techniques appropriate to academic materials stressed. Class meets for half a regular semester. Essential for a student electing this course to be enrolled also in a English, Humanities, Social or Exact Science course to which the student shall apply his or her newly learned study skills. (3 hours per week)

**RDG 105. SPELLING AND VOCABULARY POWER**...3 credit hours

Designed for the student interested in strengthening skills and expanding vocabulary. Emphasis placed on meeting the individual student's needs. Not a remedial course; students in need of basic spelling and/or vocabulary skills should elect Reading 040.

**RDG 106. SPEED READING**.....2 credit hours

Designed for the student interested in becoming a more flexible reader. The student will learn techniques to vary reading speeds and techniques appropriate to material and purposes. Class meets for half a regular semester.



**RDG 117. OFFICE TERMINOLOGY** . . . . . 2 credit hours  
Builds and reinforces a vocabulary of office terms, including those commonly used with today's electronic equipment.

**RDG 119. SENTENCES AND PARAGRAPHS IN BUSINESS** . . . . . 2 credit hours  
An introduction to building skills needed to construct the concise paragraphs most apt to be needed in today's office situations. (2 contact hours)

## **REAL ESTATE (RE 48)**

**RE 100. REAL ESTATE PRINCIPLES** . . . . . 3 credit hours  
An introductory course in real estate principles, practices and concepts. The student will be exposed to a broad overview of the real estate field including the nomenclature, documents, legal aspects and licensure, property descriptions, appraisal, financing; title insurance, construction builders, property management, condominiums, buying and selling, realtor functions, the Board of Realtors, ethics. An opportunity for the student to participate in an essential learning process leading to valuable real estate career. (3 hours per week)

## **REFRIGERATION / AIR CONDITIONING (RAC 82)**

*Basically this is 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. Presently courses are only offered in the evenings. Membership in the Educational Society of the Refrigeration Service Engineers (RSES) is required. Initiation fee and dues are approximately \$45. Consent of advisor is required for registration.*

**RAC 111. REFRIGERATION I** . . . . . 5 credit hours  
Prerequisite or corequisite: consent; RSES membership required  
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. (5 hours per week)



**RAC 122. REFRIGERATION II** . . . . . 5 credit hours

Prerequisite: RAC 111 and consent; RSES membership required

Emphasis 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. (5 hours per week)

**RAC 123. REFRIGERATION AND AIR CONDITIONING SYSTEMS** . . . . . 5 credit hours

Prerequisite: RAC 111, 124 and consent; RSES membership required

Sketching and constructing refrigeration systems. Calibration and efficiency balance of these units stressed. Troubleshooting electrical controls and additional study in thermodynamics included. (6 hours per week)

**RAC 124. BASIC CONTROLS** . . . . . 5 credit hours

Prerequisite: RAC 111 and consent; RSES membership required

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 included and emphasized. (5 hours per week)

**RAC 213. AIR CONDITIONING** . . . . . 5 credit hours

Prerequisite: RAC 122 or consent; RSES membership required

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. (5 hours per week)

**RAC 214. CONTROL SYSTEMS** . . . . . 5 credit hours

Prerequisite: RAC 124 and consent; RSES membership required

Presenting 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. (5 hours per week)

**RAC 215. TROUBLESHOOTING CONTROLS . . . . . 5 credit hours**

Prerequisite: RAC 214; RSES membership required

An advanced, comprehensive study of the theory and applications of refrigeration and air conditioning control systems and devices; electro-mechanical, 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. (5 hours per week)

**RAC 216. SYSTEMS LABORATORY . . . . . 5 credit hours**

Prerequisite: RAC 123

Advanced troubleshooting experiences in refrigeration/air conditioning remote control systems. Calibrating and efficiency-balancing of commercial systems continues as the major thrust. (6 hours per week)

**RAC 240. REFRIGERATION CODES . . . . . 2 credit hours**

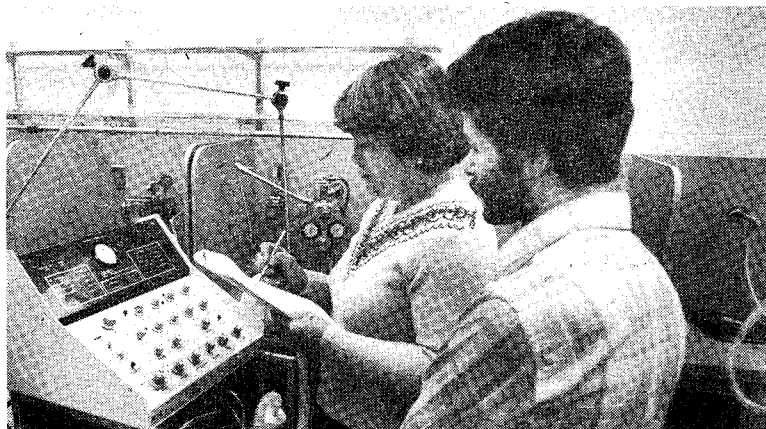
Prerequisite: Consent of Advisor

American National Standard B9 ASHRAE Standard and City of Ann Arbor Reciprocal Council. (2 hours per week)

## **RESPIRATORY THERAPY (RTH 54)**

**RTH 097. RESPIRATORY THERAPY REVIEW . . . . . 1 credit hour**

Designed to assist graduates of Respiratory Therapy Programs studying for their certification or registry exams. Offered the five Saturday mornings preceding the exam. Emphasis placed on sample examinations. (5 three-hour sessions)



**RTH 106. CHEMISTRY FOR RESPIRATORY THERAPISTS** . . . . . 3 credit hours

Prerequisites: CEM 057 and CEM 058

Intended primarily for students in Respiratory Therapy Program. A study of the chemical and physiochemical behavior of gases, solutions, acids, bases, pH and electrolytes. Encompasses topics in organic chemistry and biochemistry related to metabolism and respiration.

**RTH 121. BASIC EQUIPMENT AND PROCEDURES** . . . 4 credit hours

Prerequisite: Admission to the Respiratory Therapy Program

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. (2 hours laboratory, 2 hours lecture)

**RTH 122. RESPIRATORY PHYSIOLOGY** . . . . . 2 credit hours

Prerequisites: BIO 111 and RTH 106

For respiratory therapy students only: an in-depth study of the anatomy and physiology of the respiratory system and the diseases that affect it.

**RTH 123. RESPIRATORY PHYSIOLOGY LABORATORY AND RECITATION** . . . . . 3 credit hours

Prerequisite: BIO 111; Corequisite: RTH 122

To be taken concurrently with Respiratory Physiology 122; intended for respiratory therapy students only. Dissection of animal lungs, heart and chest muscles. Experiments with metabolic rate, lung volumes, etc. Students will research and present the causes and treatment of respiratory diseases. (1 hour laboratory, 2 hours lecture)

**RTH 148. PHARMACOLOGY FOR RESPIRATORY THERAPISTS** . . . . . 3 credit hours

Prerequisite: BIO 111

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

Prerequisites: Completion of first semester of Respiratory Therapy Program

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: Completion of first semester of Respiratory Therapy Program

Bedside practice of general respiratory therapy techniques such as intermittent positive pressure breathing, oxygen therapy, humidity therapy, cardiopulmonary resuscitation, sputum induction and equipment rounds. Meets in a cooperating hospital. Experience will be coordinated with topics covered in Basic Equipment and Procedures RTH 121. (16 hours per week)

**RTH 199. GENERAL CLINICAL PRACTICE II. . . . . 3 credit hours**

Prerequisite: RTH 198 and completion of first two semesters of RTH Program

Continued bedside practice of general respiratory therapy techniques developed in RTH 198. (16 hours per week).

**RTH 200. ADVANCED CLINICAL PRACTICE. . . . . 4 credit hours**

Prerequisites or Corequisite: RTH 121, RTH 122, RTH 123, RTH 198, RTH 199, RTH 212, RTH 213 and successful completion of Qualification exam

Structured, at-the-bedside, practice of respiratory therapy techniques involved with the care of acutely ill patients and patients with chronic obstructive pulmonary disease. Students assigned to intensive care units of cooperative hospitals. Involved are two eight-hour sessions per week. (16 hours per week)

**RTH 201. SPECIALTY CLINICAL PRACTICE. . . . . 4 credit hours**

Prerequisites: RTH 212, RTH 213, RTH 219, and RTH 200

Three five-week rotations consisting of 1) structured, at-the-bedside, practice of respiratory therapy in a pediatric unit, 2) pulmonary function laboratory experience, 3) an enrichment rotation in management, teaching, cardiopulmonary or burn medicine. (16 hours per week)

**RTH 212. VENTILATORS AND DIAGNOSTIC TESTS. . . 3 credit hours**

Prerequisite: RTH 121

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 AND REHABILITATIVE RESPIRATORY CARE. . . . . 4 credit hours**

Prerequisites: First and second semester of Respiratory Therapy Program

A detailed study of 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 emphasized. Medical specialists will discuss the respiratory care of their patients.

**RTH 214. CARDIODIAGNOSTICS . . . . . 3 credit hours**

Prerequisites: BIO 111 and BIO 112 or equivalent (Open to students other than Respiratory Therapy)

A survey of invasive and noninvasive methods of studying the heart and cardiovascular system. Swan Gantz catheterization, echocardiography, stress tests, EKG interpretation, etc.

**RTH 217. SEMINAR—RESPIRATORY THERAPY . . . . . 2 credit hours**

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: Completion of first two semesters of Respiratory Therapy Program

A study of the physiology of children; modes of therapy used to treat cardiopulmonary diseases of children, infants and neo-nates explained.

**RTH 220. EXERCISE TECHNOLOGY . . . . . 4 credit hours**

Prerequisite: CPR provider card, successful completion of e.c.g. test

Study of equipment, techniques and medications employed in graded exercise testing of patients with suspected heart disease. Includes units on physiology, anatomy, emergency procedures and psychology.

## **SECRETARIAL AND OFFICE (SO 49)**

**SO 090. FUNDAMENTALS OF TYPEWRITING . . . . . 1 credit hour**

A basic typewriting course designed to meet the needs of the non-secretarial student in developing basic typing skills. (2 hours per week plus 4-6 practice hours)

**SO 101. BEGINNING TYPEWRITING . . . . . 3 credit hours**

The beginning typewriting course has been designed to develop initial keystroking skill, using the operating parts of the typewriter efficiently,

placing materials attractively on a page by centering the copy horizontally and vertically. The student will then complete tabulation problems, set up and type business letters, personal letters, and memoranda; simple tables, outlines and manuscripts; and use the typewriter as an aid in composing. Proofreading skill is developed by comparing and verifying. (4 hours per week)

**SO 102. INTERMEDIATE TYPEWRITING . . . . . 3 credit hours**

Prerequisite: SO 101 or equivalent (minimum of 35 wpm with 5 errors or less for 5 minutes)

A course designed to develop student's 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, business correspondence, tables, forms, and technical and statistical reports. (4 hours per week)

**SO 107. CLERICAL METHODS AND PROCEDURES . . 4 credit hours**

Prerequisite: Typewriting proficiency of 45 wpm or concurrent enrollment in SO 102

Students will prepare for employment, improve typewriting skills, perform general office duties, including extensive filing and payroll procedures. The students will prepare for advancement opportunities in the clerical field by studying human relations, personality development and improve work habits and procedures. (4 hours per week plus minimum of 4 weekly machine room hours)

**SO 110. FOUNDATIONS OF LAW . . . . . 3 credit hours**

Organization of Michigan court systems. Introduction to law, including legal terminology, court procedures, property, contracts, crime, business organization and family law.

**SO 122. DOMESTIC RELATIONS . . . . . 3 credit hours**

Prerequisite: SO 110

An in-depth coverage designed to develop knowledge and skills in various aspects of domestic relations including information gathering; client interviews; client contact; pleading preparation, file organization; preliminary document preparation, filing and service; formal discovery; motion practice, settlement; also introduction to Circuit Court; Friend of the Court procedures, pre-trial, final hearing and post-judgment matters; and marriage counselor procedures.

**SO 130. BUSINESS MACHINES . . . . . 3 credit hours**

Prerequisite: MTH 090 or equivalent

The emphasis throughout this course is using electronic business calculators in problem-solving activities. This requires the student to use



efficient machine operation, verifying techniques, machine programming, and business mathematics for both business and personal situations. (3 hours per week plus minimum 6 practice hours)

**SO 131. SHORTHAND** . . . . . 4 credit hours

A theory principles course designed for the student to develop shorthand skills in reading, writing, and transcription. In addition the students improve their vocabulary, ability to spell, punctuate, and apply the rules of grammar correctly. (5 hours per week)

**SO 132. SHORTHAND** . . . . . 3 credit hours

Prerequisite: SO 101 and SO 131 or equivalent

Beginning dictation course designed to review the theory principles and strengthen the student's grasp of major shorthand principles in order to develop dictation and transcription skills. (4 hours per week)

**SO 133. DICTATION SHORTHAND** . . . . . 3 credit hours

Prerequisite: SO 102 and SO 132 or equivalent

The second course in Gregg Shorthand dictation and transcription emphasizes shorthand principles, the improvement of transcription techniques, grammar skills, and the ability to transcribe office-style dictation. (4 hours per week)

**SO 141, 142, 243, 244. MACHINE SHORTHAND** . . . . . 2 credit hours

An integrative applied approach to the study of modern machine shorthand designed to acquaint the student with the theory and principles of machine shorthand as they relate to business and industry and other specialized fields. Skill development and speed building in recording and transcribing notes emphasized. Course credit and contact hours are progressive and are contingent on student progress as determined by proficiency tests. (3 hours per week plus minimum 6-8 practice hours)

**SO 151. WORD PROCESSING PRINCIPLES . . . . . 3 credit hours**

A study of the basic principles and concepts of the word processing function in modern business-industrial enterprise. Development of basic insights into the growth, objectives and methods of word processing. Included are basic terminology and concepts of word processing applications, systems design and basic memory and storage types: magnetic card, cassette tape and disk.

**SOC 152. WORD PROCESSING APPLICATIONS/TRANSCRIPTION . . . . . 2 credit hours**

Prerequisite: SO 151 and high school typewriting proficiency or concurrent enrollment in SO 102 or equivalent

An integrative applied approach to the study and use of modern dictation/transcribing equipment designed to acquaint the student with the theory and principles of transcription equipment as it relates to business and industry and other specialized fields. Skill development and speed building in transcription is emphasized.

**SO 153. WORD PROCESSING APPLICATIONS/BASIC PRACTICE . . . . . 2 credit hours**

Prerequisite: SO 151 and high school typewriting proficiency or concurrent enrollment in SO 102 or equivalent

An integrative applied approach to the study of modern word processing designed to acquaint the student with the use of automated word processing equipment as it relates to business and industry and other specialized fields. Skill development and speed building in creating, editing and printing documents is emphasized.

**SO 203. ADVANCED TYPEWRITING . . . . . 3 credit hours**

Prerequisite: SO 101 and 102 or equivalent (minimum of 45 wpm with 5 errors or less or 5 minutes)

Advanced typewriting is designed to build on the foundations of earlier training in correspondence, reports, and tables. Increasing with difficulty of material, the student will have a variety of specialized office-typing tasks and business forms to complete. (4 hours per week)

**SO 210. MEDICAL TRANSCRIPTION . . . . . 3 credit hours**

Prerequisite: SO 102 or equivalent

An introductory course in medical terminology and medical transcription for students who are proficient in typewriting. Emphasis placed on basic transcription techniques in order for the student to acquire a thorough knowledge of dictating/transcribing equipment. The course familiarizes the student with a broad base of medical terms and the basic types of medical reports. (4 hours per week, plus a minimum of 4 weekly machine hours)



**SO 212. LEGAL RESEARCH . . . . . 3 credit hours**

Prerequisite: SO 110

Introduction to legal research methodology and source material; designed for the legal assistant, with emphasis on practical problems rather than legal theory.

**SO 213. LEGAL TYPEWRITING . . . . . 3 credit hours**

Prerequisite: SO 203 or equivalent

Designed for students who plan to specialize in the legal field. General objectives: familiarize students with legal terms and procedures, to expand students' vocabulary and improve their spelling; to provide practice material for legal dictation and for legal typewriting; to establish typewriting response patterns through repetitive practice on legal forms; to refresh and sharpen skills of the legal secretary whose legal education needs updating. (4 hours per week, plus a minimum of 4 practice hours)

**SO 214. WORD PROCESSING APPLICATIONS/  
ADVANCED PRACTICE . . . . . 3 credit hours**

Prerequisites: SO 151, SO 152, SO 153 and high school typewriting proficiency or concurrent enrollment in SO 102 or equivalent

An advanced practice in word processing applications as it relates to business and industry, and other specialized fields. Skill development and speed building in transcribing, revising, and printing finished word processing assignments is emphasized.

**SO 223. MEDICAL TYPEWRITING . . . . . 3 credit hours**

Prerequisite: SO 102 or equivalent

Course coverage includes typing of medical case histories and reports using medical terminology; typing of insurance reports, claims, hospital transfer papers, discharge forms and other medical documents which would be considered routine for a medical office and services of the hospital. (4 hours per week plus a minimum of 4 practice hours)

**SO 225. WORD PROCESSING SYSTEMS  
PROCEDURES . . . . . 3 credit hours**

Prerequisites: SO 151, and SO 152, 153, 214

A practical study of the fundamental systems and procedures comprising the word processing center. Emphasis on developing insights into the responsibilities of the word processing center staff, personal qualifications, human relations to the effective integration of the total information processing system. Includes word processing alternatives, equipment and needs surveys, organizing and implementing word processing and management and control of the word processing function.

**SO 227. LEGAL OFFICE SYSTEMS AND PROCEDURES . . . . . 4 credit hours**

Prerequisite: SO 203 or equivalent

A practical study of the fundamental systems and procedures comprising the modern legal business office. Emphasis placed on teaching students the importance of cooperation and communication and other valuable skills such as keeping legal files, typing new case reports and legal documents, keeping a calendar, making court dates and appointments, taking phone calls and writing checks and ledger cards. Concentration made on the 4 fields of law: real estate and property transfer; litigation; wills and estates; and corporations and partnerships. (4 hours per week, plus a minimum of 4 weekly machine room hours)

**SO 231. DICTATION/TRANSCRIPTION SHORTHAND . . . . . 3 credit hours**

Prerequisite: SO 102 and SO 133 or equivalent

The third course in Gregg Shorthand dictation and transcription emphasizes the improvement of shorthand speed and developing mastery of techniques directly related to transcription.

**SO 232. DICTATION/TRANSCRIPTION SHORTHAND . . . . . 3 credit hours**

Emphasis is placed on improving dictation and transcription speeds. The student has the opportunity to develop these skills using medical, legal, or business terminology.

**SO 250. OFFICE SYSTEMS AND PROCEDURES . . . . 4 credit hours**

Prerequisite: Two-year high school typewriting proficiency or concurrent enrollment in SO 203 or equivalent

A practical study of the fundamental systems and procedures comprising the modern business offices. Emphasis on developing insights into the responsibilities of the office staff, personal qualifications, human relations factors and their essential relationship to the effective integration of all systems and procedures. Includes the study of filing and records management, telephone and telegraph communications and written reports. (4 hours per week, plus minimum of weekly machine room hours)

**SOCIOLOGY  
(SOC 09)**

**SOC 100. PRINCIPLES OF SOCIOLOGY . . . . . 3 credit hours**

Emphasis placed on basic concepts used in an analysis of social behavior and the processes by which new members of groups are

oriented to prevailing patterns of behavior. A study of the process of cultural change basic to all programs in social work or to advanced work in the social sciences.

**SOC 100. PRINCIPLES OF SOCIOLOGY (Television Course) . . . . . 3 credit hours**

Nearly every element of American society—the home, the family, the workplace, marriage, recreation, and even religion—is undergoing significant social change. According to the late sociologist C. Wright Mills, ordinary people can comprehend only that which is happening in their own limited sphere of personal experience. The torrent of social change that is occurring in the nation and in the world leaves ordinary people feeling trapped and alienated. One source that improves personal comprehension of these activities, and offers an insight into the inexplicable events that discomfort so many individuals, is sociology. FOCUS ON SOCIETY, a new principles of sociology telecourse in 30 (30 minute) color programs, offers the student clues to understanding the myriad of sociological events of our time. Through interviews with renowned social scientists and close examinations of the portions of society experiencing change, FOCUS ON SOCIETY explores the intersection of history and biography in our society, where the social conditions of the present relate to the attitudes of the recent past.

**SOC 102. BLACK WOMAN . . . . . 3 credit hours**

Inner and outer mechanisms of Black women throughout our history. Role of the Black woman examined in areas of society; the family, the church, politics, community, education, etc. All these factors considered in determining how Black women's roles differ from those of other women.

**SOC 108. INTRODUCTORY AFRO-AMERICAN SOCIOLOGY . . . . . 3 credit hours**

Designed to introduct Afro-American Studies. Includes the basic concepts, principles and research methods of sociology using cultural material from the Black ethnic in American society. Explores the similarities and differences in structure and principles of social organization and the conditions which foster development of social change.

**SOC 118. REFUGEE INTERACTION . . . . . 3 credit hours**

One-to-one interaction with Indochinese refugee (Vietnamese, Cambodian, or Loatian) assisting in learning English and cross-cultural adjustment to our society. Excellent opportunity to develop interpersonal communication skills and to broaden global insights. (6 hours per week: 1 hour lecture, 1 hour discussion, 4 hours with refugee; hours are arranged with refugee)

**SOC 150. MARRIAGE AND THE FAMILY . . . . . 3 credit hours**

Designed for all students, this course is aimed toward promoting stable marital relations. Special emphasis on the psychology of sex, adjustment of the individual to problems of everyday living, techniques of adjusting to conflict situations, emotions, perception, personality.

**SOC 154. THE BLACK FAMILY . . . . . 3 credit hours**

Structure and functions of the Black family as a dynamic social organization. An analysis of African roots, the impact of the slave experience on Black families in the Americas, an assessment of family strengths and the implications for the present and future struggle for survival.

**SOC 201. MEDICAL SOCIOLOGY . . . . . 3 credit hours**

Deals with the application of sociological principles in studying health, health care and health services. Will center around the concepts that social, mental and environmental factors influence health and that the study of these and related factors can provide students with a broad concept of health.

**SOC 202. CRIMINOLOGY . . . . . 3 credit hours**

An examination of the theories which attempt to explain criminal behavior. Punishment versus rehabilitation schools of thought dealt with as well as capital punishment. Attention also given to the functioning of police and court systems.

**SOC 203. AGING AND DYING . . . . . 3 credit hours**

Examines social and psychological principles, and problems of aging and dying. Focuses on social and personal attitudes, practices and institutional arrangements; societal myths plus realities about aging and dying; changing role relationships in retirement, societal and personal solutions.

**SOC 205. RACIAL AND ETHNIC RELATIONS . . . . . 3 credit hours**

Examination of the basic concepts of racial and ethnic relations and the concept of race. Examines and analyzes the course of oppression and suppression, superiority and inferiority, majorities and minorities in racial subgroups.

**SOC 207. SOCIAL PROBLEMS . . . . . 3 credit hours**

Problems of satisfying human needs and wants; non-economic needs and wants as well as treatment of the ways in which resources are allocated and products distributed in response to economic needs and wants. The significance of transition to industrialization with the major theme being the disruptive disparity between the rates of technological

and societal changes and the consequent need to cultivate sciences concerned with human behavior.

**SOC 210. BLACKS IN THE CITY** . . . . . 3 credit hours

The social forces that played a role in developing the urban setting, with particular emphasis on the role of the Afro-American. Focus on the migration movement as the first stage in the development of urban and racial crises as factors in the urbanization of Blacks. Detroit will be examined as a case study with references to Chicago, Washington, St. Louis and others. The course will treat and analyze social, political and economic forces that created the urban ghettos. The organizing conceptual framework is Black urban history as a protracted struggle. Emphasis on Black ideological and institutional development.

**SOC 250. JUVENILE DELINQUENCY** . . . . . 3 credit hours

The growing-up process of late childhood and adolescence from a sociological and cultural viewpoint. 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.

**SOC 260. WOMEN IN TODAY'S WORLD** . . . . . 3 credit hours

This course is designed to help students develop an awareness of woman's position in today's world and to identify the economic consequences of that position. Among topics included in discussion are: identity, marriage as a contract, legalities and economics of divorce, women in the work force, benefit programs, political action and women's legal status and rights.

**SOC 262. WOMEN'S HEALTH CARE** . . . . . 3 credit hours

Patient's rights, malpractice, natural childbirth, menopause, birth control research, medical experimentation, prescription drugs, doctor/patient relationship, breast self-exam, unnecessary surgery and other issues relating to medical care for women.

**SOC 263. HEALTH CARE ISSUES** . . . . . 3 credit hours

A practical study of the legal and ethical responsibility of health care providers. Course coverage includes: malpractice, negligence, medical ethics, federal and state laws governing medical practice, patient informed consent, medical experimentation, FDA and HEW guidelines and the consumer health movement.

**SOC 264. ASSERTIVENESS TRAINING FOR WOMEN** . . . . . 3 credit hours

Teaches non-aggressive means of reducing fears, resolving conflicts,

expressing likes and dislikes more fully, experiencing personal rights, increasing self respect.

**SOC 266. MARRIAGE-DIVORCE** . . . . . 3 credit hours  
Structural-functional analysis of family institutions and relationships between social structure of society and family system; change and comparative analysis are emphasized.

## **SPANISH (SPN 21)**

**SPN 111. FIRST YEAR SPANISH** . . . . . 3 credit hours  
A beginning course in Spanish using the conversational approach. Spoken language mastered through classroom and laboratory practice. Cultural aspects of Spain and Latin America highlighted. (4 hours per week)

**SPN 115. SPANISH FOR NURSES** . . . . . 2 credit hours  
A practical course designed to help students gain proficiency in the pronunciation and basic structure of the language while making use of vocabulary that is unique to nurse-patient situations.

**SPN 118. FOCUS-LATIN AMERICA/SPAIN** . . . . . 1 credit hour  
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. Course will involve students' individual experiences, expertise and research. A bilingual approach.

**SPN 119. SPANISH LANGUAGE ADVENTURES** . . . . . 1 credit hour  
A course of independent study to be undertaken during any of the College field trip "Adventures" to Spanish speaking countries and their centers of culture. Students will live in the individual 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 SPANISH** . . . . . 2 credit hours  
Conversational in approach and assumes no previous knowledge of the language. Designed for persons 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. 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 111, its equivalent or consent

Continuation of Spanish 120. Provides vocabulary expansion and cultural insights through total student involvement in the conversation practice sessions in this flexibly structured course.

**SPN 122. FIRST YEAR SPANISH**.....3 credit hours

Prerequisite: SPN 111, its equivalent or consent

Continuation of Spanish 111. Emphasis on the spoken form and on the cultures of Latin American countries and Spain. (4 hours per week)

**SPN 213. SECOND YEAR SPANISH I**.....3 credit hours

Prerequisite: SPN 122, its equivalent or consent

An intermediate course in Spanish using the conversational approach. First year emphasis on spoken form and culture reviewed. Attention given to the written form.

**SPN 224. SECOND YEAR SPANISH II**.....3 credit hours

Prerequisite: SPN 213, its equivalent or consent

Continuation of Spanish 213 with special attention to Spanish literature.

## **SPEECH (SPH 23)**

**SPH 101. FUNDAMENTALS OF SPEAKING**.....3 credit hours

Instruction in essential speech processes and skills. Organization of speeches and effective delivery studied through the use of practical problems. The course attempts to relieve the stress the average person encounters when speaking in public, whether to a larger group or to an unfamiliar audience.

**SPH 131. RADIO-TELEVISION SPEECH**.....3 credit hours

The development of an effective voice for speaking on the microphone through a study of contemporary standards in broadcast diction and voice production. The study of voice requirements for standard broadcast forms, views, interviews, features, commercials and music continuity. Basic oral reading techniques and a brief introduction to the International Phonetic Alphabet.

**SPH 142. ORAL INTERPRETATION OF LITERATURE**.....3 credit hours

A basic course with emphasis placed upon developing poise and ease

before an audience, a clear and forceful voice, flexibility and discrimination in communicating thought and feeling from the printed page to the listener. Selections from drama, prose and poetry will be prepared and presented in class.

**SPH 152. ACTING FOR THE THEATRE . . . . . 3 credit hours**

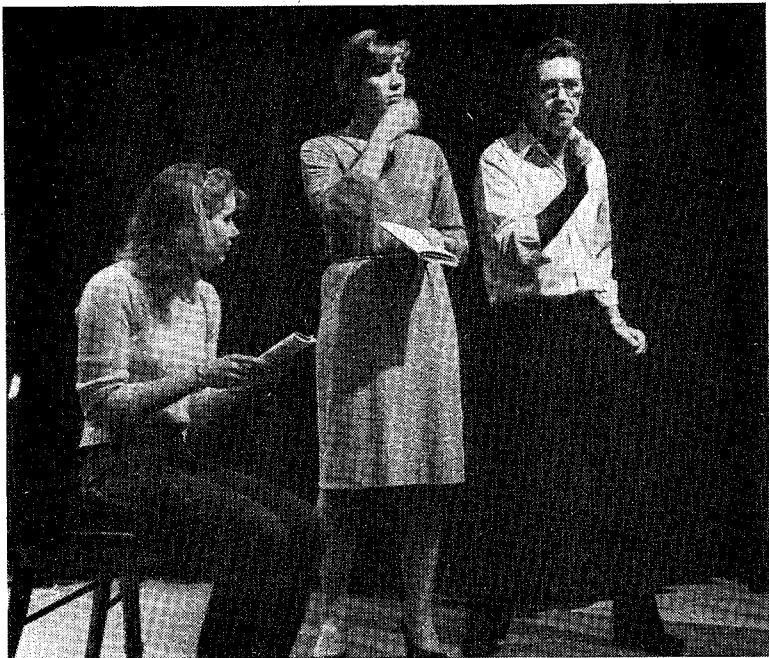
An introduction to acting through the physical aspects of the stage, using the stage as a vehicle to promote ideas and feelings. Scenes will be assigned.

**SPH 162. BASIC STAGING FOR THE THEATRE . . . . . 3 credit hours**

The study of basic elements in the technical theatre. Subject areas studied include stagecraft, lighting, costumes, make-up, sound and set design. Designed for prospective teachers and those interested in the production of plays.

**SPH 183. ADVANCED PUBLIC SPEAKING AND PERSUASION . . . . . 3 credit hours**

A continuation of theory and practice in the principles of effective public speaking. Course includes practice in securing the acceptance of ideas through psychological appeal as well as logical reasoning.





**SPH 185. PUBLIC SPEAKING AND DEBATE . . . . . 3 credit hours**

An introduction to the rhetoric of persuasive and argumentative speaking. The historical and contemporary forms of debate. Experience in the preparation and delivery of major speeches and experience in team debating.

**SPH 186. FORENSICS DEBATE . . . . . 1 credit hour**

A practical course providing debate experience including both the preparation for and participation in intramural and inter-collegiate debates.

**SPH 192. BLACK DRAMA . . . . . 3 credit hours**

Introduction to the techniques of acting, while giving overview of the history of Black involvement in the American dramatic scene. Materials for the acting workshop drawn from the writings of Black playwrights to give students a functional experience with a sampling of the Black theater literature.

## **STUDENT PERSONNEL SERVICES (SPS 07)**

**SPS 100. CAREER PLANNING SEMINAR . . . . . 3 credit hours**

Designed for persons undecided in their career and life goals and interested in exploring alternatives to current careers or who are interested in clarifying tentative decisions. This course provides opportunity for participants to become more aware of themselves and others and to become knowledgeable of careers, career alternatives, employment trends and issues and projections. Also provides opportunity for participants to develop and/or refine job hunting skills. Participants gather, evaluate and utilize appropriate career information to assist in planning, narrowing and implementing realistic career and life goals.

**SPS 101. USING YOUR SKILLS TO  
PLAN YOUR FUTURE . . . . . 1 credit hour**

This new course provides a skills assessment program based on experiences similar to what a person might be called upon to do in the world of work. The program measures eleven behavioral skills often needed in business and industry: oral communication, written communication, decision-making, initiative, inner work standards, interpersonal, leadership, organizing and planning, perception, withstanding pressure from the environment and withstanding pressure from others. Each student will receive a profile that will match his/her present skills with the skills needed for over one-hundred occupations. In addition, the course offers an interest inventory, assistance in decision-making, and occupational exploration.

**SPS 102. INDEPENDENT STUDY—  
CAREER PLANNING . . . . . 1 credit hour**

Independent Study course is designed for person undecided about their career and life goals. At their own pace, participants complete a series of exercises and activities to learn about their goals, interest, skills, abilities, and values, to explore occupations and to learn decision-making techniques. Participants write a summary career plan upon completion and meet for consultation with instructor three times during the period of independent study. (Hours arranged on an individual basis.)

**SPS 107. GROWTH EXPERIENCES FOR WOMEN . . . . . 1 credit hour**

Growth Experiences for Women is a consciousness-raising, support therapy group in which emphasis is on the personal "ego" growth of women rather than on academic attainment. However, as issues are discussed (divorce, feelings of "helplessness," childbearing, contraception), specific studies, data and psychological principles are cited in support of the principles of behavior being discussed and/or analyzed. Topics vary depending upon the personal needs of each individual in the group.

**SPS 189. STUDY PROBLEMS—  
CAREER PLANNING . . . . . 1-8 credit hours**

Prerequisites: Consent of instructor

Directed activities in career planning by special arrangement with instructor. Course is designed for persons undecided about career and life goals or making a career change who want to do specialized study on specific problem areas. A planned program of career planning activities will be determined under the guidance and direction of the instructor. Topics may include: self-assessment of interests, goals, skills and values, occupational research, decision-making, job-hunting, labor market, re-entry to school, or other subjects related to career change and career planning. Course may involve individualized study or group work, depending upon arrangements made with the instructor. Hours to be arranged.

**TECHNICAL AND COMMERCIAL ART  
(TCA 73)**

**TCA 100. PERSPECTIVE AND PARALLEL  
PROJECTION . . . . . 4 credit hours**

Development of ideas by three dimensional drawing techniques. Emphasis on the fundamentals of oblique, one point, isometric, two points and three point perspective projection. Projects utilizing parallel and perspective projected shadow construction emphasized. (6 hours per week)



**TCA 101. TECHNICAL ILLUSTRATION . . . . . 4 credit hours**

Prerequisite: TCA 100 or consent

Illustration projects utilizing perspective and parallel projection and mechanical art aids. Information for problems obtained from blueprints, written communication, and other sources. Assignments deal with the presentation of assemblies, exploded views, section and phantom drawings used by automotive, aircraft and electronics industries. (6 hours per week)

**TCA 103. FASHION ILLUSTRATION . . . . . 2 credit hours**

More than just a fashion review, the course will cover: figures and fashion, fashion research, constructing an art portfolio, fabric rendering, color rendering, and fashion newspaper advertising.

**TCA 104. ART MATERIALS . . . . . 2 credit hours**

Introduction to the use of art materials including pencil, pen and ink, acrylics, and execution of three dimensional design. Emphasis on two dimensional and three dimensional media.

**TCA 110. LETTERING AND LAYOUT . . . . . 4 credit hours**

Introduction to the various styles of lettering and techniques used in the design of posters, brochures and other advertising forms; basic techniques in the preparation of art work to be reproduced. (6 hours per week)

**TCA 120. COMMERCIAL RENDERING . . . . . 4 credit hours**

Corequisite: TCA 122

An introduction to the various materials and rendering techniques used

by the commercial artist. Rendering of commercial illustrations with water colors, tempera, acrylics, pastels, colored pencils, pen and ink. (6 hours per week)

**TCA 121. ADVERTISING LAYOUT** . . . . . 4 credit hours

Prerequisites: TCA 100, ART 111 and ART 112 or consent

An application of various techniques and methods used to develop commercial advertising art. A simulation of studio situations and problem-solving from rough comprehensives and layout to final art. (6 hours per week)

**TCA 122. TECHNICAL RENDERING** . . . . . 4 credit hours

Corequisite: TCA 101

Fundamentals of rendering techniques and the various compatible materials used in industry by the technical illustrator. Directed projects in parallel and perspective shadow construction. Stipple, smudge and French rendering of geometrics and airbrush and brush photographic retouching. (6 hours per week)

**TCA 225. MODEL CONSTRUCTION** . . . . . 2 credit hours

Prerequisites: ART 112, ART 111 and TCA 100 or consent

Visualization and construction of three-dimensional forms from blueprints, sketches and schematics using wood, plastic, cardboard and other media. Emphasis placed on use of shop equipment, blueprint reading, use of model construction materials. (3 hours per week)

**TCA 226. COMMERCIAL DISPLAY** . . . . . 4 credit hours

Prerequisite: Demonstration of working knowledge of color and color relationships

An introduction to the techniques of the design and construction of two- and three-dimensional displays. Emphasis on design, the working drawing or blueprint and the construction of a functioning model. (6 hours per week)

**TCA 227. GRAPHIC REPRODUCTION** . . . . . 4 credit hours

A survey of the basic processes and techniques used to reproduce graphic materials. Emphasis placed on the techniques used for properly preparing and finishing art and copy for reproduction.

**TCA 228. AIRBRUSH TECHNIQUES** . . . . . 4 credit hours

Corequisite: TCA 120 or consent

Development of rendering techniques using an airbrush and various associated materials. Assignments deal with rendering illustrations and photo retouchings with airbrush techniques. (6 hours per week)

**TCA 229. TECHNICAL SCREEN PRINTING . . . . . 4 credit hours**

Prerequisites: TCA 110 or consent of department

An introductory course in screen process printing (known as silkscreen printing). Through projects, students will 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 will be given hands-on experience in hand-screen and machine printing. Students may need to acquire some supplies.

**TCA 230. FREELANCE OPERATIONS . . . . . 3 credit hours**

Prerequisite: TCA 121

An in-depth study of some of the problems involved in operating a freelance commercial art studio. A survey of types of Commercial Art and Advertising Design that the Freelance Commercial Artist comes in contact with as a one-person operation. Guest speakers and various field trips will be taken to studios. (4 hours per week)

**TCA 236. SPECIALIZED STUDY . . . . . 2-6 credit hours**

Prerequisite: Consent

An opportunity for students to work independently with faculty consultation in major study areas of Commercial Art and Technical Illustration. Directed periods of concentrated effort on assignments to demonstrate the individual's development and understanding with selected occupational areas. Major study areas of specialization may include cartooning, editorial illustration, animal illustration, commercial photography, graphic reproduction, advertising and lettering, layout, fashion illustration and commercial displays. (Class hours arranged)



## **TRADE RELATED INSTRUCTION (TRI 80)**

### **TRI 092. REVIEW FOR APPRENTICE TEST . . . . . 4 credit hours**

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.

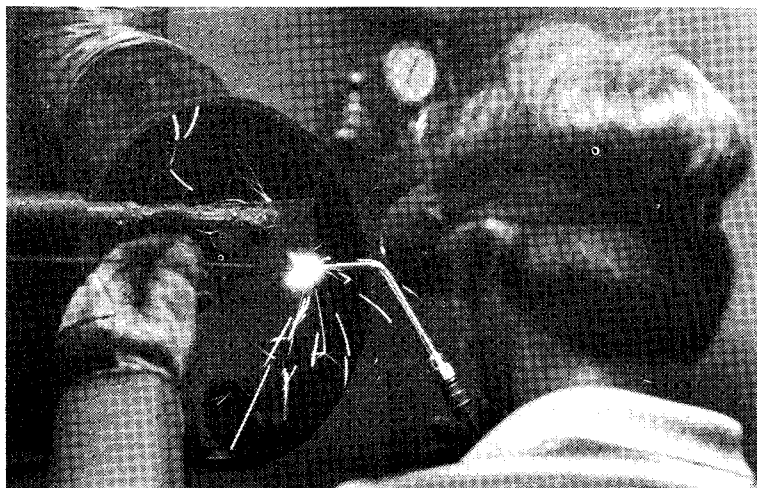
### **TRI 099. SKILLED TRADES INDUSTRIAL SAFETY . . . . . 2 credit hours**

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.

## **WELDING AND FABRICATION (WF 71)**

### **WF 100. FUNDAMENTALS OF WELDING . . . . . 2 credit hours**

A basic combination welding course dealing with oxy-acetylenes and arc welding designed to meet the needs of students enrolled in Auto Body Repair, Auto Mechanics, Detailer Draftsman, etc. Typical applications made in a laboratory setting. (4 hours per week)



**WF 101. ACETYLENE WELDING** . . . . . 2 credit hours

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. (4 hours per week)

**WF 102. ARC-WELDING** . . . . . 2 credit hours

An introductory course in arc welding covering theory and practice: proper procedures for various welding positions; both A.C. and D.C. welding is covered; electrode identification, classification and proper applications to typical operations. (4 hours per week)

**WF 103. HELI-ARC WELDING** . . . . . 2 credit hours

Instruction given in tungsten, inert gas, shielded arc-welding, with manually operated torch on such metals as aluminum, stainless and mild steels; includes theory directly related to the composition and properties of these metals. (4 hours per week)

**WF 104. SOLDERING AND BRAZING** . . . . . 2 credit hours

Course designed for basic knowledge of soft soldering, brazing, silver soldering, copper tubing and fittings, brazing of steel, silver soldering of copper and stainless. Practical application included.

**WF 111. WELDING (BASIC OXY-ACETYLENE)** . . . . . 4 credit hours

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 emphasized. (8 hours per week)

**WF 112. WELDING (BASIC ARC)** . . . . . 4 credit hours

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 included. Safety procedures stressed. (8 hours per week)

**WF 123. WELDING (ADVANCED OXY-ACETYLENE)** . . 4 credit hours

Prerequisite: WF 111

Advanced instruction in oxy-acetylene welding with emphasis on "out of position" welded joints. Procedures covered and put in practice for fabricative welded joints on steel plate and pipe. Related theory included. (8 hours per week)

**WF 124. WELDING (ADVANCED ARC) . . . . . 4 credit hours**

Prerequisite: WF 112

Advanced instruction in arc welding using both A.C. and D.C. arc welding equipment. Emphasis on "out of position" welded joints in mild steel, alloy steels and pipe procedures covered for cutting, beveling, and fabricating various welded joints. Related theory, codes and standards included. (8 hours per week)

**WF 210. WELDING METALLURGY . . . . . 3 credit hours**

Metal properties and identification properties through testing, effects of alloying element, specification use and application of mild steel, low steel alloys, stainless steel principles of electricity as they apply to different welding applications and heat treatment of metals. (3 hours per week)

**WF 215. WELDING (T.I.G.) . . . . . 4 credit hours**

Prerequisite: Consent

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 records management, telephone and telegraph communications and written reports. (4 hours per week, plus minimum of 4 weekly machine room hours)

**WF 221. APPLIED AUTOMOTIVE WELDING . . . . . 1 credit hour**

Practice in the application of welding fundamentals with emphasis on cutting and brazing. (2 hours per week, 7½ weeks)

**WF 226. WELDING (SPECIALIZED) . . . . . 4 credit hours**

Prerequisite: Consent

Specialized oxy-acetylene welding, inert gas-shield arc and consumable carbon dioxide welding. Emphasis given aluminum, stainless steel, high alloy steels and cast iron. Procedures for welding of the exotic metals such as titanium, columbium, zirconium, and molybdenum included. (8 hours per week)

**WF 227. BASIC FABRICATION . . . . . 3 credit hours**

Prerequisites: WF 123, 124 and ID 100

For advanced welders planning to use their welding skills in manufacturing. 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. Includes estimation of material and labor costs.

**WF 229. SHAPE CUTTING OPERATIONS . . . . . 3 credit hours**

Prerequisites: WF 111, 112, ID 100 and 112

The students will 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, the student will learn how to cut mild steel, aluminum, and stainless steel parts.

## **WOMEN'S STUDIES (WS 06)**

**WS 102. GROWTH EXPERIENCES FOR WOMEN . . . . . 1 credit hour**

Growth Experiences for Women is a consciousness-raising, support therapy group in which emphasis is on the personal "ego" growth of women rather than on academic attainment. However, as issues are discussed (divorce, feelings of "helplessness," child-rearing, contraception), specific studies, data and psychological principles are cited in support of the principles of behavior being discussed and/or analyzed. Topics vary depending upon the personal needs of each individual in the group.

**WS 103. PSYCHOLOGY/BIOLOGY  
OF WOMEN . . . . . 3 credit hours**

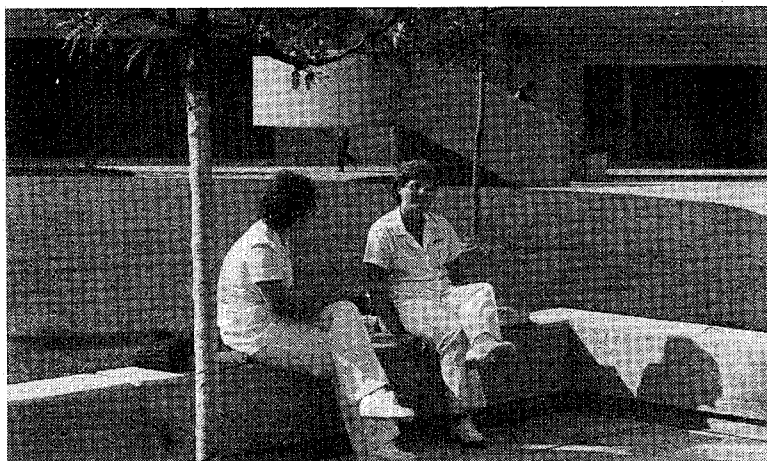
An examination of the current experiences of women in our society through the exploration of history and theory and their cultural interpretation. Focus will be on how and why women see themselves the way they do with emphasis on positive growth. Topics discussed include: history of sex-role stereotyping, rape and pornography; jobs, pay and inequity; marriage and divorce; motherhood and personhood; religion and women. Course includes readings, discussions and lectures.

**WS 104. HISTORY AND LITERATURE  
OF WOMEN . . . . . 3 credit hours**

A look at the role of women throughout the ages. An opportunity to explore the richness and variety of women's lives in history and literature.

**WS 105. WOMEN AND THE LAW I . . . . . 1 credit hour**

A look at the topics of credit, discrimination, employment, insurance, ERA. Emphasis will be on individual cases and the process involved in making laws.



**WS 109. WOMEN'S HEALTH CARE** ..... 3 credit hours

Patient's rights, malpractice, natural childbirth, menopause, birth control research, medical experimentation, prescription drugs, doctor/patient relationship, breast self-exam, unnecessary surgery, other issues relating to medical care for women.

**WS 111. WOMEN AND THE LAW II** ..... 1 credit hour

A more in-depth look at the topics covered in "Women and the Law." Discussions of credit, discrimination, employment, insurance, ERA. Emphasis on individual cases and the process involved in making laws.

**WS 115. ASSERTIVENESS TRAINING FOR WOMEN** ..... 3 credit hours

Teaches non-aggressive means of reducing fears, resolving conflicts, expressing likes and dislikes more fully, experiencing personal rights, increasing self-respect.

**WS 121. WOMEN AND RELIGION** ..... 1 credit hour

A study of the Judeo-Christian tradition and how that tradition affects both the liberation and oppression of women. The many options women are exploring in spirituality will be looked at.

**WS 123. ADVANCED ASSERTIVENESS TRAINING** ..... 1 credit hour

Opportunity to take an advanced look at particular areas of desired assertiveness than that provided in SS 115. Behavior rehearsed, discussion and films will be used. Previous experience with assertion training necessary.



## PERSONNEL



## BOARD OF TRUSTEES

Member	Term Expires
<b>Ann C. Kettles, Chairperson</b> . . . . . Ypsilanti	December 31, 1984
<b>Richard W. Bailey, Vice Chairperson</b> . . . . . Ann Arbor	December 31, 1984
<b>James W. Anderson, Jr., Secretary</b> . . . . . Ann Arbor	December 31, 1984
<b>John W. Corey, Trustee</b> . . . . . Ann Arbor	December 31, 1984
<b>Vanzetti M. Hamilton, Treasurer</b> . . . . . Ypsilanti	December 31, 1986
<b>Susan M. Madley, Trustee</b> . . . . . Saline	December 31, 1988
<b>Anthony J. Procassini, Trustee</b> . . . . . Ann Arbor	December 31, 1986



WCC Board of Trustees: Front Row: Vanzetti M. Hamilton, Jr., Richard W. Bailey, Ann C. Kettles, James W. Anderson, Jr.  
Second Row: Anthony J. Procassini, Susan M. Madley, John W. Corey.

*Date following each name indicates individual's first full-time employment association with the college.*

### EXECUTIVE OFFICERS

**Myran, Gunder A.** . . . . . **1975**  
*President*  
 B.S.—Mankato State College  
 M.A.—University of Iowa  
 Ed.D.—Michigan State University

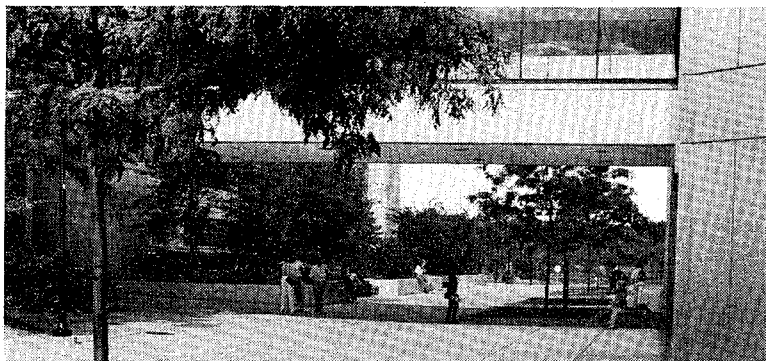
- Konschuh, Harry J.**.....1972  
*Vice President*  
 B.Ed.—University of Alberta  
 M.A.—Michigan State University
- Hurd, John D.**.....1977  
*Vice President for Instruction and Student Services*  
 B.B.A.—The University of Michigan  
 M.B.A.—The University of Michigan

### ADMINISTRATIVE STAFF

- Albert, Rudolph A.**.....1968  
*Coordinator, Instructional Media*  
 B.S.—Bradley University  
 M.A.—The University of Michigan
- Annandale, Jane**.....1978  
*Programmer Analyst I*  
 B.B.A.—Western Michigan University
- Arcure, Catherine**.....1979  
*Coordinator, Public Relations*  
 B.A.—The University of Michigan
- Bertoia, Roger R.**.....1966  
*Associate Dean of Occupational Education*  
 B.S.—The University of Michigan  
 M.S.—The University of Michigan
- Bosch, Barbara J.**.....1966  
*Supervisor, Technical Processing, LRC*  
 Henry Ford Community College  
 Washtenaw Community College  
 Friden Educational Center
- Bostwick, Phyllis M.**.....1966  
*Coordinator, Clerical Services*  
 A.A.—Flint Junior College  
 B.G.S.—Wayne State University
- Brengle, Geraldine H.**.....1966  
*Assistant to the President*  
 Tiffin University  
 Washtenaw Community College  
 The University of Michigan
- Bressler, Allan J.**.....1980  
*Computer Operator I*  
 Washtenaw Community College
- Dodge, Gary**.....1980  
*Supervisor, Weekend, Evening, and Extension Programs*  
 B.A.—Eastern Michigan University  
 M.A.—The University of Michigan

<b>Featheringham, Lee R.</b> .....	1981
<i>Director, Computer Services Center</i>	
B.S.—Kent State University	
B.S.E.E.—The University of Michigan	
<b>Galant, Richard L.</b> .....	1978
<i>Associate Dean of General Education</i>	
A.B.—The University of Michigan	
A.M.—The University of Michigan	
Ph.D.—The University of Michigan	
<b>Grzegorzczuk, Phyllis</b> .....	1978
<i>Associate Dean, Allied Health and Public Service</i>	
Diploma—Mercy School of Nursing	
B.S.N.—The University of Michigan	
M.S.—The University of Michigan	
Specialist in Aging, The University of Michigan	
Wayne State University	
<b>Hackney, Larry H.</b> .....	1973
<i>Dean, Student Services</i>	
B.A.—Tennessee State University	
M.A.—The University of Michigan	
Ph.D.—The University of Michigan	
<b>Harrison, Marcia</b> .....	1978
<i>Director, Technical Job Training Programs</i>	
A.D.—Northwestern Michigan College	
B.A.—Eastern Michigan University	
<b>Jacques, Edith N.</b> .....	1976
<i>Associate Dean, Continuing Education and Community Services</i>	
B.A.—D'Youville College	
M.A.—The University of Michigan	
Ph.D.—The University of Michigan	
<b>Jordan, Cole L.</b> .....	1978
<i>Supervisor, Plant Services</i>	
A.D.—Washtenaw Community College	
<b>Keith, Erika</b> .....	1981
<i>Programmer Analyst I</i>	
B.A.—Wayne State University	
<b>Kooi, Lucy A.</b> .....	1977
<i>Programmer Analyst II</i>	
A.B.—The University of Michigan	
Washtenaw Community College	
<b>Levy, Mary L.</b> .....	1981
<i>Programmer I</i>	
B.A.—College of Wooster	
M.A.—The University of Michigan	
<b>Mallory, Richard H.</b> .....	1966
<i>Director, Auxiliary Services</i>	
B.A.—University of Detroit	

<b>Mandel, Carla</b> .....	<b>1979</b>
<i>Director, Continuing Education Services</i>	
B.A.—The University of Michigan	
M.A.—The University of Michigan	
<b>Medeiros, Neil O.</b> .....	<b>1980</b>
<i>Supervisor, Maintenance Department</i>	
R.E.T.S. Electronics Engineering School	
Washtenaw Community College	
<b>Nair, Damodaran ("Dom")</b> .....	<b>1980</b>
<i>Coordinator, Community College Economic Development Network</i>	
B.A.—Gandhigram University	
M.A.—Gandhigram University	
M.S.—Michigan State University	
Ph.D.—Michigan State University	
<b>Phibbs, John</b> .....	<b>1969</b>
<i>Supervisor, Reprographic Services</i>	
A.D.—Washtenaw Community College	
B.B.A.—Eastern Michigan University	
<b>Reeves, Cornelius</b> .....	<b>1966</b>
<i>Supervisor, Power House</i>	
A.D.—Washtenaw Community College	
<b>Reeves, Robert A.</b> .....	<b>1968</b>
<i>Assistant Vice President for Employee Relations</i>	
B.A.—Eastern Michigan University	
M.A.—Eastern Michigan University	
<b>Sabada, Mary L.</b> .....	<b>1966</b>
<i>Coordinator, Personnel Services</i>	
Ohio University	
Washtenaw Community College	
<b>Scott, Adella</b> .....	<b>1975</b>
<i>Director, Learning Resource Center</i>	
A.B.—The University of Michigan	
M.A.L.S.—The University of Michigan	



<b>Sims, Donald L.</b> .....	<b>1968</b>
<i>Director, Admissions, Registration and Student Programs</i>	
B.S.—Wayne State University	
M.A.—The University of Michigan	
<b>Spickard, James F.</b> .....	<b>1977</b>
<i>Director, Plant Operations and Security</i>	
B.S.—Eastern Michigan University	
<b>Stallworth, Clarence A.</b> .....	<b>1974</b>
<i>Director, Management Services</i>	
B.S.E.—The University of Michigan	
M.S.E.—The University of Michigan	
<b>Travis, Patricia A.</b> .....	<b>1974</b>
<i>Coordinator, Children's Center</i>	
B.A.—The University of Michigan	
M.A.—Eastern Michigan University	
<b>Wicker, Martin C.</b> .....	<b>1982</b>
<i>Controller</i>	
B.S.—Detroit College of Business	
M.S.—Walsh College	
C.P.A.—State of Michigan	
<b>Wojnowski, Judith L.</b> .....	<b>1978</b>
<i>Coordinator, Accounting</i>	
B.S.—Canisius College	
C.P.A.	

## FACULTY

### ADULT RESOURCES CENTER

<b>Roberts, Shirley</b> .....	<b>1968</b>
<i>Clinical Psychologist</i>	
B.A.—The University of Michigan	
M.A.—The University of Michigan	
<b>Allen, Jacqueline</b> .....	<b>1978</b>
<i>Technician</i>	
B.A.—Case Western Reserve University	
M.A.—The University of Michigan	

### AUTOMOTIVE SERVICE

<b>Weid, Richard, Instructional Coordinator</b> .....	<b>1979</b>
<i>Automotive Service</i>	
B.S.—Eastern Michigan University	
M.A.—Eastern Michigan University	
M.S.—Eastern Michigan University	



- Barron, Kenneth E.**.....1966  
*Automotive Service*  
 B.S.—Central Michigan University  
 N.I.A.S.E.—Certified General Auto Mechanic  
 State of Michigan—Licensed Master Mechanic
- Brown, Eugene**.....1977  
*Automotive Service*  
 A.D.—Washtenaw Community College  
 B.S.—The University of Michigan
- Cammet, Edward**.....1975  
*Automotive Body Repair*  
 Army Mechanic School  
 Ford Motor Institute  
 Bear Frame School  
 Ditzler Paint Instructors School  
 Martin Senour Refinishing School
- Fisher, Scott**.....1982  
*Technician, Automotive Service*  
 B.S.—Eastern Michigan University  
 N.I.A.S.E.—Certified General Mechanic  
 State of Michigan—Certified Master Mechanic  
 F.A.A.—Certified Airframe and Power Plant Mechanic
- Hopper, Thomas W.**.....1967  
*Automotive Service*  
 Certificate—Army Mechanic School  
 Ford Motor Institute
- Jordan, Lester**.....1979  
*Automotive Body Repair*  
 B.A.—Eastern Michigan University
- Mann, John B.**.....1971  
*Automotive Service*  
 Washtenaw Community College  
 B.S.—Eastern Michigan University  
 M.A.—The University of Michigan

## BEHAVIORAL SCIENCES

- Kollen, Michael, Instructional Coordinator**.....1969  
*Psychology*  
 B.A.—Knox College  
 M.A.—New Mexico Highlands University  
 M.A.—The University of Michigan
- Byisma, Donald Jr.**.....1966  
*Sociology*  
 B.S.—Wayne State University  
 M.S.—Wayne State University  
 Ph.D.—The University of Michigan

<b>Campbell, Benjamin I.</b> .....	1968
<i>Psychology</i>	
B.M.—Peabody Institute	
M.A.—The University of Michigan	
<b>Martin, Herbert L.</b> .....	1967
<i>Psychology</i>	
B.A.—Eastern Michigan University	
M.A.—Eastern Michigan University	
M.S.W.—The University of Michigan	
<b>Moy, William</b> .....	1968
<i>Psychology</i>	
A.B.—Vaiparaiso University	
<b>Roberts, Alvin</b> .....	1968
<i>Psychology</i>	
B.S.—Prairie View A & M College	
M.S.W.—Wayne State University	
<b>Thompson, Doreen</b> .....	1975
<i>Sociology</i>	
A.B.—Atlantic Union College	
Licence es Lettres—University of Paris	
M.P.H.—The University of Michigan	
<b>Zaremba, Ernest</b> .....	1969
<i>Psychology</i>	
A.B.—The University of Michigan	

## BUSINESS AND ACCOUNTING

<b>Paulson, Robert W., Instructional Coordinator</b> .....	1968
<i>General Business/Management</i>	
B.S.—University of New Hampshire	
M.S.—University of New Hampshire	
<b>Arnold, Gwen</b> .....	1966
<i>Management/Intern-Extern</i>	
A.D.—Washtenaw Community College	
B.B.A.—Cleary College	
A.M.—The University of Michigan	
<b>Bellers, Clifford</b> .....	1969
<i>Business/Accounting</i>	
B.B.A.—Eastern Michigan University	
M.A.—Eastern Michigan University	
<b>Kokkales, Paul C.</b> .....	1966
<i>Accounting</i>	
B.S.—Eastern Michigan University	
M.A.—The University of Michigan	

- McNally, Robert C.**..... 1966  
*General Business*  
 Four Year Graduate—General Motors Institute  
 B.B.A.—The University of Michigan  
 M.B.A.—The University of Michigan  
 M.A.—University of Detroit
- Meyers, Norma**..... 1980  
*Accounting*  
 B.B.A.—The University of Michigan  
 M.B.A.—Eastern Michigan University
- Ross, Frank J.**..... 1981  
*General Business*  
 B.S.—Wayne State University  
 M.A.—Central Michigan University
- Zeeb, Ronald E.**..... 1968  
*Marketing/General Business*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University

### CAREER PLACEMENT

- McCoy, Robert, Instructional Coordinator**..... 1971  
*Career Placement Officer*  
 B.S.—Western Michigan University  
 M.A.—Western Michigan University  
 M.A.—The University of Michigan  
 J.D.—Detroit College of Law
- Vrabel, George**..... 1969  
*Career Placement Officer*  
 B.S.—Western Michigan University  
 M.A.—Wayne State University

### CHILDREN'S CENTER

- Fauri, Greta**..... 1977  
*Technician, Children's Center*  
 B.A.—Adrian College

### COMPUTER SERVICES CENTER

- Palay, Roger M.**..... 1975  
*Professional Services Programmer Analyst*  
 B.S. University of Chicago  
 M.S. University of Wisconsin
- Turner, William**..... 1983  
*Technician, Computer Services Center*  
 Washtenaw Community College

## COUNSELING CENTER

- Williams, Calvin E.,** *Instructional Coordinator* . . . . . 1969  
*Counselor*  
 B.A.—Western Michigan University  
 M.A.—The University of Michigan  
 Ph.D.—The University of Michigan
- Burden, Dennis B.** . . . . . 1969  
*Veterans Counselor*  
 A.A.—Jackson Community College  
 B.A.—The University of Michigan  
 M.S.—California State University, Los Angeles
- Clark, William G.** . . . . . 1968  
*Counselor*  
 B.R.E.—Grand Rapids Baptist College  
 M.A.—Western Michigan University
- Eaglin, Marguerite** . . . . . 1967  
*Counselor*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University  
 Ed.S.—Eastern Michigan University  
 The University of Michigan
- Greiner, Margaret E.** . . . . . 1981  
*Career and Life Planning Counselor*  
 B.A.—The University of Michigan  
 M.A.—The University of Michigan
- Meeks, Sandra S.** . . . . . 1969  
*Orientation Advisor*  
 B.S.N.—The University of Michigan  
 Registered Nurse  
 M.S.—The University of Michigan
- Wirbel, Johanna V.** . . . . . 1968  
*Counselor*  
 B.A.—Kent State University  
 M.A.—The University of Michigan
- Young, Mary E.** . . . . . 1975  
*Counselor*  
 B.R.E.—Detroit Bible College  
 B.A.—Eastern Kentucky University  
 M.A.—Eastern Kentucky University  
 The University of Michigan

## DATA PROCESSING

- Rinn, John, Instructional Coordinator**..... 1980  
*Data Processing*  
A.A.—Port Huron Junior College  
A.B.—The University of Michigan  
M.S.—The University of Michigan
- Finkbeiner, Charles A.**..... 1975  
*Data Processing/Accounting/General Business*  
A.D.—Washtenaw Community College  
B.S.—The University of Michigan  
M.S.—The University of Michigan
- Jindal, Usha R.**..... 1982  
*Data Processing*  
B.S.—Delhi University  
B.S.—Pennsylvania State University  
M.S.—Pennsylvania State University
- Krieg, Laurence J.**..... 1983  
*Data Processing*  
B.A.—College of Wooster  
M.A.—The University of Michigan  
Ph.D.—The University of Michigan
- Paup, Arlene M.**..... 1982  
*Data Processing*  
B.A.—Temple University  
M.S.—Drexel University
- Wotring, John R.**..... 1969  
*Data Processing*  
B.A.—University of Philippines

## DENTAL AUXILIARY

- Finkbeiner, Betty Ladley, Instructional Coordinator**..... 1969  
*Dental Assisting*  
A.A.—Grand Rapids Junior College  
C.D.A.—American Dental Assisting Association  
B.S.—The University of Michigan  
M.S.—The University of Michigan  
R.D.A.—Michigan State Board of Dentistry
- Chasteen, Donna**..... 1973  
*Technician, Dental Assisting*  
A.A.S.—Ferris State College  
C.D.A.—American Dental Assisting Association  
R.D.A.—Registered Dental Assistant

- Nevers, William B.**..... 1975  
*Dental Assisting*  
 B.S.—Wayne State University  
 D.D.S.—The University of Michigan School of Dentistry

### DRAFTING AND CONSTRUCTION TECHNOLOGY

- Byrd, David R., Instructional Coordinator**..... 1966  
*Architecture/Construction Technology*  
 Hampton Institute College and Trade School  
 N.C.A.R.B. Certified  
 Registered Architect—D.C., Maryland, West Virginia,  
 and Michigan  
 M.A.—The University of Michigan
- Ford, Andrew F.**..... 1966  
*Industrial Drafting/Construction Technology, (Psychology)*  
 B.S.—Wayne State University  
 M.Ed.—Wayne State University  
 D.Ed.—Wayne State University
- Helzerman, Clarence**..... 1979  
*Construction Technology*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University
- Hentz, Gary R.**..... 1967  
*Industrial Drafting*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University
- Packard, R. James**..... 1969  
*Industrial Drafting*  
 A.D.—Washtenaw Community College  
 B.S.M.E.—University of Wisconsin  
 M.A.Ed.—Wayne State University
- Pogliano, Michael F.**..... 1969  
*Architectonics/Construction Technology*  
 B.Arch.—The University of Michigan  
 Registered Architect, Michigan  
 N.C.A.R.B. Certified
- Stager, Augustus P. III**..... 1977  
*Industrial Drafting/Mechanical Technology*  
 B.S.M.E.—The University of Michigan

### ELECTRICITY/ELECTRONICS

- Robinson, Albert, Instructional Coordinator**..... 1974  
*Electricity/Electronics*  
 B.A.—Indiana University  
 M.S.—Eastern Michigan University

- Bellers, Robert** ..... 1968  
*Technician, Electricity/Electronics*  
 A.D.—Washtenaw Community College  
 Electronics Engineering Technician Trade School  
 Grantham Electronics School  
 F.C.C. License  
 Journeyman Electrician
- Cleary, William T., Jr.** ..... 1983  
*Electricity/Electronics*  
 B.E.E.—University of Maine at Orono  
 M.B.A.—University of Maine at Orono
- Downen, Gary W.** ..... 1983  
*Electricity/Electronics*  
 B.G.S.—The University of Michigan  
 M.A.—Eastern Michigan University
- Kramer, Lawrence** ..... 1977  
*Electricity/Electronics*  
 B.S.—The University of Michigan
- Mullins, Philip G.** ..... 1982  
*Electricity/Electronics*  
 Air Force Community College  
 Ventura Junior College  
 University of Maryland, European Division  
 Eastern New Mexico University
- Russell, Dean A.** ..... 1966  
*Electricity/Electronics*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University
- Weyant, David E.** ..... 1983  
*Electricity/Electronics*  
 B.S.E.(EE)—The University of Michigan  
 M.S.E. (EE)—The University of Michigan
- Wheeler, Kenneth** ..... 1966  
*Electricity/Electronics*  
 B.S.E.E.—Detroit Institute of Technology  
 Member Institute of Electrical and Electronic Engineers

### EMERGENCY MEDICAL TECHNOLOGY

- Dunham, Craig**, *Instructional Coordinator* ..... 1978  
*Emergency Medical Technology*  
 A.S.—Washtenaw Community College  
 B.S.—Eastern Michigan University  
 M.S.—The University of Michigan  
 Licensed Paramedic—Michigan Department of Public Health  
 (MDPH)

## ENGLISH AND WRITING

- Hatcher, Ruth**, *Instructional Coordinator* . . . . . 1981  
*English*  
 B.A.—Earlham College  
 M.A.—The University of Michigan
- Croake, Edith M.** . . . . . 1966  
*English*  
 B.A.—The University of Michigan  
 M.A.T.—Northwestern University  
 M.A.—Northwestern University  
 D.A.—The University of Michigan
- Erickson, Lorene F.** . . . . . 1981  
*English*  
 B.A.—Wayne State University  
 M.Ed.—Wayne State University
- Fritts, Ruth** . . . . . 1968  
*English*  
 B.A.—The University of Michigan
- Gaughan, John T.** . . . . . 1968  
*English*  
 B.A.—St. Mary's College  
 B.S.—St. Mary's College  
 M.A.—Eastern Michigan University
- Hunt, Barbara** . . . . . 1968  
*English*  
 B.A.—University of Toledo  
 M.A.—The University of Michigan  
 D.A.—The University of Michigan
- Minock, Daniel W.** . . . . . 1983  
*English*  
 Ph.D.—Ohio State University
- Mitchell, W. Bede** . . . . . 1967  
*English*  
 A.B.—Wayne State University  
 M.A.—Wayne State University
- Salerno, Douglas** . . . . . 1969  
*English/Writing, Speech*  
 B.A.—Western Michigan University  
 M.A.—Western Michigan University  
 M.A.—The University of Michigan  
 Ph.D.—The University of Michigan
- Weldner, Hal R.** . . . . . 1969  
*English*  
 A.B.—Columbia College  
 M.A.—The University of Michigan  
 Ph.D.—The University of Michigan



- Williams, Thomas G.**..... 1971  
*English*  
 B.S.—Eastern Michigan University

### FINANCIAL AIDS OFFICE

- Hower, Guy W., Instructional Coordinator**..... 1966  
*Financial Aids Officer*  
 B.B.A.—The University of Michigan  
 M.A.—The University of Michigan
- Frye, Iota H.**..... 1975  
*Financial Aids Officer*  
 B.S.—Eastern Michigan University  
 M.A.—Eastern Michigan University  
 Graduate—Rhema Bible Training Center
- Jordan, Diane**..... 1978  
*Technician, Financial Aids*  
 Washtenaw Community College

### FOODS AND HOSPITALITY

- Beaton, James, Instructional Coordinator**..... 1976  
*Culinary Arts*  
 Wayne County Community College  
 Eastern Michigan University  
 Wayne State University
- Gannon, Jillaine**..... 1977  
*Culinary Arts*  
 Culinary Institute of America  
 B.S.—Eastern Michigan University  
 M.S.—The University of Michigan
- Garrett, Don L.**..... 1975  
*Culinary Arts*  
 A.D.—Washtenaw Community College  
 Kentucky State University
- Kozak, Nancy**..... 1982  
*Technician, Culinary Arts*  
 A.D.—Schoolcraft Community College  
 Eastern Michigan University  
 Wayne State University

### HUMANITIES

- Zenian, Paul, Instructional Coordinator**..... 1968  
*Art*  
 B.S.—The University of Michigan  
 M.F.A.—The University of Michigan

- Biederman, Rosalyn, L.**.....1967  
*Spanish/E.S.L.*  
 B.A.—Ohio State University  
 M.A.—Ohio State University
- Devereaux, William**.....1976  
*Speech*  
 B.A.—Michigan State University  
 M.A.—Michigan State University  
 Ed.D.—Laurence Universtiy
- Hanson, Charlotte**.....1966  
*Speech*  
 A.B.—The University of Mich  
 M.A.—The University of Michigan
- Horowitz, Frederick A.**.....1968  
*Art*  
 B.A.—Yale University  
 B.F.A.—Yale University  
 M.F.A.—The University of Michigan
- Kibens, Malja**.....1976  
*Philosophy/Humanities*  
 B.A.—Mount Holyoke College  
 M.A.—The University of Michigan  
 Ph.D.—The University of Michigan
- Lockard, Jon M.**.....1970  
*Black Art*  
 Certificate—Meinzinger Art School  
 Certificate—Obleton Advertising Company  
 Wayne State University
- McClatchey, Merrill W.**.....1966  
*Speech/Humanities*  
 B.A.—Wayne State University  
 M.A.—Columbia University
- Radick, Lawrence J.**.....1966  
*French/Russian/German/Art*  
 B.A.—Michigan State University  
 M.A.—Michigan State University  
 Certified Flight Instructor, ASELS

## INDUSTRIAL TECHNOLOGY

- Agin, George C., Instructional Coordinator**.....1968  
*Mechanical Technology/Fluid Power/Robotics*  
 B.S.—Wayne State University  
 M.A.—Eastern Michigan University

<b>Avery, Dean</b> .....	<b>1981</b>
<i>Mechanical Technology</i>	
B.S.—Ferris State College	
M.S.—Wayne State University	
<b>Dick, Roger</b> .....	<b>1979</b>
<i>Mechanical Technology/Metallurgy</i>	
B.S.—Western Michigan University	
M.A.—Eastern Michigan University	
Ferris State College—Machine Tool	
Washtenaw Community College	
<b>Garrett, Dallas O.</b> .....	<b>1967</b>
<i>Numerical Control/Mechanical Technology</i>	
B.S.—Wayne State University	
M.A.—Eastern Michigan University	
Numatrol Circuit Design School	
Illinois Institute of Technology—APT III	
MDSI—Compact II	
<b>Lowe, Burton, C.</b> .....	<b>1968</b>
<i>Mechanical Technology/Blueprint Reading</i>	
Journeyman Industrial Machinist, Machine Repairman	
Ford Motor Company Apprenticeship School	
Wayne State University	

### LEARNING RESOURCE CENTER

<b>Ho, Leo C.</b> .....	<b>1975</b>
<i>Media Librarian</i>	
B.A.—National Cheng Chi University	
M.L.S.—Atlanta University	
Ph.D.—Wayne State University	
<b>Scott, Kathleen</b> .....	<b>1971</b>
<i>Librarian</i>	
B.A.—University of Iowa	
M.A.—University of Iowa	

### LIFE SCIENCES

<b>Strayer, James L., Instructional Coordinator</b> .....	<b>1969</b>
<i>Biology</i>	
B.S.—Eastern Michigan University	
A.M.—The University of Michigan	
<b>Davenport, James M.</b> .....	<b>1966</b>
<i>Biology</i>	
B.A.—Ohio Northern University	
M.A.—Syracuse University	

<b>Grossman, Esta</b> .....	1975
<i>Biology</i>	
B.A.—Pembroke College in Brown University	
M.A.—The City College of the City University of New York	
M.S.W.—The University of Michigan	
<b>Niehaus, Paul J.</b> .....	1966
<i>Biology</i>	
B.A.—Eastern Michigan University	
M.S.—The University of Michigan	
<b>Slepsky, Lawrence</b> .....	1968
<i>Physical Education</i>	
B.S.—Eastern Michigan University	
M.A.—Eastern Michigan University	
Ed.S.—Eastern Michigan University	

## MATHEMATICS

<b>Mealing, Percy, Instructional Coordinator</b> .....	1966
<i>Mathematics</i>	
B.A.—Talladega College	
M.A.—The University of Michigan	
<b>Bila, Dennis W.</b> .....	1969
<i>Mathematics</i>	
B.S.—Central Michigan University	
M.A.—Wayne State University	
<b>Bottorff, Ralph S.</b> .....	1966
<i>Mathematics</i>	
B.A.—University of Northern Iowa	
M.A.—University of Illinois	
Ph.D.—The University of Michigan	
<b>Goldberg, David</b> .....	1977
<i>Mathematics/Science</i>	
B.S.—The University of Michigan	
<b>Hastings, Janet G.</b> .....	1967
<i>Mathematics</i>	
B.A.—The University of Michigan	
M.A.—Cornell University	
<b>Lewis, William A.</b> .....	1969
<i>Mathematics</i>	
B.S.—North Carolina Central University	
M.A.—The University of Michigan	
<b>McGill, John B.</b> .....	1966
<i>Mathematics</i>	
B.S.—Eastern Michigan University	

<b>Mealing, Robert C.</b> .....	1966
<i>Mathematics</i>	
Ford Motor Company Apprenticeship School	
B.S.—Wayne State University	
<b>Prichard, Lawrence</b> .....	1968
<i>Mathematics</i>	
B.S.—Eastern Michigan University	
M.A.—Eastern Michigan University	
<b>Remen, Janet M.</b> .....	1982
<i>Mathematics</i>	
B.Sc.—University of Durham	
M.S.—The University of Michigan	
<b>Ross, Donald L.</b> .....	1966
<i>Mathematics</i>	
B.S.—Eastern Michigan University	
M.A.—The University of Michigan	
M.A.T.M.—University of Detroit	
<b>Showalter, Martha</b> .....	1980
<i>Mathematics</i>	
B.S.—Ohio State University	
B.A.—Ohio State University	
M.S.—University of Houston	

## MUSIC

<b>Lawrence, Morris J., Instructional Coordinator</b> .....	1969
<i>Music</i>	
Certificate—Straight Business College	
B.S.M.E.—Xavier University	
M.M.—The University of Michigan	
Ph.D.—Bernadean University	

## NURSING

<b>Knoll, Gladys, Instructional Coordinator</b> .....	1981
<i>Nursing</i>	
Diploma—Henry Ford Hospital School of Nursing	
B.S.N.—The University of Michigan	
M.S.—The University of Michigan	
<b>Goodkin, Barbara, H.</b> .....	1975
<i>Nursing</i>	
B.S.N.—The University of Michigan	
M.S.—The University of Michigan	
<b>Miller, Glenn</b> .....	1982
<i>Clinical Technician, Nursing</i>	
B.S.N.—Eastern Michigan University	

<b>Regensburg, Janice</b> .....	1981
<i>Clinical Technician, Nursing</i>	
B.S.N.—Eastern Michigan University	
<b>Salois, Claire M.</b> .....	1982
<i>Clinical Technician, Nursing</i>	
B.S.N.—Salve Regina College	
R.N.C.—Certified Medical-Surgical Nurse	
<b>VanderVeen, Judith, Sister</b> .....	1976
<i>Nursing</i>	
Diploma—Mercy Central School of Nursing	
B.S.N.—Mercy College of Detroit	
M.A.—The University of Michigan	
Specialist in Aging—The University of Michigan Wayne State University	
<b>Yonovitz, Mary</b> .....	1979
<i>Clinical Technician, Nursing</i>	
B.S.N.—Wayne State University	

### PHYSICAL SCIENCES

<b>Griswold, George, H., Instructional Coordinator</b> .....	1966
<i>Chemistry</i>	
B.A.—College of Wooster	
M.S.—Eastern Michigan University	
<b>Amundsen, Jack</b> .....	1975
<i>Physics/Mathematics</i>	
B.A.—The University of Michigan	
M.A.—The University of Michigan	
<b>French, Gargi</b> .....	1974
<i>Chemistry</i>	
B.Sc.—University of Bombay	
Ph.D.—Radcliffe College	
Harvard University	
<b>Hinds, Dwight D.</b> .....	1968
<i>Physics/Mathematics</i>	
B.S.—Eastern Michigan University	
M.S.—Michigan State University	
<b>Kapp, George</b> .....	1970
<i>Mathematics/Physics</i>	
A.D.—Washtenaw Community College	
B.S.E.—The University of Michigan	
<b>Pool, Milton</b> .....	1969
<i>Chemistry</i>	
B.S.—Eastern Michigan University	

- Thomas, David** ..... 1980  
*Geology and Chemistry*  
 A.S.—Macomb Community College  
 B.S.—Eastern Michigan University  
 M.S.—Eastern Michigan University
- VanGenderen, Gary L.** ..... 1982  
*Chemistry*  
 B.S.—The University of Michigan  
 M.S.—Eastern Michigan University

### PUBLIC SERVICE

- Ludos, Phillip, Instructional Coordinator** ..... 1978  
*Public Safety Administration*  
 A.D.—Schoolcraft College  
 B.S.—Madonna College  
 M.A.—University of Detroit

### RADIOGRAPHY

- Nelson, Robert, Instructional Coordinator** ..... 1966  
*Radiologic Technology*  
 A.A.—Fort Scott Community Junior College  
 A.D.—Washtenaw Community College  
 B.S.Ed.—The University of Michigan  
 M.S.—The University of Michigan  
 Alexian Brothers Hospital School of Radiologic Technology
- Baker, Gerald A.** ..... 1975  
*Radiologic Technology*  
 A.D.—Wayne County Community College  
 B.S.—Ferris State College  
 R.T.—The American Registry of Radiologic Technologists

### READING

- Nagel, Rosemarie E., Instructional Coordinator** ..... 1967  
*Reading*  
 A.B.—The University of Michigan  
 M.A.—The University of Michigan
- McGee, Sohie** ..... 1969  
*Reading*  
 A.B.—The University of Michigan  
 M.G.—The University of Michigan

**Martin, LaRuth E.** ..... 1974

*Medical Terminology*

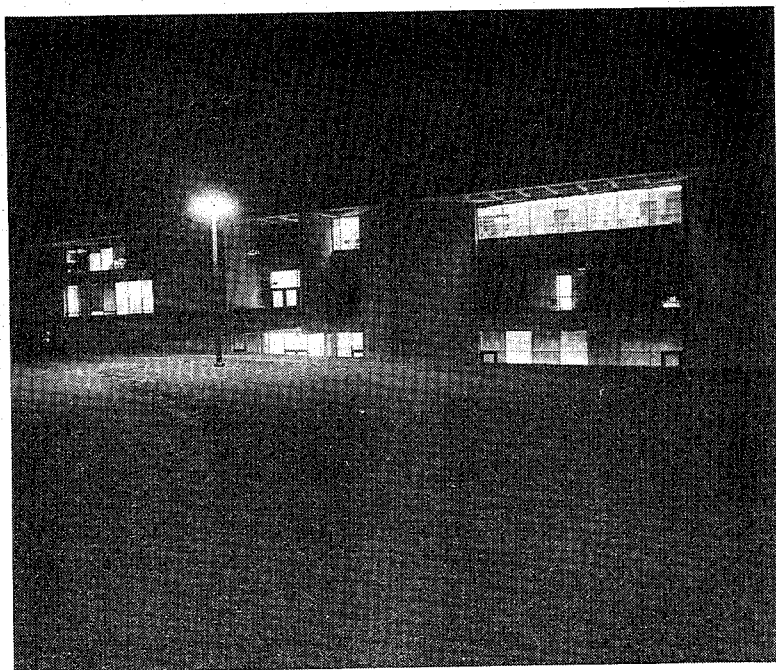
- C.D.A.—American Dental Assisting Association
- B.S.—Shaw College at Detroit
- M.A.—The University of Michigan
- E.F.D.A.—University of Indiana Dental School
- Vocational Teaching Certificate—State of Michigan
- R.D.A.—Michigan State Board of Dentistry
- Gerontology Specialist—The University of Michigan

**REGISTRATION/ADMISSIONS OFFICE**

**Grotrian, Paulette** ..... 1980

*Admissions Officer*

- B.A.—Valparaiso University
- M.A.—Valparaiso University





## RESPIRATORY THERAPY

- Hammond, Carl F.**, *Instructional Coordinator*..... 1967  
*Respiratory Therapy*  
A.S.—Jackson Junior College  
B.S. Eastern Michigan University  
M.S.—The University of Michigan  
RRT (National Board for Respiratory Therapy)
- McConnell, Sharyn C.**..... 1982  
*Clinical Technician, Respiratory Therapy*  
B.S.—Mount Union College  
A.D.—Washtenaw Community College  
M.S.—The University of Michigan  
RRT—(National Board for Respiratory Therapy)  
CRTT—(National Board for Respiratory Therapy)
- Redick, Martin**..... 1978  
*Respiratory Therapy*  
B.S.—The University of Michigan  
M.S.—The University of Michigan  
RRT (National Board for Respiratory Therapy)

## SECRETARIAL AND OFFICE

- Burch, Wanda**, *Instructional Coordinator*..... 1977  
*Office Occupations*  
A.D.—Washtenaw Community College  
B.S.—The University of Michigan  
M.A.—The University of Michigan
- Charlton, Eleanor**..... 1966  
*Secretarial Studies*  
B.S.—Central Michigan University  
M.A.—Central Michigan University
- Juster, Marie S.**..... 1982  
*Secretarial Studies*  
B.S.—The William Paterson College  
M.A.—New York University
- Patt, Jerry**..... 1968  
*Secretarial Studies/Accounting*  
B.S.—Central Michigan University  
M.A.—Central Michigan University

## SOCIAL SCIENCES

- Vass, Steven T.**, *Instructional Coordinator* ..... 1967  
*Economics*  
 B.S.—Academy of Military Science  
 B.S.Ed.—Black Hills State College  
 M.A.—The University of Michigan  
 Ph.D.—The University of Michigan
- Amaru, Augustine** ..... 1966  
*Political Science*  
 B.A.—Boston University  
 M.A.—Michigan State University  
 The University of Michigan  
 University of Washington
- Gaughan-Mickelson, Joan M.** ..... 1969  
*History*  
 B.A.—St. Teresa College  
 M.A.—Eastern Michigan University  
 Ph.D.—The University of Michigan
- Glusac, Ivan C.** ..... 1966  
*Political Science/Economics*  
 B.S.—Wayne State University  
 M.A.—The University of Michigan
- Holmes, George H., III** ..... 1968  
*History*  
 B.A.—University of North Carolina  
 M.A.—Xavier University
- Miller, Louis R.** ..... 1969  
*Political Science*  
 B.S.—Eastern Michigan University  
 A.M.—The University of Michigan
- Reps, Flavia, P.** ..... 1966  
*History/Western Civilization*  
 B.A.—St. Joseph College  
 M.A.—Georgetown University
- Susnick, Stuart B.** ..... 1969  
*Anthropology/Political Science*  
 B.A.—Brooklyn College
- Thomas, Ervin L.** ..... 1969  
*Anthropology/Philosophy/Sociology*  
 B.A.—Wayne State University  
 M.A.—Wayne State University
- Whiteford, Priscilla S.** ..... 1971  
*Anthropology*  
 B.A.—Western Michigan University  
 M.A.—The University of Michigan

## VISUAL ARTS TECHNOLOGY

- Steinbach, J. Raymond**, *Instructional Coordinator* . . . . . 1969  
*Photography*  
B.S.—Michigan State University  
Brooks Institute, School of Photographic Art and Science  
The University of Michigan
- Guastella, C. Dennis** . . . . . 1980  
*Commercial Art*  
A.D.—Macomb County Community College  
B.F.A.—Wayne State University  
M.F.A.—Eastern Michigan University
- Martin, John W.** . . . . . 1968  
*Commercial Art/Technical Illustration*  
Certificate—Miensinger Art School  
Certificate—Arts and Crafts School  
A.A.—Macomb County Community College

## WELDING AND FABRICATION

- Gray, Daniel C.**, *Instructional Coordinator* . . . . . 1966  
*Welding and Fabrication*  
Journeyman Pipe Fitter and Boilermaker  
Air Force Technical School  
Certified Welder—Navy, Air Force, Army
- Figg, William** . . . . . 1972  
*Welding and Fabrication*  
A.D.—Washtenaw Community College
- Hall, Clyde** . . . . . 1978  
*Welding and Fabrication*  
A.D.—Washtenaw Community College  
B.S.—The University of Michigan
- Lowell, Mark O.** . . . . . 1982  
*Technician, Welding and Fabrication*  
A.D.—Washtenaw Community College

## GLOSSARY

**Accreditation:** An award for meeting high standards set by official groups for colleges and for programs. Accreditation means WCC teaches college-level classes which transfer to other schools and has programs which get students ready for beginning-level jobs.

**Admission:** The part of WCC which takes care of beginning paperwork the first time a student takes classes here.

**Application:** Form a person has to fill out before he or she can be a student at WCC.

**Articulation:** How well work from one school transfers to another, such as high school work transferring to WCC or WCC work transferring to another college.

**Assessment:** Finding out, often by testing, what a person is good at doing or would like doing.

**Associate Degree:** College award given to students who complete at least 60 credits at WCC, including all the classes in a program, three credits of English, and three credits of political science, with an average mark of C or better.

**Certification:** Paperwork which shows that a person meets certain standards. For example, construction specialist certification proves that a person completed all the classes in the construction specialist program.

**Corequisite:** Something a student has to have at the same time he or she takes a particular course. For instance, students must be signed up for the Writing Lab if they are taking English Composition III.

**Credits:** Way of measuring the grades classes a student completes at WCC. Students must complete a certain number of credits to graduate from different programs. Generally, the more credits a class is worth, the more time a student should expect to spend working on that class. Credit-free classes are not graded and do not count towards the credits a student needs to graduate.

**Cumulative Grade-Point Average:** The average of the final marks a student gets in all the classes he or she takes during the time he or she is a student at WCC.

**Curriculum:** All the courses taught in one subject area (like History) or, broadly, all the courses taught at WCC.

**Documentation:** Paperwork a person needs to show that something is true. Students who want financial aid, for instance, must turn in documentation of their need for the money.

**Eligibility:** Whether or not a person meets the standard for something. Eligibility for an associate degree depends on the classes a student has taken and how well he or she did in those classes.

**Emeritus Program:** Any citizen of Washtenaw County who is 60 years old or over and retired may take any course at WCC for free.

**Extended-Day Students:** People who take classes at WCC in the evening or on weekends.

**GED Examination:** General Education Development Examination. This is a test for people who did not go to high school or did not finish high school. A high enough score on this test shows that a person has learned as much as people need to learn to graduate from high school.

**Grade-Point Average:** The average of the final marks a student gets in the classes he or she takes during a term at WCC. Each mark is worth points: the higher the mark, the higher the points; and the more credits for the class, the more points its mark is worth. A perfect grade-point average would be a 4.0, for all A's. A B-level grade-point average would be a 3.0, C-level a 2.0, a D-level 1.0. An F grade is not worth any points.

**Occupational Areas:** Subject areas which have programs to get students ready for beginning-level jobs.

**Orientation:** Time WCC spends with new students to help them get used to WCC and get signed up for classes for the first time.

**Paraprofessional:** A trained person who helps a professional do his or her work.

**Placement:** Where someone starts. A French placement is the right French course for a particular student to start with. A job placement is a beginning job.

**Postsecondary:** College-level; education after high school.

**Prerequisite:** Something a student has to have before taking a particular course. For instance, a student must complete Numerical Control 100 before taking Numerical Control 111, or students must be licensed practical nurses to take Nursing 144.

**Program:** The series of classes a student must take to end up with a certificate or associate degree. Different subject areas have different programs.

**Programmed Instruction:** A way of teaching that lets the student work on his or her own, learning one step at a time with a teacher nearby to help.

**Registration:** Paperwork that the student and WCC have to do to get the student into classes at the beginning of each term.

**Self-Paced:** A type of teaching in which the student controls how fast he or she goes through what there is to learn. Programmed instruction (see definition) is usually self-paced.

**Scholarship:** Amounts of money which may be available to help students pay the costs of going to school. This money is usually given to students whose marks are quite good.

**Transcript:** Paper record of the classes a student takes and the marks the student gets in those classes during the time he or she is at WCC.

**Tuition:** The money a student pays for taking classes at WCC.

**Undergraduate:** College student who does not yet have a bachelor's degree.

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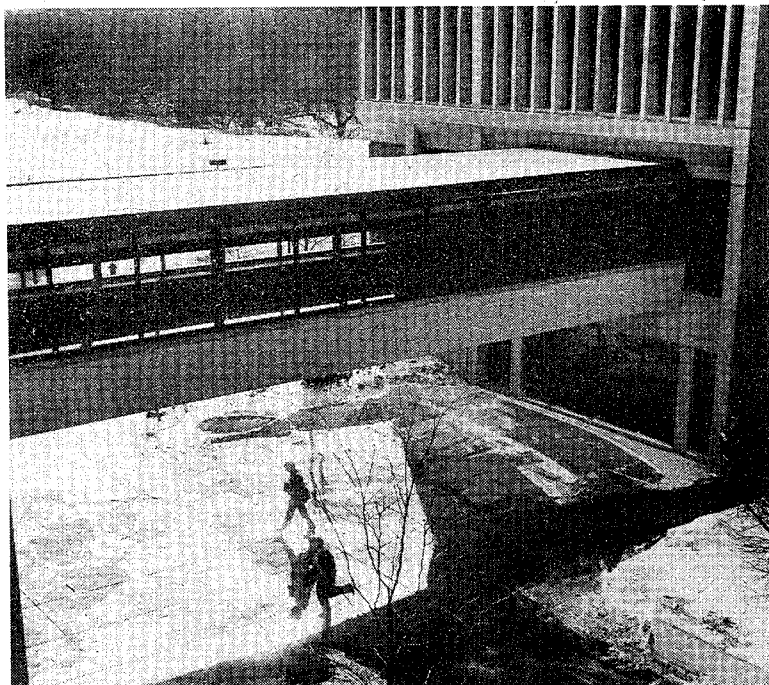
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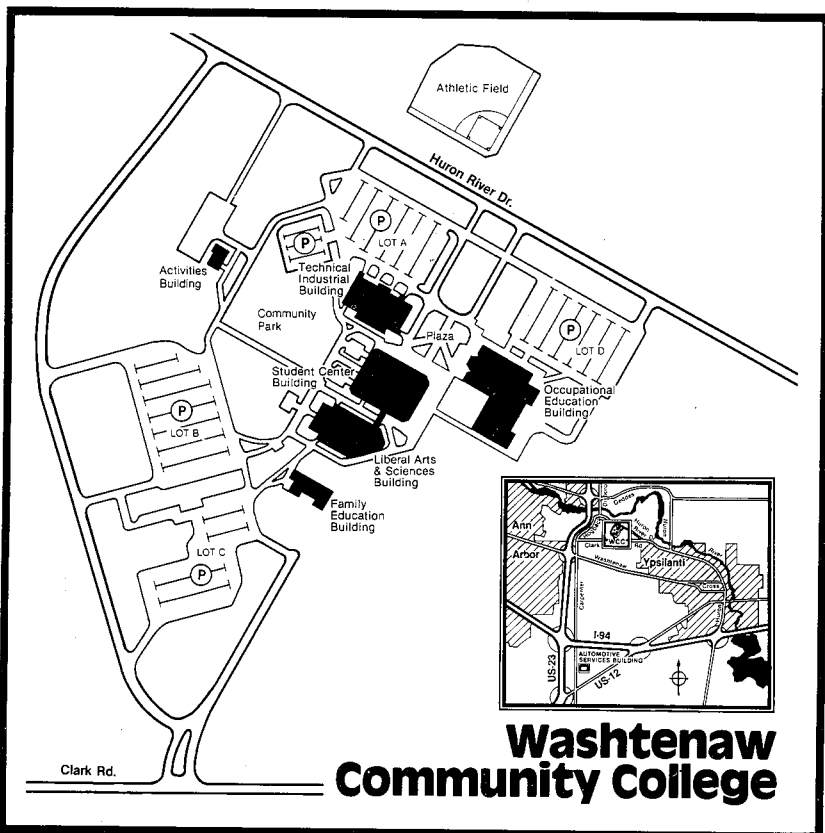
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# For Tomorrow Start Today!

## Building Abbreviations

- AC—Activities Building
- ASB—Automotive Services Building
- FE—Family Education Building
- LA—Liberal Arts & Science Building
- LRC—Learning Resource Center
- OE—Occupational Education Building
- SC—Student Center Building
- TEMP—Temporary Unit
- TI—Technical and Industrial Building



Bulletin 1983-85

Washtenaw Community College

4800 East Huron River Drive, P. O. Box D-1

Ann Arbor, Michigan 48106