

washtenaw community college 1981-82

INFORMATION CENTER

Numbers to Call

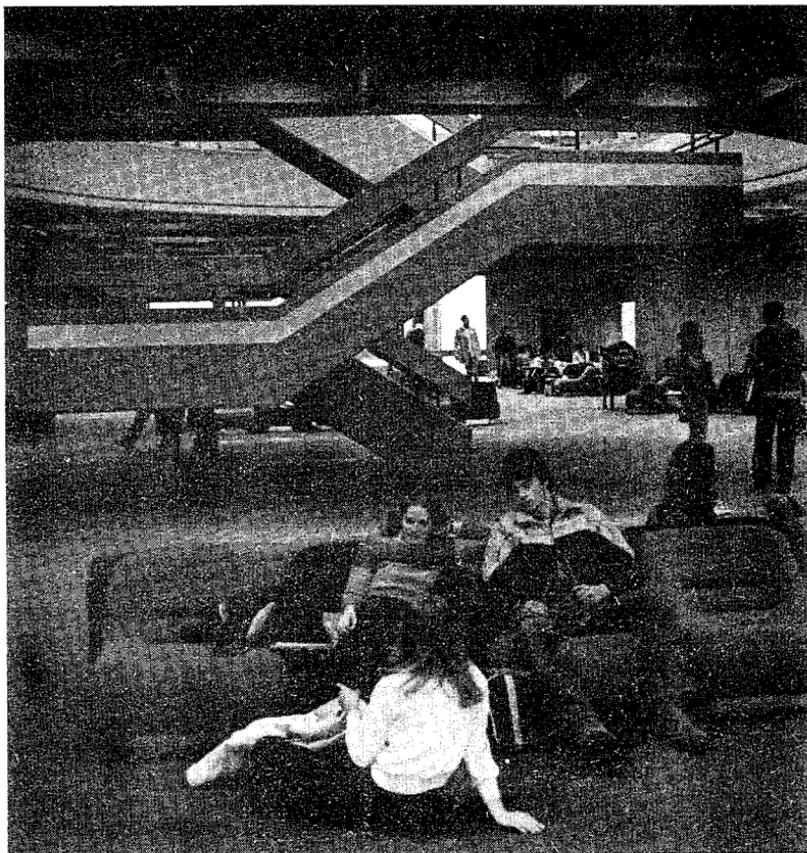
Main Campus: (313) 973-3300
4800 E. Huron River Drive Ann Arbor, Michigan 48106

Ypsilanti Center: (313) 482-2230
210 West Cross Street Ypsilanti, Michigan 48197

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
Athletics	973-3500
Bookstore	973-3593
Business, Industry and Labor Services	973-3533
Business Office	973-3488
Cafeteria	973-3585
Career Placement	973-3448
Cashier	973-3485
CETA Services	973-3598
Children's Center	973-3538
Community Relations	973-3490
Community Services (Ypsilanti Center)	482-2230
Counseling	973-3464
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Student Activities	973-3313
Veterans Certification	973-3545
Veterans Counseling	973-3481
Work Study Office	973-3558
Writing Center	973-3647

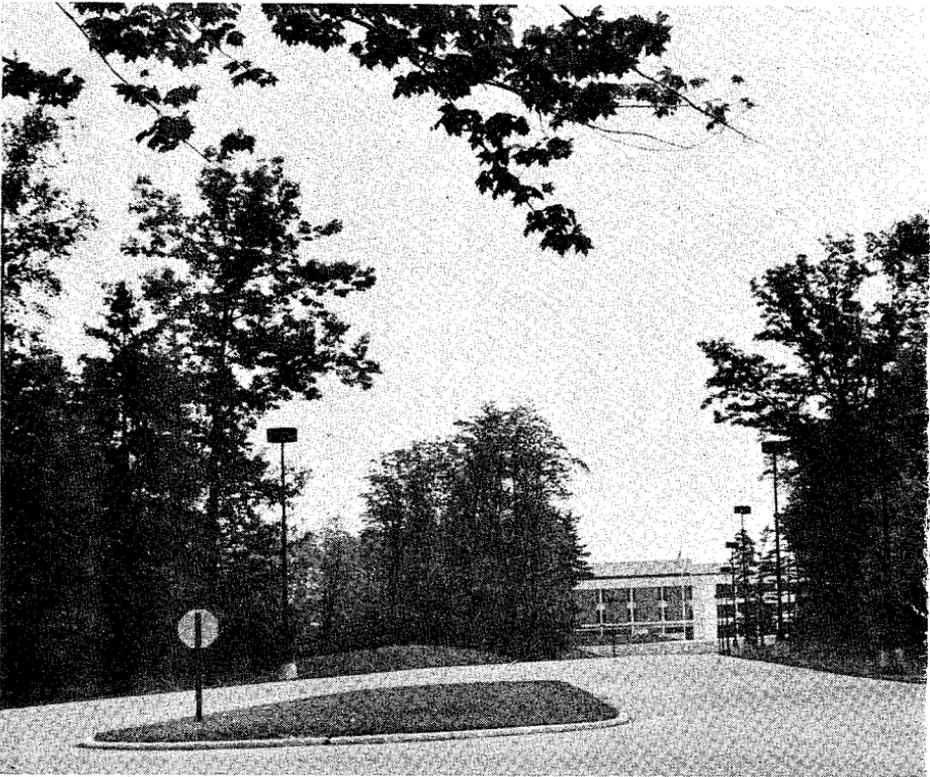
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Washtenaw Community College

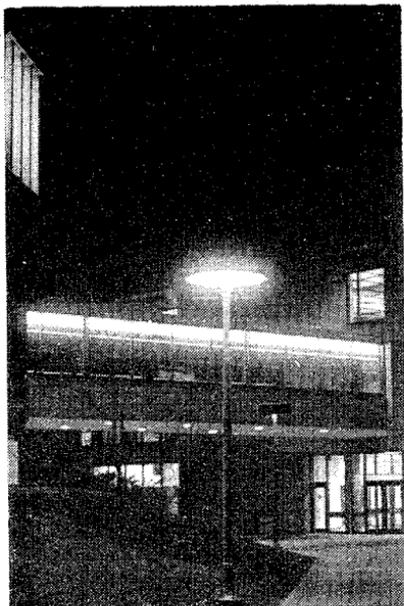
Committed to Helping Students
Reach Career and Life Goals
Through Quality Education . . .

Continuing a of Educational



Washtenaw Community College
4800 E. Huron River Drive **Ann Arbor, Michigan**

Tradition
Progress



1981-82 College Bulletin

Volume 11 Number 1

Greetings from President Gunder Myran . . .



February, 1981

Students are always telling me how much they appreciate the warm and caring environment at Washtenaw Community College. This environment has been created by *people*: faculty, administrators, clerical staff, custodians, and maintenance personnel. For fifteen years, 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. We

are interested in what goals students want to achieve *now*. There is a real love here for the teaching-learning process, for the students of all ages and backgrounds that we serve, and for the opportunity we have to contribute to the economic development of the area 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.

As we look ahead now to a new decade, we have a clear 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, to provide an atmosphere 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, to provide specific freshman-sophomore level courses which parallel courses at four-year colleges to which individuals desire to transfer, to help individuals become more aware of career, academic, and other life choices, and to provide other educational services and programs that will help people be more effective in their various life roles: worker, family member, citizen, consumer, and so on.

We welcome you to join us—this is *your* college.

Gunder A. Myran
President
Washtenaw Community College



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College's Special Services



Provide Extras . . .

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 an Emeritus program for community senior citizens; a career placement center, a bookstore, a child care center for children of students, well developed counseling programs, a health service and laboratories for math, reading and writing help.

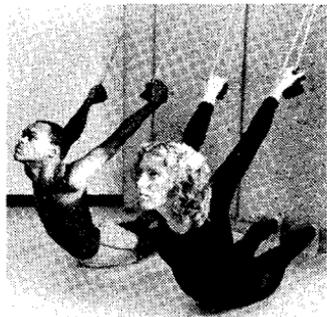
Washtenaw Community College is a College with many services to make your educational experiences here good ones.

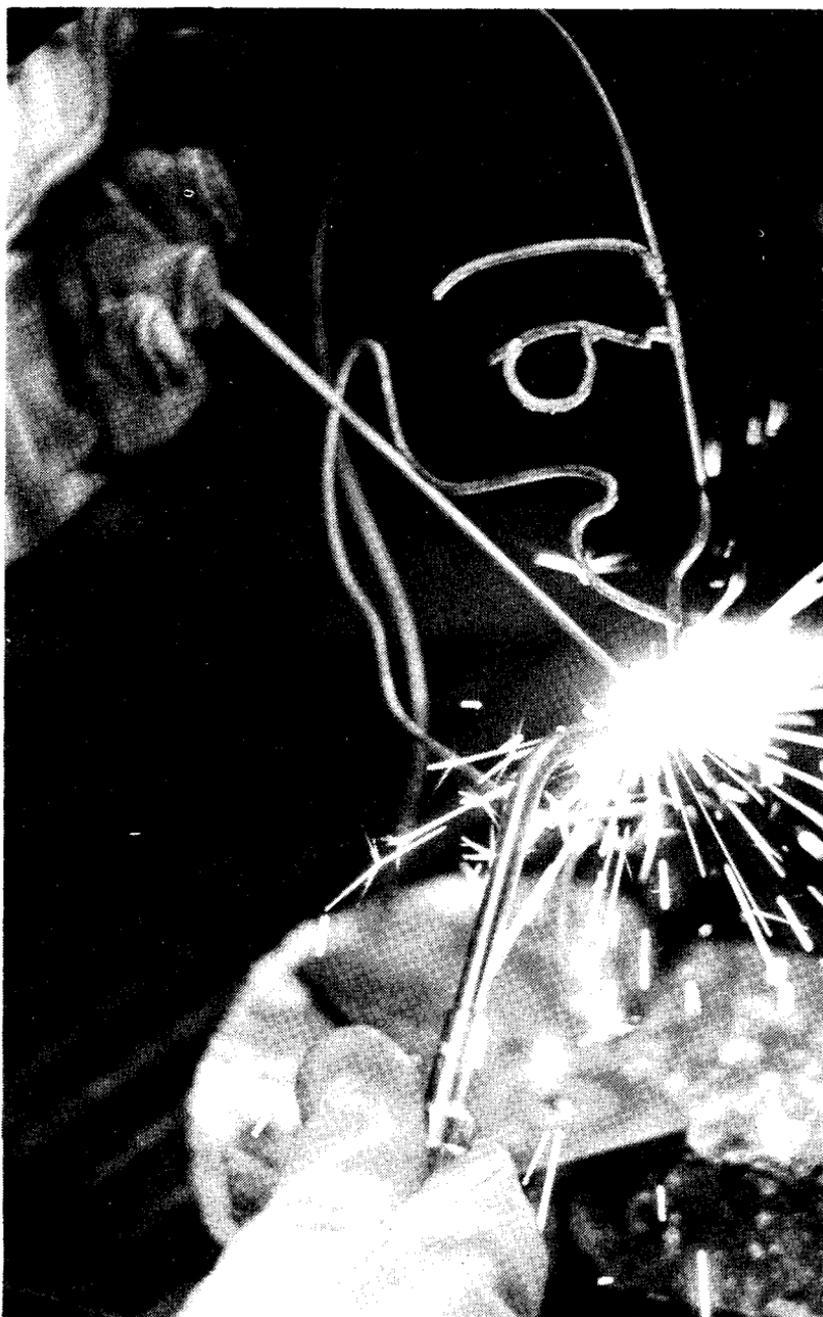




Classes Arranged To Meet Community's Needs

Activity is a 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

Radiologic Technology Program
Accredited by
COMMITTEE ON ALLIED HEALTH
COUNCIL ON MEDICAL EDUCATION,
AMERICAN MEDICAL ASSOCIATION
and Accreditation upon Recommendation of the
JOINT REVIEW COMMITTEE ON EDUCATION
IN RADIOLOGIC TECHNOLOGY

Respiratory Therapy Program
Approved by
COUNCIL ON MEDICAL EDUCATION,
AMERICAN MEDICAL ASSOCIATION

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

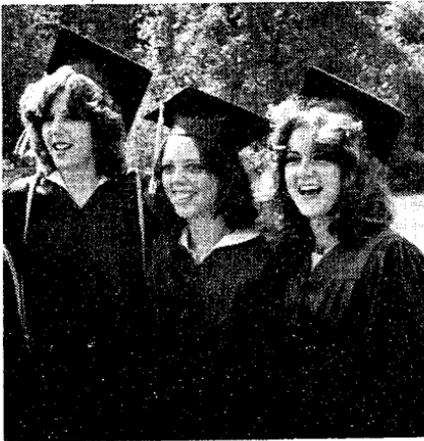
An Institutional Member of
AMERICAN ASSOCIATION OF
COMMUNITY AND JUNIOR COLLEGES

A Member of
MICHIGAN COMMUNITY COLLEGE ASSOCIATION

An Affirmative Action/Equal Opportunity, Title IX Institution



GENERAL INFORMATION



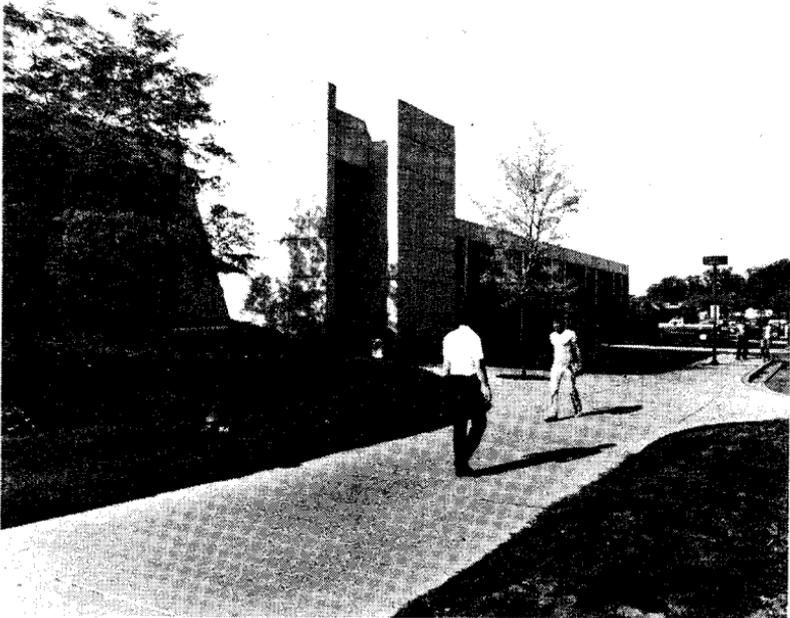
STATEMENT OF PHILOSOPHY AND MISSION

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. Allied Health Program applicants are encouraged to apply in their junior year of high school or one year in advance of anticipated acceptance in the program.

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) 973-3544.

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 \$16.00 per credit hour for in-district residents; \$29.00 per credit hour for out-of-district but in-state residents; \$40.00 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) 973-3524 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 sponsorship 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.

Late registrations are accepted only on a space available basis during the first five days of classes. If a student registers after the late registration period, he or she must also have the signature of the instructor in order to do so.

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 full-time 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.

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.

Registration Withholds:

Students will be withheld from registering if they have failed to meet their financial responsibilities to the College or for disciplinary reasons. 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 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.

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.

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 Registrar, 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:

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

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

An F-2 and J-2 student may be granted in-district residency if they can furnish proof they have been residing here and working full-time for at least six months prior to registration.

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.

Returning Students:

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

Student Classifications:

A **Full-time Student** is one who enrolls in twelve or more credit hours.

A **Part-time Student** is one who enrolls in less than twelve credit hours.

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 an official

transcript 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 Counseling 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 Counseling Office personnel.

Walk-In Students:

New students who have not had their applications processed, should attend one of the orientation sessions and register at their scheduled time or any time after that.

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:

In the case of official withdrawal from the College prior to the first day of classes, the student may claim a 100% refund of tuition paid less a processing fee of \$8.75. The student may claim a 75% refund of the tuition paid if the withdrawal is made during the first ten days of classes. The student may claim 50% of the tuition if the withdrawal is made after the tenth day of classes and before the end of the fourth week of classes. 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 classes and wishes to be considered for a student refund, he or she must petition the Registrar in writing stating reasons why such a refund should be granted. A check covering your refund will be sent to you within four to six weeks.

Drops and Adds:

Students wishing to drop and add courses should obtain signatures approving this from their advisors or from Counseling Office staff as well as approval from the Registrar's Office. During the official drop and add period a student may add 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.

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 fifth (5th) day of classes.

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 Building.

VETERAN CERTIFICATION

(973-3545)

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 Chapter 34 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 representative in the Registrar's 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 20-76-84, the College has developed the following standards for progress. Each Veteran student must conform to these standards to be eligible for Veterans Administration Educational Benefit Certification.

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.
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. A Veteran student is required to make satisfactory progress toward his/her approved program of study.
 - a. Courses not included in an approved program of study will be certified, subject to approval of the Veterans Administration.
 - b. For the General Studies Program, a maximum of 60 credit hours is allowed. Three must be in English and three in Political Science.
 - c. Veteran students accumulating more than 12 credits of 'F' grades will not be certified for further enrollment without approval of the Veterans Administration.
 - d. 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 those requirements. General Study Programs do 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

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 transferrable (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:

Basic Two-Year Requirements	Hours
English Composition	6
Social Science	8
Natural Science	8
Humanities	8

Note: In each area (except English) courses will be taken in more than one academic discipline. At least one of the Natural Science courses will be a laboratory course. Humanities (at Washtenaw Community College) include courses in Art, Foreign Language, Humanities, Literature, Music, and Philosophy.

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:

Curriculum Area	Number of Semester Courses Recommended
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
	TOTAL 15

To receive a full two years of transfer credit, a program of approximately 60 semester credits or 90 quarter credits is required. If available, course 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 Commercial Science (BCS) 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.

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 Black Studies, English, Humanities, Life Science, Mathematics, 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, social sciences and Black Studies, 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;
- Meet the requirements of Michigan law with respect to government and political science courses;
- 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.

A portion of Occupational Education comprises programs of study in Accounting and Data Processing Careers, Business Career Areas, Food and Hospitality Service Careers, Public Service Careers, and Secretarial and Office Careers.

Another array of Occupational Education programs includes studies in Auto Service Careers, Electrical Careers, Drafting and Construction Technology Careers, Industrial Technology Careers, Nursing Careers, Radiologic Technology Careers, and Respiratory Therapy Careers and Visual Arts Careers. In addition, Trade Related Instruction and Apprenticeship 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 a non-laboratory class for fifty-five minutes, once a week for fifteen weeks. In a laboratory course, one credit is granted for from two to four (fifty-five) periods per week in the laboratory.

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, effective Fall, 1981.
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.



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	} 040 numbered classes and below
U * — Unsatisfactory	
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.

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.

Certificates are available only in certain study areas.

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

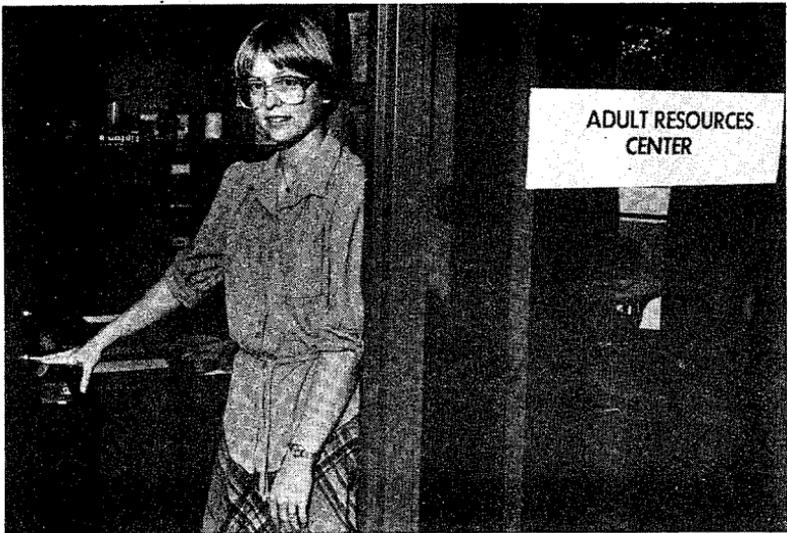
Adult Resources Center (973-3528):

This is a special center offering help with:

- Re-entering School
- Career Decisions
- Interest Inventories
- Information about Courses and Programs
- Scholarships and Financial Aid
- Personal Counseling

It is a counseling center designed especially for any adult at Washtenaw Community College who has recently returned to school and for people who are thinking of enrolling. The Center is designed to assist people who are examining career choices, considering returning to school, looking for a new direction, or wanting to improve professional and personal skills.

The center is a place where people may come and find someone to talk with about their concerns, ideas and plans. Center hours are Monday through Friday from 9:00 a.m. to 5:00 p.m. and Wednesday evenings



from 6:00 to 8:00 p.m. The Center is located on the first floor of the Student Center Building, SC140, 4800 East Huron River Drive, Ann Arbor. The Center's phone number is (313) 973-3528.

Please stop by or call for more information regarding services and assistance available. Both professional staff and peer aides are available.

Alumni Association (973-3500):

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) 973-3500.

Athletics (973-3440):

The College offers the student an opportunity to compete in a variety of intercollegiate sports.

Washtenaw Community College is a member of the Eastern Collegiate Conference, Michigan Community College Athletic Association and Region XII of the National Junior College Athletic Association.

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.

Business, Industry and Labor Services Office (973-3533):

The interfacing of all college services for Business, Industry and Labor is facilitated through this office.

The total resources of the College can be made available to assist employers and their employees.

Specific services include training assistance, seminars, workshops, courses and programs provided either on campus or at convenient times and locations.

The office provides counseling and advising services to employees referred to the College for up-grading, continuing education or skill development.

Employers and employees are encouraged to take advantage of the services offered by the College. If you have questions, call the Director of Business, Industry and Labor Services at 973-3533.

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 in conjunction with the Counseling Center offers the following services:

1. Career counseling.
2. Career planning seminars.
3. Occupational testing.
4. Transfer information.
5. Career reference library.

Each semester job finding assistance is offered in workshops planned by the Center or by appointment on an individual basis.

Various classified job orders, posted on bulletin boards throughout



campus and maintained in job books at the Center, are made available through personalized referral by the Placement Center staff. Methods of application and postings of government jobs (local, state and federal) are also made available; schedules and sign-up sheets for on-campus employer recruitment can provide students with opportunities to be personally interviewed. Contact staff at (313) 973-3558.

Children's Center (973-3538):

Because many parents need and desire to return to college, but have difficulty doing this because of their need for child care, and because we know children thrive on early learning experiences in a warm, accepting atmosphere, Washtenaw Community College has provided in the Family Education Building, a child care center for students while attending class and associated activities.

Hours: 7:30 a.m. to 5:30 p.m., Monday through Friday (no evening or weekend hours).

Ages: 1½ to 5 years (Kindergarten children may attend half-days). Children need NOT be toilet-trained.

Attendance: The facility is designed to care for children while parents are attending class, studying on campus, or while a student is employed on campus.

Enrollment: Children must be enrolled EACH semester. An enroll-



ment table will be set up at the registration area in the Student Center Building.

The first week of registration is reserved for the enrollment of returning children. The second and third weeks are open to all for Children's Center enrollment on a "first come—first served" basis.

Children's Center enrollment begins when WCC registration begins. Specific rooms at the Center close when the maximum number of enrollees is reached.

Please feel free to come and visit the Center before enrolling your child.

Fees: For more specific information on enrolling your child and on the hourly fees to be charged, ask for information at the Children's Center in the Family Education Building.

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 in Temporary A-4.

Community Services—Ypsilanti Center (482-2230):

Community Services means many things to many people. At Washtenaw Community College, it means short-term courses, seminars, workshops, institutes, demonstrations, and performances on a non-credit or credit basis in response to requests and needs of the community.

Classes and activities are held throughout the year on campus and in a variety of locations throughout Washtenaw County. Most classes are in the evening but there are also weekday and weekend offerings.

Community Services is designed so that individuals may explore new fields of study, increase proficiency in a profession, develop new potentials or skills and enrich their lives through cultural and recreational studies. This approach offers opportunities for lifelong learning, continuing education, cultural and community enrichment, personal entertainment and recreation, and resources for industry, government and professional groups.

The special activities and studies which Washtenaw Community College offers through its Office of Community Services are designed to provide exciting opportunities for the general public to receive life-centered and lifelong education in a variety of life-career and personal interests areas. With its objective of continuing life education, Community Services provides real opportunities to meet the desire for an education that focuses on life experiences in a way that recognizes the rapid changes and complexities in today's world. These college experiences, which are credit or non-credit studies, may range from coping with handicaps and managing stress to obtaining real-estate information and becoming a more knowledgeable consumer. For more information please call (313) 482-2230.

Counseling Center (973-3464):

Full-time 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., and Monday through Thursday evenings 6:30–8:30 p.m. 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, and transfer information.

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 source 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 Fall, 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.

Extension Centers (973-3408):

Registration for classes offered off-campus throughout the college district at county high schools and various other facilities and locations may be completed either on campus during normal registration periods or during the first week of classes at the extension centers. These centers include various locations in Ann Arbor (including two downtown sites), Brighton, Chelsea, Manchester, Milan, Saline, Whitmore Lake, Willow Run and Ypsilanti.

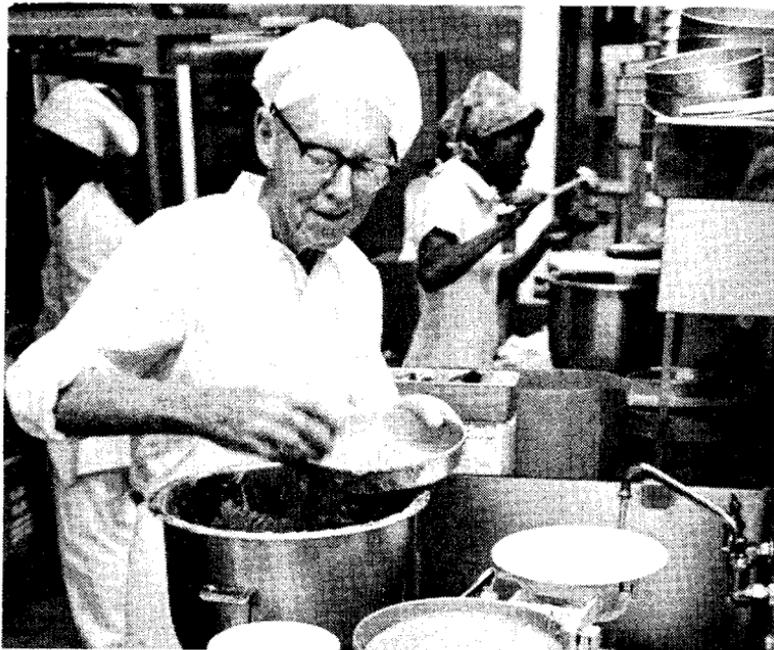
Emeritus Program—Mature Adult Development (482-2230):

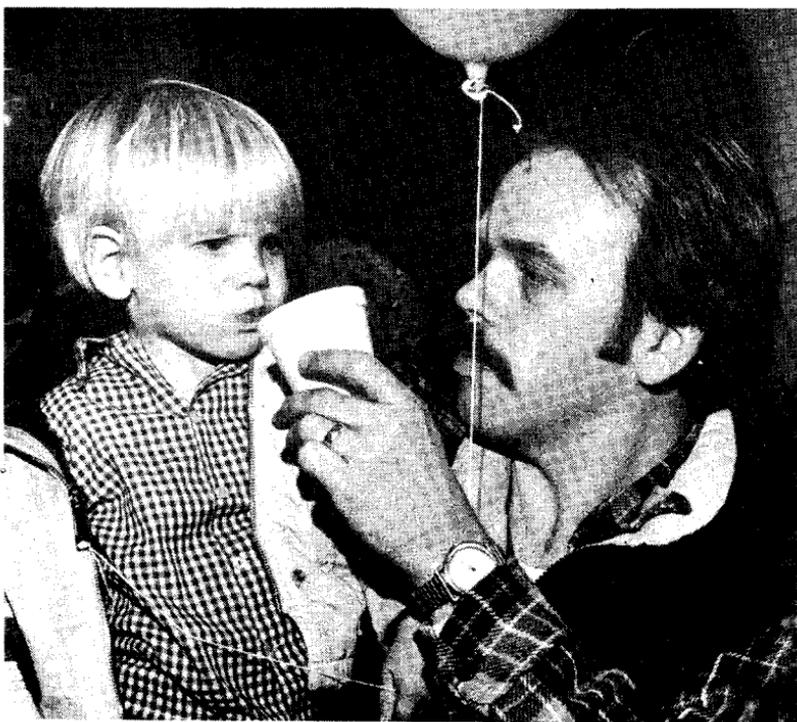
Retired persons have special opportunities at Washtenaw Community College as members of the Emeritus Program. Any citizen in the Washtenaw Community College District who is retired and 60 or older may take any course at the College free of charge. Other courses designed for retired citizens are offered, off-campus, at places convenient for senior students.

In addition, if an enrollment of at least 25 people can be guaranteed, the College will offer courses which are not part of its regularly scheduled offerings. This includes craft or activity classes.

Retired citizens may enroll for a class by following regular Registration procedures without experiencing any additional costs.

For additional information on special courses, call the College at (313) 973-3300, extension 525, or 482-2230.





Family Education Program (482-2230):

In an effort to provide support to the family, Washtenaw Community College is offering a series of credit and non-credit 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 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 any Community Services or Family Education workshops, etc. can be taken by mail or in person at the Community Services office, 210 W. Cross, Room 329, Ypsilanti, Michigan 48197. Pre-register by calling (313)482-2230.

Financial Aid (973-3525):

The Financial Aids Office at Washtenaw Community College exists to help students with financial difficulties they may encounter while attend-

ing 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.

The expected family contribution is calculated by a systemized method of needs analysis used by College Scholarship Service and based on the following assumptions:

1. The student's family bears a primary responsibility for the student's education. Thus, if a student has been dependent in any way upon his parents or other person(s) during two years prior to the beginning of the academic year, the parents (or other person) are expected to make a reasonable contribution toward the student's college expenses. The expected contribution from parents is based on supplemental income available to the family, after allowing for essential living expenses and a modest retirement allowance for the parents.
2. The student bears the major responsibility for his/her education. Thus, all resources available to him/her, including earnings, non-taxable benefits, savings and other assets, are considered in determining a reasonable student's contribution toward educational costs.
3. Outside financial aid should be made available to meet student costs only after other expected resources are deemed unavailable.

In order to determine the expected family and student contribution toward educational expenses, the student must complete the ap-

propriate applications for financial aid so that a need analysis can be completed. The financial aid applications consist of the following forms:

1. Washtenaw Community College Financial Aid Application—must be completed and returned before other applications are given to the student.
2. Financial Aid Form—This application is processed by the College Scholarship Service and sent to Washtenaw Community College.
3. Basic Educational Opportunity Grant Application—a separate application which must be processed by American College Testing Service. Results are sent directly to the student, who must then bring them to Washtenaw Community College to receive the award.
4. Parental Affidavit of Non-Support—required from all students who are claiming self-supporting status.
5. Financial Aid Transcript—for students transferring from other institutions.
6. Additional documentation of student resources or status of family resources may be required for evaluation of the student's aid application, such as IRS 1040's.

Upon receipt of all applications, and additional necessary information, the student's application will be evaluated and the student will receive written notification of the action taken.

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. citizens or permanent residents.
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.

Basic Educational Opportunity Grant Program:

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. Students can receive the BEOG for a maximum of four academic years.

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 4% 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 deferral 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 \$90.00 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.

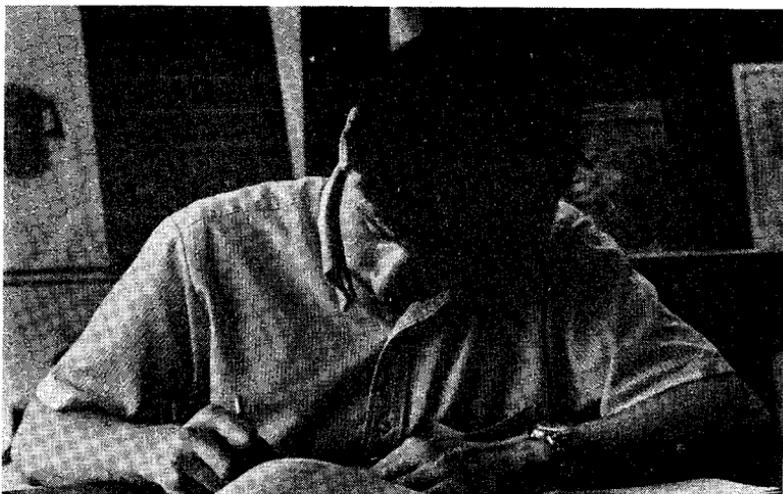
Selection of persons will be on the basis of financial need, demonstrated occupational objectives, and potential to succeed in a chosen career.

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 \$16 per credit hour for Washtenaw County residents, \$29 per credit hour for out-of-county residents, and \$40 per credit hour for



out-of-state students. Books and supplies are estimated at \$200 for two semesters.

Additional Programs:

Guaranteed Student Loan Program (MHEEA 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.

Law Enforcement Education Program: Grants for tuition are available to full-time law enforcement and corrections officers to attend Washtenaw Community College. Students must make a commitment to the field for a period of two years after receiving the grant. Applications are available in the Financial Aids Office.

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.

Washtenaw Community College Student Emergency Loan Fund: A small revolving loan fund is available to Washtenaw Community College students for emergency situations. Students can receive up to \$50, depending on the availability of funds and their stated need. Applications are available through the Financial Aids Office.

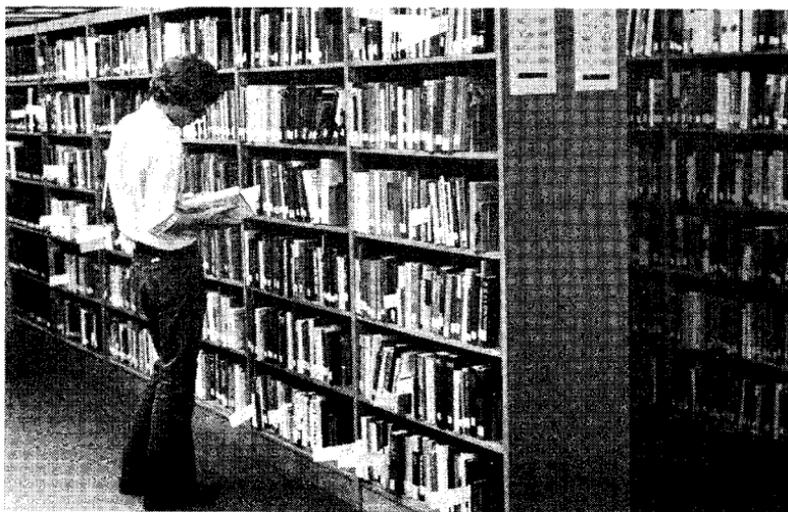
Housing:

The College is primarily an institution for commuting students; therefore, no dormitory facilities are provided. Students who require accommodations should contact the Office of Student Services.

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 filmstrips.

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, 177AB, 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.

Office for Students with Special Needs (973-3616):

The Office is interested in working to provide resources for the disabled so they may overcome barriers to their education. Whether he or she is blind or hearing impaired or a wheelchair user or whether he or she has a less visible handicap such as a heart condition, arthritis, or an addiction, the Office can:

- Introduce you to other students;
- Direct you to the proper resources on campus;
- Put you in contact with appropriate community organizations;
- Mediate problems;
- Work out innovative solutions to problems on a case-by-case basis;
- Refer you to adaptive equipment.

All information submitted to the Office will be treated in strict confidence. Whether or not you will need special services, please stop by and share your ideas. The Office has a large collection of information concerning issues of interest to the handicapped. Stop by with problems, questions, suggestions, or comments. Contact staff in the Student Center Building or call (313) 973-3661 Monday through Friday, 9:00 a.m.—5:00 p.m.

Upon registering you will find a blue form entitled "REQUEST FOR HANDICAPPED SERVICES". If you have any disability that may require special arrangements in order for you to have full access to any of WCC's programs, please fill out this form. By so identifying yourself in advance, you enable the Office to work more effectively with you in overcoming any potential barriers you may encounter. This form is optional and confidential.

Reading Center (973-3301):

A Reading Center is 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. In addition to classes in Reading, Children's Reading, Spelling and Vocabulary Power, Study Skills and Advanced Spelling, Vocabulary Power, and Speed Reading, the Center provides individual help for those who come to the Center in the Student Center Building.

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 Concerns Office (973-3313):

The interest of the Student Concerns Office is to resolve student complaints efficiently and equitably to the general satisfaction of the student and staff involved. In most instances concerns are resolved effectively by the student communicating directly with the appropriate instructor, administrator or staff person. When the usual informal procedures have not functioned, the student should contact the Student Concerns Office for assistance through the College Counseling Center.

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)

Tutoring (973-3464):

Washtenaw Community College is offering a new pilot program in Peer Tutoring. Tutoring service is available in several instructional areas. Tutoring information can be obtained from the Counseling Office. Students who want to become paid tutors should also contact the Counseling Office. The Counseling Office is located in Room 2101, Student Center Building, telephone 973-3464.

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 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 on 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.

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.

DISCLAIMERS

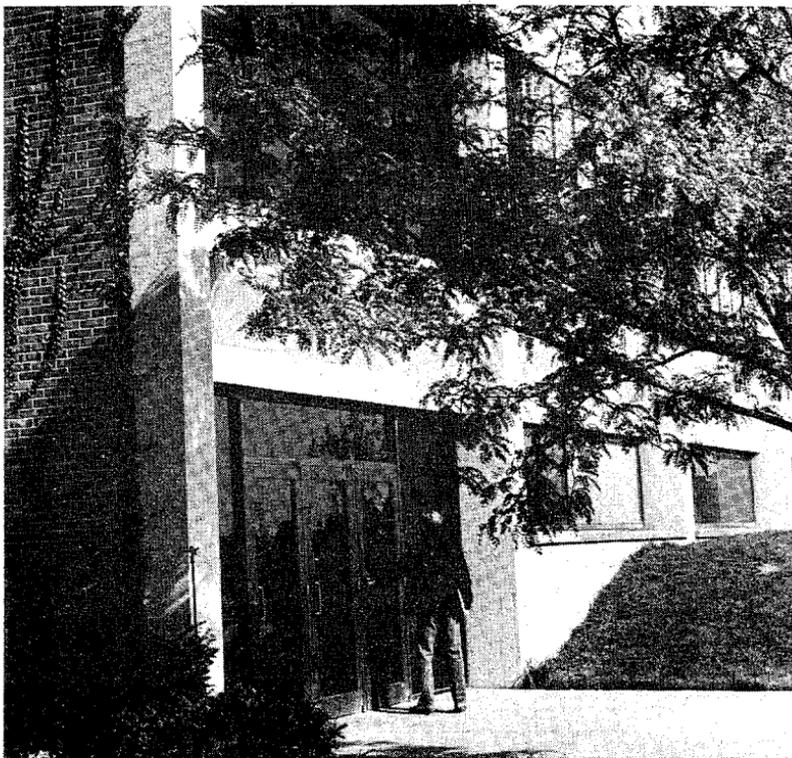
a. This document is for informational purposes only and is not to be construed as a binding offer or contract between the College and the student.

b. This document was prepared on February 1, 1981 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.

It is the policy of Washtenaw Community College not to discriminate on the basis of sex or race in admissions, employment or in the operation of any educational program or activity. Any inquiries should be directed to Title IX Coordinator, Washtenaw Community College, 4800 East Huron River Drive, P.O. Box D-1, Ann Arbor, Michigan 48106, (313)482-2230.



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BUSINESS AND INDUSTRIAL MANAGEMENT CAREERS

ACCOUNTING AND DATA PROCESSING

Accounting

Two-Year Program: Code 521

Advisors: Paul C. Kokkales and Norma Meyers

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	BUS 140	Business Occupational Foundations	3
1	ACC 111	Principles of Accounting	3
2	DP 111A	Data Processing/Computer Concepts*	3
2	DP 111B	Data Processing/Computer Functions*	3
1	MTH 163	Business Mathematics or	
	MTH 167	Finite Mathematics or	
		Mathematics Elective	3
5	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
			19
Second Term			
2	ACC 122	Principles of Accounting	3
5	SO 130	Business Machines	3
4	ENG 111	English Composition or	
	ENG 122	English Composition	3-4
5	SPH 101	Fundamentals of Speaking	3
8	PLS 108	Government and Society	3
			15-16
Third Term			
3	ACC 213	Intermediate Accounting	3
6	GA 111	Business Law	3
6	EC 211	Principles of Economics	3
2	BUS 207	Business Communication	3
3	MGT 230	Office Management	3
			15
Fourth Term			
4	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 200	Principles of Finance	3
8	IE 200	Internship-Externship or Business Elective**	3
			15
Total Credit Hours for Program: 64-65			15

Student may elect additional course in data-record operations.

*Meets 6 hours per week for 7½ weeks.

**BUS 122 Business Law

**ACC 200 Personal Tax Accounting

**Other Electives (with) Program Adviser Consultation

Data Processing

Two-Year Program: Code 531

**Advisors: Charles A. Finkbeiner, LeAnn Kantner,
James Burkett, John Rinn and John R. Wotring**

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	BUS 140	Business Occupational Foundations	3
1	DP 111A	Data Processing/Computer Concepts*	3
2	DP 111B	Data Processing/Computer Functions*	3
2	MTH 163	Business Math or Math Elective	3
5	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
			16
Second Term			
2	DP 122B	Data Processing Programming/RPG I and II* or	
3	DP 111C	Data Processing Programming/Business Fortran IV* or	
4	DP 111D	Data Processing Programming/B.A.S.I.C.*	3
2	DP 122A	Data Processing/Computer Flowcharting Techniques*	3
4	ACC 111	Principles of Accounting	3
6	ENG 111	English Composition or	
	ENG 122	English composition or	
	BUS 207	Business Communication (division consent required)	3-4
5	SPH 101	Fundamentals of Speaking	3
			16-17
Third Term			
3	DP 213A	Computer Programming/Introductory COBOL*	3
3	DP 213B	Computer Programming/Intermediate COBOL*	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
6	BUS 111	Business Law	3
7	EC 211	Principles of Economics	3
6	PLS 108	Government and Society	3
			18
Fourth Term			
3	DP 213C	Computer Programming/Advanced COBOL*	3
4	DP 224A	Data Processing/Computer File Design Concepts*	3
7	MGT 230	Office Management	3
7	MGT 200	Human Relations in Business & Industry	3
8	IE 200	Intern-Extern or Business Elective (Optional)	3
	EC 222	Principles of Economics	3
			18
Total Credit Hours for Program: 68-69			

*Meets 6 hours per week for 7½ weeks

Data Record Operation
One-Year Program: Code 532
Advisors: Charles Finkbeiner, Jim Burkett,
LeAnn Kantner, John Rinn and John R. Wotring

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
2	DP 111A	Data Processing/Computer Concepts	3
2	DP 111B	Data Processing/Computer Functions	3
1	BUS 140	Business Occupational Foundations	3
1	MTH 090	Foundations of Occupational Mathematics or Math Elective	3
2	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
			16
Second Term			
3	DP 122A	Data Processing/Computer Flowcharting Techniques*	3
3	DP 122B	Data Processing Programming/RPG I & II*	3
3	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
4	MGT 200	Human Relations in Business & Industry	3
5	IE 200	Internship-Externship or Business Elective	3
4	SPH 101	Fundamentals of Speaking	3
			18

Total Credit Hours for Program: 34

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

BUSINESS

Management

Two-Year Program: Code 541
Advisors: Robert W. Paulson, Ronald Zeeb

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	BUS 140	Business Occupational Foundations	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
5	BUS 111	Business Law	3
1	ENG 091	Fundamentals of English or	
	ENG 111	English Composition	4
1	MTH 163	Mathematics for Business Occupations or Mathematics Elective	3
			16

Second Term			
8	SPH 101	Fundamentals of Speaking	3
2	SO 130	Business Machines	3
4	DP 111A	Data Processing/Computer Concepts*	3
4	DP 111B	Data Processing/Computer Functions*	3
2	ENG 111	English Composition or	
	ENG 122	English Composition	3-4
	ACC 092	Fundamentals of Accounting or	
5	ACC 122	Principles of Accounting	3
			19-20
Third Term			
3	MGT 208	Principles of Management	3
4	MGT 250	Principles of Marketing	3
7	BUS 207	Business Communication	3
3	EC 211	Principles of Economics	3
	MGT 160	Principles of Salesmanship or	
7	IE 200	Internship-Externship	3
			15
Fourth Term			
6	MGT 200	Human Relations in Business and Industry	3
6	MGT 240	Personnel Management	3
2	EC 222	Principles of Economics	3
8	IE 200	Internship-Externship or Business Elective	3
8	PLS 108	Government and Society	3
			15

Total Credit Hours for Program: 65-66

Student may elect additional courses in data-record operations.

*Meets 6 hours per week for 7½ weeks.

Marketing Technology
Two-Year Program: Code 542
Advisors: Ronald Zeeb, Robert Paulson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	BUS 140	Business Occupational Foundations	3
1	MTH 163	Mathematics for Business Occupations or Math Elective	3
2	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
7	MGT 160	Principles of Salesmanship	3
			16
Second Term			
2	DP 111A	Data Processing/Computer Concepts	3
2	DP 111B	Data Processing/Computer Functions*	3

1	SO 130	Business Machines	3
3	BUS 207	Business Communications or	
	ENG 111	English Composition or	
	ENG 122	English Composition	3-4
6	BUS 111	Business Law	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
			19-20
	Third Term		
5	MGT 200	Human Relations in Business and Industry	3
5	EC 211	Principles of Economics	3
3	MGT 250	Principles of Marketing	3
4	MGT 208	Principles of Management	3
3	SPH 101	Foundations of Speaking	3
			15
	Fourth Term		
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
4	PLS 108	Government and Society	3
			15

Total Credit Hours for Program: 65-66

Student may elect additional courses in data-record operations.

*Meets 6 hours per week for 7½ weeks.

Marketing
One-Year Program: Code 543
Advisor: Ronald Zeeb

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
	First Term		
1	BUS 140	Business Occupational Foundations	3
1	MTH 163	Mathematics for Business Occupations or Mathematics Elective	3
2	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
3	SPH 101	Fundamentals of Speaking	3
4	PSY 100	Introductory Psychology	3
			16
	Second Term		
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	SO 130	Business Machines	3
6	IE 200	Internship-Externship or Business Elective	3
			18

Total Credit Hours for Program: 34

Public Administration
Two-Year Program: Code 551
Advisors: Ronald Zeeb, Robert W. Paulson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	PLS 108	Government and Society or Elective**	3
2	PSY 100	Introductory Psychology	3
1	MTH 163	Mathematics for Business Occupations	3
1	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
3	SPH 101	Fundamentals of Speaking	3
			<u>16</u>
Second Term			
3	MGT 208	Principles of Management	3
2	PLS 150	State and Local Government and Politics	3
3	PHL 101	Introduction to Philosophy	3
2	ENG 111	English Composition or	3-4
	ENG 122	English Composition or Elective**	
			<u>12-13</u>
Third Term			
5	MGT 240	Personnel Management	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
4	BUS 111	Business Law	3
4	DP 111A	Data Processing/Computer Concepts*	3
4	DP 111B	Data Processing/Computer Functions*	3
7	IE 200	Internship-Externship or Elective**	3
			<u>18</u>
Fourth Term			
6	EC 111	Consumer Economics	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
6	BUS 207	Business Communication	3
7	SOC 100	Principles of Sociology	3
8	IE 200	Internship-Externship or Elective**	3
			<u>15</u>

Total Credit Hours for Program: 61-62

Student may elect additional courses in data-record operations.

*Meets 6 hours per week for 7½ weeks.

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

MGT 200	Human Relations in Business and Industry	3
MGT 150	Labor-Management Relations	3
PSY 209	Psychology of Adjustment	3

SECRETARIAL AND OFFICE

Clerk-Typing

One-Year Program: Code 562

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	SO 101	(102, 203) Typewriting and/or Elective*	3
3	BUS 140	Business Occupational Foundations	3
3	MTH 090	Foundations of Occupational Mathematics or Mathematics Elective	3
4	ENG 091	English Fundamentals or	4
	ENG 111	English Composition	3
		Business Elective	3
			16
Second Term			
2	SO 102	(203) Typewriting and/or Elective*	3
2	GB 207	Business Communication	3
4	SO 130	Business Machines	3
	SO 107	Clerical Methods and Procedures	4
6	IE 200	Internship-Externship or Business Elective	3
			16

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.)

Legal Secretary

Two-Year Program: Code 563

Advisors: Jerry Patt, Evelyln Wilson

Course	Description	Hrs.
First Term		
SO 102	Typewriting	3
DP 100	Data Processing or	
SO 151	Word Processing	3
ENG 111	English Composition or	
ENG 091	English Fundamentals	4
SO 110	Foundations of Law	3
SO 131	Shorthand 132, 133, 203 or	
SO 141	Machine Shorthand	2-4
		15-17
Second Term		
SO 203	Typewriting	3
SO 132	Shorthand or	
SO 142	Machine Shorthand	2-3
GB 111	Business Law	3
MTH 090	Occupational Mathematics	3
SO 122	Domestic Relations	3

PLS 108	Government and Society	3
		17-18

Third Term

SO 133	Shorthand 231 or	
SO 243	Machine Shorthand	2-3
SO 213	Legal Typewriting	3
SO 130	Business Machines	3
ACC 111	Principles of Accounting or	
ACC 091	Fundamentals of Accounting	3
SO 212	Legal Research	3
		14-15

Fourth Term

SO 231	Shorthand 232 or	
SO 244	Machine Shorthand	2-3
GB 207	Business Communications	3
SO 227	Legal Office Systems and Procedures	4
IE 200	Intern-Externship	3
MGT 200	Human Relations in Business and Industry or	
MGT 230	Office Management or Business Elective	3
		15-16

Total Credit Hours for Program: 61-66

Medical Secretary
Two-Year Program: Code 731
Advisor: Jerry Patt

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	SO 101	Typewriting	3
1	DP 100	Data Processing	3
3	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
2	HS 113	Introduction to Medical Science	2
3	BIO 105	Medical Terminology	2
4	MTH 090	Occupational Mathematics	3
			17
Second Term			
2	SO 102	Typewriting	3
6	BIO 111	Anatomy and Physiology	4
4	PSY 100	Introduction to Psychology	3
5	SO 130	Business Machines	3
	Elective	Shorthand 131 or Machine	
		Shorthand 141 or	
		Accounting 090 or 111 or DP 111D	2-3
			15-16
Third Term			
3	SO 210	Medical Transcription	3
5	SO 107	Clerical Procedures	4
7	PLS 108	Government and Society	3
4	IE 200	Intern-Externship	3
	Elective	Shorthand or Machine Shorthand or	

		Accounting or Electrocardiogram HS 114	2-3 <u>15-16</u>
Fourth Term			
4	SO 250	Office Systems and Procedures	4
6	SO 223	Medical Typewriting (insurance/office forms)	3
6	GB 207	Business Communications	3
5	IE 200	Intern-Externship	3
	Elective	Speech 100 or Office Management 230 or Human Relations 200	<u>3</u> <u>16</u>

Total Credit Hours for Program: 63-65

Secretary

Two-Year Program: Code 561

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	SO 101	(102, 203) Typewriting and/or Elective*	3
1	SO 131	(132, 133) Shorthand and/or Elective*	3-4
2	GB 140	Business Occupational Foundations	3
1	MTH 090	Foundations of Occupational Mathematics or Mathematics Elective	3
3	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
			<u>16-17</u>
Second Term			
2	SO 102	(203) Typewriting and/or Elective*	3
2	SO 132	(133, 231) Shorthand and/or Elective*	3
3	SO 130	Business Machines	3
7	PLS 108	Government and Society	3
5	SPH 101	Fundamentals of Speaking	3
			<u>15</u>
Third Term			
3	SO 133	(231, 232) Shorthand and/or Elective*	3
3	DP 100	Introduction to Computers	3
7	SO 151	Word Processing	3
6	GB 111	Business Law	3
5	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
6	MGT 200	Human Relations in Business	3
			<u>18</u>
Fourth Term			
4	SO 250	Office Systems and Procedures	4
6	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
8	GB 207	Business Communication	3
3	SO 231	(232) Shorthand	3

8	IE 200	Internship-Externship or Business Elective	3
			<u>16</u>

Total Credit Hours for Program: 65-66

*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 Charleton, Evlyn Wilson, Wanda Burch

Course	Description	Hrs.
First Term		
SO 151	Word Processing Principles	3
SO 102	(203) Typewriting and/or Elective	3
GB 140	Business Occupational Foundations	3
MTH 090	Foundations of Occupational Mathematics or Mathematics Elective	3
ENG 090	English Fundamentals or	
ENG 111	English Composition	4
		<u>16</u>
Second Term		
SO 152	Word Processing Applications/Transcription Equipment	2
SO 153	Word Processing Applications/Basic Practice	2
SO 203	Typewriting and/or Elective	3
IC 200	Internship-Externship or Business Elective*	3
DP 100	Data Processing	3
DP 111D	Data Processing/Programming BASIC**	3
		<u>16</u>
Third Term		
SO 214	Word Processing Applications/Advanced Practice	3
SO 250	Office Systems and Procedures	4
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
GB 207	Business Communications	3
IE 200	Intern-Externship or Business Elective	3
		<u>16</u>
Fourth Term		
SO 225	Word Processing Systems and Procedures	3
SPH 101	Fundamentals of Speaking	3
MGT 230	Office Management	3
MGT 200	Human Relations in Business and Industry	3
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.

HEALTH OCCUPATION CAREERS

DENTAL AUXILIARY

Dental Assisting

Two-Year Program: Code 711

Advisors: Betty Finkbeiner, LaRuth Edwards-Martin

Course	Description	Hrs.
First Term		
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	<u>4</u>
		21
Second Term		
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*	<u>3</u>
		18
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
DA 203	Nutrition and Prevention	2
PSY 100	Psychology	<u>3</u>
		20
Registered Dental Assistant Program and Associate Degree Program		
Fourth Term		
DA 224	Expanded Duties	4
PLS 150	State & 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> </u>
		13-14

**Dental Office Manager
and
Associate Degree Program**

Alternate Fourth Term

DP 100 or		
111A	Data Processing	3
PLS 150	State & 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	<u>3-4</u>
		15-16

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

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

Course	Description	Hrs.
First Term		
EM 101	EMT Principles I	2
EM 102	EMT Techniques I	2
EM 105	Patient Care Procedures	2
EM 111	Psychological Assessment for EMT	<u>2</u>
		8
Second Term		
EM 103	EMT Principles II	2
EM 104	EMT Techniques II	2
EM 106	EMT Clinical Practicum	<u>1</u>
		5
Total Credit Hours for Program: 13		

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 and University Hospital, Ann Arbor, and Beyer Memorial Hospital, Ypsilanti, Fontana-Taylor Ambulance Service and Livingston County Ambulance Service.

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

NURSING

Practical Nursing

One-Year Program: Code 760

Advisors: Phyllis Grzegorzcyk, Barbara Goodkin, Judith Vanderveen

Students are admitted to the nursing program for the Fall term or the Winter term. The following courses in the nursing program must be taken in sequence. Course requirements in non-nursing departments may be taken before entrance to the program.

Students accepted for the Fall semester must take the following courses in sequence.

Course	Description	Hrs.
First (Fall) Term		
BIO 111	Anatomy and Physiology	4
BIO 112	Anatomy and Physiology Laboratory	1
BIO 147	Hospital Microbiology—first 7½ weeks	1
NUR 100	Nursing Fundamentals with Laboratory	4
NUR 110	Nursing Clinical Experience	1
ENG 107	Communication Skills or ENG 111 English Composition	4
NUR 117	Nutrition for Nurses	2
NUR 111	Pharmacology I	1
NUR 118	Personal and Community Health	1
		19
Second (Winter) Term		
NUR 125	Medical-Surgical Nursing with Laboratory (first 7½ weeks)	2
NUR 120	Medical-Surgical Nursing Practice (first 7½ weeks)	3
NUR 126	Medical-Surgical Nursing with Laboratory (second 7½ weeks)	2
NUR 121	Medical-Surgical Nursing Practice (second 7½ weeks)	3
NUR 122	Pharmacology II	2
HS 121	Interpersonal Dynamics of Patient Care or	
PSY 100	Introductory Psychology	2-3
		14-15
Third (Spring/Summer) Term		
NUR 135	Patient-Child Nursing with Laboratory (first 8 weeks)	2
NUR 130	Parent-Child Nursing Practice (first 8 weeks)	4
NUR 140	Advanced Medical-Surgical Nursing Practice (second 6 weeks)	3
NUR 145	Advanced Medical-Surgical Nursing with Laboratory (second 6 weeks)	2
NUR 147	Growth and Development	3
NUR 133	Pharmacology III	2
		16
Total Credit Hours for Program: 49-50		

Sequence II

Students accepted for the Winter semester must take the following courses in sequence.

Course	Description	Hrs.
First (Winter) Term		
BIO 111	Anatomy and Physiology	4
Bio 112	Anatomy and Physiology Laboratory	1
BIO 147	Hospital Microbiology	1
NUR 100	Nursing Fundamentals with Laboratory	4
NUR 110	Nursing Clinical Experience	1
NUR 117	Nutrition for Nurses	2
NUR 118	Personal and Community Health	1
NUR 111	Pharmacology I	1
ENG 107	Communication Skills or	
ENG 111	English Composition	4
		19

Second (Spring/Summer) Term

NUR 125	Medical-Surgical Nursing with Laboratory (first 6 weeks)	2
NUR 120	Medical-Surgical Nursing Practice (first 8 weeks)	3
NUR 122	Pharmacology II	2
NUR 135	Parent-Child Nursing with Laboratory (second 8 weeks)	2
NUR 130	Parent-Child Nursing Practice (second 8 weeks)	4
NUR 147	Growth and Development	3
		16

Third (Fall) Term

NUR 126	Medical-Surgical Nursing with Laboratory (first 9 weeks)	2
NUR 121	Medical-Surgical Nursing Practice (first 7 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
NUR 133	Pharmacology III	2
HS 121	Interpersonal Dynamics of Patient Care or	
PSY 100	Introductory Psychology	2-3
		14-15

Total Credit Hours for Program: 49-50

This program has special application procedure and limited enrollment. Contact advisor for details.

A "D" in Anatomy and Physiology and Nursing courses is considered unsatisfactory. A 2.0 average is required for graduation from the program.

RADIOGRAPHY

Radiography

Two-Year Program: Code 741

Advisors: Robert Nelson, Gerald Baker

Course	Description	Hrs.
First (Summer) Term—7 weeks		
RT 100	Introduction to Radiography	2
RT 101	Methods of Patient Care	2
MTH 165	Health Science Math	3
		7
Second (Fall) Term—15 weeks		
RT 110	Clinical Education	2
RT 111	Fundamentals of Radiography	3
RT 112	Radiographic Positioning	2
BIO 111	Anatomy and Physiology	4
BIO 112	Anatomy and Physiology Laboratory	1
BIO 105	Medical Terminology	2
		14
Third (Winter) Term—15 weeks		
RT 120	Clinical Education	2
RT 123	Radiographic Positioning	2
RT 125	Radiologic Procedures and Anatomy	3
ENG	English Elective	4
PSY	Psychology Elective	3
		14
Fourth (Spring/Summer) Term—14 weeks		
RT 135	Pathology for Radiographers	2
RT 130	Clinical Education	4
		6
SECOND YEAR		
Fifth (Fall) Term—15 weeks		
RT 217	Clinical Education	3
RT 215	Radiography of the Skull	2
RT 218	Radiation Biology and Protection	3
PHY 141	Radiologic Physics	3
SOC	Sociology Elective	3
		14
Sixth (Winter) Term—15 weeks		
RT 225	Clinical Education	3
RT 224	Principles of Radiographic Exposures	3
RT 227	Radiologic Technology Laboratory	1
RT 228	Supervisory Management	2
PHY 142	Radiologic Physics	3
PLS	Political Science Elective	3
		15
Seventh (Spring) Term—7 weeks		
RT 240	Clinical Education	2
		2
Total Credit Hours for Program: 72		

High School Biology, Chemistry, and/or Physics, Math-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 2200 hours of structured clinical work experience is required to qualify for graduation and meet the standards of the American Registry of Radiologic Technologists.

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

RESPIRATORY THERAPY

Respiratory Therapy

Two-Year Program: Code 721

Advisors: Carl Hammond, Martin Redick

Course	Description	Hrs.
First Term—7 weeks		
BIO 111	Basic Anatomy and Physiology	4
BIO 112	Anatomy and Physiology Lab	1
PHY 131	Physics for Respiratory Therapy	3
RTH 106	Chemistry for Respiratory Therapy	3
RTH 121	Basic Equipment and Procedures	4
		<u>15</u>
Second Term		
BIO 105	Medical Terminology	2
BIO 147	Hospital Microbiology	1
RTH 122	Respiratory Physiology	2
RTH 123	Respiratory Physiology Laboratory and Recitation	3
RTH 199	General Clinical Practice	3
RTH 213	Intensive and Rehabilitative Respiratory Care	3
		<u>14</u>
Third Term		
RTH 149	Pathology for Respiratory Therapy	2
RTH 212	Ventilators and Diagnostic Tests	3
RTH 219	Pediatric Respiratory Therapy	2
RTH 198	Work Experience	6
		<u>13</u>
Fourth Term		
RTH 148	Pharmacology for Respiratory Therapy	2
RTH 217	Seminar-Respiratory Therapy	2
RTH 200	Advanced Clinical Practice	4
PSY	Psychology Elective (PSY 100, 108, BLS 107)	3
MTH 165	Health Science Mathematics	3
		<u>14</u>
Fifth Term		
RTH 201	Specialty Clinical Practice	4
RTH 231	Cardio Diagnostics	3
SOC	Sociology Elective (Medical Soc. 201, or 100, 150, 202, 207, 250)	3
PLS	Political Science (PLS 108, 112 or 150)	3

ENG English or Speech Elective

3-4
16-17

Total Credit Hours for Program: 72-73

High School Chemistry-Biology, one year high school Algebra, ACT tests are required. 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.

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

Respiratory Therapy
Alternate "B" One-Year Program: Code 723
Advisors: Carl Hammond, Martin Redick

For persons holding a baccalaureate degree with a science major, consult advisor.

Course	Description	Hrs.
First Term		
RTH 121	Basic Equipment and Procedures	4
RTH 122	Respiratory Physiology	2
RTH 123	Respiratory Physiology Laboratory and Recitation	3
RTH 199	General Clinical Practice	3
RTH 213	Intensive and Rehabilitative Respiratory Care	3
		15
Second Term		
RTH 149	Pathology for Respiratory Therapy	2
RTH 212	Ventilators and Diagnostic Tests	3
RTH 219	Pediatric Respiratory Therapy	2
RTH 200	Advanced Clinical Practice	4
		11
Third Term		
BIO 147	Hospital Microbiology	1
BIO 105	Medical Terminology	2
RTH 148	Pharmacology for Respiratory Therapy	2
RTH 217	Seminar-Respiratory Therapy	2
RTH 201	Specialty Clinical Practice	4
RTH 214	Cardio Diagnostics	3
		14
Total Credit Hours for Program: 40		

HUMAN SERVICE CAREERS

FOOD AND HOSPITALITY

Culinary Arts

Two-Year Program: Code 641

Advisors: James Beaton, Dallas Garrett, Jillaine Beauchamp

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First (Fall) Term			
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>
Second (Winter) Term			
5	CUL 122	Quantity Food Production	6
8	CUL 120	Organization and Management	3
6	HMT 100	Hospitality Industry Accounting	3
2	PLS 108	Governmental Society	3
			<u>15</u>
Third (Spring) Term			
9	CUL 227	Advanced Culinary Arts Technique	6
Fourth (Fall) Term			
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>
Fifth (Winter) (Spring) Term			
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	English	3-4
13	CUL 199	On-the-Job Training—20 hours per week, 15 weeks	3
12	DP 100	Introduction to Computers	3
			<u>16-18</u>

Total Credit Hours for Program: 67-69

Food Services
One-Year Program: Code 642
Advisors: James Beaton, Don Garrett, Jillaine Beauchamp

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First (Fall) Term			
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
			<u>15</u>
Second (Winter) Term			
5	CUL 122	Quantity Food Preparation	6
3	ENG	English Elective	3-4
2	MTH	Mathematics Elective	3
6	CUL	Electives (Choose 1)	3-4
	CUL 150	Dining Room Management	(4)
	CUL 219	Elementary Baking	(4)
	CUL 210	Garde-Manger	(4)
	CUL 250	Advanced Service Techniques	(3)
			15-17
Third (Spring) Term			
6	CUL 227	Advanced Culinary Arts Techniques	6
6	DP 100	Introduction to Computers	3
	HMT 100	Service Industry Accounting	3
			<u>6</u>

Total Credit Hours for Program: 36-38

Hotel/Motel Management
Two-Year Program: Code 661
Advisors: James Beaton, Don Garrett, Jillaine Beauchamp

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First (Fall) Term			
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>
Second (Winter) Term			
5	CUL 122	Quantity Food Production	6
2	HMT 100	Service Industry Accounting	3
6	HMT 104	Service Industry Equipment	4
3	ENG 100	Technical Communications	4
			<u>17</u>

Third (Spring) Term			
9	PSY 100	Introduction to Psychology	3
9	PLS 108	Government and Society	3
			<u>6</u>
Fourth (Fall) Term			
7	CUL 120	Organization and Management	3
7	CUL 150	Dining Room Management	6
10	DP 100	Introduction to Computers	3
			<u>12</u>
Fifth (Winter) Term			
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

Child Care

Two-Year Program: Code 640

Advisor: Phillip A. Ludos

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
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 or	
	ENG 091	English Fundamentals	4
2	SPH 101	Fundamentals of Speaking	3
			<u>16</u>
Second Term			
2	CCW 103	Alternative Programs in Child Care	3
2	CCW 110	Social/Emotional Development	3
4	BLS 107	Black Psychology	3
4	ENG 210	Children's Literature	3
4	**	Elective	3
			<u>15</u>
Third Term			
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>
Fourth Term			
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:

BLS 150	Afro-American History	3
BLS 157	Afro-American Music	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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
4	ENG 100	Technical Communications or	
	ENG 111	English Composition	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>
Second Term			
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	BLS 107	Black Psychology or	
	SOC 205	Racial and Ethnic Relations	3
			<u>15</u>
Third Term			
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>

Fourth Term

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>

Total Credit Hours for Program: 61

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

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	FP 100	Introduction to Fire Protection	3
1	FP 101	Hydrostatics	4
3	CEM 097	Chemistry of Combustibles	3
5	PSY 100	Introductory Psychology	3
6	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			<u>17</u>
Second Term			
2	FP 099	Labor Relations in the Public Sector	3
2	FP 122	Fire Prevention Theory and Application	3
2	SOC 205	Racial and Ethnic Relations	3
1	SPH 101	Fundamentals of Speech	3
3	SOC 100	Introductory Sociology	3
			<u>15</u>
Third Term			
4	FP 210	Introduction to Fire Administration	3
4	FP 213	Fire Investigation and Arson	3
8	PLS 150	State and Local Government	3
3	BPR 100	Blueprint Reading for Construction Trades	2
7	FP 103	Flammable Hazardous Material	3
			<u>14</u>
Fourth Term			
6	FP 189	Study Problems	3-6
6	FP 209	Advanced Strategy	3
7	FP 224	Protection Systems in Industry	3
8	SO 101	Typewriting	3
			<u>15</u>

Total Credit Hours for Program: 61

TECHNICAL AND INDUSTRIAL CAREERS

AUTOMOTIVE SERVICES

Automotive Body Repair

One-Year Program: Code 812

Advisors: Edward Cammet, Lester Jordan

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
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	Foundations of Occupational Math	3
			<u>15</u>
Second Term			
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
			<u>12</u>
Spring/Summer			
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Alignment	2
			<u>4</u>

Total Credit Hours for Program: 31

Automotive Body Service

Two-Year Program: Code 811

Advisors: Edward A. Cammet, Lester Jordan

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
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	Foundations of Occupational Math	3
			<u>15</u>
Second Term			
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>

Spring/Summer			
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Alignment	2
			<u>4</u>
Third Term			
6	ABR 219	Major Repair Applications	4
7	ABR 220	Enamel Refinishing Practices	4
7	AS 124	Wheel Balancing & Alignment	3
6	ENG 107	Communication Skills	4
			<u>15</u>
Fourth Term			
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>

Total Credit Hours: 61

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

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

Part-Time Sequence	Full-Time Sequence		
	Course	Description	Hrs.
First Term			
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	Foundations of Occupational Mathematics	3
			<u>15</u>
Second Term			
2	ABR 124	Auto Refinishing Applications	4
3	ABR 230	Specialized Study	4
4	ABR 199	On-The-Job Training	2*
4	ENG 107	Communication Skills	4
			<u>14</u>
Spring/Summer			
4	ABR 125	Flat Rate Estimating	2

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.

Auto-Mechanic Technology

Two-Year Program: Code 815

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	AS 110	Light Service Repair	2
1	AS 111	Engine Repair	4
3	AS 116	Electrical Systems	4
3	WF 101	Acetylene Welding	2
6	MTH 090	Foundations of Occupational Mathematics	3
			15
Second Term			
4	AS 123	Transmissions and Power Trains	2
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
			15
Third Term			
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 107	Communication Skills	4
7	AS 220	Applied Automotive Welding	2
		Approved Elective*	3
			18
Fourth Term			
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
			16

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**

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
	AS 110	Light Service Repair	2

1	AS 111	Engine Repair	4
3	AS 116	Electrical Systems	4
3	WF 101	Acetylene Welding	2
5	MTH 090	Foundations of Occupational Mathematics	3
			<u>15</u>

Second Term

4	AS 123	Transmissions and Power Trains	2
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
			<u>15</u>

Total Credit Hours in Program: 30

DRAFTING AND CONSTRUCTION TECHNOLOGY

Architectural Drafting

Two-Year Program: Code 821

Advisors: David Byrd, Michael Pogliano

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
		First Term	
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	4
			<u>18</u>
		Second Term	
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
			<u>17</u>
		Third Term	
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	Technical Communications	4
			<u>18</u>
		Fourth Term	
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
			<u>14</u>

Total Credit Hours for Program: 67

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

Part-Time Sequence	Full-Time Sequence		Hrs.
	Course	Description	
	First Term		
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	4
			18
	Second Term		
2	ARC 122	Architectural Drawing	6
3	ARC 120	Mechanical Equipment	2
6	ARC 150	Presentation Drawings and Models	4
5	ARC 109	Site Layout or	
	ARC 209	Surveying	3
4	ARC 100	Specifications	1
			16

Total Credit Hours for Program: 34

Construction Specialist
One-Year Program: Code 823
Advisors: David Byrd, Clarence Helzerman

Part-Time Sequence	Full-Time Sequence		Hrs.
	Course	Description	
	First Term		
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	GB 111	Business Law	3
			16
	Second Term		
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	Technical Communication	4
			15

Total Credit Hours for Program: 31

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	CT 131	Electric Power Supplying	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	Technical Communications	4
			17
Second Term			
3	CT 231	Lighting Systems	4
1	ARC 117	Construction Materials	3
3	ARC 100	Specifications	1
2	MTH169B	Intermediate Algebra	3
1	EE 111	Electrical Fundamentals	4
			15
*Six Weeks Internship			
	CT 199	On-the-Job Training—40 hour week (Between 2nd and 3rd term)	6
			6
Third Term			
2	EE 122	Electrical Fundamentals	4
3	BPR 110	Blueprint Reading for Construction Trades	2
4	PSY 150	Industrial Psychology	3
3	EE 102	Servicing Techniques II	4
			13
Fourth Term			
4	CT 263	Lighting Calculations and Design	4
4	ARC 207	Estimating Construction Costs	2
4	EE 220	Electrical Installation and Maintenance Practices	4
3	PLS 108	Government and Society	3
			13

Total Credit Hours for Program: 64

*Or Approved Elective

Construction Technology (Wood, Plastics, Metal)
Two-Year Program: Code 828
Advisors: David Byrd, Clarence Helzerman

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	ARC 117	Construction Materials	3

1	CT 121	Carpentry	4
1	ENG 100	Technical Communications	4
1	MTH 151	Applied Algebra	4
			<u>15</u>

Second Term

2	BPR 100	Blueprint Reading for Construction Trades	2
2	CT 221	Carpentry	4
2	ARC 100	Specifications	1
2	MTH 169	Intermediate Algebra	4
			<u>11</u>

Six Weeks Internship

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>

Fourth Term

3	CT 242	Crafts in Wood, Plastics	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>

Fifth Term

5	CT 262	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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	ID 111	Industrial Drafting	4
2	ID 112	Descriptive Geometry	4
3	MT 111	Machine Shop Theory and Practice	4
4	MTH	Mathematics Elective	4
			<u>16</u>
	Second Term		
3	TCA 100	Perspective and Parallel Projection	4
2	ID 114	Industrial Drafting	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	ID 125	Industrial Materials	2
4	ENG	English Elective	4
			<u>17</u>

Total Credit Hours for Program: 33

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
First Term			
1	ID 111	Industrial Drafting	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>
Second Term			
2	PHY 110	Applied Physics	4
2	ID 114	Industrial Drafting	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	ID 125	Industrial Materials	2
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>17</u>
Third Term			
3	ID 107	Mechanisms	4
4	ID 251	Fundamentals of Electrical Drafting	4
5	TCA 100	Perspective and Parallel Projection	4
6	ENG 100	Technical Communications	4
6	PSY 150	Industrial Psychology	3
			<u>19</u>
Fourth Term			
5	ID 240	Fundamentals of Product Layout	4
6	ID 206	Fundamentals of Plant Layout	3
7	ID 252	Fundamentals of Electrical Drafting	4
7	PLS 108	Government and Society	3
6	ARC 120	Mechanical Equipment*	3
			<u>17</u>

Total Credit Hours for Program: 68

*ID 199 On the Job Training may be substituted for ARC 120 Mechanical Equipment.

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
First Term			
1	ID 111	Industrial Drafting	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>

Second Term			
2	PHY 110	Applied Physics	4
2	ID 114	Industrial Drafting	4
3	ID 122	Fundamentals of Jigs and Fixtures	3
4	ID 125	Industrial Materials	2
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>17</u>
Third Term			
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	Technical Communications	4
			<u>19</u>
Fourth Term			
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.

ELECTRICITY AND ELECTRONICS

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

Bio-Medical Equipment Technology

The courses listed below are recommended for those who wish to complete the program for the two-year Associate Degree.

Course	Description	Hrs.
EE 210	Measurements and Instrumentation	4
EE 222	Digital Electronics	4
EE 212B	Radio and Television Circuitry	3
CEM 122	General Chemistry	4
CEM 218	Analytical and Instrumental Chemistry	4
PHY 105	Introductory Physics or 111	4
ENG 111	English Composition or ENG 100	4
BIO 102	Human Biology	4
PLS 112	Introduction to American Government	2
		<u>64-66</u>

Total Credit Hours for Program: 64-66

Digital Equipment Technology Program
Two-Year Program: Code 835
Advisors: Albert D. Robinson, Roger S. Collard

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	EE 110	Electrical Applications	2
1	EE 111	Electrical Fundamentals	4
3	EE 137	Switching Logic	3
1	MTH 169	Intermediate Algebra or	
	EE 100	Electrical Analysis	4
	ENG 091	English Fundamentals or	
7	Eng 111	English Composition or	
	Eng 101	Technical Communications (English)	4
			<u>17</u>
Second Term			
2	EE 120	Electrical Applications	2
2	EE 122	Electrical Fundamentals	2
2	PLS 108	Government and Society	3
3	EE 211	Basic Electronics	4
			<u>13</u>
Third Term			
5	EE 138	Digital Computing Systems I	4
4	EE 222	Digital Electronics I	4
5	EE 212B	Radio and Television Circuitry	3
4	EE 101	Servicing Techniques	4
			<u>15</u>
Fourth Term			
6	EE 233	Digital Computing Systems II	4
6	EE 241	Digital Electronics II	4
7	EE 250	Microprocessors	4
8	-	Non-Technical Elective	3
			<u>15</u>

Total Credit Hours for Program: 60

Electrical Engineering Technology
Two-Year Program: Code 831
Advisors: Roger Collard, Dean Russell,
Lawrence Kramer, Albert Robinson, Kenneth Wheeler

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	EE 110	Electrical Applications	4
1	EE 111	Electrical Fundamentals	2
5	ID 102	Technical Drawing	4
1	MTH 169	Intermediate Algebra or	
	EE 100	Electrical Analysis	4

8	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			<u>18</u>
	Second Term		
2	EE 122	Electrical Fundamentals	2
2	EE 120	Electrical Applications	4
4	EE 127	Industrial Electricity	4
2	PSY 150	Industrial Psychology	3
4	EE 211	Basic Electronics	4
			<u>17</u>
	Third (Fall) Term		
3	EE 200	Circuit Analysis	3
7	EE 137	Switching Logic	3
7	EE 219	Electrical Distribution Systems	3
3	EE 210	Measurements and Instrumentation	4
		Non Technical Elective	3
			<u>16</u>
	Fourth (Winter) Term		
6	EE 220	Electrical Installation and	
		Maintenance Practices	4
8	EE 239	Electrical Design	3
8	EE 240	Career Practices	2
7	PLS 108	Government and Society	3
8	EE 102	Servicing Techniques	4
			<u>16</u>

Total Credit Hours for Program: 67

Electrical Equipment Repair
One-Year Program: Code 833
Advisors: Dean Russell, Johnny Williams,
Lawrence Kramer, Roger Collard, Kenneth Wheeler

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
	First Term		
1	EE 110	Electrical Applications	2
1	EE 111	Electrical Fundamentals	4
3	EE 101	Servicing Techniques	4
1	MTH 151	Applied Algebra	4
4	ENG 100	Technical Communications	4
			<u>18</u>
	Second Term		
2	EE 120	Electrical Applications	2
2	EE 122	Electrical Fundamentals	4
4	EE 102	Servicing Techniques	4
3	EE 211	Basic Electronics	4
2	PSY 150	Industrial Psychology	3
			<u>17</u>

Total Credit Hours for Program: 35

Electronic Engineering Technology
Two-Year Program: Code 832
Advisors: Albert Robinson, Roger Collard,
Kenneth Wheeler, Johnny Williams

Part-Time Sequence	Full-Time Sequence	Description	Hrs.
First Term			
1	EE 110	Electrical Applications	2
1	EE 111	Electrical Fundamentals	4
6	ID 102	Technical Drawing	4
1	MTH 169	Intermediate Algebra or	
	EE 100	Electrical Analysis	4
7	ENG 100	Tech Communications or	
	ENG 111	English Composition	4
			18
Second Term			
2	EE 120	Electrical Applications	2
2	EE 122	Electrical Fundamentals	4
4	EE 127	Industrial Electricity	4
2	PSY 150	Industrial Psychology	3
4	EE 211	Basic Electronics	4
			17
Third (Fall) Term			
3	EE 200	Circuit Analysis	3
7	EE 137	Switching Logic	3
7	PLS 108	Government and Society	3
3	EE 210	Measurements and Instrumentation	4
5		Science or Technical Elective	4
			17
Fourth (Winter) Term			
8	EE 238	Electronic Analog Circuits	4
6	EE 222	Digital ElectronicsI	4
8	EE 239	Electrical Design	3
8	EE 240	Career Practices	2
6		Approved Non-Technical Elective	3
			16

Total Credit Hours for Program: 68

Electronic Service Technology
Two-Year Program: Code 834
Advisors: Johnny Williams, Dean Russell,
Lawrence Kramer, Kenneth Wheeler

Part-Time Sequence	Full-Time Sequence	Description	Hrs.
First Term			
1	EE 110	Electrical Applications	2
1	EE 111	Electrical Fundamentals	4
3	EE 101	Servicing Techniques	4

1	MTH 151	Applied Algebra	4
4	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			<u>18</u>
	Second Term		
2	EE 120	Electrical Applications	2
2	EE 122	Electrical Fundamentals	4
4	EE 102	Servicing Techniques	4
3	EE 211	Basic Electronics	4
2	PSY 150	Industrial Psychology	3
			<u>17</u>
	Third (Fall) Term		
5	EE 212	Radio and Television Circuitry	5
7	EE 137	Switching Logic	3
7	EE 210	Measurements and Instrumentations	4
5	MGT 209	Small Business Management	3
			<u>15</u>
	Fourth (Winter) Term		
6	EE 223	Color Television	4
8	EE 224	Television Service Procedures and Practices	4
6	EE 220	Electrical Installation and Maintenance Practices	4
8	EE 240	Career Practices	2
8	PLS 150	State and Local Government or	3
	PLS 108	Government and Society	3
			<u>17</u>
	Total Credit Hours for Program: 67		

ENGINEERING

Pre-Engineering Majors

Two-Year Program

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

Part-Time Sequence	FullTime Sequence Course	Description	Hrs.
	First Term		
1	MTH 191	Calculus I	5
	CPS 187	FORTTRAN Programming	3
	ENG 111	English Composition	4
	CEM 111	General Chemistry	4
			<u>16</u>
	Second Term		
	MTH 192	Calculus II	4
	CEM 122	General Chemistry	4
	ENG 122	English Composition or an approved elective	3
	PLS 108	Government and Society or	

PLS 112	Introduction to American Gov't. or	
PLS 150	State and Local Government	3
		<u>14</u>

Third Term

MTH 293	Calculus III	4
MTH 197	Linear Algebra	3
PHY 211	Analytical Physics	5
ENG 212	English Literature or an approved elective	3
		<u>15</u>

Fourth Term

MTH 295	Differential Equations	4
PHY 222	Analytical Physics	5
ENG 213	English literature or an approved elective	3
ID 100	Technical Drafting or	
ID 111	Industrial Drafting	4
		<u>16</u>

Total Credit Hours for Program: 61

INDUSTRIAL TECHNOLOGY

Electro-Mechanical Technology

Two-Year Program: Code 854

Advisors: Dallas Garrett, Roger Dick

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
	EE 111	Electrical Fundamentals	2
3	EE 110	Electrical Applications	4
1	MT 111	Machine Shop Theory and Practices	4
1	MTH 151	Applied Algebra	4
6	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			<u>18</u>
Second Term			
4	EE 120	Electrical Applications	2
4	EE 122	Electrical Fundamentals	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>
Third Term			
2	NC 100	Introduction to Numerical Control	3
2	FLP 111	Fluid Power Fundamentals	4
4	EE 127	Industrial Electricity	4

6	PLS 108	Government and Society	3
5	MLG 101	Industrial Materials	2
			<u>16</u>
	Fourth Term		
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>

Total Credit Hours for Program: 68

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
	First Term		
1	FLP 111	Fluid Power Fundamentals	4
1	FLP 214	Basic Hydraulic Circuits	3
4	EE 111	Electrical Fundamentals	4
1	MTH 169	Intermediate Algebra	4
			<u>15</u>
	Second Term		
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>
	Third Term		
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	Technical Communications	4
			<u>18</u>
	Fourth Term		
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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
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
			15
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
			15
Total Credit Hours for Program: 30			

Mechanical-Engineering Technology
Two-Year Program: Code 851
Advisors: Dallas Garrett, Burton Lowe, Roger Dick

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
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 or	
	ENG 100	Technical Communications	4
			19
Second Term			
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
			15
Third Term			
3	MLG 101	Industrial Materials	2
5	EE 111	Electrical Fundamentals	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
			17
Fourth Term			
4	MT 201	Machine Tool Technology	4
4	MLG 123	Metallurgical Testing Procedures	2

4	FLP 214	Basic Hydraulic Circuits	3
6	PLS 108	Government and Society	3
	NC 121	Manual Programming for Numerical Control	3
			<u>15</u>

Total Credit Hours for Program: 66

Numerical Control Machine Operation

One-Year Program: Code 872

Advisor: Dallas Garrett

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
		First Term	
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>
		Second Term	
2	NC 121	Manual Programming for Numerical Control	3
2	NC 122	Numerical Control Machine Tool Operation	3
3	MT 122	Machine Tool Operation and Set-Up	4
4	ENG 100	Technical Communications	4
4	MTH 152	Applied Geometry and Trigonometry	4
			<u>18</u>

Total Credit Hours for Program: 33

Numerical Control Technology

Two-Year Program: Code 871

Advisor: Dallas Garrett

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
		First Term	
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>
		Second Term	
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>
		Third Term	
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	Technical Communications	4
6	CPS 187	FORTTRAN Programming	3
			<u>16</u>
Fourth Term			
4	NC 224	APT III Computer Programming	4
4	NC 225	Numerical Control Graphics	3
2	NC 111	Manufacturing Processes for N/C	3
4	FLP 111	Fluid Power Fundamentals	4
		Elective*	3
			<u>17</u>

Total Credit Hours for Program: 66

*Electives as Recommended by Advisor

Toolroom Machine Operation
One-Year Program: Code 853
Advisors: Dallas Garrett, Roger Dick

Part-Time Sequence	Full-Time Sequence		Hrs.
	Course	Description	
First Term			
1	MT 111	Machine Shop Theory and Practice	4
1	BPR 101	Blueprint Reading	3
3	MLG 101	Industrial Materials	2
1	MTH 151	Applied Algebra	4
3	ENG 100	Technical Communication	4
			<u>17</u>
Second Term			
2	MT 122	Machine Tool Operation and Set-Up	4
2	NC 100	Introduction to Numerical Control	3
3	MLG 215	Heat Treatment Processes	2
3	ID 100	Technical Drawing	4
2	MTH 152	Applied Geometry and Trigonometry	4
			<u>17</u>

Total Credit Hours for Program: 34

Welding and Fabrication Technology
Two-Year Program: Code 891
Advisors: Daniel Gray, Lester Morgan, William Figg

Part-Time Sequence	Full-Time Sequence		Hrs.
	Course	Description	
First Term			
1	WF 111	Welding and Fabrication (Basic Oxy-Acetylene)	4
2	WF 112	Welding and Fabrication (Basic Arc)	4
7	MT 100	Machine Shop Theory	3

7	BPR 101	Blueprint Reading	3
3	ENG 091	English Fundamentals or	
	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			<u>18</u>

Second Term

3	WF 123	Welding and Fabrication (Advanced Oxy-Acetylene)	4
4	WF 124	Welding and Fabrication (Advanced Arc)	4
8	MLG 122	General Metallurgy	3
1	MTH 151	Applied Algebra	4
			<u>15</u>

Third Term

5	WF 215	Welding and Fabrication (Tig)	4
6	ID 100	Technical Drawing	4
10	BPR 103	Sheet Metal Blueprint Reading and Layout	3
5	MLG 215	Heat Treatment Processes	2
4	PSY 150	Industrial Psychology	3
			<u>16</u>

Fourth Term

6	WF 226	Welding and Fabrication (Specialized)	4
9	FLP 111	Fluid Power Fundamentals	4
10	WF 200	Layout and Theory for Welders	2
8	MTH 152	Applied Geometry and Trigonometry or	
	MTH 154	Layout Math	3-4
9	PLS 108	Government and Society	3
			<u>16-17</u>

Total Credit Hours for Program: 65-66

Welding and Mechanics Combination

One-Year Program: Code 892

Advisors: Daniel Gray, Lester Morgan, William Figg

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
		First Term	
1	WF 111	Welding and Fabrication	4
2	WF 112	Welding and Fabrication	4
1	BPR 103	Sheet Metal Blueprint Reading and Layout	3
4	ENG 091	English Fundamentals	4
3	MLG 100	Introduction to Metallurgy	1
3	MLG 215	Heat Treatment Process	2
			<u>18</u>
		Second Term	
3	WF 123	Welding and Fabrication	4
4	WF 124	Welding and Fabrication	4
2	MLG 122	General Metallurgy	3
5	MTH 151	Applied Algebra	4
			<u>15</u>

Total Credit Hours for Program: 33

VISUAL ARTS

Commercial Art Two-Year Program: Code 882 Advisor: John Martin

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
2	TCA 110	Lettering and Layout	4
1	ART 111	Basic Drawing	3
1	ART 112	Basic Design	3
1	ENG 100	Technical Communication or	
	ENG 111	English Composition	4
2	MTH 090	Foundations of Occupational Mathematics or	
	PHY 110	Applied Physics	3-4
			17-18
Second Term			
3	TCA 121	Advertising Layout	4
3	TCA 227	Graphic Reproduction	4
4	TCA 100	Perspective and Parallel Projection	4
4	PHO 111	Photography	4
			16
Third Term			
5	TCA 101	Technical Illustration	4
5	ART 140	Life Drawing	3
6	TCA 122	Technical Rendering	4
6	TCA 226	Commercial Display	4
			15
Fourth Term			
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
			18

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, J. David Patterson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	PHO 111	Photography	4
3	ART 112	Basic Design	3

1	MTH 090	Foundations of Occupational Mathematics	3
4	ENG 100	Technical Communications	4
5	PLS 108	Government and Society	3
			<u>17</u>
	Second Term		
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
4	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, J. David Patterson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
	First Term		
1	PHO 111	Photography	4
3	ART 112	Basic Design	3
1	MTH 090	Foundations of Occupational Mathematics	3
4	ENG 100	Technical Communications	4
6	PLS 108	Government and Society	3
			<u>17</u>
	Second Term		
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>
	Third Term		
5	PHO 220	Camera Selection and Use	3
5	PHO 221	Advanced Darkroom Techniques	3
7	PHO 222	Advanced Color Photography	4
7	PHO 223	Photographic Occupations	2
3	MGT 209	Small Business Management	3
			<u>15</u>
	Fourth Term		
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: 62-64

**Photographic Technology
(Marketing Option)**

Two-Year Program: Code 887

Advisors: J. Raymond Steinbach, J. David Patterson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	PHO 111	Photography	4
1	MTH 090*	Foundations of Occupational Mathematics	3
4	GB 140	Business Occupational Foundations	3
4	ENG 100	Technical Communications	4
5	PLS 108	Government and Society	3
			<u>17</u>
Second Term			
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
			<u>17</u>
Third Term			
3	PHO 220	Camera Selection and Use	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
			<u>16</u>
Fourth Term			
8	PHO 229	Freelance Operations	3
7	EC 211	Principles of Economics	3
7	GB 111	Business Law	3
7	MGT 250	Principles of Marketing	3
8	MGT 260	Sales Management	3
			<u>15</u>
Total Credit Hours for Program: 65			

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

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

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
2	TCA 110	Lettering and Layout	4
1	ART 111	Basic Drawing	3
2	ID 100	Technical Drawing or ID III Industrial Drafting	4

1	BPR 100	Blueprint Reading for Construction Trades or	
	BPR 101	Blueprint Reading	2-3
1	MTH 090	Foundations of Occupational Mathematics or	
	PHY 110	Applied Physics	3-4
			16-18
	Second Term		
4	TCA 100	Perspective and Parallel Drawing	4
3	TCA 227	Graphic Reproduction	4
4	PHO 111	Photography	4
3	ENG 100	Technical Communications or	
	ENG 111	English Composition	4
			16
	Third Term		
5	TCA 101	Technical Illustration	4
5	BPR 103	Sheet Metal Blueprint Reading and Layout or	
	ID 112	Descriptive Geometry	3-4
6	TCA 226	Commercial Display	4
6	TCA 122	Technical Rendering	4
			15-16
	Fourth Term		
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
			18

Total Credit Hours for Program: 65-68

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

APPRENTICESHIP AND TRADE RELATED PROGRAMS

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.

The four following examples illustrate how the degree program works:

Journeyman Associate Degree

Example

Automated Systems Technology Option

	Credit Hours
	Industrial Electrician Apprentice Program approx. 39
FLP 226	Pneumatics 3
FLP 213	Hydraulic Controls 3
CPS 187	Computer FORTRAN Programming 3

NC 100	Introduction to Numerical Control	3
NC 122	Programming for Numerical Control	3
EE 138	Digital Computing Systems	4
EE 212B	Radio and Television Circuitry	3
EE 222	Digital Electronics I	4
EE 250	Microprocessors	4
ENG 100	Technical Communications	4
PLS 112	Introduction to American Government	3
		66

Journeyman Engineering Technician Associate Degree Program: Code 990

Option and additional credits needed for those concentrating on continuing university studies in ENGINEERING, EDUCATION or SCIENCE.

Example

Credit Hours

Evaluation of Apprenticeship Program

(Most skilled tradesmen have earned 25 to 32 credit hours completing their apprenticeship program, excluding 12 credit hours of Math and Physics, which are included in the courses listed below.)

MTH 169	Intermediate Algebra	4*
MTH 179	Precalculus	4*
MTH 187	FORTRAN Programming	3
MTH 191	Calculus—First Course	5
MTH 192	Calculus—Second Course	4
PHY 111	General Physics	4*
PHY 122	General Physics	4
CEM 111	General Chemistry	4
CEM 122	General Chemistry	4
ENG 111	English Composition	3
ENG 122	English Composition	3
PLS 108	Government and Society or PLS 112 or 150	3

60 credit hours minimum required

*Should be included in Apprentice Program with consent of employer.

Journeyman Industrial Technician Association Degree Options

- | | |
|---|---|
| <ul style="list-style-type: none"> • Drafting • Electrical • Fluid Power • Management • Metallurgy • Construction | <ul style="list-style-type: none"> • Numerical Control • Power Plant Engineering • Quality Control • Technical Illustration • Welding and Fabrication • Others—Arranged |
|---|---|

Example

Numerical Control Option

For Toolmakers, Diemakers, Machinists, etc.

	Credit Hours
Apprentice Program approximately	30
MTH 187 FORTRAN Programming	3
NC 121 Programming for Numerical Control	3
NC 122 Numerical Control Machine Tool Operations	3
NC 213 Compact II Computer Programming	4
NC 224 APT III Computer Programming	4
ENG 100 Technical Communications	3
PLS 108 Government and Society	3
Electives (including O-J-T if desired)	6

60 credit hours minimum required

Arrangements for completing programs other than those listed may be arranged by contacting the Coordinator of Trade Related Instruction.

Six credit hours for time spent as an indentured apprentice may be allowed if the employer's apprentice program is approved and/or meets the College's requirements (O-J-T).

Journeyman Associate Degree Manufacturing Management

Example

Evaluation of Apprenticeship Program	1 to 32
--	---------

(Most skilled tradesmen have earned 25 to 32 credit hours completing their apprenticeship program.)

Option and additional credits needed for those concentrating on continuing university studies in MANAGEMENT.

SCIENCES (Selected from Mathematics, Physics or Biology)	8
ENGLISH	6
SPEECH	3
POLITICAL SCIENCE	3
ECONOMICS	6
ACCOUNTING	6

60 credit hours minimum required

Arrangements for completing other two-year technical programs may be made by contacting the Trade Related Instruction Coordinator or a counselor.

The list of the following Apprenticeship Programs are only a few of the standard ones offered at the College. Others may be arranged by contacting the Coordinator.

**Bio-Medical Equipment Technician / Electrician
Apprentice**

Code 962

Advisor: Robert Jackson

Course	Description	Hrs.
EE 100	Electrical Analysis or MTH 169 Alegbra	4-6
EE 110	Electrical Applications	2
EE 111	Electrical Fundamentals I	4

EE 120	Electrical Applications	2
EE 122	Electrical Fundamentals II	4
EE 137	Switching Logic	3
EE 211	Basic Electronics	4
BIO 111	Basic Anatomy and Physiology	4
CEM 111	General Chemistry	4

The apprenticeship program requires approximately 8,000 hours of on-the-job training in addition to a recommended minimum of 576 hours of classroom instruction as outlined above. Courses listed above are only recommendations and are subject to change at the discretion of employers and their training committees.

Boiler and Powerplant Engineering Apprentice

Code 942

Advisor: Robert Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	4
PHY 110	Applied Physics or Appropriate Level Course	4
BPR 101	Blueprint Reading—Mechanical	3
HTG 100	Boiler Operations	3
HTG 101	Boiler Accessories	3
HTG 102	Boiler Auxiliaries	3
HTG 103	Power Plant Engines and Turbines	3
HTG 104	Power Plant Refrigeration	3
HTG 105	Power Plant Air Conditioning Systems	3
HTG 106	Power Plant Electricity	3
HTG 107	Power Plant Electricity II	3
HTG 228	Pneumatic Temperature Controls	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Diemaker Apprentice

Code 903

Advisor: Robert Jackson

Course	Description	Hrs.
MT 100	Machine Shop Theory	3
BPR 101	Blueprint Reading	3
MTH 151	Applied Algebra or Appropriate Level Mathematics	4
ID 100	Technical Drawing	4
MTH 152	Applied Geometry and Trigonometry	4
MLG 100	Introduction to Metallurgy	1
PHY 110	Applied Physics or Appropriate Level Course	4
ID 111	Industrial Drafting	4
ID 212	Theory of Dies	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Heating and Ventilating Service

Code 986

Advisor: Robert Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	4
EE 111	Electrical Fundamentals	4
HTG 111	Heating Fundamentals	5
HTG 122	Heating Systems	4
HTG 213	Heating Controls	5
HTG 214	Heating Codes	3
BPR 103	Sheet Metal Blueprint Reading and Layout	3
BPR 105	Sheet Metal Blueprint Reading and Layout Advanced	3
HTG 228	Pneumatic Temperature Controls	2

Basically this is a trade-related instruction program and 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 offered in the evening only. Membership in the Educational Society of the Refrigeration Service Engineers (RSES) is required. Initiation fee and dues are approximately \$45.00. Text books for the three heating courses are expensive, averaging approximately \$36.00 each. Consent of advisor is required for registration.

Industrial Electrician Apprentice

Code 907

Advisor: Robert Jackson

Course	Description	Hrs.
FLP 111	Fluid Power Fundamentals	4
MTH 151	Applied Algebra or Appropriate Level Math	4
EE 110	Electrical Applications	2
EE 111	Electrical Fundamentals	4
EE 122	Electrical Fundamentals	4
EE 127	Industrial Electricity	4
EE 211	Basic Electronics	4
EE 137	Switching Logic	3

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Inspection-Quality Control

One-Year Program: Code 946

Advisor: Robert Jackson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
First Term			
1	MGL 100	Introduction to Metallurgy	1
1	MT 111	Machine Shop Theory and Practice	4
1	BPR 101	Blueprint Reading	3
2	MTH 151	Applied Algebra	4
2	MLG 215	Heat Treatment Processes	2
1	QC 226	Dimensional Metallurgy and Testing	3
			<u>17</u>
Second Term			
2	ID 100	Technical Testing	4
4	ENG 100	Technical Communications	3
4	PLS 108	Government and Society	3
3	QC 225	Quality Control Management	3
3	MTH 152	Applied Geometry and Trigonometry	4
			<u>17</u>

Total Credit Hours for Program: 34

Machine Repair Apprenticeship

Code 905

Advisor: Robert Jackson

Course	Description	Hrs.
BPR 101	Blueprint Reading	3
MTH 151	Applied Algebra or Appropriate Level Math	4
MTH 152	Applied Geometry and Trigonometry	4
MLG 100	Introduction to Metallurgy	1
MLG 215	Heat Treat Processes	2
PHY 110	Applied Physics or Appropriate Level Course	4
FLP 111	Fluid Power Fundamentals	4
FLP 213	Hydraulic Controls	3
FLP 214	Basic Hydraulic Circuits	3
ID 100	Technical Drawing	4

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprenticeship Committees.

Millwright Apprenticeship

Code 906

Advisor: Robert Jackson

Course	Description	Hrs.
BPR 103	Sheet Metal Blueprint Reading and Layout	3

BPR 101	Blueprint Reading	3
MT 100	Machine Shop Theory	3
MTH 151	Applied Algebra	4
MTH 152	Applied Geometry and Trigonometry	4
ID 100	Technical Drawing	4
MT 240	Plant Layout and Material Handling Systems	4
PHY 110	Applied Physics or Appropriate Level Course	4
WF 102	Arc Welding	2
MT 101	Millwright Theory	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Plumber / Pipefitter Apprentice

Code 909

Advisor: Robert Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Mathematics	4
MTH 152	Applied Geometry and Trigonometry	4
PHY 110	Applied Physics or Appropriate Level Course	4
FLP 201	Plumbing and Pipefitting I	3
FLP 202	Plumbing and Pipefitting II	4
FLP 111	Fluid Power Fundamentals	4
FLP 226	Pneumatics	3
ID 100	Technical Drawing	4
WF 104	Soldering and Brazing	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Quality Control Technology

Two-Year Program: Code 944

Advisor: Robert Jackson

Part-Time Sequence	Core Courses		Hrs.
	Full-Time Course	Sequence Description	
1	QC 101	Process Quality Control	3
2	QC 122	Sampling Quality Control	3
3	QC 213	Quality Control by Statistical Methods	3
4	QC 224	Quality Control Program Solving	3
5	QC 225	Quality Control Management	3
6	QC 226	Dimensional Metrology and Testing	3
			18

Electronics Option

Course	Description	Hrs.
QC	Core Courses	18
MTH 169	Intermediate Algebra or	
MTH 151	Applied Algebra	4
EE 110	Electrical Applications	2
EE 111	Electrical Fundamentals	4
EE 120	Electrical Applications	2
EE 122	Electrical Fundamentals	4
EE 200	Audio and Power Transmission	3
EE 211	Basic Electronics	4
EE 238	Electronic Analog Circuits	4
PLS 150	State and Local Government and Politics	3
ENG 111	English Composition and	
ENG 122	English Composition	7
DP 111	Principles of Data Processing	5
		60

60 credit hours minimum required

Machine Tool Equipment and Supplies Option

Course	Description	Hrs.
	Core Courses	31
BPR 101	Blueprint Reading	3
MT 111	Machine Shop Theory and Practices	4
NC 100	Introduction to Numerical Control	3
MTH 151	Applied Algebra	4
MT 122	Machine Tool Operation and Set-up	4
NC 121	Manual Programming for Numerical Control	3
NC 122	Numerical Control Machine Tool Operation	3
MTH 152	Applied Geometry and Trigonometry	4
MLG 100	Introduction to Metallurgy	1
MLG 215	Heat Treating Processes	2
		62

Management Option

Course	Description	Hrs.
QC	Core Courses	18
MTH 169	Intermediate Algebra	4
MTH 160	Basic Statistics	4
ENG 111	English Composition and	
ENG 122	English Composition	7
EC 211	Principles of Economics and	
EC 222	Principles of Economics	6
ACC 111	Principles of Accounting and	
ACC 222	Principles of Accounting	6
DP 111A&B	Principles of Data Processing	6

DP 122	Data Processing Applications	3
PLS 150	State and Local Government and Politics	3
SPH 101	Fundamentals of Speaking	3
PSY 100	Introductory Psychology or Elective (check advisor)	3
		<u>60</u>

60 credit hours minimum required

Science and Engineering Option

Course	Description	Hrs.
QC	Core Courses	18
MTH 169	Intermediate Algebra	4
MTH 179	Precalculus	4
MTH 191	Calculus I	5
MTH 192	Calculus II	4
PHY 111	General Physics	4
PHY 122	General Physics	4
CEM 111	General Chemistry and	4
CEM 122	General Chemistry	4
ENG 111	English Composition and	4
ENG 122	English Composition	3
PLS 150	State and Local Government and Politics	3
		<u>61</u>

60 credit hours minimum required

Appropriate work experience credit may be awarded in lieu of certain courses.

Certain assumptions are made as to the student's capabilities in basic algebra, blueprint reading, and shop terminology. If there are deficiencies in these subject areas, additional courses may be recommended.

Refrigeration / Air Conditioning Service

Code 943

Advisor: Robert Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or	
MTH 169	Intermediate Algebra	4
RAC 111	Refrigeration	5
RAC 122	Refrigeration	5
WF 104	Soldering and Brazing	2
RAC 123	R/AC Systems Laboratory	5
RAC 124	Basic Controls	5
RAC 213	Air Conditioning	5
RAC 214	Control Systems	5
RAC 215	Troubleshooting Controls	5
RAC 216	Systems Laboratory	5
HTG 111	Heating	5
RAC 250	Refrigeration Codes	2

HTG 122 Heating Equipment

5
58

Basically this is a trade-related instruction program and 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 offered in the evening only. Membership in the Educational Society of the Refrigeration Service Engineers (RSES) is required. Initiation fee and dues are approximately \$45.00. Text books for the three heating courses are expensive, averaging approximately \$36.00 each. Consent of advisor is required for registration.

Refrigeration Mechanic Apprentice

Code 943

Advisor: Robert Jackson

Part-Time Sequence	Full-Time Course	Sequence Description	Hrs.
1	MTH 151	Applied Algebra or Appropriate Level Math	4
1	RAC 111	Refrigeration	5
2	RAC 122	Refrigeration Equipment	5
2	RAC 123	Systems Laboratory	5
2	RAC 124	Basic Controls	5
3	RAC 214	Control Systems	5
1	WF 104	Soldering and Brazing	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training. RSES membership is required.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Sales Representative Industrial Distribution

Code 970

Advisor: Robert Jackson

Core Courses Course	Description	Hrs.
GB 140	Business Occupational Foundations	3
ENG 100	Technical Communications or	
ENG 111	English Composition	4
SPH 101	Fundamentals of Speaking	3
MGT 250	Principles of Marketing	3
MGT 200	Human Relations in Business and Industry	3
MGT 160	Principles of Salesmanship	3
MGT 260	Sales Management	3
CPS 102	Computer Programming	3
EC 211	Principles of Economics	3
PLS 108	Government and Society or PLS 150 or	
	PLS 122	3
MTH 097	Algebra (if needed)	
		31

Automobile Service Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
AS 110	Light Service Repair	2
AS 111	Engine Repair	4
AS 116	Electrical Systems	4
AS 123	Transmissions and Power Trains	2
AS 124	Wheel Balancing and Alignment	3
AS 125	Brake Systems	3
AS 128	Fuel Systems	3
AS 218	Tune Up and Emissions	4
AS 227	Heating and Air Conditioning	2
ABR 111	Auto Body Repair Fundamentals	4
		62

Construction and Building Supplies Option

Course	Description	Hrs.
	Core Courses	31
BPR 100	Blueprint Reading—Construction	2
BPR 110	Blueprint Reading—Construction	2
ARC 109	Site Layout	3
ARC 117	Construction Materials	3
CT 121	Carpentry	4
CT 221	Carpentry	4
CT 131	Electric Power Supply	4
CT 171	Cabinet Making	4
CT 242	Crafts in Wood, Plastics, and Metals	4
CT 111	Fundamentals of Painting and Decorating	4
		65

Data Processing, Office, Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
SO 110	(A, B, C) Typewriting	3
DP 111A	Data Processing/Computer Concepts	3
DP 111B	Data Processing/Computer Functions	3
DP 122A	Data Processing/Computer Flowcharting	3
DP 122B	Data Processing Programming/RPG 1 and 2	3
ACC 111	Principles of Accounting	3
ACC 122	Principles of Accounting	3
DP 213A	Computer Programming/Introductory COBOL	3
DP 213B	Computer Programming/Intermediate COBOL	3
SO 130	Business Machines	3

DP 213C	Computer Programming/Advanced	3
DP 224A	Data Processing/Computer Design Concepts	3
		<u>67</u>

Electrical Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
EE 101	Servicing Techniques	4
EE 110	Electrical Applications	2
EE 111	Electrical Fundamentals	4
EE 102	Appliance Repair	4
EE 122	Electrical Fundamentals	4
EE 127	Industrial Electricity	4
EE 211	Basic Electronics	4
EE 220	Electrical Installation and Maintenance	4
EE 137	Electronic Switching and Control	3
		<u>64</u>

Electronic Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
EE 101	Servicing Techniques	4
EE 110	Electrical Applications	2
EE 111	Electrical Fundamentals	4
EE 102	Servicing Techniques	4
EE 120	Electrical Applications	2
EE 122	Electrical Fundamentals	4
EE 211	Basic Electronics	4
EE 212	Radio and Television Circuitry	5
EE 223	Color Television or EE 238	4
EE 230	Communications Electronics	4
		<u>68</u>

Hydraulic-Pneumatic Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
FLP 111	Fluid Power Fundamentals	4
FLP 122	Hydraulic Generators (Pumps)	4
FLP 213	Hydraulic Controls	3
FLP 214	Basic Hydraulic Circuits	3
FLP 225	Advanced Hydraulic Circuits	3
FLP 226	Pneumatics	3

MT 111	Machine Shop Theory and Practice	4
MT 122	Machine Tool Operation and Set-Up	4
BPR 101	Blueprint Reading	3
EE 101	Servicing Techniques	4
		<u>66</u>

Photographic Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
PHO 111	Photography	4
PHO 112	Darkroom Techniques	5
PHO 114	Basic Color Photography	3
PHO 113	Studio Techniques	3
PHO 220	Camera Selection and Use	3
PHO 221	Advanced Darkroom Techniques	2
PHO 222	Advanced Color Photography	3
PHO 223	Photographic Occupations	2
PHO 229	Freelance Operations	3
GB 111	Business Law	3
		<u>62</u>

Refrigeration, Heating, Air Conditioning Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
RAC 111	Refrigeration Fundamentals	5
RAC 122	Refrigeration Equipment	5
RAC 213	Refrigeration and Air Conditioning	5
RAC 124	Basic Controls	5
HTG 111	Heating Fundamentals	5
HTG 122	Heating Systems	5
HTG 213	Heating Controls	5
		<u>66</u>

Restaurant, Institution, Food Service Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31

HMT 104	Service Industry Equipment and Utilities	5
CUL 100	Introduction to Hospitality Industry Management	3
CUL 110	Sanitation and Hygiene	3
CUL 111	Elementary Food Preparation	6
CUL 120	Organization and Management of Hospitality Industry	3
CUL 224	Economics of Volume Feeding	4
EC 222	Principles of Economics	3
CUL 228	Equipment and Layout	4
		<u>62</u>

Welding Supplies and Equipment Option

Course	Description	Hrs.
	Core Courses	31
WF 111	Basic Oxy-Acetylene	4
WF 112	Basic Arc	4
WF 123	Advanced Oxy-Acetylene	4
WF 124	Advanced Arc	4
WF 215	MIG-TIG	3
MLG 100	Introduction to Metallurgy	1
MLG 122	General Metallurgy	3
MLG 215	Heat Treatment Processes	2
MLG 217	Mechanical Testing	2
MT 100	Machine Shop Theory	3
BPR 102	Blueprint Reading—Maintenance	3
		<u>64</u>

Tinsmith / Sheetmetal Apprentice

Code 913

Advisor: Robert Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Mathematics	4
MTH 152	Applied Geometry and Trigonometry	4
ID 100	Technical Drawing (Layout)	4
ID 112	Descriptive Geometry (Layout)	4
BPR 103	Blueprint Reading Sheet Metal	3
BPR 105	Advanced Sheet Metal	3
WF 102	Arc Welding	2
PHY 110	Applied Physics or Appropriate Level Course	4
MLG 100	Introduction to Metallurgy	1

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Tool and Die Apprentice

Code 904

Advisor: Robert Jackson

Course	Description	Hrs.
BPR 101	Blueprint Reading	3
MT 111	Machine Shop Theory and Practice	4
MTH 151	Applied Algebra or Appropriate Level Mathematics	4
MTH 152	Applied Geometry and Trigonometry	4
PHY 110	Applied Physics or Appropriate Level Course	4
MLG 100	Introduction to Metallurgy	1
MLG 215	Heat Treat Processes	2
ID 100	Technical Drawing	4
ID 121	Theory of Jigs and Fixtures	2
ID 212	Theory of Dies	2

There is a minimum of 576 classroom hours of instruction required, and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

Toolmaker Apprentice

Code 902

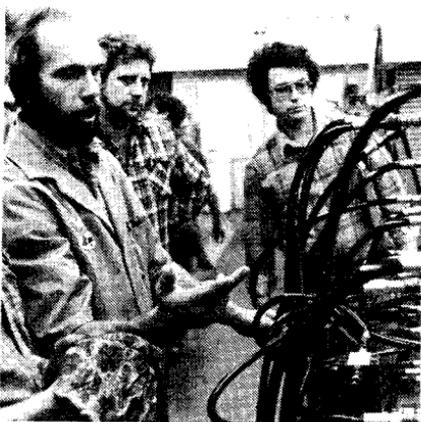
Advisor: Robert Jackson

Course	Description	Hrs.
MT 100	Machine Shop Theory	3
BPR 101	Blueprint Reading	3
MTH 151	Applied Algebra or Appropriate Level Math	4
ID 100	Technical Drawing	4
MTH 152	Applied Geometry and Trigonometry	4
MLG 215	Heat Treat Processes	2
MLG 100	Introduction to Metallurgy	1
ID 121	Theory of Jigs and Fixtures	2
PHY 110	Applied Physics or Appropriate Level Course	4
NC 100	Introduction to Numerical Control	3
NC 121	Programming for Numerical Control	3

There is a minimum of 576 classroom hours of instruction required and 8,000 hours of on-the-job training.

These courses are only recommendations and are subject to additions or deletions at the discretion of the Company and their Apprentice Committees.

CURRICULUM



ACCOUNTING

ACC 091. FUNDAMENTALS OF ACCOUNTING 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 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 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 3 credit hours

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 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 (Mayan, Aztec, Incan) 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. Contemporary peasant societies which have lost their traditional way of life 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 100. SPECIFICATIONS 1 credit hour

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 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 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 and presentation drawings for an architectural project approved by the instructor. (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, small scale models for design-development purposes, promotional presentations to seek approval of council, commissions, boards, the public. Also, students will learn how to enhance financial and other forms of support needed to make a proposal a reality.

ARC 207. ESTIMATING CONSTRUCTION COSTS . . . 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 . . . 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

An introduction to the use of structural systems (steel, timber, and reinforced concrete, etc.).

ARC 213. ARCHITECTURAL DRAWING 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 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 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 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 3 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 DRAWING3 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 123. BASIC DESIGN3 credit hours

Prerequisite: ART 112

Continuation of Basic Design 112 with emphasis on three-dimensional design and structural composition. (6 hours per week)

ART 125. PAINTING3 credit hours

Prerequisite: ART 114 or consent

A continuation of Painting 114, with emphasis on individual development. (6 hours per week)

ART 130. ART APPRECIATION3 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 DRAWING3 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 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 211. APPRAISAL—BASIC 3 credit hours

Prerequisite: AA 111

Economic Concepts of Value, (3 hours); Cost Approach to Value, (6 hours); Income Approach to Value, (6 hours); Architectural Types and Construction, (3 hours); Residential Appraisals (9 hours).

AA 222. APPRAISAL—INTERMEDIATE 3 credit hours

Prerequisite: AA 211

Continuation of Assessment Administration 211, including Cost Approach to Value, (3 hours); Market Data Approach to Value, (3 hours); Income Approach to Value, (6 hours); Architectural Types and Construction, (3 hours); Residential Appraisals, (3 hours); Commercial Appraisals, (6 hours); Industrial Appraisal, (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 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)

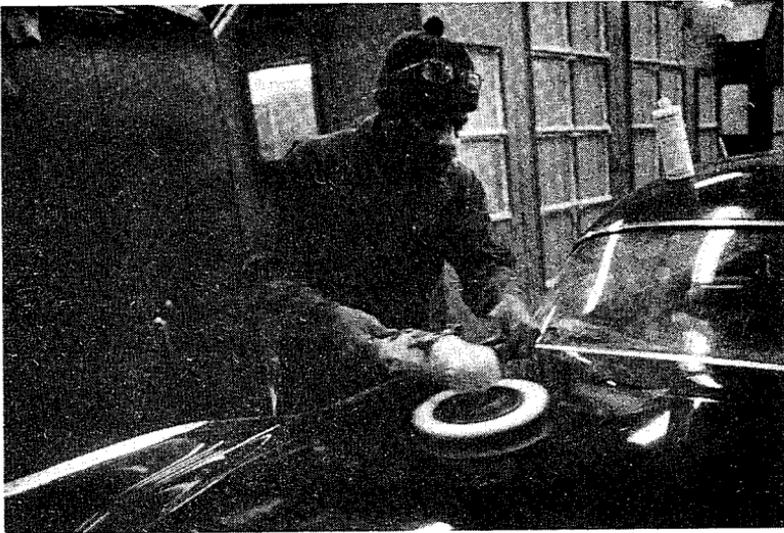
AST 122. MODERN ASTRONOMY 3 credit hours

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

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 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. (8 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 4-8 credits

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

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 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 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. KNOW YOUR AUTO 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: AS 110 or concurrently

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 116. ELECTRICAL SYSTEMS 4 credit hours

Prerequisite: AS 110 or concurrently

Theory, diagnosis and servicing of automotive electrical systems. Includes fundamentals of electricity, storage batteries, charging systems, cranking systems, accessory circuits, and the ignition system, both conventional and electronic. (8 hours per week)

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 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 EMISSIONS4 credit hours

Prerequisite: AS 116 and A S 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 WELDING2 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 CONDITIONING2 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 EXPERIENCE5 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 PRODUCTS2 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 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 man 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 105. MEDICAL TERMINOLOGY 2 credit hours

Acquaints students with the origin and structure of medical terms. Helps interpret and understand requests for radiographic and other examinations and to read and to understand medical articles and reports.

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 disfunctions 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 130-139. 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

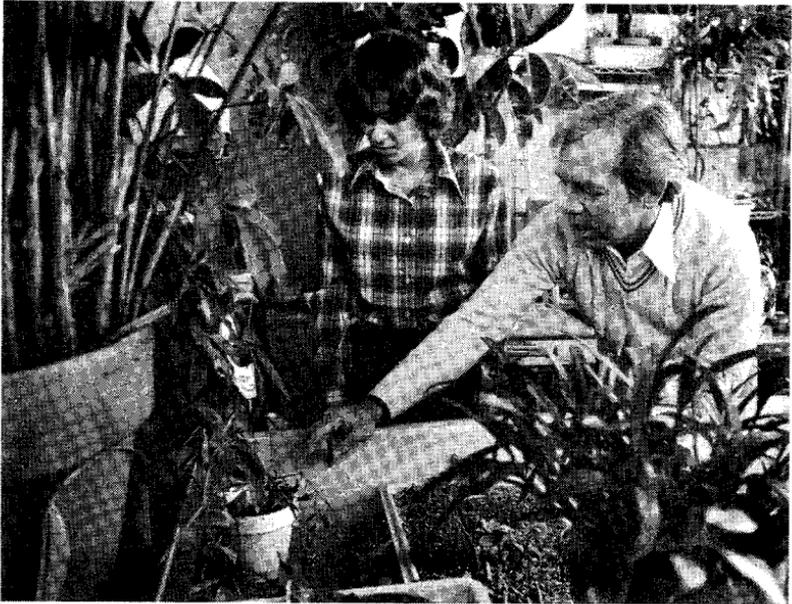
The Spring Semester deals with seed bed and planting area preparation. Further opportunities for germination of seeds indoors for transplanting in prepared areas are available in the early weeks of the semester. Transplanting of seedlings and direct planting of selected varieties of seeds will highlight 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 137. ORNAMENTAL INDOOR PLANTS 3 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 3 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 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 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 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 stress 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.

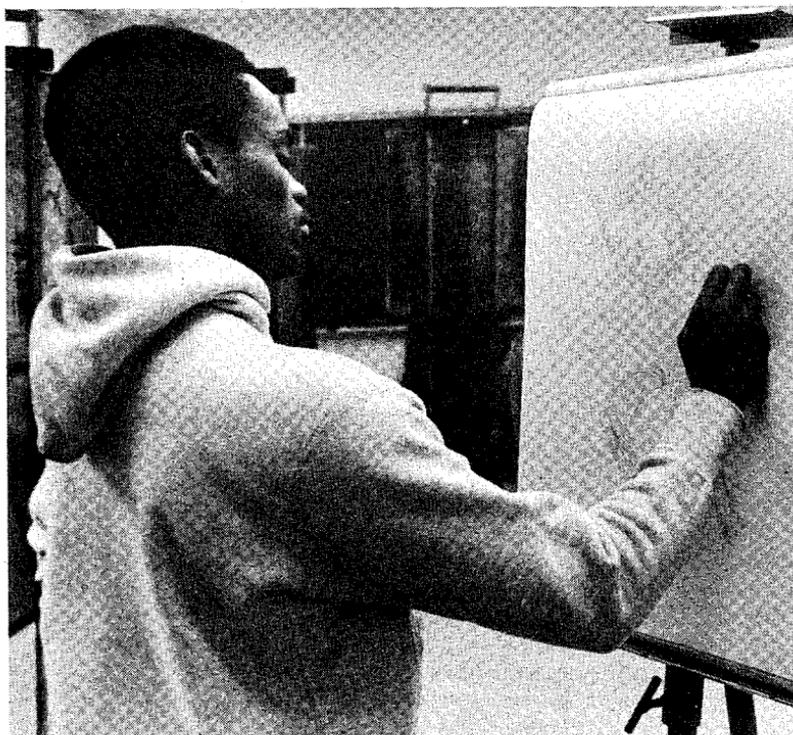
BIO 288. ADVANCED BEEKEEPING 2 credit hours
Deals with stocking the hive, ordering bees, handling the queen and the commercial aspects of beekeeping.

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 101. MEDIA AND THE BLACK COMMUNITY 3 credit hours
A multi-media course designed to teach the theories and practices of



communication within the Black community. Emphasis placed on attaining knowledge of the role of the Federal Communications Commission and Federal Communications Commission Regulations.

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 103. INTRODUCTION TO BLACK STUDIES 3 credit hours

Designed to enlighten students with little previous exposure to Black Studies concerning the significance of Black people in the sciences, the arts and history. Activities include films, lectures, video tapes, readings and individual research projects.

BLS 107. BLACK PSYCHOLOGY 3 credit hours

Psychological dynamics of the Black experience. An assessment of sociocultural factors that determine the Black psyche.

BLS 108. INTRODUCTION TO AFRO-AMERICAN SOCIETY 3 credit hours

Designed to introduce 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 society's organization and the conditions which foster development of social change.

BLS 111. SWAHILI 3 credit hours

Designed for those beginning, or who wish to review this language study. Includes a history of Swahili and the function of the language in modern Africa.

BLS 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)

BLS 120. PORTRAIT PAINTING AND LIFE DRAWING 3 credit hours

Work using live models; study anatomy, techniques in drawing and painting and visual expression. Multimedia. Clay modeling. Prefer some art background although not required. (6 hours per week)

BLS 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 and manhood, using art as the medium.

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 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.

BLS 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.

BLS 151. BLACK POLITICS (See PLS 151) 3 credit hours

The purpose of this course is to broaden and deepen students' awareness of the contribution that Blacks have made to political thought. Course aims at making students aware of the role that Blacks have played in participating in the political process in various areas at different levels, and in many dimensions. Emphasizes need for stepping up participation in the political process and the possibilities as well as opportunities that are open to Blacks. Students' background, environment, and experience will be given top priority as well as full attention throughout the course.

BLS 151. 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 their implications for the present and future struggle for survival.

BLS 152. ROOTS 3 credit hours

Using Alex Haley's "Roots" as a point of departure, course examines key sociological and anthropological issues in the development of the African-American family as it is related to African-American family as it is related to African-American cultural history. Includes the African cultural heritage in the Americas, race relations, oral history, genealogical research; the Black family during the pre-Civil War and Reconstruction periods of American history.

BLS 158. BLACK MUSIC CREATIVE IMPROVISATION 3 credit hours

Helps 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.

BLS 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; and in-

struments of South India, such as the veena, flute, tamboora and table. A brief history of Indian music and short biographies of noted Indian musicians such as Purandara Dasa and Sayma Sastri and their contributions to South Indian music included.

BLS 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.

BLS 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 culture. 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.

BLS 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 theatre literature.

BLS 200. BLACK ECONOMICS 4 credit hours

Basic principles of economics and their implications for the Black community. Designed to acquaint students with the free-enterprise system of business economic activity and the impact of the consumer and government forces upon the system. Essentials of income data, prices, employment, distribution of wealth, role of banking systems, business fluctuations, functioning of the American economic system and alternate economic systems.

BLS 201. SOCIAL CASEWORK 3 credit hours

Covers general knowledge of the field of social work to help students gain a theoretical and practical knowledge of helping people through the Social Casework method.

BLS 202. SOCIAL AND RELIGIOUS HERITAGE OF AFRICA 3 credit hours

Contributions of African Civilizations to the world in social and religious terms, with attention also paid to achievements in philosophy of life and basic technology. Attention, both topically and chronologically, to prehistoric and early historic circumstances, including the inception of hominid life.

BLS 203. 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.

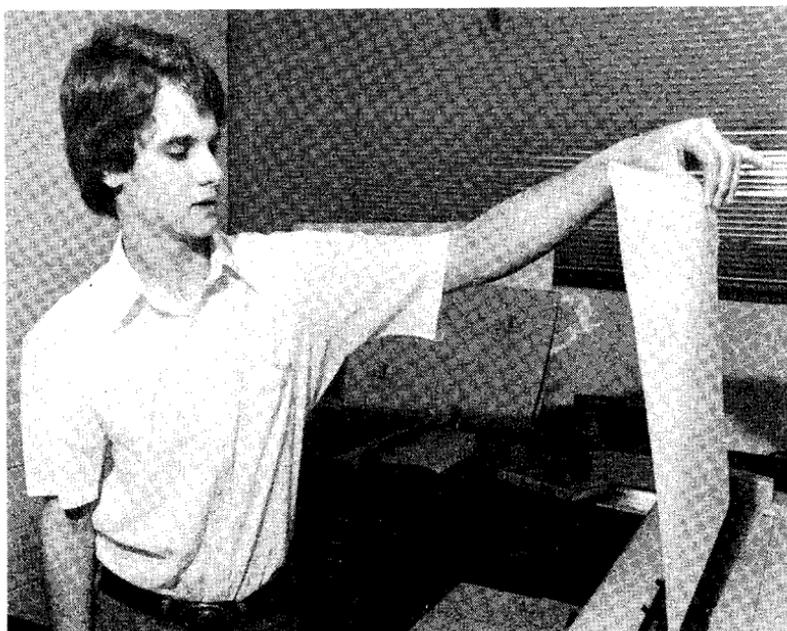
BLS 210. BLACKS IN THE CITY 3 credit hours

The social forces that played a role in developing the urban setting, with particular emphasis on the role of the Afro-American. Focuses on the migration movement as the first stage in the development of urban and racial crises and 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 organizing conceptual framework is Black urban history as a protracted struggle. Emphasis on Black ideological and institutional development.

BLUEPRINT READING

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 2 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)

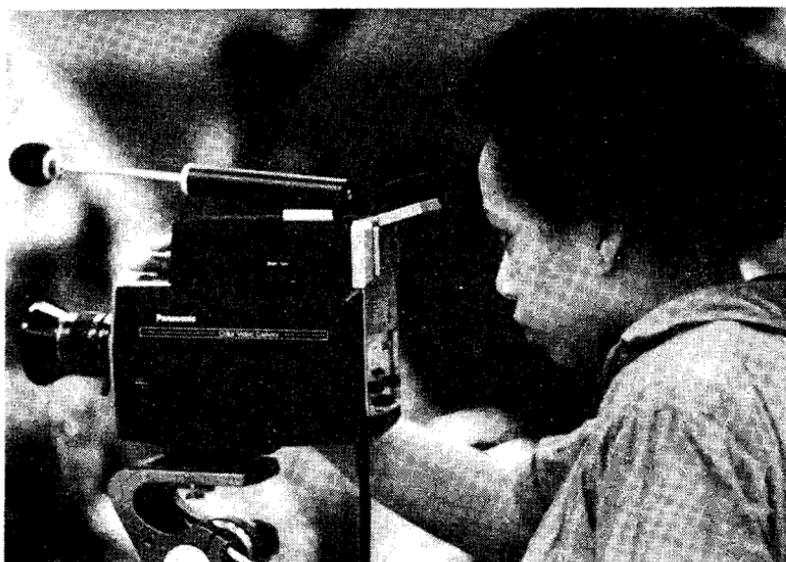
BPR 110. BLUEPRINT READING FOR CONSTRUCTION TRADES 2 credit hours

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.

BROADCASTING

BRC 101. MEDIA AND THE BLACK COMMUNITY . . . 3 credit hours

A multi-media course designed to teach the theories and practices of communication within the Black community. Emphasis placed on attaining knowledge of the role of the Federal Communications Commission and Federal Communications Commission Regulations.



BRC 103. SPECIAL RADIO PRODUCTION PROJECTS 3 credit hours

Offered only in the Spring. A practicum for students who have completed a minimum of one semester (Radio 101 or 201 or equivalent) to do intensive work in the operation of studio equipment. The problem to be undertaken by the class will be chosen from those facing the program in preparing for daily operation in the Fall.

BRC 104. SPECIAL TELEVISION PRODUCTION PROJECTS 3 credit hours

Offered only in the Spring. A practicum for students who have completed a minimum of study (Television 101 or 201 or equivalent) to do intensive work in the operation of studio equipment. The problem to be undertaken by the class will be chosen from those facing the program in preparing for weekly production in the Fall Semester.

BRC 107. BROADCAST JOURNALISM 3 credit hours

Includes organizing a newscast from the newswire, network news, the actuality wire and the beeper phone. Also local news reporting, features, special events and sports. Study of journalistic ethics, news, the FCC, and the Fairness Doctrine covered.

BRC 110. RADIO STATION OPERATION 3 credit hours

For non-engineering station personnel. Covers the operation of control room and studio equipment. The proper care, use and operation of con-

soles, microphones, phonograph tables, and tape recorders (cassette, cartridge, and reel-to-reel). Basic program forms, news, music, interviews, features and commercials are produced by the students using the equipment.

BRC 111. CLOSED CIRCUIT TELEVISION PRODUCTION 3 credit hours

Operation of studio equipment. Covers studio floor management, including preparation and use of basic graphics, plus directing techniques for nondramatic programs. Students prepare and produce news, feature and interview programs. Class prepares a student for non-engineering production functions in local stations.

BRC 122. ADVANCED CLOSED CIRCUIT TELEVISION PRODUCTION 3 credit hours

Prerequisite: BRC 111

Using skills developed in Television 101, students produce live tape and film programs, especially news, using advanced techniques of production and working as producers, writers, directors and related personnel.

BRC 127. ADVANCED RADIO STATION OPERATION 3 credit hours

Prerequisite: BRC 110

Class utilizes the production and writing skills developed by the student in Radio 101 to establish and maintain a daily broadcast schedule with the students rotating weekly in station positions.

BRC 128. TELEVISION ACTING 3 credit hours

The techniques for playing for the camera: naturalism, "coming to the mark," confined playing area, broken scenes, post-sync soundtracks, reaction shots, multiple takes, quick studies, consistent characterization in reverse shooting, star types, feature types, cameos.

BRC 213. AUDIO VISUAL METHODS FOR TELEVISION 3 credit hours

For the television student without previous art training. TV screen size, ratio, masking problems and gray scale covered. Students prepare basic TV production elements: title cards, illustrations, photographs, sets, properties, sound effects and music tracks. Use of basic audio visual equipment is covered, especially the overhead projector and the sound/slide presentation. Studio equipment is used in the production of short programs using the production materials prepared in class.

BRC 244. RADIO-TELEVISION WRITING 3 credit hours

The writer as the basic program source. Includes program formats, continuity books, rewriting and writing for the ear and not the eye. Covers

the one minute commercial form, dialoguing, characterization, and voiceovers. Also study of the documentary, its history and current status.

BRC 245. MULTI-MEDIA ADVERTISING 3 credit hours

Stressing that small local agencies must be equipped to provide service for clients in radio and television as well as to print media. Emphasizes that station personnel must also recognize that broadcast materials from the sponsor's viewpoint are only part of a larger picture. This class is designed to provide broadcast personnel with experience with other advertising media, newspapers, magazines, billboards, direct mail, display, etc. A practical and functional focus on advertising.

BRC 246. RADIO-TELEVISION STATION MANAGEMENT 3 credit hours

Non-production and non-broadcast functions in the station. Brief history of broadcasting as guide to legal responsibilities under Rules and Regulations of the Federal Communications Commission, the development of business structure including contracting for services such as news, music and film. Also the sale of time under the conditions of the "rate-card," sales and station promotion, budgeting, "logging" and the preparation of all necessary reports.



BUSINESS

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 100. INVESTMENTS 1 credit hours

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 111. BUSINESS LAW 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 3 credit hours

Prerequisite: BUS 111

The study of corporations, property, sales, negotiable instruments, insurance and bankruptcy.

BUS 140. BUSINESS OCCUPATIONAL FOUNDATIONS 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 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 enter-

prise. 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 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.

CEM 058. INTRODUCTORY CHEMISTRY LABORATORY 1 credit hour

Prerequisite or Corequisite: CEM 057

A laboratory experience in basic chemical laboratory practices and procedures. 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.

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 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 4 credit hours

Prerequisite: CEM 111



A continuation of General Chemistry 111, including ionic equilibria and qualitative analysis. Laboratory work includes the qualitative identification of unknown substances 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 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 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.

CHILD CARE WORKER

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 THE 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 SCIENCE

CPS 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 con-

cepts 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.

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.

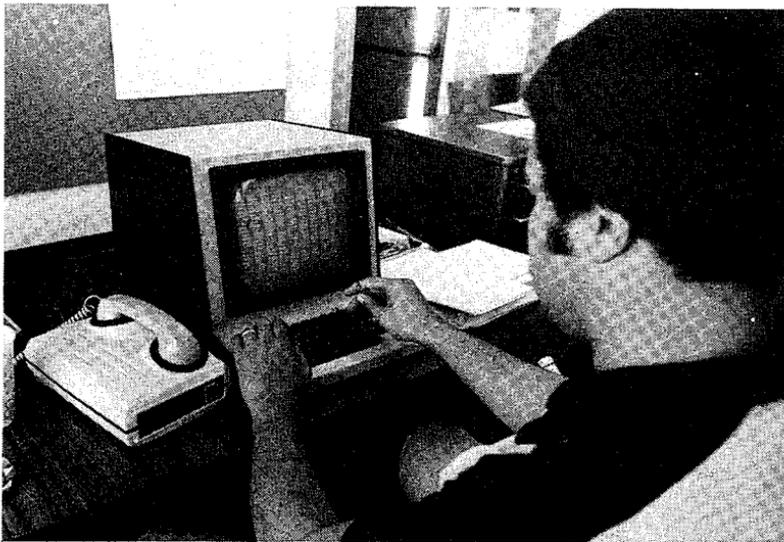
**CPS 132. COMPUTER PROGRAMMING—
CLASSROOM APPLICATIONS 2 credit hours**

No computer experience required. Of particular help to teachers in Washtenaw County with access to the Hewlett-Packard 2000F at the Intermediate School District. Includes "canned" programs, the BASIC language, games, drill and practice for students and keeping records.

CPS 133. BASIC PROGRAMMING I 3 credit hours

Prerequisite: MTH 097

First of a two-course sequence. Acquaints students with features and capabilities of BASIC programming, the language used in home computers. Includes how to use a time-sharing computer system, writing and executing programs, library and user-defined functions and applications to solving practical problems of interest. (4 hours per week)



CPS 134. BASIC PROGRAMMING II 3 credit hours

Prerequisite: CPS 133

Second of a two-course sequence. Advanced uses of the BASIC programming language. Includes solving more sophisticated mathematical problems, manipulating vectors and matrices, games and puzzles, and educational and scientific applications. (4 hours per week)

CPS 187. FORTRAN PROGRAMMING 3 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. ALGOL PROGRAMMING 3 credit hours

Prerequisite: MTH 169

Using the Algol W 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 W programs. (4 hours per week)

CPS 287. ADVANCED FORTRAN PROGRAMMING . . . 3 credit hours

Prerequisite: CPS 187

This course assumes a basic knowledge of Fortran or WATFIV. 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 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. Projects developed and executed using the M.T.S. Level G and H Fortran Compiler and Integrated Graphics Package. (4 hours per week)

CONSTRUCTION TECHNOLOGY

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 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 POWER SUPPLYING 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 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 AND MAINTENANCE I 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. LIGHTING SYSTEMS 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. WOODWORKING—CARPENTRY 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. ADVANCED WOODWORKING—CARPENTRY 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. LIGHTING CALCULATIONS AND DESIGN . . . 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. CABINETMAKING 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 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. 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 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 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 rela-



tionship 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 3 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 101. BEGINNING MODERN DANCE 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. CONTINUING MODERN DANCE 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 and may be performed at the end of the semester.

DN 103. BEGINNING TAP DANCE 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. CONTINUING TAP DANCE 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 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. CONTINUING JAZZ DANCE 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 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 110. AFRO-AMERICAN DANCE 1 credit hour

An introductory dance course with emphasis on movements commonly used in African and Black-American dance.

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.

DATA PROCESSING

**DP 100. DATA PROCESSING/
INTRODUCTION TO COMPUTERS** 3 credit hours

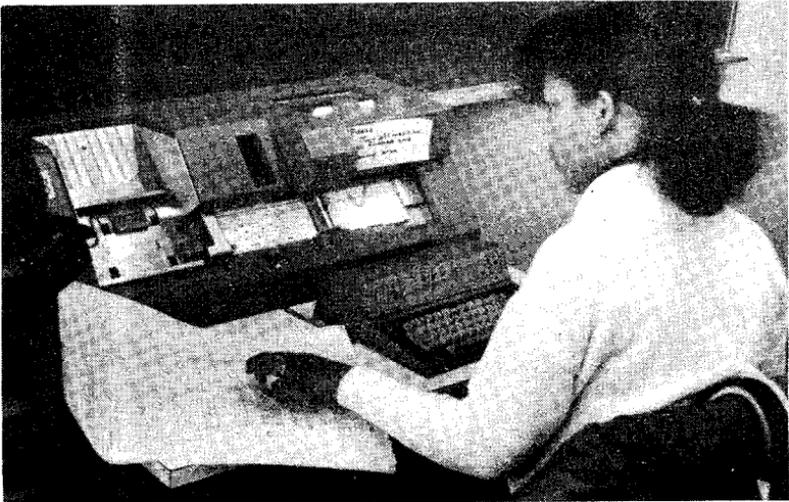
Occupational uses of computers. Computer development and early computer devices. Students describe and operate components of a remote time sharing system; study computer applications in business, education, government, health and law enforcement; observe computer uses in the above areas by writing simple programs and/or by touring local computer sites and describing the impact of computers on present and future societies.

**DP 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.

**DP 111A. DATA PROCESSING/
COMPUTER CONCEPTS** 3 credit hours

Electronic data processing. Basic terminology and concepts of data processing applications, systems design, punch card processing and computer concepts including card, tape and disk processing. No computer programming is required. (6 hours per week, 7½ weeks)



**DP 111B. DATA PROCESSING/
COMPUTER FUNCTIONS** 3 credit hours

Continuation of Data Processing 111A. Principles of computer programming. Program flowcharting, program documentation and an overview of programming languages including COBOL, RPG, FORTRAN, and/or BASIC Principles of Operating Systems and Data Communications, job classifications in data processing and the computer's social implications are discussed. Simple programs required in one of the languages discussed. (6 hours per week, 7½ weeks)

**DP 111C. DATA PROCESSING PROGRAMMING/
BUSINESS FORTRAN IV** 3 credit hours

Principles of the FORTRAN language. Students write numerous programs to learn the statements and basic logic patterns of the language. Emphasis on input/output considerations including formats and designs and programming applications in business. (6 hours per week, 7½ weeks)

**DP 111D. DATA PROCESSING PROGRAMMING/
BASIC** 3 credit hours

Programming in the BASIC language using time-sharing terminals. Entry and retrieval of data, mathematical operations, compare and control statements, subscript and function options, all aspects of computer terminal control and operation. Students write BASIC programs, then enter and run them on computer terminal. (6 hours per week, 7½ weeks)

**DP 111E. DATA PROCESSING PROGRAMMING/
ASSEMBLER** 3 credit hours

Fundamentals of Assembler language as designed for the Univac computer system. Useful on many small and medium sized computers. Input/Output and calculation operations. Programming problems involving business applications with card and disk input. (6 hours per week, 7½ weeks)

**DP 122A. DATA PROCESSING/
COMPUTER TECHNIQUES** 3 credit hours

Prerequisites: DP 111A and DP 111B

A modularized course in Computer Program flowcharting techniques. Methods of developing logical solutions to business computer problems using flowcharting methods and ANSI symbols. No actual computer programming is required in this course, but some time will be made available if desired by students. (6 hours per week, 7½ weeks)

**DP 122B. DATA PROCESSING PROGRAMMING/
RPG I AND II** 3 credit hours

Prerequisites: DP 111A and DP 111B

A modularized course in Report Program Generator language. Covers basic calculation statements including multiple level breaks and table handling techniques. Students write 10 programs involving sequential card and disk files. (6 hours per week, 7½ weeks)

**DP 122C. DATA PROCESSING/
COMPUTER DISK TECHNIQUES** 3 credit hours

Prerequisite: DP 122B

An advanced RPG (Report Program Generator) I and II course dealing with disk-file techniques. Experience with ISAM, random processing, chaining, indexing and subscribing. (6 hours per week, 7½ weeks)

**DP 213A. COMPUTER PROGRAMMING/
INTRODUCTORY COBOL** 3 credit hours

Prerequisite: DP 122A

A modularized study of the input and output procedures of the COBOL language. Basic mathematical statements, final totals and the comparing function. Additional topics covered. Students write at least 5 basic programs with input data supplied. Some programs require full documentation packages. (6 hours per week, 7½ weeks)

**DP 213B. COMPUTER PROGRAMMING/
INTERMEDIATE COBOL** 3 credit hours

Prerequisite: DP 213A

A modularized study of additional COBOL language features including additional input and output forms. Students learn conditional names, GO TO options, headings, print overflow, major-intermediate-minor totals, table look up, and an introduction to the sort verb. Students write at least 7 COBOL programs, some of which will utilize multiple input and output forms. Full documentation packages required for some program assignments. (6 hours per week, 7½ weeks)

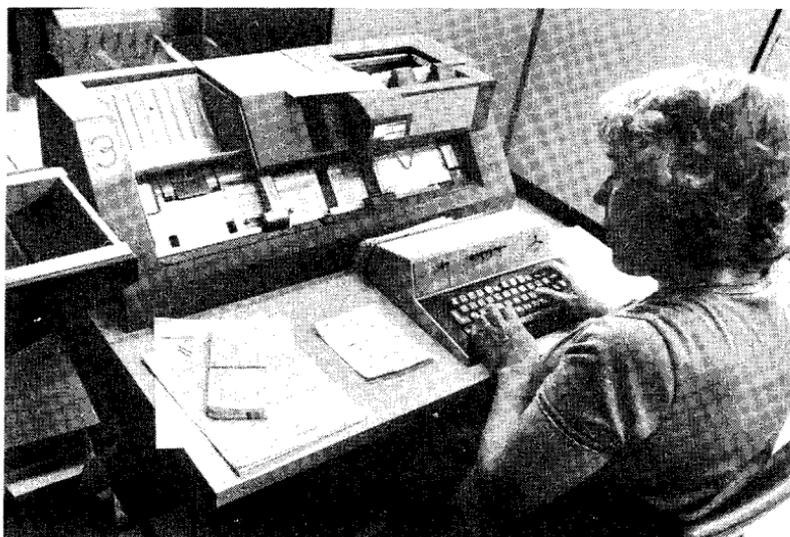
**DP 213C. COMPUTER PROGRAMMING/
ADVANCED COBOL** 3 credit hours

Prerequisite: DP 213B

This modularized course covers the advanced topics in the COBOL language. Students will use alternate input and output devices including magnetic tape and access methods for sequential and indexed files. Emphasis will be placed on program design including implementation and documentation. Students write 3 to 5 programs. (6 hours per week, 7½ weeks)

**DP 213D. COMPUTER PROGRAMMING/
ADVANCED BUSINESS FORTRAN IV** 3 credit hours

Prerequisite: DP 111C



Continuation of Data Processing 111C. Additional FORTRAN language features, including additional input and output forms. Students write advanced program designs to expand their knowledge in the areas of statements and fundamental logic patterns of the FORTRAN language, as well as input/output formats and design factors as they relate to programming applications in business-related areas. (6 hours per week, 7½ weeks)

**DP 224A. DATA PROCESSING/
COMPUTER FILE DESIGN CONCEPTS. 3 credit hours**

Prerequisite: DP 213B

Data Base Concepts applying present programming skills. Develop link lists, chains and networks in programming. Simulation. Study Data Base models with emphasis on D.B.T.G. CODASYL model. Programs written in the Data manipulation language of the Univac model. Analysis of case studies. (6 hours per week, 7½ weeks)

**DP 224B. DATA PROCESSING/
COMPUTER SYSTEMS DESIGN CONCEPTS. 3 credit hours**

Prerequisite: Consent

Concepts of systems analysis and design. Includes techniques of problem definition, I/O design, systems flowcharting and general documentation; presentation of the design to users and techniques of follow-up to assure goals are met. Viewing systems design through the eyes of programmer so the programmer may contribute significantly to the overall project. (6 hours per week, 7½ weeks)

DENTAL ASSISTING

(Enrollment priority for these courses is granted students admitted to this program.)

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 operatory, 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 stu-

dent will be assigned to clinical experiences in the Washtenaw Community College Dental Clinic.

DA 122. ADVANCED DENTAL SCIENCE3 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 ROENTGENOLOGY2 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. CLINICAL PRACTICE 3 credit hours

Prerequisite: 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.

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 2 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 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 4 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 101. LEGAL RIGHTS 3 credit hours

A course on everyday legal questions and matters which covers the basic rights and prosecution of an individual. Such items as liability, contractual arrangements, wills, income tax, small claims court, consumer agencies and means of legal recourse and remedy are included. A practical course for the layman.

EC 103. CONSUMER RIGHTS 3 credit hours

Concerned with consumer legal rights and remedies, this course covers consumer contracts; product warranties; debtor and creditor understandings; real property, purchase, sale and taxation; tenants' rights; state and federal income taxation; insurance. A class designed to help consumers, it is in part shaped by the interests and needs of the students.

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 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 200. BLACK ECONOMICS 4 credit hours

Basic principles of economics and their implications for the Black community. Designed to acquaint students with the free-enterprise system of business economic activity and the impact of the consumer and government forces upon the system. Essentials of income data, prices, employment, distribution of wealth, role of banking systems, business fluctuations and functioning of the American economic system and alternate economic systems.

EC 211. PRINCIPLES OF ECONOMICS 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 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 010. CONTINENTAL MORSE CODE 1 credit hour

Designed for beginning level amateur radio candidates. Instruction and drill in receiving and sending Morse code characters (alphabet, numerals, and punctuation). Graduates should be able to pass novice class code requirements. (3 hours per week, 7 weeks)

EE 020. BASIC AMATEUR RADIO 2 credit hours

Theory and practice—covers amateur radio basic circuitry, Ohm's law and FCC rules and regulations. (3 hours per week, 10 weeks)

EE 025. ENERGY PRINCIPLES 1 credit hour

Introductory course for technical and social studies students, teachers and the interested public. Covers the nature of energy, and useful units and formulae, energy resources and process, social and economic dependence on energy, alternative choices. Lecture and demonstration. (2 hours per week, 7 weeks)

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. Students will learn to use the Tektronic 561-A and Xetec OS-2000 dual-trace laboratory oscilloscope. (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.

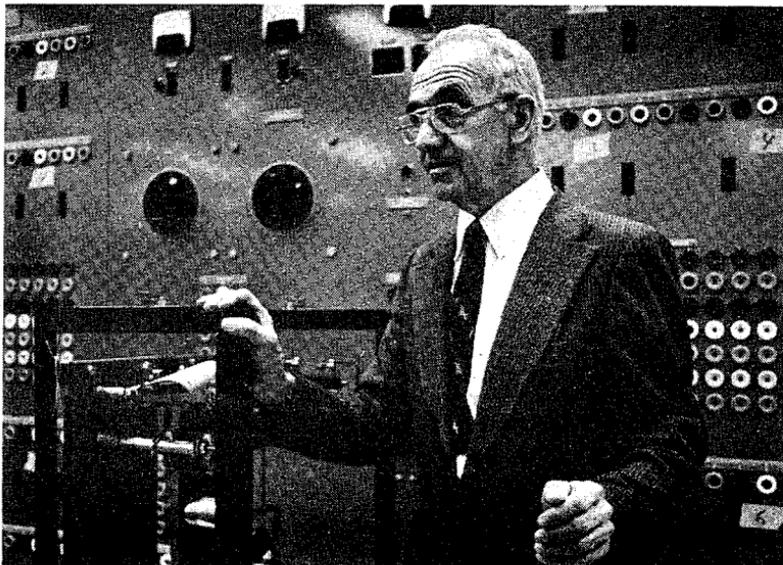
EE 101. SERVICING TECHNIQUES I 4 credit hours

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 electro-mechanical 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. (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

Note: All EE Associate degree students must simultaneously enroll in EE 110.

Basic electrical theory for the beginning technician or electrician. Includes application of Ohm's Law and Kirchhoff's Laws; series, parallel and compound circuits; resistive, inductive and capacitive components; the use of the VOM; and the properties of alternating current. Lecture and Lab. (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 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. Electro-magnetic relay analogy and circuitry presented simultaneously. Electronic circuitry not emphasized. Lecture and Lab. (4 hours per week)

EE 138. DIGITAL COMPUTING SYSTEMS I 4 credit hours

Prerequisite: EE 137 and EE 139; Corequisites: EE 122 and EE 211

Operation, servicing and troubleshooting of digital computing systems. Computer organization, machine language programming, assembly language programming, CPU operation, input/output devices, the memory unit, the arithmetic-logic unit, interrupt systems, bus structure and diagnostic routines. Lecture and Lab. (6 hours per week)

EE 139. COMPUTER SYSTEM FUNDAMENTALS 4 credit hours

Prerequisite: EE 137

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. (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. (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 212. RADIO AND TELEVISION CIRCUITRY 5 credit hours

Prerequisite: EE 211

The analysis of the basic circuits used in radios and black and white televisions. Circuit tracing, trouble shooting, repair and alignment, functional block and equipment schematic diagrams. Lecture and Lab. (9 hours per week)

EE 212A. RADIO AND TELEVISION CIRCUITRY 4 credit hours

Prerequisite: EE 211

The analysis of RF circuits used in radio and black and white television receivers. Low voltage power supplies, tuning and mixing oscillators, circuits, RF amplifiers, audio amplifiers and detectors. Lecture and Lab. (4½ hours per week)

EE 212B. RADIO AND TELEVISION CIRCUITRY (ELECTRONIC DISPLAYS). 3 credit hours

Prerequisite: EE 211

The operation and servicing of raster-scan cathode ray tube displays. Characterization of CRTs, high voltage power supplies and regulators, deflection oscillators and sweep circuitry, horizontal deflection systems, vertical deflection and output circuits, display generators, video amplifiers, character and sync generators, computer terminal applications. Lecture and Lab. (4½ hours per week)

EE 219. ELECTRICAL DISTRIBUTION SYSTEMS. 3 credit hours

Prerequisite or Corequisite: EE 122

Electrical generation, transmission, and distribution techniques. In-plant distribution for factories and large commercial facilities is examined and advantages of alternate schemes discussed. Also, typical equipment for full service is reviewed and specifications examined for various categories. (3 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. (6 hours per week)

EE 221. COMPUTER PERIPHERALS 3 credit hours

Prerequisite: EE 139; Corequisite: EE 138

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. Lecture and Lab. (4 hours per week)

EE 222. DIGITAL ELECTRONICS I 4 credit hours

Prerequisites: EE 122, 137; EE 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. (6 hours per week)

EE 223. COLOR TELEVISION 4 credit hours

Prerequisite: EE 212B

Principles of color television circuits, analysis of the content and processing of the composite color television signal and basic troubleshooting techniques of color television circuitry. Lecture and Lab. (6 hours per week)

EE 224. TELEVISION SERVICE PROCEDURES AND PRACTICES 4 credit hours

Prerequisite or Corequisite: EE 223

Circuit analysis of television receivers. Includes troubles that occur most frequently in circuits and components. Recommended diagnostic and repair techniques. Training on inoperable equipment. Importance of customer relations to describing receiver failures and servicing. Partial on-the-job training may be arranged. Lecture and Lab. (6 hours per week)

EE 230. COMMUNICATIONS ELECTRONICS 4 credit hours

Prerequisite: EE 200, EE 211 and EE 212

Analysis and construction of communications special circuits associated with AM, FM, and SSB communications equipment. The

course closely parallels the technical requirements (Element 3) of the FCC 2nd Class License. Lecture and Lab. (6 hours per week)

EE 233. DIGITAL COMPUTING SYSTEMS II 4 credit hours

Prerequisite: EE 138

A more detailed study of data flow, software, peripheral devices, error detection techniques, data communications, analog input/output techniques, trouble shooting techniques and diagnostic programs. Lecture and Lab. (6 hours per week)

EE 238. ELECTRONIC ANALOG CIRCUITS 4 credit hours

Prerequisites: EE 122 and EE 211

Characteristics and application of linear circuits. Includes operational amplifiers, comparators, audio amplifiers, power amplifiers, voltage regulators, digital interface circuits and consumer/communication circuits. 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. Normally offered in Spring, Spring-Summer Sessions. (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. Normally offered in Spring Session. (2 hours per week)

EE 241. DIGITAL ELECTRONICS II 4 credit hours

Prerequisite: EE 222

Digital electronic circuits. The characteristics of modern integrated 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. (6 hours per week)



EE 241A. DIGITAL ELECTRONICS II-A. 2 credit hours

Prerequisites: EE 222

Digital electronic circuits. Includes operation of basic logic gates, flip flops, subtractors, shift registers and counters. (6 hours per week, 7½ weeks)

EE 241B. DIGITAL ELECTRONICS II-B. 2 credit hours

Prerequisite: EE II 241A

Digital electronic circuits. Includes adders, subtractors, timing circuits, decoders, encoders and memories. (6 hours per week, 7½ weeks)

EE 242. HIGH FREQUENCY TRANSMISSION 4 credit hours

Prerequisites: EE 200 and EE 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 250. MICROPROCESSORS. 4 credit hours

Prerequisites: EE 137, EE 138, EE 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. (6 hours per week)

EMERGENCY MEDICAL TECHNOLOGY

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

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

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

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

A continuation of EMT Techniques I. New techniques and further skills acquired in the first semester.

EMT 105. PATIENT CARE PROCEDURES. 2 credit hours

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. 2 credit hours

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. 2 credit hours

This course is devoted to the handling and evaluation of the psychological needs of the patient and of the EMT. The student is taught basic techniques for evaluation and dealing with patients exhibiting various mental states and how to deal with them in high stress situations.

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. 3 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 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.

Advanced Emergency Medical Technology

The Advanced Emergency Medical Technician training program at Washtenaw Community College consists of 2 academic semesters taken sequentially over a nine month period. Successful completion of both semesters of the program will qualify the advanced EMT student to write the state licensing exam for advanced Emergency Medical Technicians.

Passing will be satisfactory if all exams are passed with a grade of 80% or better in the written and practical portions of the program.

EMT 201. LECTURE AND PRACTICAL 8 credit hours

The first half semester involves didactic and laboratory experiences pertinent to the study of anatomy, physiology and medical terminology. Specialized subject areas such as psychology, emergencies, pediatrics, cardiovascular, unconscious states and their management. The second half consists of didactic and practical training in specialized skill areas such as IV administration, pharmacology and administration of medication.

EMT 202. LECTURE AND PRACTICAL 6 credit hours

The second semester (EMT 202) and (EMT 206) are taken simultaneously. EMT 202 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 of EMT 202 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 A.C.L.S. slide set, mannequins and cardiac arrhythmia simulators.

EMT 206. CLINICAL 6 credit hours

Class is involved with the application and practice of those skills which were gained in EMT 201 only in the clinical setting. The student will be responsible for participating 16 hours weekly for the complete semester. He/she will be directly responsible to the clinical instructor. Grades will be awarded on an overall PASS/FAIL basis. This will be at the discretion of the clinical instructor and the student's ability to perform correctly those skills listed in the Michigan Department of Public Health Clinical Performance Objectives. Observation time will consist of two (eight hour) shifts on the A.L.S. Unit over and above the regular class room time. The observation schedule is flexible and every effort will be made to arrange a mutually agreeable time for the student and the A.L.S. provider.

ENGLISH

ENG 025. INTRODUCTION TO ENGLISH GRAMMAR. 4 credit hours

Prerequisite: Basic reading skills; foreign students with consent

For students with little or no previous instruction in English grammar and may be taken in conjunction with English 030. Emphasizes basics, i.e., tense, number, agreement, spelling.

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 American 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

Provides occupational student with an adequate and practical background in kinds of writing necessary in his chosen field. Course tailored to specific needs of each student. English Fundamentals 091 is in no way remedial for English Composition 111.

ENG 100. TECHNICAL COMMUNICATIONS 4 credit hours

Provides the student with the skills to communicate by means of writing, speaking and demonstration. Designed primarily for those studying to be technicians in industry, the health occupations and business. Student learns methods of reporting factual information through the analysis of problems and events related to his or her technical specialty.

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 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 Composition 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 understand-



ing 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 in song.

**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 elementary grades and for children through the early adolescent years. 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 readings 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. Some of the great literary experiences since the Renaissance with attempts to show how they have contributed to our present cultural heritage.

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 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. Published journals of renowned personages considered.

ENG 270. CREATIVE WRITING 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.

FILM

FLM 103. WORKSHOP ON MOTION PICTURE PRODUCTION 3 credit hours

To be offered exclusively in Spring session. Practicum, allowing students who have completed a year of study (Film 111 and 122 or equivalents) intensive work in the operation of film and editing equipment. Problem undertaken by class selected from a work in production.

FLM 111. INTRODUCTION TO MOTION PICTURE PRODUCTION 3 credit hours

No prior experience in still photography or motion pictures required. The Super 8 MM camera today is a highly sophisticated cinematographic tool more and more widely used in television and industry. While limited to small screen projection by its frame size, this factor is of little concern in television and less concern in education where its lesser investment and lower operating costs for comparable filmic expression are most important.

FLM 122. ADVANCED MOTION PICTURE PRODUCTION 3 credit hours

Recording and editing. Single and double system sound recording is now available in Super 8 plus voiceovers with sound, music and effects tracks added in the projector. Several laboratories now offer complete lab services for Super 8, workprint, edgenumbering, interneg and opticals. It is now possible to duplicate in Super 8 the professional processes of sound recording and editing previously only available in 16 MM.

FLM 213. MOTION PICTURE PRODUCTION: SPECIAL EFFECTS 3 credit hours

Prerequisites: FLM 111 and FLM 122

Advanced production concerned with creating with the camera. Covers the matt-box, special lenses, macrophotography, slow motion and time lapse, photomicrography, superimpositions and double printing film style.

**FLM 214. MOTION PICTURE PRODUCTION:
ANIMATION** 3 credit hours

Prerequisites: FLM 111 and FLM 122

Essentially the use of the animation stand and creating a film frame by frame.

**FLM 225. FILM PRODUCTION
FOR TELEVISION** 3 credit hours

Non-dramatic film production for television. Covers news inserts, features and documentaries. Also, a brief history of documentary film over the past fifty years with examples shown in class. The actual production of television footage using technical skills learned in Film 111 and 122.

FINANCE

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 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**

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 4 credit hours

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 122. FIRE PREVENTION THEORY
AND APPLICATIONS 3 credit hours**

Prerequisite: FP 100

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

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**

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

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 IN INDUSTRY 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 111. FLUID POWER FUNDAMENTALS 3 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 of 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 4 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 em-

phasis 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)

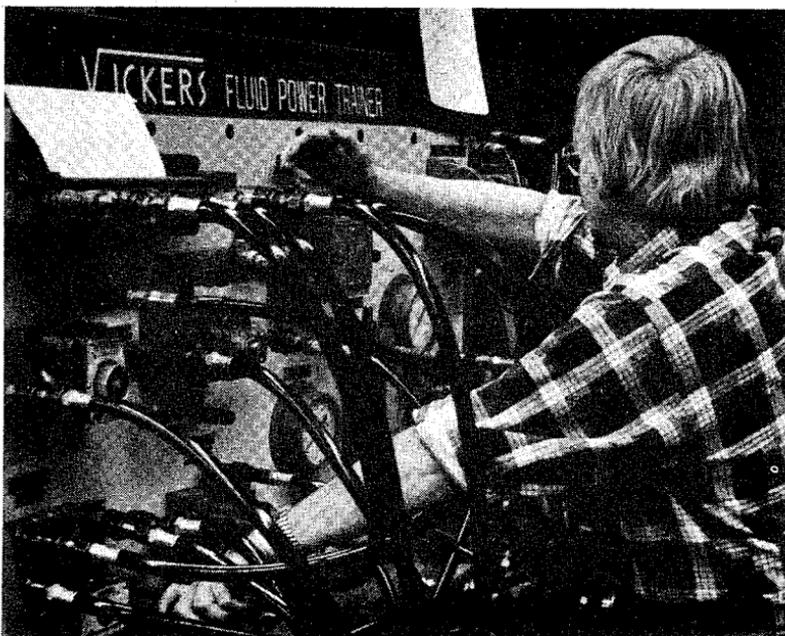
FLP 225. ADVANCED HYDRAULIC CIRCUITS 3 credit hours

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 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 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 I 3 credit hours

Prerequisite: FRN 122 or consent

Conversations and readings emphasize cultural aspects of French and continue the work done in French 111 and French 122. Students with good high school backgrounds 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.

GEOGRAPHY

GEO 100. GEOGRAPHY AND THE 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

GLB 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 minerals, rocks, fossils, maps, meteorology, astronomy, and oceanography and a field trip to points of interest is included in the three weekly laboratory hours. (5 hours per week)

GLG 103. FIELD GEOLOGY 3 credit hours

Geology taught in the field. Study processes and material that have formed or are forming the landscape in the Ann Arbor area carried out on two weekly afternoon field trips for a six-week period.

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 teach elementary weather forecasting techniques. Includes laboratory.

GLG 109. COMMON ROCKS AND MINERALS 3 credit hours

Involved is the identification of rocks and minerals and study of an area revealed in rocks and minerals. Useful for prospective elementary school teachers.

GLG 114. PHYSICAL GEOLOGY 3 credit hours

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 field trip is involved in the two hours of lecture and three hours of laboratory. (5 hours per 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

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)

HEALTH SCIENCE

HS 113. INTRODUCTION TO MEDICAL SCIENCES . . . 2 credit hours

This course provides an overview of how and why diseases occur. The range of concepts discussed include cells, organs, body, systems and clinical manifestations of disease.

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.

HEALTH SERVICES

HS 012. EMOTIONAL DEVELOPMENT OF FOSTER CHILDREN 1 credit hour

Provides an overview of the normal emotional development of children with the perspective that life experience of foster children may cause development lag, or exaggeration of normal behaviors; also to promote understanding of the foster child's special conflict-engendering situation of having a natural family, a foster family and an ideal (or fantasy) family.

HS 013. HANDLING LYING, DISHONESTY, AND DESTRUCTIVE BEHAVIOR 1 credit hour

Designed to help foster parents interpret the meaning of lying, stealing

and other forms of dishonesty; helps them determine what the consequences of such behavior are for the child; and to help them develop skills to helping children to move to more mature ways of behaving.

HS 020. FOSTERING TEENAGERS 1 credit hour

Assists foster parents in understanding the developmental process of teenagers in order that they may more effectively help teenaged foster children in their care to reach healthy independence.

HS 021. COMMUNICATING WITH THE PROFESSIONALS AND USING COMMUNITY RESOURCES 1 credit hour

Designed to help foster parents identify those behaviors and problem areas of children which are most relevant to professional evaluation and to assist foster parents in developing techniques to describe those behaviors specifically enough to ensure comprehensive professional assessment and treatment.

HS 022. ISSUES IN FOSTERING 1 credit hour

Introduces or clarifies for the experienced foster parent the role of the foster parent.

HS 135. PLANNING AND ASSESSMENT 1 credit hour

Discusses assessment as the comprehensive determination of the foster child's individual strengths, as well as deficits in all areas of development; physical, emotional, social, value and cognitive.

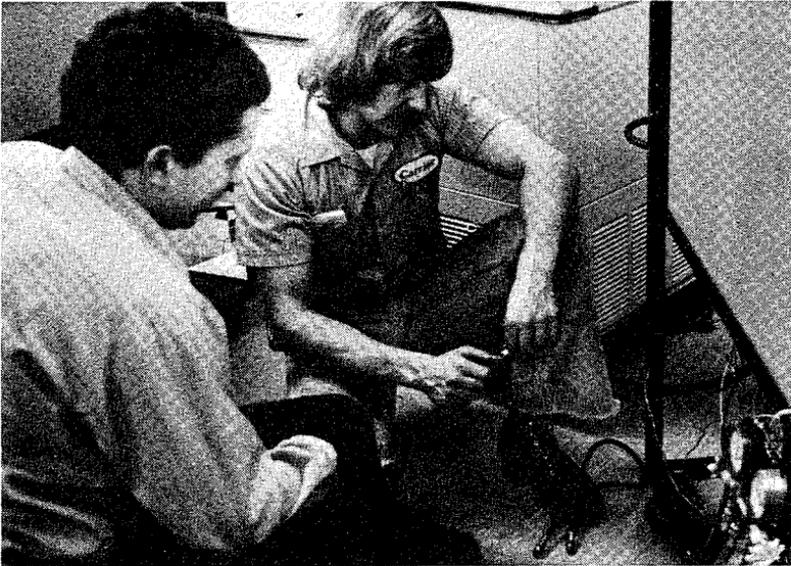
HEATING

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 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 and Refrigeration Service Engineers Society membership or consent

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 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 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 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.

INDUSTRIAL DRAFTING AND DESIGN

ID 100. TECHNICAL DRAWING 4 credit hours
The graphic language, free-hand sketching, lettering, pictorial drawing, orthographic drawing techniques, geometry of technical drawing, auxiliaries and related technical terms. (6 hours per week)

ID 102. TECHNICAL DRAWING FOR ELECTRICAL PROGRAM STUDENTS 4 credit hours
The graphic language lettering, geometry of technical drawing, orthographic drawing techniques, electrical block logic and schematic diagrams and electrical assembly drawing and documentation and related technical terms. (6 hours per week)

ID 107. MECHANISMS 4 credit hours
The principles of linkage, cams, centros, displacements, motions, velocities, mechanisms, vectors and applications presented graphically.

ID 111. INDUSTRIAL DRAFTING I 4 credit hours
Prerequisite: ID 100 or consent
Standard drafting practices and procedures in the areas of auxiliary views, sectioning, screw threads and fasteners, hydraulic and electrical symbols, advanced dimensioning and tolerancing and the use of drafting materials in the preparation of drawings, charts, and graphs. (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 111

Advanced drafting practices and procedures in the preparation of working drawings and tests of material. Material specifications, drawing numbering systems, preparation of tabulated drawings, preparation of tolerance study and use of commercial standards. (6 hours per week)

ID 121. THEORY OF JIGS AND FIXTURES 2 credit hours

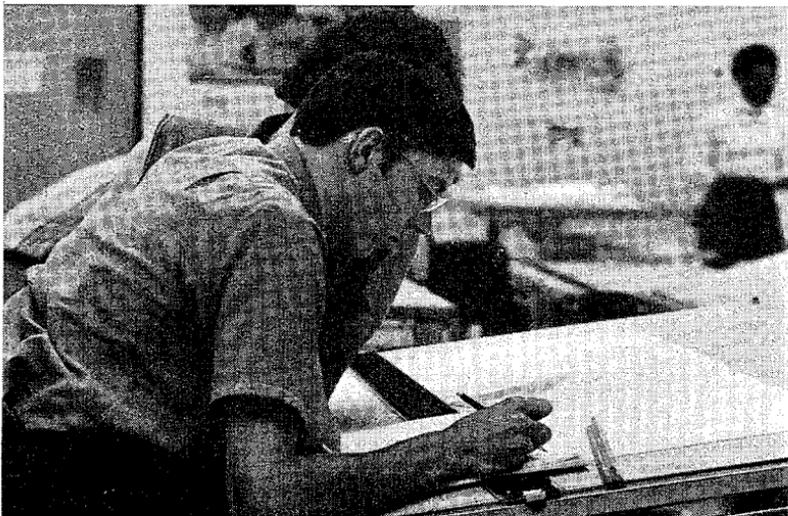
The basic types of jigs and fixtures and their combined use. Development of skills in the proper location of a part, in detailing and preparation of assembly drawings. The use of standard parts catalogs in researching. (3 hours per week)

ID 122. FUNDAMENTALS OF JIGS AND FIXTURES . . . 3 credit hours
Prerequisites: ID 111 and ID 112

A continuation of Industrial Drafting 121. (6 hours per week)

ID 125. MATERIALS OF INDUSTRY 2 credit hours

Materials used in manufacturing, including ferrous and non-ferrous metals and their alloys, plastics, adhesives and lubricants. Material heat treatment and tempering for special properties as well as material finishes and their application for environmental protection and decorative appearance. Also, selection of materials by their intended usage and mechanical properties. (4 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.

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 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 240. FUNDAMENTALS OF PRODUCT LAYOUT 4 credit hours

Prerequisite: ID 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.

ID 251. FUNDAMENTALS OF ELECTRICAL 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.

ID 252. FUNDAMENTALS OF ELECTRICAL 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.

INTERNSHIP-EXTERNSHIP

IE 200. INTERNSHIP-EXTERNSHIP 2-6 credit hours

To be assigned prior to registration

Prerequisite: (Internship) Student in a two-year program must have completed a minimum of one year of college or equivalent. Student in a one-year program must have completed one semester of college or equivalent. Student must have been enrolled full-time—12 credit hours or more—in the immediately preceding semester. (Externship) Student must have satisfactorily completed minimum of 6 credit hours in the immediately preceding semester.

Internship-Externship opportunities are available to interested and qualified students of Business Careers and allied programs. Internships are programs of study designed to enable full-time students to gain simultaneous occupational career experience, which is integrated with their academic studies. 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 adviser and the Internship-Externship coordinator to ensure proper program planning and to secure the appropriate permission. Normally 12 credit hours of supervised, integrative occupational experience through the Internship-Externship Programs may be applied toward the Associate Degree, and 6 credit hours toward a one-year Certificate of Achievement. (1-hour weekly seminar plus directed field projects)

MANAGEMENT AND MARKETING

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 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.

MGR 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 (209W) SMALL BUSINESS MANAGEMENT FOR WOMEN 4 credit hours

A combination of MGT 209 Small Business Management and SPS 107 Growth Experiences for Women. Developed in conjunction with AAWC-JC specifically for women considering entrepreneurship.

MGT 230. OFFICE MANAGEMENT 3 credit hours

The application of the principles of management to the planning, organization and control of office work. Direction and control of services and performance, simplification of procedures and methods and the establishment of standards and planning of physical facilities and business forms 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 037. INDEPENDENT STUDY 1-3 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.

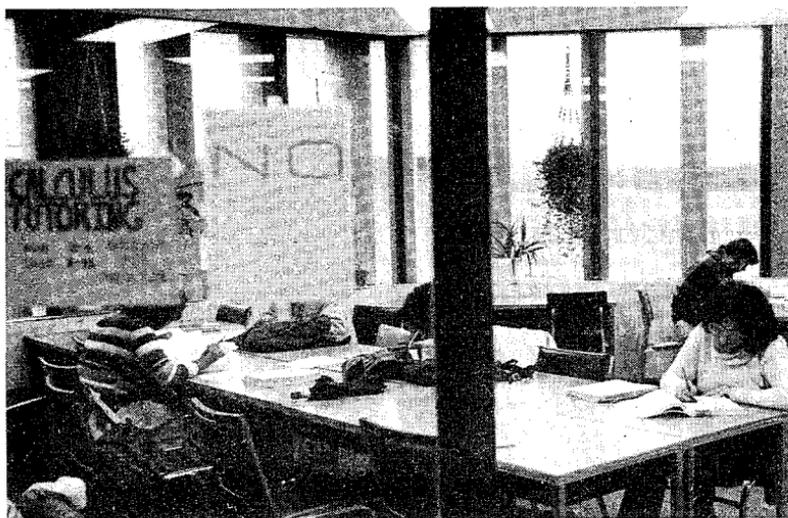
MTH 039. BASIC MATHEMATICS 3 credit hours

A self-paced course taught in the Mathematics Laboratory. For the student who desires a review of basic arithmetical operations before studying 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, English and metric conversions (de-emphasized), 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 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, what is the influence of computers on society and problems people encounter with these machines. Some programming included but this is not a programming course.

MTH 132. COMPUTER PROGRAMMING CLASSROOM APPLICATIONS 2 credit hours

No computer experience required. Of particular help to teachers in Washtenaw County with access to the Hewlett-Packard 2000F at the Intermediate School District. Includes "canned" programs, the BASIC language, games, drill and practice for students and keeping records.

MTH 133. BASIC PROGRAMMING I 3 credit hours

Prerequisite: MTH 097

First course of a two-course sequence in BASIC programming. Acquaints students with features and capabilities of BASIC programming, the language used in home computers. Includes how to use a time-sharing computer system, writing and executing programs, library and user-defined functions and applications to solving practical problems of interest. (4 hours per week)

MTH 134. BASIC PROGRAMMING II 3 credit hours

Second of a two-course sequence. Advanced uses of the BASIC programming language. Solving more sophisticated mathematical problems, manipulating vectors and matrices, games and puzzles, educational and scientific applications. (4 hours per week)

MTH 151. APPLIED ALGEBRA 4 credit hours

Prerequisite: MTH 039

Designed for technical students. Includes basic arithmetic, 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 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 of the royal game. 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 3 credit hours

Prerequisite: MTH 097 or MTH 163

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. TRIGONOMETRY 4 credit hours

Prerequisite: MTH 097

Provides background in trigonometry for study of physics, calculus and certain technical courses. Includes degree and radian measures, trigonometric functions, the pythagorean theorem, trigonometric identities, solving right triangles, the law of sines and the law of cosines, solving oblique and acute triangles, arc length and angular velocity, graphs of trigonometric functions, inverse trigonometric functions, complex numbers, polar form of a complex number and vector applications. Use of a handheld calculator encouraged.

MTH 177A. TRIGONOMETRY 3 credit hours

Prerequisite: MTH 097

The first half of Trigonometry (Math 177). A self-paced course taught in the Mathematics Laboratory. Includes degree and radian measures, trigonometric functions, the pythagorean theorem, trigonometric identities, solving right triangles, the law of sines and the law of cosines, and solving acute and oblique triangles. Use of a handheld calculator is encouraged.

MTH 177B. TRIGONOMETRY 3 credit hours

Prerequisite: MTH 177A

The second half of Trigonometry (Math 177). A self-paced course taught in the Mathematics Laboratory. Includes arc length and angular velocity, graphs of trigonometric functions, inverse trigonometric functions, complex numbers, polar form of a complex number and vector applications. Use of handheld calculator encouraged.

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 187. FORTRAN PROGRAMMING 3 credit hours

Prerequisite: MTH 169

FORTTRAN programming language intended for the science or vocational student who will use computer as a tool in sorting, classifying, scheduling, performing complex and/or repetitive calculations, or evaluating models through simulation. Emphasis on learning and using most of the features of the FORTRAN programming language. Opportunity to develop algorithms and to write and execute selected programs. (4 hours per week)

MTH 188. ALGOL PROGRAMMING 3 credit hours

Prerequisite: MTH 169

Using the Algol W programming language to construct and test algorithms. For the student considering future work in computer science. Opportunity to develop algorithms, and to test algorithms by writing and executing Algol W programs. (4 hours per week)

MTH 191. CALCULUS I 5 credit hours

Prerequisites: MTH 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 and MTH 177

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 3 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 187 and 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 FORTRAN language and execute via terminals.

MTH 287. ADVANCED FORTRAN PROGRAMMING 3 credit hours

Prerequisite: MTH 187

This course assumes a basic knowledge of FORTRAN or WATFIV. The more advanced features of FORTRAN and of scientific and data structure programming in general. Includes 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. (4 hours per week)

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.

MTH 299. INTERACTIVE COMPUTER GRAPHICS 3 credit hours

Prerequisite: MTH 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 incorporating these topics. Projects developed and executed using the M.T.S. Level G and H FORTRAN Compiler and Integrated Graphics Package. (4 hours per week)

MECHANICAL TECHNOLOGY

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 111. MACHINE SHOP THEORY AND PRACTICE 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 111A. MACHINE OPERATION 2 credit hours

Prerequisite: Consent of instructor

Laboratory experiences for students who have strong background in machining principles such as climb and conventional milling techniques, carbide tooling, and trigonometry. Students entering must have previous experience in milling, drilling, and lathe operations.(3 hours per week)

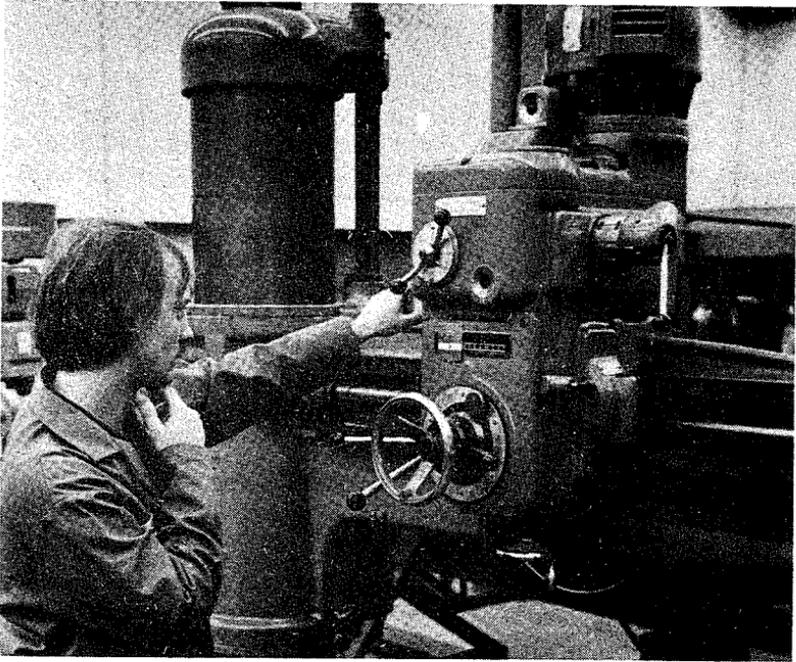
MT 122. MACHINE TOOL OPERATIONS AND SET-UP I 4 credit hours

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.

METALLURGY

MLG 100. INTRODUCTION TO METALLURGY 3 credit hour

Introduction to the basic terms, processes and structures of metals and how they behave during simple deformation. Hardness testing, classification systems and demonstrations of metallurgical equipment also included. (3 contacts per week)

MLG 101. INDUSTRIAL MATERIALS 2 credit hours

Study of modern materials including metals, alloys, plastics, wood, concrete, adhesives and lubricants. Test methods discussed as they apply to selecting materials by their properties. Standard systems of labeling and classifying as well as comparisons and usage covered. (3 hours per week)

MLG 122. GENERAL METALLURGY 3 credit hours

A survey of the field including general heat treatment, alloys and alloy systems, effects of welding, weld testing and instrumentation used in laboratory practice. The laboratory experience consists of preparation of samples for microscopic analysis, testing of metallic samples including weldments and simple heat treatment. (4 hours per week)

MLG 202. MANUFACTURING PROCESSES 3 credit hours

An introduction to modern industrial processes and how metallic materials behave when subjected to them: forging, casting, extrusion, stamping, machining, rolling, plating, testing, heat treatment, powder pressing and sintering; the specific properties of metals which make these processes unique or competitive with each other. Specific areas of coverage are machineability, expansion contraction, torque-tension relationships, hot and cold deformation, seizure, galling and fatigue. (4 hours per week)

MLG 207. TESTING LABORATORY 2 credit hours

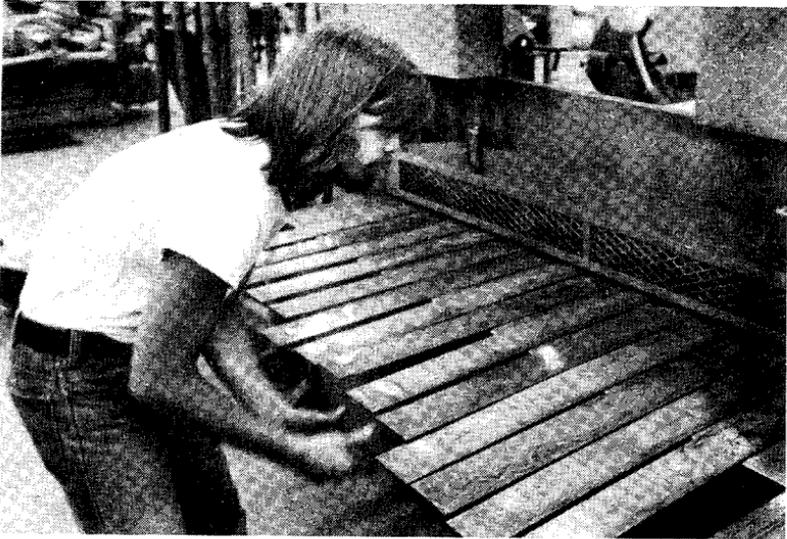
Corequisite: MLG 217

For Metallurgy Majors; skill development in testing and design of tests as directed in Metallurgy 217. Included are torsion, tension, compression, fatigue, impact, hardness, non-destructive techniques and specialized testing. (3 hours per week)

MLG 215. HEAT TREATMENT PROCESSES 3 credit hours

Prerequisite or Corequisite: MLG 100 or consent of advisor

An application of the principles of heat treatment of steel and certain non-ferrous alloys. Includes hardening, tempering, annealing, normalizing, surface hardening processes, hardenability and age hardening. Demonstration and lecture. (3 contacts per week)



MLG 217. MECHANICAL TESTING 2 credit hours

Corequisite: MLG 207 for majors

An introduction to laboratory procedures in testing and data taking. Specific emphasis placed on correct procedures, errors in method, reliability, handling of data and interpretation of results. (3 hours per week)

MLG 228. METALLOGRAPHY 4 credit hours

Prerequisite: MLG 122

Units of study include: sample preparation for microscopic examination and photo micrography; wet and dry photographic techniques to record structures and to relate them to properties observed in the lab; microhardness testing; microscopic measurements; and instrument calibration.

MLG 229. SPECIALIZED STUDY 5 credit hours

Prerequisite: MLG 228 or consent of advisor

This final class in Metallurgical Technology serves to give the student exposure to the advanced techniques in his or her chosen area of employment. Independent work on an advance project showing proficiency in the field. (6 hours per week)

MLG 230. HEAT TREATMENT LABORATORY 1 credit hour

Corequisite: MLG 215

Elective credit for majors provides application of the principles of heat

treatment including set-up and operation of furnaces and equipment, material preparation, tempering, carburizing, hardness testing and hardenability determinations. (3 hours per week)

MUSIC

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 accom-



paniment. 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 extend 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, tamboura and table. A brief history of Indian music, short biographies of noted Indian musicians such as Purandara Dasa and Sayma Sastri 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 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 GUITAR2 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 GUITAR2 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 GUITAR2 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 GUITAR2 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 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 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 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 3 credit hours

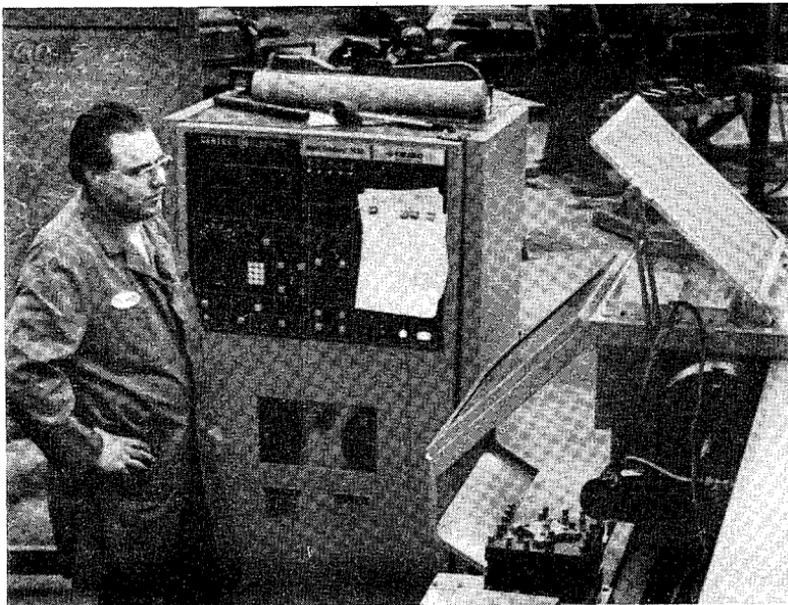
Numerical Control part hold techniques, feed and speeds for Numerical Control machining, cutting tools used for Numerical Control, stock removal techniques, and comparisons of manual versus computer programming. Special emphasis placed on part processing including per unit cost analysis. (4 hours per week)

NC 121. MANUAL PROGRAMMING FOR NUMERICAL CONTROL 3 credit hours

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

Precision set-up and operation of Numerical Control machine tools. Special emphasis placed on the time-saving techniques used in prof-



itable Numerical Control machine tool operation. (4 hours per week)

NC 213. COMPACT II COMPUTER PROGRAMMING 4 credit hours

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

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 3 credit hours

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)

NURSING

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 039. PRACTICAL NURSING REVIEW 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)

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 117. NUTRITION FOR NURSES 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.

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 2 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 2 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 4 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. (22 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 a body system.

NUR 135. PARENT-CHILD NURSING THEORY 2 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 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 maturity. Includes the study of the family in society.

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.

PHILOSOPHY

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, Kjerkegaard, 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.

PHOTOGRAPHY

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

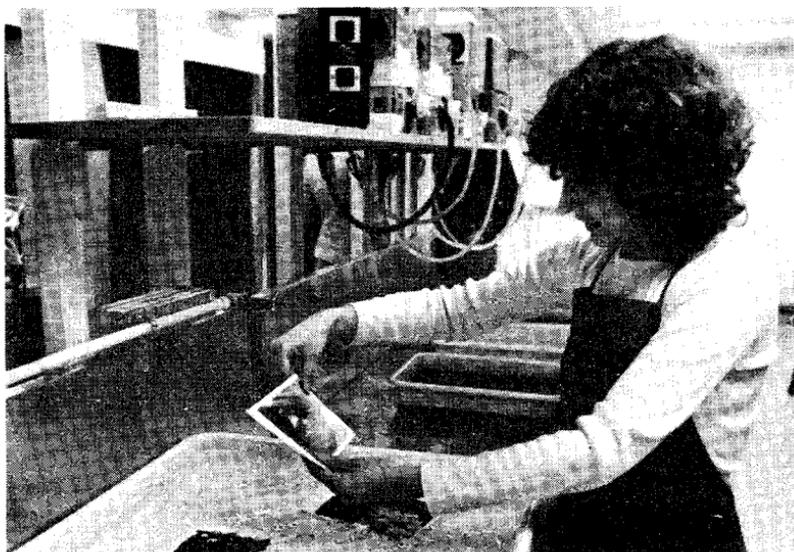
A study of the methods of documenting various types of environments with the camera. This will include the recording of current environmental situations as well as presenting suggestions for improving undesirable conditions. Students must have their own 35mm or roll film camera and previous photo experience.

PHO 103. HISTORY OF PHOTOGRAPHY2 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. PHOTOGRAPHY4 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 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 AND DARKROOM OPERATION 2 credit hours

Prerequisite: PHO 113

A survey of photographic occupations with guest lecturers, field trips and discussion.

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 3 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 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 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)

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 130. STANDARD AMERICAN RED CROSS

FIRST AID 3 credit hours

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.

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.

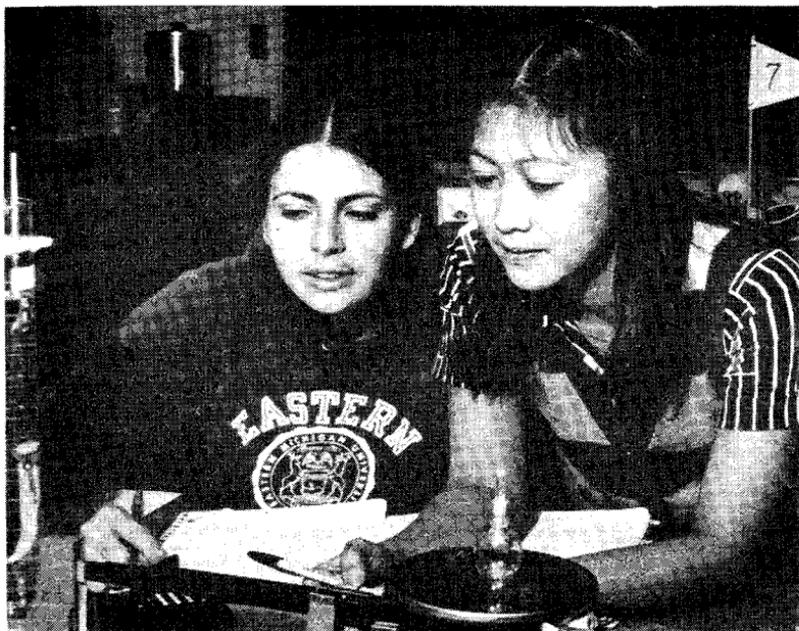
PHYSICS

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. (3 hours 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. Short-lived radioisotopes used in simple experiments in the laboratory. (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

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); executive, 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 151. BLACK POLITICS 3 credit hours

The purpose of this course is to broaden and deepen students' awareness of the contribution that Blacks have made to political thought. Course aims at making students aware of the role that Blacks have played in participating in the political process in various areas, at different levels, and in many dimensions. Emphasizes need for stepping up participation in the political process, and the possibilities as well as opportunities, that are open to Blacks. Students' background, environment, and experience will be given top priority as well as full attention throughout the course.

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 050. NEW CAREERS AND LIFE STYLES 2 credit hours

Finding and using interests and aptitudes. Group and individual counseling. Career development and opportunities. Goals for mid-life and pre-retirement. Life review and second and third career models. (3 hours per week, 8 weeks)

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 104. INTERPERSONAL DYNAMICS 2 credit hours

Deals with behavior of individuals in the work environment. Comparison of needs of organization (productivity) and needs of individual (satisfaction) and how to maximize both.

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 108. DYNAMICS OF BEHAVIOR 3 credit hours

Systematic presentation of issues, concepts, principles and theories in the study of human adjustment. Includes analysis of adjustment, motivation, frustration and conflict, learning, defense and escape mechanisms, fear and repression, psychoneurosis, anxiety reactions, personality measurement, psychoanalysis and psychotherapy.

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 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 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 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 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

Essential techniques required in industrial problem-solving. A thorough review of advanced control and statistical methods directed toward solutions of practical problems in the automotive, metal working, chemical processing and electronic fields.

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.

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

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 patients, to provide for all their 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

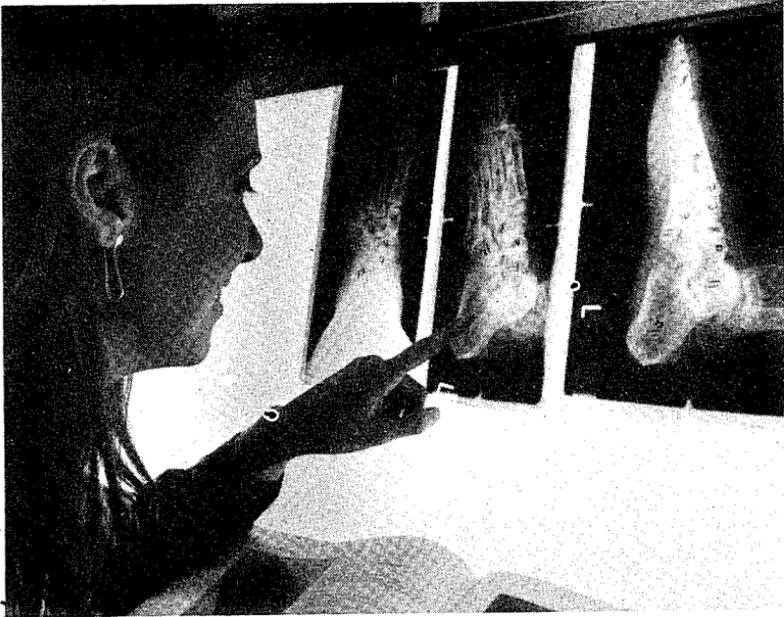
Structured clinical experience, application of knowledge and skill in positioning the upper extremity, chest and abdomen; demonstrate knowledge concerning professional ethics, courtesy and empathy in handling patients, film processing and darkroom procedures. (16 hours per week, 7½ weeks)

RAD 111. FUNDAMENTALS OF RADIOGRAPHY 3 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 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 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. RADIOLOGIC TECHNOLOGY 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.....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 EDUCATION3 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 BIOLOGY2 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 PROTECTION2 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 MANAGEMENT2 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 EDUCATION3 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 EDUCATION2 credit hours

Internship in Clinical Education. (32 hours per week, 7 weeks)

READING

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.

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)

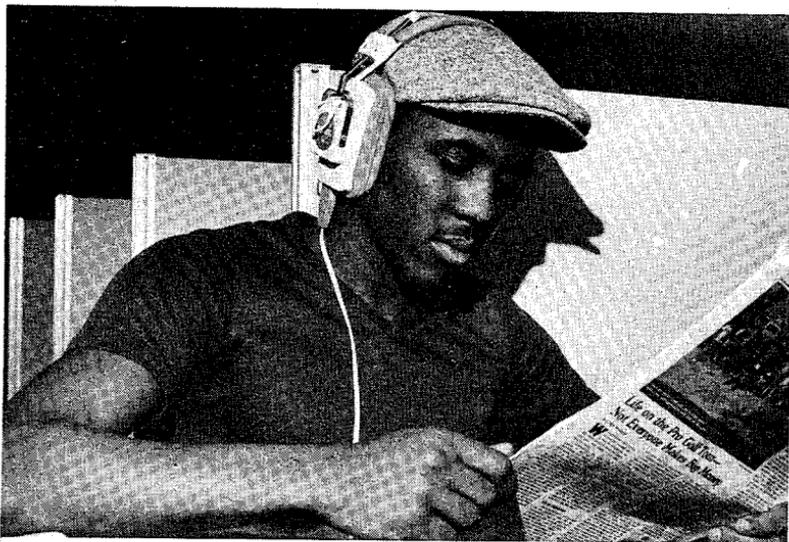
RDG 100. SPELLING AND VOCABULARY POWER. . . 2 credit hours

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 competent 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 competent 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. (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 competent student interested in becoming a more flexible reader. The student will learn to vary reading speeds and techniques appropriate to material and purposes. Class meets for half a regular semester.

REAL ESTATE

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

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. 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 EQUIPMENT 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)

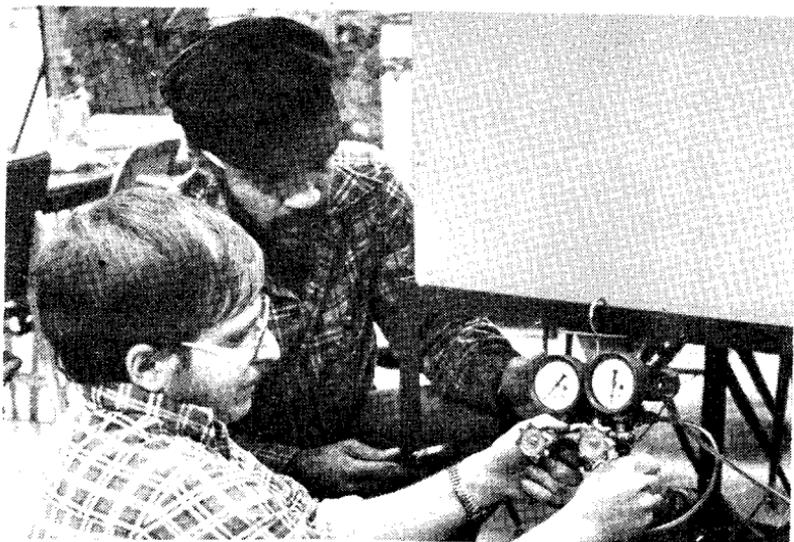
RAC 213. AIR CONDITIONING 5 credit hours

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 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

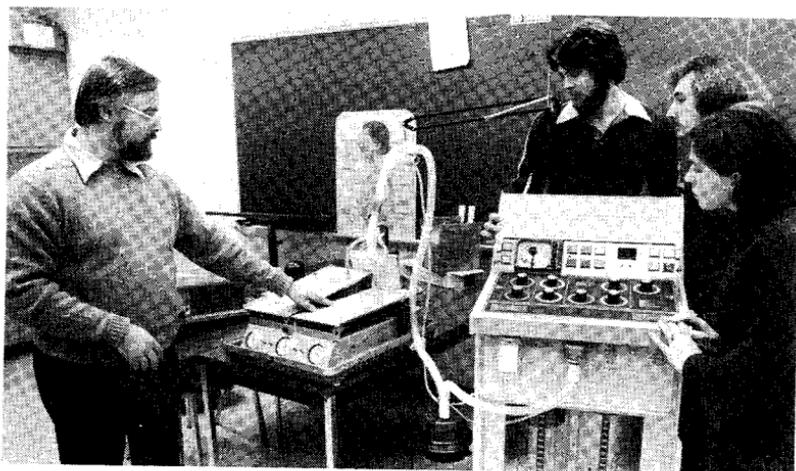
Prerequisite: Admission to the Respiratory Therapy Program

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** 2 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** 2 credit hours

Prerequisites: BIO 111 and BIO 147

A survey of anatomical pathology including inflammation, infection, tuberculosis, viral disease, poisons, tumors, cardiovascular disease, shock and diabetes.

**RTH 198. WORK EXPERIENCE—
RESPIRATORY THERAPY** 6 credit hours

Experience as a technician or therapist in a respiratory therapy department (20 hours per week)

RTH 199. GENERAL CLINICAL PRACTICE 3 credit hours

Prerequisite: RTH 121

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 121. (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, cardiognostic 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 3 credit hours

Prerequisites: RTH 106 and RTH 212. (Latter can be taken concurrently)

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 2 credit hours

Prerequisites: RTH 121 and RTH 122

A study of the physiology of children; modes of therapy used to treat cardiopulmonary diseases of children, infants and neo-nates explained.

SECRETARIAL AND OFFICE

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, 102, 203. TYPEWRITING 3 credit hours

An integrative approach to the development of operative skill in typewriting as a vocational tool. Course coverage includes training in the mastery of the keyboard, development of proper techniques, building speed and accuracy, exposure to basic typing applications and work processing. Credit and contact hours are progressive (101, 102, 203) and are contingent upon student progress as determined by proficiency tests. (4 hours per week plus minimum 8 practice hours)

SO 107. CLERICAL METHODS AND PROCEDURES . . 4 credit hours

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

Emphasis on developing insights into the responsibilities of the clerical office staff, personal qualifications, human relations factors and their relationship to the effective integration of clerical office methods. Includes the study of filing, telephone and telegraph communication, preparation of invoices, payroll practices and duplicating equipment. (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

Instruction in the basic mathematical processes on electronic calculators. Emphasis throughout the course on machine applications to mathematical problem-solving. (3 hours per week plus minimum 6 practice hours)

SO 131, 132, 133, 231, 232. SHORTHAND 3-4 credit hours

An integrative program of Study in Gregg shorthand designed to meet the vocational standards of the modern business office. Emphasis placed on shorthand principles and practices, development of transcription techniques and skills and the ability to transcribe office-style dictation. Credit and contact hours are progressive (131, 132, 133, 231, 232) and are contingent on student progress as determined by proficiency tests undertaken. (4-5 hours per week plus minimum 8-10 practice hours)

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.

**SO 152. WORD PROCESSING APPLICATIONS/
DICTATION EQUIPMENT 2 credit hours**

Prerequisite: SO 151 and high school typewriting proficiency or concurrent enrollment in SO 102 or equivalent

An integrative approach to the study and use of modern transcription equipment designed to acquaint the student with the theory and principles of transcription equipment as they relate to business and industry and other specialized fields. Skill development and speed building in recording and playing back emphasized.

**SO 153. WORD PROCESSING APPLICATIONS/
BASIC PRACTICE 2 credit hours**

Prerequisites: 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 typewriter as it relates to business and industry and other specialized fields. Skill development and speed building in recording and playing back emphasized.

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**

Prerequisite: SO 151, 152, 153 and high school typewriting proficiency or concurrent enrollment in SO 102 or equivalent

An integrative applied approach to the study of modern word processing equipment to acquaint the student with the use of word processing equipment as it relates to business and industry, and other specialized fields. Skill development and speed building in transcribing, recording and playing back finished word processing assignments 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, personnel qualifications, human relations to the effective integration of the word processing system(s) with the other business systems. 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 four 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 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 office. 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)

SOCIAL SCIENCE

SS 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.

SS 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.

SS 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.

SS 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.

SS 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.

SS 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.

SS 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.

SS 208. CHANGING ROLES OF DISABILITY 3 credit hours

An examination of the changing roles of disability in people's lives. This course is designed both for individuals who themselves have handicaps and for individuals who relate to handicapped people on the job or in the family. A broad range of disabilities will be explored including: quadriplegia, deafness, blindness, mental retardation, drug addiction and epilepsy. Focus will be on how these and other characteristics can influence people's lives in terms of: self-image, interpersonal relationships, education, careers, recreation, artistic expression, mobility, etc. Special attention will be given to how people can cope with and overcome barriers that are experienced due to disabilities.

SOCIOLOGY

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 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 introduce 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 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, adjust-

ment 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 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 concep-

tual 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 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 266. MARRIAGE-DIVORCE 3 credit hours

Structural-functional analysis of family institutions and relationship between social structure of society and family system; change and comparative analysis are emphasized.

SPANISH

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 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 ADVENTURES1 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 SPANISH2 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 SPANISH2 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 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

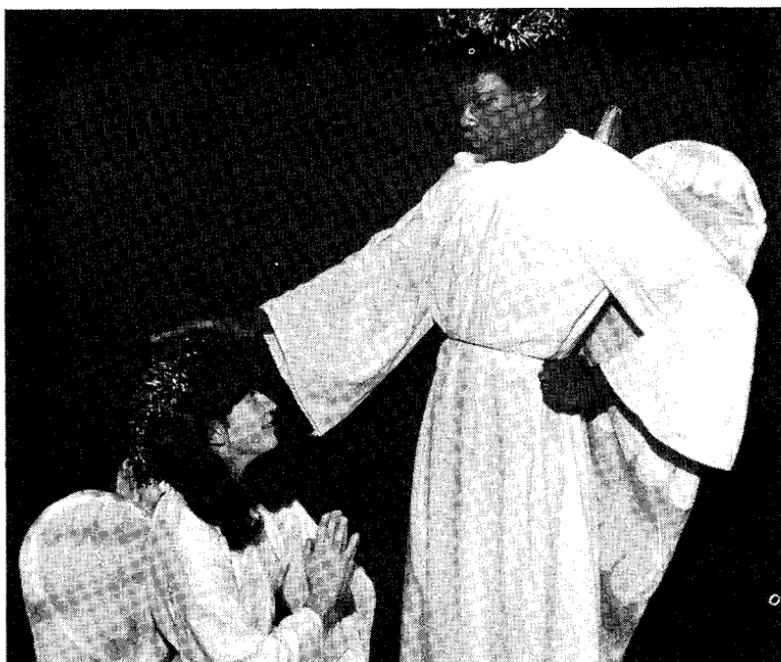
The development of an effective voice for speaking on the microphone through a study of contemporary standards in broadcast diction and voice production. The study of voice requirements for standard broadcast forms, views, interviews, features, commercials and music continuity. Basic oral reading techniques 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 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 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," 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.

SPS 117. WOMEN: A HUMAN EXPERIENCE 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.

TECHNICAL AND COMMERCIAL ART

TCA 100. PERSPECTIVE AND PARALLEL PROJECTION.....4 credit hours

Prerequisite: ID 100 or consent

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, ink, pen, brush water color, acrylics, rug design and execution and Blasa Art. 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 lettering 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, clay and plaster for construction. Emphasis placed on use of shop equipment; blueprint reading, use of model construction materials and cost estimating. (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. A systematic study of the following equipment: letterpress, blueprint machine, spirit duplicators, electrostatic copiers, silk screen and light duty offset presses. Emphasis placed on the techniques used for properly preparing and finishing 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 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 2-8 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 animation and cartooning, medical illustration, animal illustration, commercial photography, graphic reproduction, advertising and lettering, layout, fashion illustration and commercial displays. (Class hours arranged)

WELDING AND FABRICATION

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 4 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

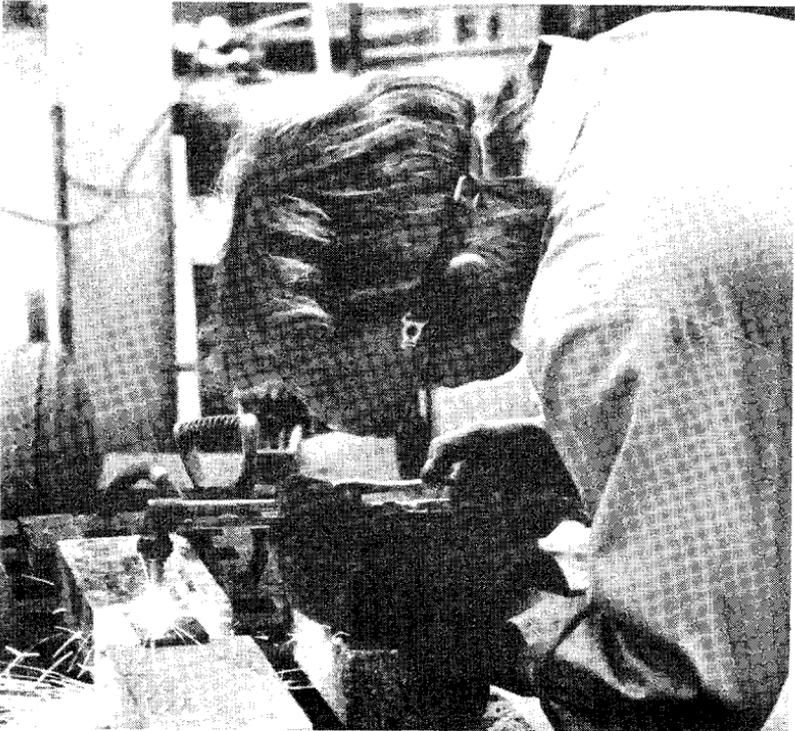
Course designed for basic knowledge of soft soldering, brazing, silver soldering, copper tubing and fittings, brazing of steel, silver soldering of copper and stainless. Practical application included.

WF 111. WELDING AND FABRICATION (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 AND FABRICATION (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 AND FABRICATION
(ADVANCED OXY-ACETYLENE) 4 credit hours**

Prerequisite: WE 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 AND FABRICATION
(ADVANCED ARC) 4 credit hours**

Prerequisite: WE 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 215. WELDING AND FABRICATION (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 composition and properties of metals included. (8 hours per week)

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 AND FABRICATION
(SPECIALIZED) 4 credit hours**

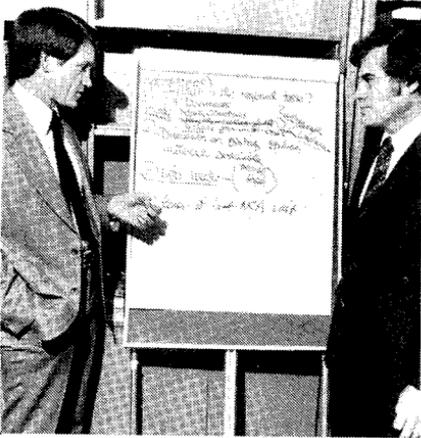
Prerequisite: Consent

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)

**WOMEN'S STUDIES
(See Social Science)**



PERSONNEL



BOARD OF TRUSTEES

Member	Term Expires
Ann C. Kettles , <i>Chairperson</i> Ypsilanti	December 31, 1984
Richard W. Bailey , <i>Vice Chairperson</i> Ann Arbor	December 31, 1984
James W. Anderson, Jr. , <i>Secretary</i> Ann Arbor	December 31, 1984
Richard L. Boyd , <i>Treasurer</i> Saline	December 31, 1984
Vanzetti M. Hamilton , <i>Trustee</i> Ann Arbor	December 31, 1986
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Anthony J. Procassini , <i>Trustee</i> Ann Arbor	December 31, 1986



WCC Board of Trustees: Front Row: James W. Anderson, Jr.; Richard W. Bailey; Ann C. Kettles; Richard L. Boyd. Second Row: Vanzetti M. Hamilton; Anthony J. Procassini. Absent: Henry S. Landau.

*Date following each name indicates individual's
first full-time employment association with the college.*

OFFICE OF THE PRESIDENT

Myran, Gunder A...... 1975
President
 B.S.—Mankato State College
 M.A.—University of Iowa
 Ed.D.—Michigan State University

Konschuh, Harry J.	1972
<i>Vice President</i>	
B.Ed.—University of Alberta	
M.A.—Michigan State University	
Pollock, David S.	1966
<i>Assistant to the President for Community Relations</i>	
A.B.—The University of Michigan	
M.A.—Eastern Michigan University	
Brengle, Geraldine H.	1966
<i>Administrative Assistant, President's Office</i>	
Tiffin University	
Washtenaw Community College	
The University of Michigan	
Braun, George, J., Jr.	1969
<i>Coordinator, Advanced Institutional Development Program</i>	
A.B.—The University of Michigan	
M.B.A.—The George Washington University	
Registered School Business Official—A.S.B.O.	
Arcure, Catherine	1979
<i>Community Relations Assistant</i>	
B.A.—The University of Michigan	

INSTRUCTION

Bertoia, Roger R.	1966
<i>Associate Dean, Occupational Education</i>	
B.S.—The University of Michigan	
M.S.—The University of Michigan	
Hackney, Larry, H.	1973
<i>Associate Dean, Continuing Education and Community Services</i>	
B.A.—Tennessee State University	
M.A.—The University of Michigan	
Ph.D.—The University of Michigan	
Thomson, Mehran, Jr.	1966
<i>Associate Dean, General Education</i>	
B.A.—Eastern Michigan University	
M.B.S.—University of Colorado	
Bickner, Robert	1979
<i>Coordinator, Indo-Chinese Education Program</i>	
B.A.—Catholic University of America	
M.A.—The University of Michigan	
Diggs, Kathryn	1979
<i>Director, Curriculum Development</i>	
B.A.—Mercy College	
M.A.—The University of Michigan	

- Harrison, Marcia** 1978
Director, CETA Operations
 A.D.—Northwestern Michigan College
 B.A.—Eastern Michigan University
- Jacques, Edith N.** 1976
Director, Community Services
 B.A.—D'Youville College
 M.A.—The University of Michigan
 Ph.D.—The University of Michigan
- Jackson, Robert L.** 1966
Director, Trade Related Instruction
 A.D.—Washtenaw Community College
 Manufacturing Technologist—S.M.E. Certified
 Journeyman—Tool & Die & Diecast Die Maker
 Tool & Processing Engineer
- Allen, Jacqueline** 1978
Technician, Community Services
 B.A.—Case Western Reserve University
- Cash, Marjorie** 1980
Technician, Special Needs Students
 B.A.—Prairie View A & M University
 M.Ed.—The University of North Dakota
- Dodge, Gary** 1980
Assistant Supervisor, Instructional Services
 B.A.—Eastern Michigan University
 M.A.—The University of Michigan
- Greenbaum, Judith** 1980
Instructional Development Specialist
 B.A.—The University of Michigan
 M.A.—The University of Michigan
 Ph.D.—The University of Michigan
- Mandel, Carla** 1979
Technician, Community Services
 B.A.—The University of Michigan
 M.A.—The University of Michigan
- Weir, John** 1979
Coordinator, Special Needs Students
 B.S.—Eastern Michigan University
- Wilson, Diane** 1979
Curriculum Specialist
 B.A.—Western Michigan University
 M.A.—The University of Michigan

STUDENT SERVICES

- Hower, Guy W.** 1966
Financial Aids Coordinator
 B.B.A.—The University of Michigan
 M.A.—The University of Michigan

- McCoy, Robert** 1971
Career Placement Coordinator
 B.S.—Western Michigan University
 M.A.—Western Michigan University
 M.A.—The University of Michigan
- Sims, Donald L.** 1968
Registrar and Director of Admissions
 B.S.—Wayne State University
 M.A.—The University of Michigan
- Travis, Patricia A.** 1974
Coordinator, Children's Center
 B.A.—The University of Michigan
 M.A.—Eastern Michigan University
- Fauri, Greta** 1977
Technician, Children's Center
 B.A.—Adrian College
- Frye, Iota H.** 1975
Financial Aids Officer
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University
- Greiner, Margaret (Peggy)** 1980
Technician, Adult Resources
 B.A.—The University of Michigan
 M.A.—The University of Michigan
- Grotrian, Paulette** 1980
Admissions Officer
 B.A.—Valparaiso University
 M.A.—Valparaiso University
- Hellner, Diane** 1979
Technician, Career & Life Planning
 A.D.—Washtenaw Community College
 B.S.—Eastern Michigan University
- Jordan, Diane** 1978
Technician, Financial Aids
 Washtenaw Community College
- Meeks, Sandra S.** 1969
Adult Resources Coordinator
 B.S.N.—The University of Michigan
 M.S.—The University of Michigan
 Registered Nurse
- Soderberg, James** 1978
Technician, Registrar Aid
 A.B.—The University of Michigan
- Vrabel, George** 1969
Career Placement Officer
 B.S.—Western Michigan University
 M.A.—Wayne State University

COUNSELING CENTER

- Williams, Calvin E.**..... 1969
Coordinator, 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 College
- Clark, William G.**..... 1968
Counselor
 B.R.E.—Grand Rapids Baptist College
 M.A.—Western Michigan University
- Davis, Paul W.**..... 1967
Counselor
 B.S.—Ball State University
 Ed.M.—Ball State University
 Ed.S.—Wayne State University
 Ph.D.—The University of Michigan
- Eaglin, Marguerite**..... 1967
Counselor
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University
 Ed.S.—Eastern Michigan University
- Hentz, Gary R.**..... 1967
Counselor
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University
- McNally, Robert C.**..... 1968
Counselor
 Four Year Graduate—General Motors Institute
 M.B.A.—The University of Michigan
 M.A.—University of Detroit
- Roberts, Shirley**..... 1968
Clinical Psychologist
 B.A.—The University of Michigan
 M.A.—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

LEARNING RESOURCES CENTER

- Scott, Adella** 1975
Director, Learning Resources Center
 A.B.—The University of Michigan
 M.A.L.S.—The University of Michigan
- Albert, Rudolph A.** 1968
Coordinator, Instructional Media
 B.S.—Bradley University
 M.A.—The University of Michigan
- Bosch, Barbara J.** 1966
Supervisor, Technical Processing, LRC
 Henry Ford Community College
 Washtenaw Community College
 Friden Educational Center
- Ho, Leo C.** 1975
Media Librarian
 B.A.—National Cheng Chi University
 M.L.S.—Atlanta University
 Ph.D.—Wayne State University
- Scott, Kathleen** 1971
Librarian
 B.A.—University of Iowa
 M.A.—University of Iowa

MANAGEMENT AND PLANNING

- Hurd, John D.** 1977
Dean, Business Operations
 B.B.A.—The University of Michigan
 M.B.A.—The University of Michigan
- Galant, Richard, L.** 1978
Interim Director of Institutional Research
 A.B.—The University of Michigan
 A.M.—The University of Michigan
 Ph.D.—The University of Michigan
- Munn, Ben F.** 1974
Director, Computer Services
 B.S.—The University of Michigan
- Stallworth, Clarence A.** 1974
Director, Campus Development
 B.S.E.—The University of Michigan
 M.S.E.—The University of Michigan
- Forsythe, Carolyn S.** 1973
Technician, Computer Services
 A.D.—Washtenaw Community College
 Brown's Business School—Diploma
 Nassau Community College

- Kalnajs, Jane** 1978
Technician, Computer Services
 B.B.A.—Western Michigan University
 Certificate—IBM Education Center
- Kooi, Lucy A.** 1977
Computer Analyst
 A.B.—The University of Michigan
 Washtenaw Community College
- Nair, Damodaran** 1980
Planning Assistant
 B.A.—Gandhigram University
 M.A.—Gandhigram University
 M.S.—Michigan State University
 Ph.D.—Michigan State University

BUSINESS OPERATIONS

- Chambers, John F.** 1977
Controller
 B.S.—Ohio State University
 M.B.A.—University of Detroit
 C.P.A.—State of Michigan
- Mallory, Richard H.** 1966
Director, Auxiliary Services
 B.A.—University of Detroit
- Spickard, James F.** 1977
Coordinator, Plant Operations and Security
 B.S.—Eastern Michigan University
- Wojnowski, Judith L.** 1978
Coordinator, Accounting
 B.S.—Canisius College
 C.P.A.

EMPLOYEE RELATIONS

- Reeves, Robert A.** 1968
Associate Dean, Employee Relations
 B.A.—Eastern Michigan University
 M.A.—Eastern Michigan University
- Bostwick, Phyllis M.** 1966
Supervisor, Clerical Services
 A.A.—Flint Junior College
 B.G.S.—Wayne State University
- Sabada, Mary L.** 1966
Coordinator, Personnel Services
 Ohio University
 Washtenaw Community College

Phibbs, John	1969
<i>Supervisor, Reprographic Services</i>	
A.D.—Washtenaw Community College	
B.B.A.—Eastern Michigan University	

ACCOUNTING AND DATA PROCESSING

Finkbeiner, Charles A.	1975
<i>Coordinator, Data Processing/Acctg./General Business</i>	
A.D.—Washtenaw Community College	
B.S.—The University of Michigan	
M.S.—The University of Michigan	
Brukett, James	1978
<i>Data Processing</i>	
B.A.—Kent State University	
M.S.—University of Miami	
Kantner, Lea Ann	1980
<i>Data Processing</i>	
B.S.—Eastern Michigan University	
Kokkales, Paul C.	1966
<i>Accounting</i>	
B.S.—Eastern Michigan University	
M.A.—The University of Michigan	
Meyers, Norma	1980
<i>Accounting</i>	
B.B.A.—The University of Michigan	
M.B.A.—Eastern Michigan University	
Rinn, John	1980
<i>Data Processing</i>	
A.A.—Port Huron Junior College	
A.B.—The University of Michigan	
M.S.—The University of Michigan	
Wotring, John R.	1969
<i>Data Processing</i>	
B.A.—University of Philippines	

AUTOMOTIVE SERVICE

Brown, Eugene	1977
<i>Coordinator, Automotive Service</i>	
A.D.—Washtenaw Community College	
B.S.—The University of Michigan	
Barron, Kenneth E.	1966
<i>Automotive Service</i>	
B.S.—Central Michigan University	
Certified General Auto Mechanic	

Cammet, Edward	1975
<i>Automotive Body Repair</i>	
Army Mechanic School	
Ford Motor Institute	
Bear Frame School	
Ditzler Paint Instructors School	
Martin Senour Refinishing School	
Hopper, Thomas W.	1967
<i>Automotive Service</i>	
Certificate—Army Mechanic School	
Ford Motor Institute	
Jordan, Lester	1979
<i>Automotive Body Repair</i>	
B.A.—Eastern Michigan University	
Mann, John B.	1971
<i>Automotive Service</i>	
Washtenaw Community College	
B.S.—Eastern Michigan University	
M.A.—The University of Michigan	
McGlinchey, Michael L.	1978
<i>Technician, Automotive Service</i>	
C. S. Mott Community College	
Weid, Richard	1979
<i>Automotive Service</i>	
B.S.—Eastern Michigan University	
M.A.—Eastern Michigan University	
M.S.—Eastern Michigan University	

BEHAVIORAL SCIENCES

Kollen, G. Michael	1969
<i>Coordinator, Psychology</i>	
B.A. Knox College	
M.A.—New Mexico Highlands University	
M.A.—The University of Michigan	
Bylsma, Donald Jr.	1966
<i>Sociology</i>	
B.S.—Wayne State University	
M.S.—Wayne State University	
Ph.D.—The University of Michigan	
Campbell, Benjamin I.	1968
<i>Psychology</i>	
B.M.—Peabody Institute	
M.A.—The University of Michigan	

- Hakeem, Ivan P.**.....1968
Sociology
 I.D.D.—Agricultural Institute
 A.B.—Clark College
 M.A.—Atlanta University
 M.Ed.—Eastern Michigan University
- Martin, Herbert L.**.....1967
Psychology
 B.A.—Eastern Michigan University
 M.A.—Eastern Michigan University
 M.S.W.—The University of Michigan
- Moy, William**.....1968
Psychology
 A.B.—Valparaiso University
- Thompson, Doreen**.....1975
Sociology
 A.B.—Atlantic Union College
 Licence es Lettres—University of Paris
 M.P.H.—The University of Michigan
- Zaremba, Ernest**.....1969
Psychology
 A.B.—The University of Michigan

BLACK STUDIES

- Lockard, Jon M.**.....1970
Black Art
 Certificate—Meinzinger Art School
 Certificate—Obleton Advertising Company
 Wayne State University
- Roberts, Alvin**.....1968
Psychology
 B.S.—Prairie View A & M College
 M.S.W.—Wayne State University
- Williams, Thomas G.**.....1971
Black Literature/Afro-American History
 B.S.—Eastern Michigan University

BUSINESS

- Paulson, Robert W.**.....1968
Coordinator, General Business/Management
 B.S.—University of New Hampshire
 M.S.—University of New Hampshire

- Ford, Andrew F.** 1966
Industrial Drafting/Mechanical Technology
 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
- 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

- Wheeler, Kenneth** 1966
Coordinator, Electricity/Electronics
 B.S.E.E.—Detroit Institute of Technology
 Member Institute of Electrical and Electronic Engineers
- 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
- Collard, Roger** 1976
Electricity/Electronics
 A.D.—Flint Junior College
 B.S.E.—The University of Michigan
- Kramer, Lawrence** 1977
Electricity/Electronics
 B.S.—The University of Michigan
- Robinson, Albert** 1974
Electricity/Electronics
 B.A.—Indiana University
 M.S.—Eastern Michigan University

- Arnold, Gwen** 1966
Business
 A.D.—Washtenaw Community College
 B.B.A.—Cleary College
 A.M.—The University of Michigan
- Zeeb, Ronald E.** 1968
Marketing/General Business
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University

DENTAL AUXILIARY

- Finkbeiner, Betty A.** 1969
Coordinator, 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.—Registered Dental Assistant
- Martin-Edwards, LaRuth** 1974
Dental Assisting
 C.D.A.—American Dental Assisting Association
 B.S.—Shaw College of Detroit
 A.M.—The University of Michigan
 R.D.A.—Registered Dental Assistant
 Certificate—Indiana University
- Nevers, William B.** 1975
Dental Assisting
 B.S.—Wayne State University
 D.D.S.—The University of Michigan School of Dentistry
- Swatz, Donna** 1973
Technician, Dental Assisting
 A.A.S.—Ferris State College
 C.D.A.—American Dental Assisting Association
 R.D.A.—Registered Dental Assistant

DRAFTING AND CONSTRUCTION TECHNOLOGY

- Byrd, David R.** 1966
Coordinator, Architecture/Construction Technology
 Hampton Institute College and Trade School
 N.C.A.R.B. Certified
 Registered Architect—D.C., Maryland,
 West Virginia, Michigan
 M.A.—The University of Michigan

- Russell, Dean A.**..... 1966
Electricity/Electronics
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University
- Williams, Johnny L.**..... 1967
Electricity/Electronics
 U.S. Navy Retired—Radio Electronics
 B.S.—The University of Michigan

ENGLISH / READING AND WRITING SKILLS

- Nagel, Rosemarie E.**..... 1967
Coordinator, English, Reading
 A.B.—The University of Michigan
 M.A.—The University of Michigan
- Cherniak, William**..... 1966
English
 B.A.—University of Western Ontario
 A.M.—The University of Michigan
 Ed.D.—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
- 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
- McGee, Sophie**..... 1969
English
 A.B.—The University of Michigan
 M.G.—The University of Michigan
- Mitchell, W. Bede**..... 1967
English
 A.B.—Wayne State University
 M.A.—Wayne State University

Weidner, Hal R......1969
English
 A.B.—Columbia College
 M.A.—The University of Michigan
 Ph.D.—The University of Michigan

FOODS AND HOSPITALITY

Beaton, James.....1976
Coordinator, Culinary Arts
 Wayne County Community College
 Eastern Michigan University
 Wayne State University

Beauchamp, Jillaine.....1977
Culinary Arts
 Culinary Institute of America
 B.S.—Eastern Michigan University
 The University of Michigan

Garrett, Don L......1975
Culinary Arts
 A.D.—Washtenaw Community College
 Kentucky State University

Synder, Marcia.....1978
Technician, Culinary Arts
 A.D.—Culinary Institute of America

HUMANITIES

Kibens, Maija.....1976
Coordinator, Philosophy/Humanities
 B.A.—Mount Holyoke College
 M.A.—The University of Michigan
 Ph.D.—The University of Michigan

Biederman, Rosalyn, L......1967
Spanish/English
 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 University

Hanson, Charlotte.....1966
Speech
 A.B.—The University of Michigan
 M.A.—The University of Michigan

Horowitz, Frederick A.	1968
<i>Art</i>	
B.A.—Yale University	
B.F.A.—Yale University	
M.F.A.—The University of Michigan	
Lawrence, Morris J.	1969
<i>Music</i>	
Certificate—Straight Business College	
B.S.M.E.—Xavier University	
M.M.—The University of Michigan	
Ph.D.—Bernadean University	
McClatchey, Merrill W.	1966
<i>Speech/Humanities</i>	
B.A.—Wayne State University	
M.A.—Columbia University	
Radick, Lawrence J.	1966
<i>French/Art</i>	
B.A.—Michigan State University	
M.A.—Michigan State University	
Certified Flight Instructor, ASELS	
Salerno, Douglas	1969
<i>Speech</i>	
B.A.—Western Michigan University	
M.A.—Western Michigan University	
M.A.—The University of Michigan	
Stotland, Dorothy E.	1968
<i>English</i>	
A.B.—The University of Michigan	
M.A.—The University of Michigan	
The University of Washington	
Zenian, Paul	1968
<i>Art</i>	
B.S.—The University of Michigan	
M.F.A.—The University of Michigan	

INDUSTRIAL TECHNOLOGY

Garrett, Dallas O.	1967
<i>Coordinator, 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	

- Agin, George C.**.....1968
Mechanical Technology/Fluid Power
 B.S.—Wayne State University
 M.A.—Eastern Michigan University
 General Motors Training Center
- Dick, Roger**.....1979
Mechanical Technology/Metallurgy
 B.S.—Western Michigan University
 M.A.—Eastern Michigan University
- Figg, William**.....1972
Welding and Fabrication
 Washtenaw Community College—Certified Structural Steel
- Gray, Daniel C.**.....1966
Welding and Fabrication
 Journeyman Pipe Fitter and Boilermaker
 Air Force Technical School
 Certified Welder—Navy, Air Force, Army
- Hall, Clyde**.....1978
Technician Welding and Fabrication
 A.D.—Washtenaw Community College
 B.S.—The University of Michigan
- Lowe, Burton, C.**.....1968
Mechanical Technology/Blueprint Reading
 Journeyman Industrial Machinist, Machine Repairman
 Ford Motor Company Apprenticeship School
 Wayne State University
- Morgan, Lester**.....1968
Welding and Fabrication
 Journeyman, Pipe Fitter—Boilermaker
 Ford Motor Company Apprenticeship School
 The University of Michigan
 Hobart School of Welding Technology
- Wiernik, Peter R.**.....1969
Mechanical Technology
 Highland Park College
 Wayne State University
 Journeyman-Toolmaker and Machinist

LIFE SCIENCES

- Strayer, James L.**.....1969
Coordinator, Biology
 B.S.—Eastern Michigan University
 A.M.—The University of Michigan
- Bellers, Clifford**.....1969
Physical Education
 B.B.A.—Eastern Michigan University
 M.A.—Eastern Michigan University

Davenport, James M.	1966
<i>Biology</i>	
B.A.—Ohio Northern University	
M.A.—Syracuse University	
Grossman, Esta	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	
Niehaus, Paul J.	1966
<i>Biology</i>	
B.A.—Eastern Michigan University	
M.S.—The University of Michigan	
Slepky, Lawrence	1968
<i>Physical Education</i>	
B.S.—Eastern Michigan University	
M.A.—Eastern Michigan University	
Ed.S.—Eastern Michigan University	
Tatar, George D.	1968
<i>Biology</i>	
B.S.—The University of Michigan	
M.S.—The University of Michigan	

MATHEMATICS

Mealing, Percy	1966
<i>Coordinator, Mathematics</i>	
B.A.—Talladega College	
M.A.—The University of Michigan	
Bila, Dennis W.	1969
<i>Mathematics</i>	
B.S.—Central Michigan University	
M.A.—Wayne State University	
Bottorff, Ralph S.	1966
<i>Mathematics</i>	
B.A.—University of Northern Iowa	
M.A.—University of Illinois	
Ph.D.—The University of Michigan	
Daehler, A. Arden	1968
<i>Physics/Mathematics</i>	
B.S.—University of Colorado	
M.A.—Eastern Michigan University	
Goldberg, David	1977
<i>Mathematics/Science</i>	
B.S.—The University of Michigan	

- Hastings, Janet G.**..... 1967
Mathematics
 B.A.—The University of Michigan
 M.A.—Cornell University
- Lewis, William A.**..... 1969
Mathematics
 B.S.—North Carolina Central University
 M.A.—The University of Michigan
- McGill, John B.**..... 1966
Mathematics
 B.S.—Eastern Michigan University
- Mealing, Robert C.**..... 1966
Mathematics
 Ford Motor Company Apprenticeship School
 B.S.—Wayne State University
- Palay, Roger M.**..... 1975
Mathematics
 B.S.—University of Chicago
 M.S.—University of Wisconsin
- Prichard, Lawrence**..... 1968
Mathematics
 B.S.—Eastern Michigan University
 M.A.—Eastern Michigan University
- Ross, Donald L.**..... 1966
Mathematics
 B.S.—Eastern Michigan University
 M.A.—The University of Michigan
 M.A.T.M.—University of Detroit
- Showalter, Martha**..... 1980
Mathematics
 B.S.—Ohio State University
 B.A.—Ohio State University
 M.S.—University of Houston

PHYSICAL SCIENCES

- Griswold, George H.**..... 1966
Coordinator, Chemistry
 B.A.—College of Wooster
 M.S.—Eastern Michigan University
- Amundsen, Jack**..... 1975
Physics/Mathematics
 B.A.—The University of Michigan
 M.A.—The University of Michigan

- French, Gargi**..... 1974
Chemistry
 B.Sc.—University of Bombay
 Ph.D.—Radcliffe College
 Harvard University
- Gasparovic, Charles**..... 1980
Technician, Physical Science
 B.S.—The University of Michigan
- Hinds, Dwight D.**..... 1968
Physics/Mathematics
 B.S.—Eastern Michigan University
 M.S.—Michigan State University
- Kapp, George**..... 1970
Mathematics/Physics
 A.D.—Washtenaw Community College
 B.S.E.—The University of Michigan
- Pool, Milton**..... 1969
Chemistry
 B.S.—Eastern Michigan University
- Thomas, David**..... 1980
Geology & Chemistry
 A.S.—Macomb Community College
 B.S.—Eastern Michigan University
 M.S.—Eastern Michigan University

PRACTICAL NURSING

- Grzegorzcyk, Phyllis**..... 1978
Coordinator, Practical Nursing
 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
- Bazydlo, Mary**..... 1980
Technician, Practical Nursing
 A.D.N.—Lake Superior State College
 B.S.N.—Lake Superior State College
- Goodkin, Barbara H.**..... 1975
Practical Nursing
 B.S.N.—The University of Michigan
 M.S.—The University of Michigan
- Napier, Beverly**..... 1977
Technician, Practical Nursing
 B.S.N.—The University of Michigan
- Noack, Diane**..... 1977
Technician, Practical Nursing
 B.S.N.—The University of Michigan

- VanderVeen, Judith, Sr.**..... 1976
Practical Nursing
 Diploma—Mercy Central School of Nursing
 B.S.N.—Mercy College of Detroit
- Yonovitz, Mary**..... 1979
Technician, Practical Nursing
 B.S.N.—Wayne State University

PUBLIC SERVICE

- Ludos, Phillip**..... 1978
Coordinator, Public Safety Administration
 A.D.—Schoolcraft College
 B.S.—Madonna College
 M.A.—University of Detroit

RADIOLOGIC TECHNOLOGY

- Nelson, Robert**..... 1966
Coordinator, 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

RESPIRATORY THERAPY

- Hammond, Carl F.**..... 1967
Coordinator, Respiratory Therapy
 B.S.—Eastern Michigan University
 M.S.—The University of Michigan
 RRT (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)

- Dunham, Craig** 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)
- Svetkoff, Mary** 1980
Technician, Respiratory Therapy
 A.D.—Washtenaw Community College

SECRETARIAL AND OFFICE

- Patt, Jerry** 1968
Coordinator, Secretarial Studies/Accounting
 B.S.—Central Michigan University
 M.A.—Central Michigan University
- Burch, Wanda** 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
- Wilson, Evelyln Y.** 1967
Secretarial Studies/Management/General Business
 B.S.S.S.—Ohio University
 M.S.—Ohio University

SOCIAL SCIENCES

- Susnick, Stuart B.** 1969
Coordinator, Anthropology
 B.A.—Brooklyn College
- 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
<i>History</i>	
B.A.—University of North Carolina	
M.A.—Xavier University	
Miller, Louis R.	1969
<i>Political Science</i>	
B.S.—Eastern Michigan University	
A.M.—The University of Michigan	
Reps, Flavia, P.	1966
<i>History/Western Civilization</i>	
B.A.—St. Joseph College	
M.A.—Georgetown University	
Thomas, Ervin L.	1969
<i>Anthropology/—Philosophy/Sociology</i>	
B.A.—Wayne State University	
M.A.—Wayne State University	
Vass, Steven T.	1967
<i>Economics</i>	
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	
Whiteford, Priscilla S.	1971
<i>Anthropology</i>	
B.A.—Western Michigan University	
M.A.—The University of Michigan	

VISUAL ARTS TECHNOLOGY

Patterson, J. David.	1977
<i>Coordinator, Photography</i>	
Kent State University	
Eastern Michigan University	
The University of Michigan	
Guastella, C. Dennis.	1980
<i>Photography</i>	
A.D.—Macomb County Community College	
B.F.A.—Wayne State University	
M.F.A.—Eastern Michigan University	
Martin, John W.	1968
<i>Commercial Art/Technical Illustration</i>	
Certificate—Miensinger Art School	
Certificate—Arts and Crafts School	
A.A.—Macomb County Community College	

Steinbach, J. Raymond	1969
<i>Photography</i>	
B.S.—Michigan State University	
Yank, Terry L.	1978
<i>Technician, Photography</i>	
B.F.A.—Center for Creative Studies, College of Art and Design	

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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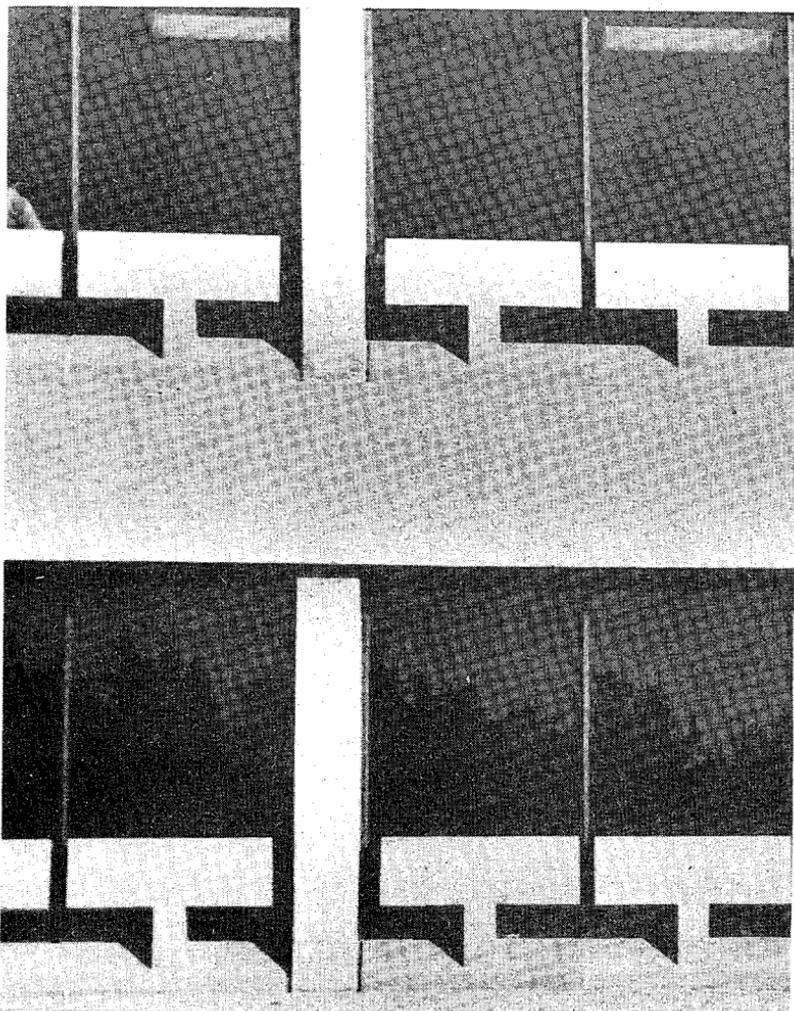
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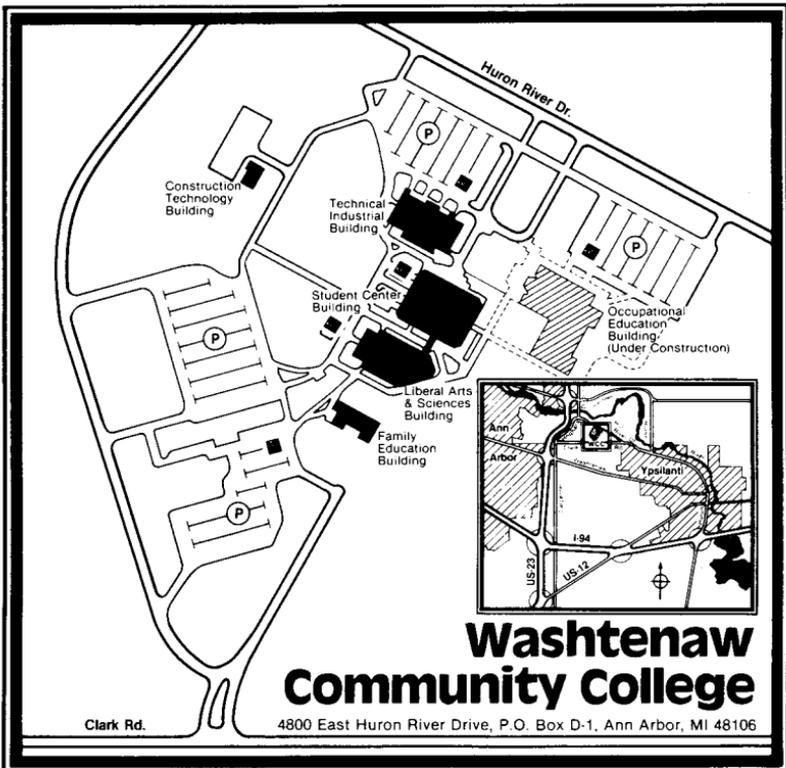
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Building Abbreviations

- AO—Athletic Office
- ASB—Automotive Services Building
- FE—Family Education Building
- LA—Liberal Arts & Science Building
- LRC—Learning Resource Center
- MU—Music Building
- OC—Occupational Education Building
(under construction)
- SC—Student Center Building
- TEMP—Temporary Unit
- TI—Technical and Industrial Building
- AO—Athletic Office

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