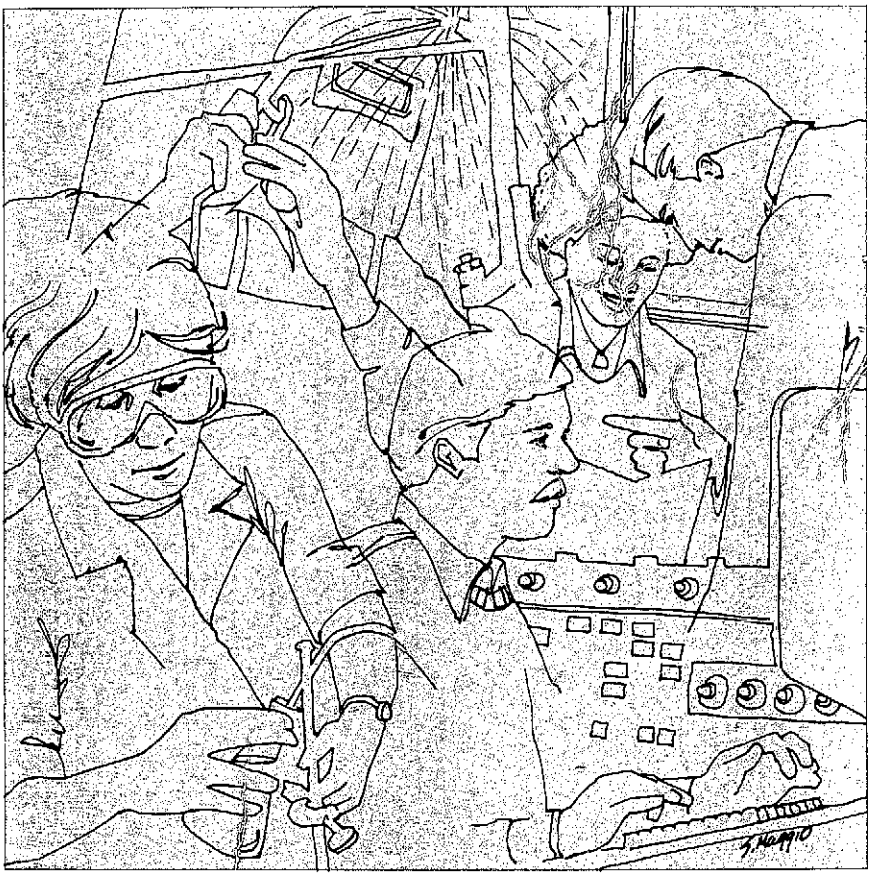
Washtenaw Community College

1980-81 Bulletin



VOLUME 10—NUMBER 1

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
Athletics	973-3500
Bookstore	973-3593
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	482-2230
Counseling	973-3464
Financial Aid	973-3525
Health Service	973-3478
Learning Resource Center	973-3429
President	973-3491
Registration	973-3548
Security	973-3502
Student Activities	973-3313
Veterans	973-3545
VOICE (Student Newspaper)	973-3376
Work Study Office	973-3558
Writing Center	973-3647

Building Abbreviations

ASB—Automotive Services Building
CC—Children's Center
LASB—Liberal Arts & Science Building
LRC—Learning Resource Center
SCB—Student Center Building
TEMP—Temporary Unit
T & I—Technical and Industrial Building
AO—Athletic Office

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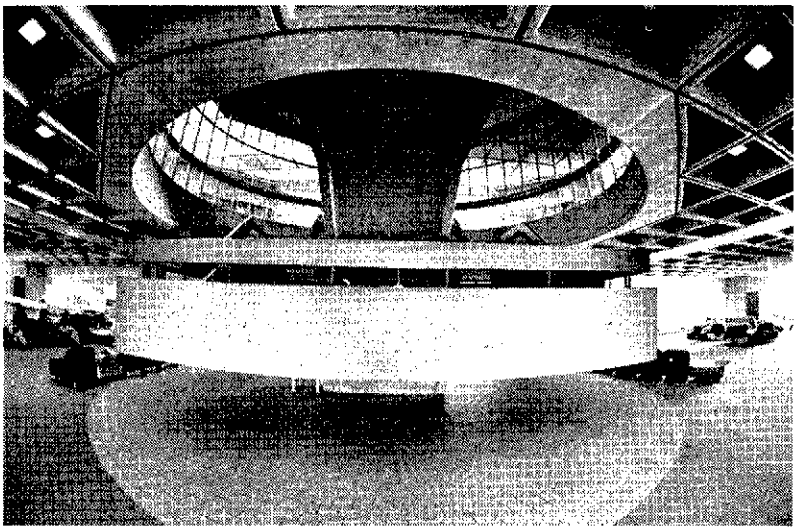

WASHTENAW COMMUNITY COLLEGE

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

Continuing into a New Decade a History of Educational

WASHTENAW COMMUNITY COLLEGE **Ann Arbor, Michigan**

Progress

1980–81 College Bulletin

Volume 10 Number 1

A Welcome from President

February, 1980

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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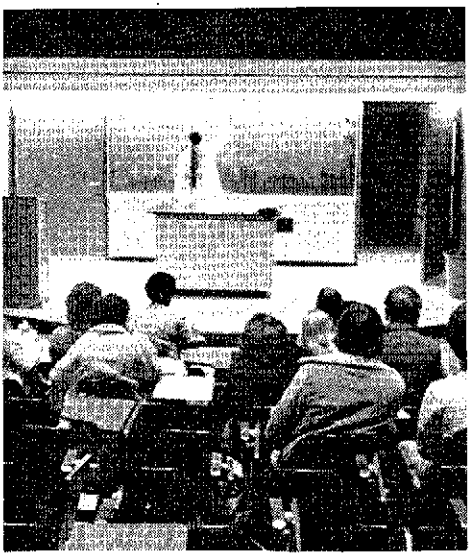

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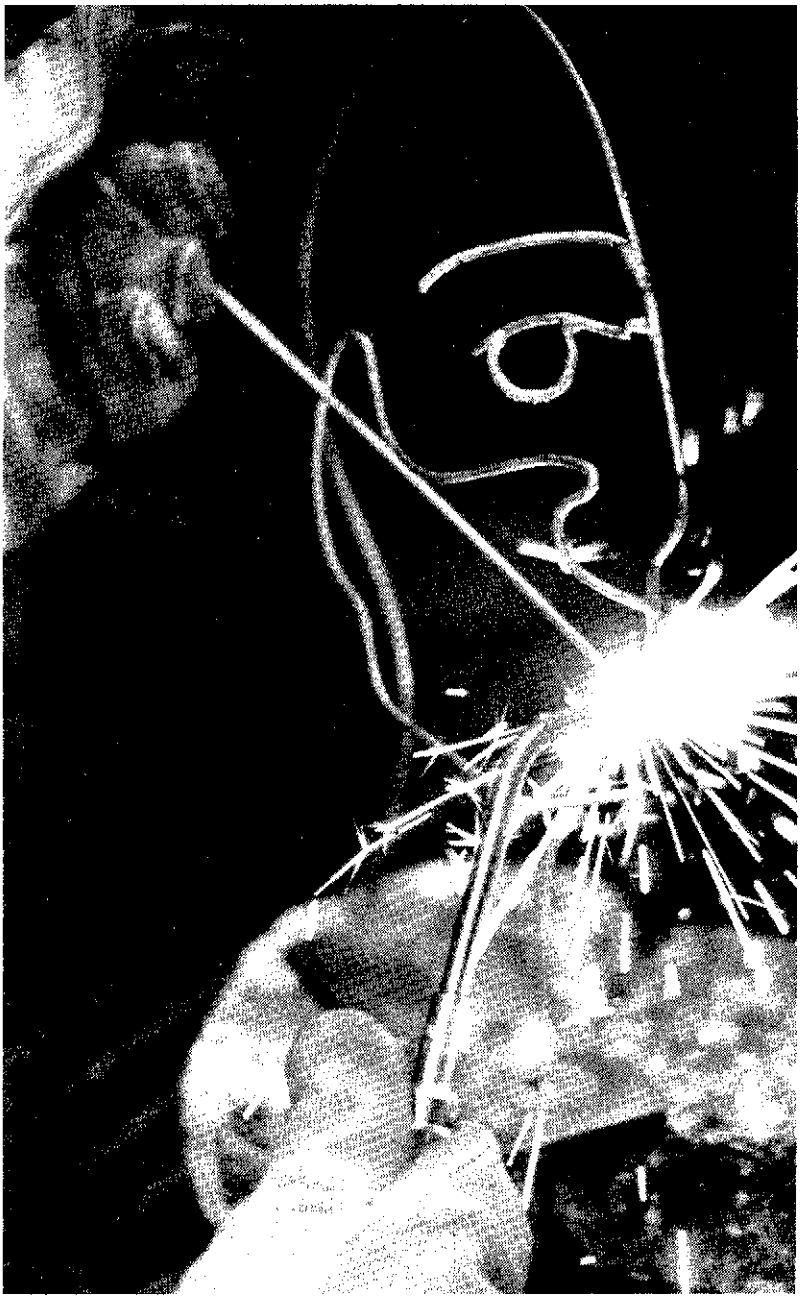
Special Services Provide Extras . . .

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 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 Future

Career programs at WCC 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 Offering

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

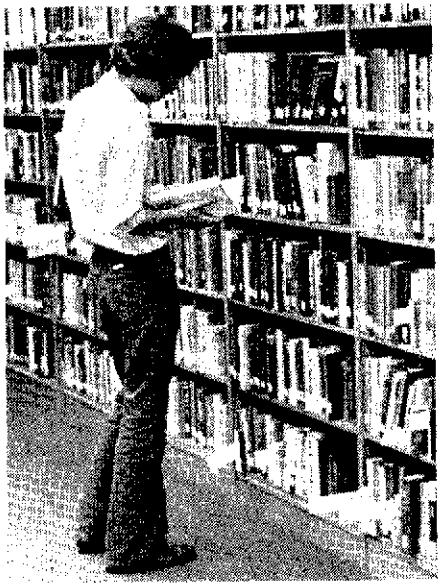
Respiratory Therapy Program
Approved by
COUNCIL ON MEDICAL EDUCATION,
AMERICAN MEDICAL ASSOCIATION

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

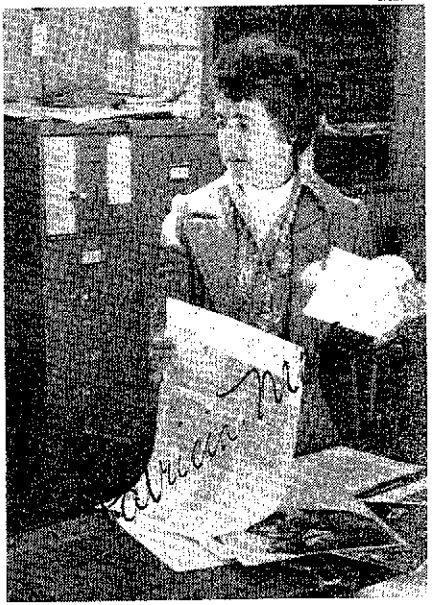
An Institutional Member of
AMERICAN ASSOCIATION OF
COMMUNITY AND JUNIOR COLLEGES

A Member of
MICHIGAN COMMUNITY COLLEGE ASSOCIATION

An Affirmative Action/Equal Opportunity, Title IX Institution



GENERAL INFORMATION



STATEMENT OF PURPOSE AND MISSIONS

Purpose:

Washtenaw Community College is a comprehensive postsecondary institution with an emphasis on career education. It is a community-based college providing open access to its instructional programs and services to persons of all ages and backgrounds. As a comprehensive community college, it provides occupational education, general education, the first two years of a four-year college program, developmental education, and community service programs. To assist students from a variety of educational and experiential backgrounds, the College provides counseling, financial aid, job placement, and other supportive student services.

The College's close liaison with area employers, agencies, and groups makes it an integral part of the daily life of the communities it serves. The social purpose of the College is to help people in the Washtenaw County area achieve, through education, their life goals.

College Missions:

Occupational Education: Single course, one-year certificate, and two-year associate degree programs intended to provide students with knowledge and skills needed for employment, career enhancement, and career changes; or which provide students with the technical components of a four-year college program.

General and Transfer Education: General Education programs for individual social, cultural, and personal enrichment; instruction in arts, sciences, humanities, communications, and other academic disciplines in support of Occupational Education programs; pre-professional programs, both one-year and two-year, which are transferable to senior colleges and universities.

Community Services: Short-term activities, services, and programs, often developed in cooperation with community agencies and groups, which meet particular educational needs and interests of adults.

Developmental Education: College preparatory and developmental courses for those who need to strengthen basic communication, mathematical, or study skills.

Student Services: Services to students, including counseling and financial aid; assistance to students in identifying courses appropriate to their capabilities and interests; guidance to students planning their career and life goals; and providing career counseling and job placement for students and alumni.

Community Linkages: Systematic analysis of community educational needs, and the continuing involvement of employers, advisory committees, community agencies, and other citizen groups to insure that the College remains attuned to community educational needs.

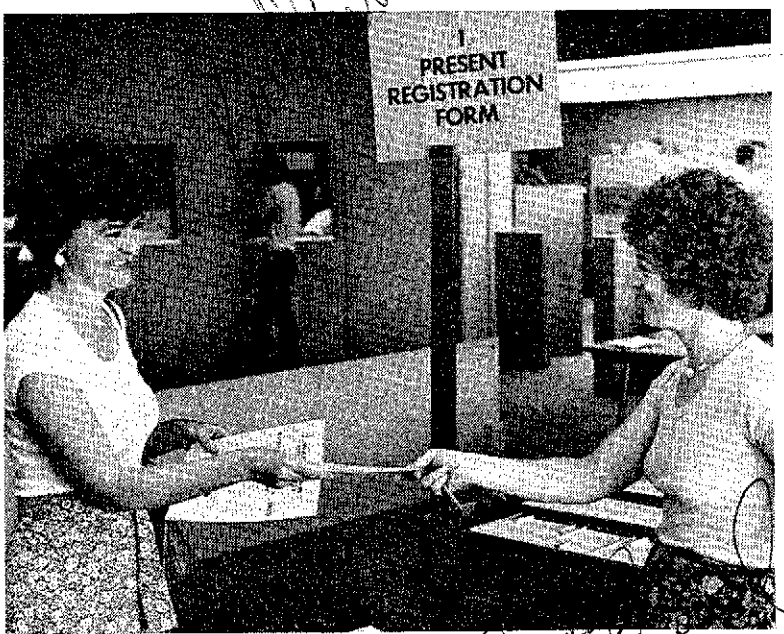
ADMISSIONS AND REGISTRATION

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.

General 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.

Late Registration:

Late registration will be held beginning the first day of classes and continue for five days. 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 between the sixth and eighth day of class, 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.

Registration Withholds:

Students may 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.

General Requests:

1. Please register for yourself.
2. Please be prepared to pay tuition in full at the time of registration. Master Charge 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 before going to registration area.

Telephone Registration:

For the benefit of part-time and extended-day students, an alphabetical registration schedule for registering by telephone is set up each registration period. Part-time new, re-admitting or continuing students may take advantage of this service. The number to call is (313) 973-3641.

Industrial apprentices and trainees should register by phoning the Trade Related Instruction office: (313) 973-3533.

Have your classes selected before calling. Please have the correct course number, course title, section number, days and hours of class meeting. We also need your Social Security number. Students registering by telephone take the responsibility for correct course selections.

Check the courses you select to make sure that they are not ones requiring consent of the Instructor or of the Coordinator. You must come into the College to secure this consent. Also, make sure that you have completed any pre-requisites which exist for the class for which you are registering.

Registration is not considered complete until payment in full has been received from you by the Registrar's Office personnel. The operator will tell you how much your tuition will be for the classes you select. Your payment is due within seven calendar days after you phone register. Payment may be made in person during registration hours or by mail, postmarked within the allotted seven days or registration is considered invalid. Checks or money orders must be made payable to Washtenaw Community College in the exact amount due. Place your full name and Social Security number on the face of the check.

If your tuition is to be billed to your employer, or a local industry, you must register in person on campus and bring a billing authorization from your employer at that time.

New Student Registration:

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.

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.

Returning Students:

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

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.

Fees:

Tuition is $15.00 per credit hour for in-district residents; $28.00 per credit hour for out-of-district but in-state residents; $39 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. An $8.75 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 2404, 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 2601, Student Center Building or by telephone at (313) 973-3543.

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

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.

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.

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.

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 Student: Applicants who live with and are dependent on parents or a legal guardian and who have resided in the Washtenaw Community College District for a minimum of 60 days or independent applicants who have resided in or whose spouse has resided in the Washtenaw Community College District for a minimum of 60 days immediately prior to their first enrollment at Washtenaw Community College are classified as in-district students.

Out-District Student: The applicant who does not meet the requirements of an in-district student, but who is a legal resident of the State of Michigan for at least six months, is classified as an out-district student.

Out-of-State Student: An applicant who does not meet the requirements for an in-district resident or an out-district is classifed as an out-of-state student.

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 ad mitted.

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

J-1—A foreign student supported by public funds cannot be admitted.

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

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, B-2 (Visitor 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)

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.

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

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

Foreign Students on "Guest" Status: Washtenaw Community College may accept Foreign Students (F-1, J-1) as "Guest" students for the Spring and/or 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.

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. The fifth day of classes is the last day a student may add a class or change a section without an Instructor's approval. After the fifth day, 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 first five (5)days of classes. On the sixth (6th) through (8th) day, 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 may drop a course prior to the final examination period and the letter "W" will be assigned. All Drops must be authorized by a counselor or advisor. 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 Tution, Fees and Residence Policy section of this catalog.

VETERAN CERTIFICATION

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 paraprofessional 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 Apprentice Training are offered.

Programs of study in Occupational Education enable individuals to:

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

CREDITS AND GRADES

Credits:

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 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.

Grading System:

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 below 040 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 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.

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 and at the end of each summer session. Final grades are mailed to the home address of the student.

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

Scholastic Honors:

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

Dean's Honor List: The Dean's Honor List honors all full-time students in the College who earn a 3.50 or better average for a semester. The list is prepared each semester and posted in prominent places on the campus.

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".

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 no charge for the first copy; there is, however, a service charge of $1.00 for each additional copy.

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

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.

ATTENDANCE AND EXAMINATIONS

Student Evaluation (Examinations):

Scheduled evaluations are an important part of the instructional pro-

gram 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

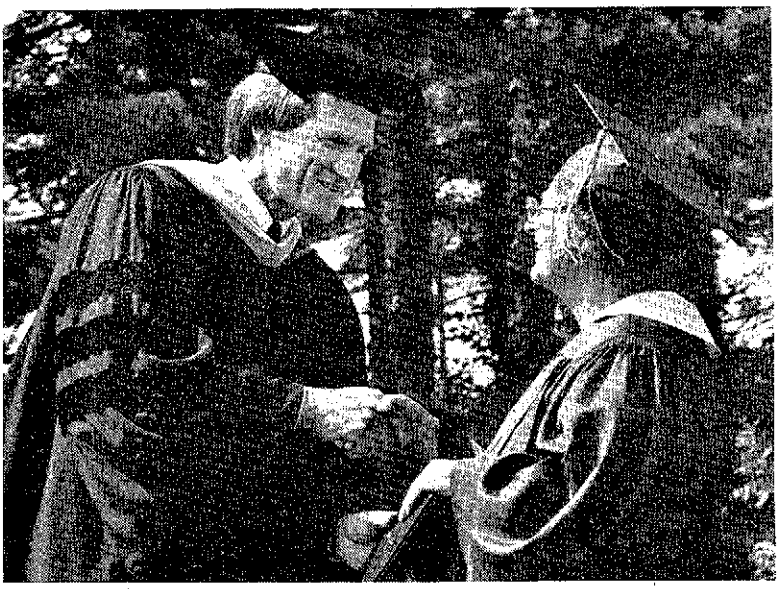
Graduation Requirements:

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 below 040 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 below 040 do not count toward graduation.
2. Complete three credit hours in speech or 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:

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:

This is a special center offering help with:

- Re-entering School
- Career Decisions
- Life Process Groups
- Contacts with other Adult Students
- 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.

A drop-in center is provided where people may come and find someone to talk with about their concerns, ideas and plans. Drop-in 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, 4800 East Huron River Drive, Ann Arbor. The Center's phone number is (313) 973-3528.

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

Alumni Association:

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:

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:

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.

Career Placement Center

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.

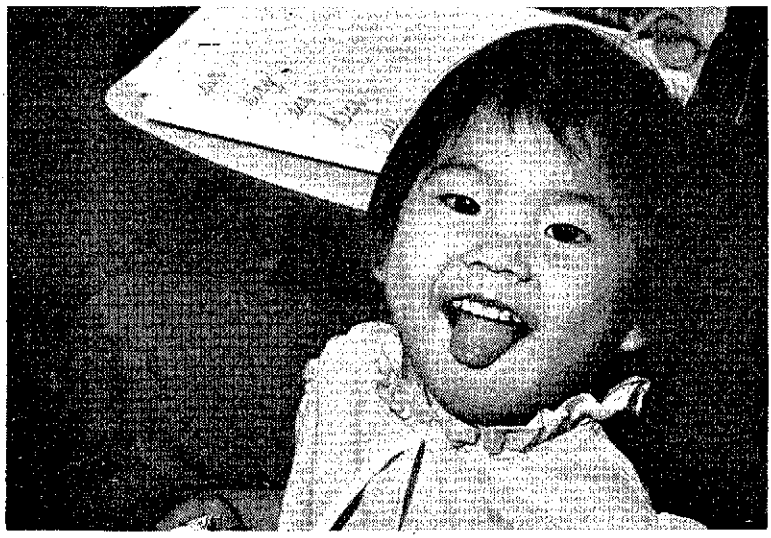
Assistance with career planning on an individual or group basis is available through the Career Placement Center. The Career Placement Center in conjunction with the Counseling Center offers the following services:

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.

Robert L. McCoy



Children's Center:

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 on the campus, a day 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 enrollment table will be set up at the registration area in SCB.

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 Office.

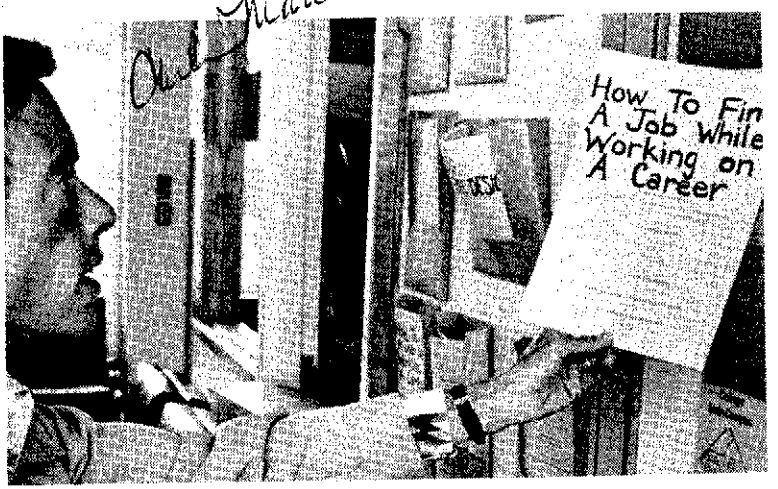
Community Services—Ypsilanti Center:

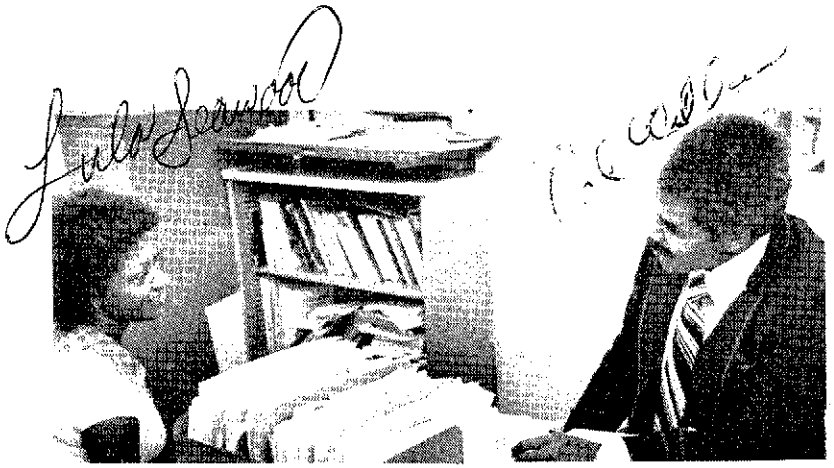
Community Services means many things to many people. At Washtenaw Community College, it means short-term courses, seminars, workshops, institutes, demonstrations, and performances on a non-credit or credit basis in response to requests and needs of the community.

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:

The Student Services staff assists with counseling, student-initiated activities, financial aid, job placement, admissions, registration, and emergency first-aid services, veteran's affairs, day care services, and athletics.

Full-time counselors are available at the Counseling Center. Each student entering the College is assigned to a counselor who will discuss career goals and plan an initial 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 center, computer-assisted career searches, career planning seminars, G.E.D. testing, and transfer information.

This Center offers seminars of interest to students who desire to examine their personal growth and development. The main thrust of each offering will be to deal with ways in which to maximize the students' college experiences as well as individual life styles.

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:

The Culinary Arts 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.

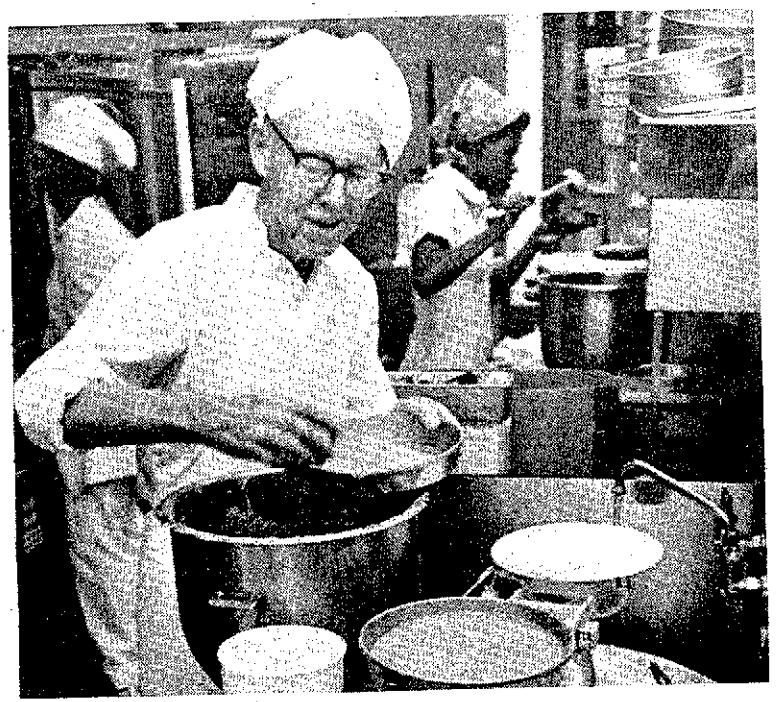
Emeritus Program (Mature Adult Development):

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 over 55 and retired or over 60, retired or not, 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.



Financial Aid:

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

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

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

How to Apply for Aid:

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

Most programs of financial assistance at Washtenaw Community College are jointly sponsored with the federal government and are based on a student's financial "need." Need is determined by calculatng 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, nontaxable benefits, savings and other assets, are considered in determining a reasonable student's contribution toward educational costs.
3. Basic Educational Opportunity Grant Application, a separate applica-

tion 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 $1,800 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 3% interest normally begins nine months after a student ceases to be at least a half-time student at Washtenaw Community College, and may be extended over a ten-year period. Repayment deferment options are available if the student enrolls in another college or university or enters the Peace Corps, VISTA, or Military Service. In certain situations, a portion of the loan may be cancelled for full-time teaching in a formally defined "disadvantaged" school setting, full-time teaching of the handicapped, full-time educational position in an ap-

proved 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 $15 per credit hour for Washtenaw County residents, $28 per credit hour for out-of-county residents, and $39 per credit hour for out-of-state students. Books and supplies are estimated at $160 for two semesters.

Additional Programs:

Guaranteed Student Loan Program (MHEAA Loan): provides loans to half and full-time students through lending institutions such as banks, which are guaranteed by the Michigan Department of Education against the borrower's death, permanent disability, or default. Application forms are obtained directly from a lender who participates in the program and is willing to make a loan to the particular student. The student completes the application and submits it to Washtenaw Community College which verifies enrollment, academic standing, etc. The Student Financial Services Office returns the forms to the lender which sends them to the Michigan Department of Education for guarantee approval. After approval, the student lender and Washtenaw Community College are notified if the loan is approved. Undergraduates may borrow a maximum of $2,500 if full-time and $1,250 if part-time. The maximum interest rate charged to the student is 7% 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.

Health Service:

The Student Health Service provides many services for the student—pregnancy testing and counseling, menu planning for weight reduction, first-aid, referrals and general health counseling. Health Service is located on the second level of the Student Center Building.

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:

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 facility the opportunity to use a collection of over 48,000 books, nearly 10,000 pamphlets and clippings, over 490 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 Lab:

The Math Lab is a mathematics center which serves as:

1. The meeting place for self-pace mathematics classes (039, 090, 097AB, 110, 163, 165, 1269AB, 177AB, 179AB). Each self-pace 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 courses, procedures, policies, schedules, etc.

Off-Campus Centers:

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, Brighton, Chelsea, Manchester, Milan, Saline, Whitmore Lake, Willow Run and Ypsilanti.

Office of Handicapped Concerns:

The Office of Handicapped Concerns 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 of Handicapped Concerns can:

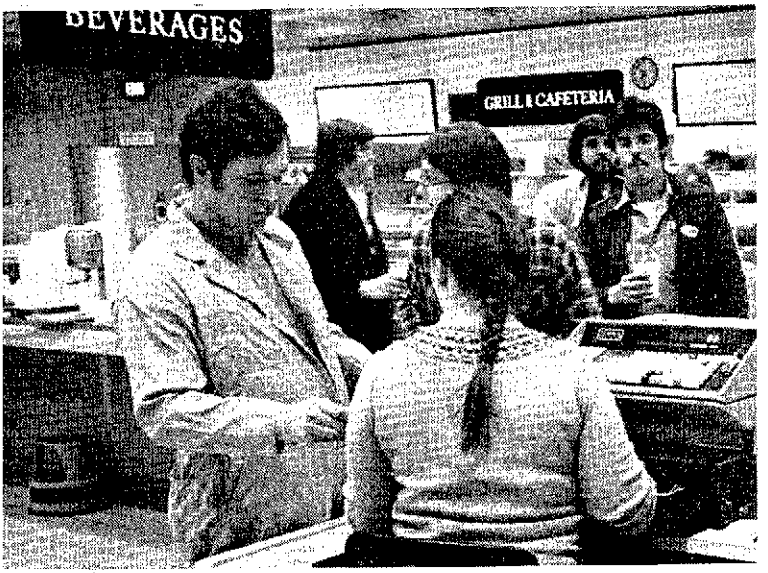
—Introduce you to other students;
—Direct you to the proper resources on campus;
—Put you in contact with appropriate community organizations;
—Mediate problems;
—Work out innovative solutions to problems on a case-by-case basis;
—Refer you to adaptive equipment.

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 of Handicapped Concerns to work more effectively with you in overcoming any potential barriers you may encounter. This form is optional and confidential.

Reading Laboratory:

A Reading Laboratory 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 laboratory provides individual help for those who come to the laboratory 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:

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:

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 Student Health Service.

Student Publications:

The VOICE is the official College newspaper. It is published by the students in conjunction with journalism instruction. Students interested in the newspaper may participate in the writing and editing of The VOICE by contacting the faculty sponsor.

Tutoring:

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

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 responsiblity to assure the veteran has someone whose only concern and responsibility is the veteran's welfare during his time at Washtenaw Community College.

Writing Center

Writing skills are important. To the student, business person, consumer—whatever one's role, knowing how to communicate well

through writing is a tool everyone needs to use effectively.

At Washtenaw Community College, a unique program is open to those who would like to improve their writing skills. A well qualified staff of tutoring experts is available in both daytime and evening hours through the College's Writing Center. Students are welcome to come and discuss their writing problems—whether they be in putting together a short essay, a research paper or a resume. An individualized continuing program will be set up for each participant involving two to three weekly meetings with tutors and practical experience using workbooks, tapes and self-instructional programs.

Past experiences of students who have taken advantage of the expertise of staff at the Writing Center have shown that many enrolled students immediately begin to get better grades. But the results are more lasting and show in improved written personal and business communicatons.

The Writing Center, open at no charge to students, is committed to helping any student with writing problems. This includes foreign students enrolled in the College who may feel their writing suffers because they do not know the language well. If these problems are yours, please contact your counselor or the Writing Center staff at (313) 973-3647 or come to Room 3912 of the College's Student Center Building.

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, 1980 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, Adult Resources Center, First Floor, Student Center Building, (313) 973-3659.

CURRICULUM

ACCOUNTING
(ACC 421)

ACC 091. FUNDAMENTALS OF ACCOUNTING . . . . . 3 credit hours

Prerequisite or Corequisite: Foundations of Occupational Mathematics 090 or equivalent

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: Fundamentals of Accounting 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: Business Math 163 or Finite Math 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: Principles of Accounting 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

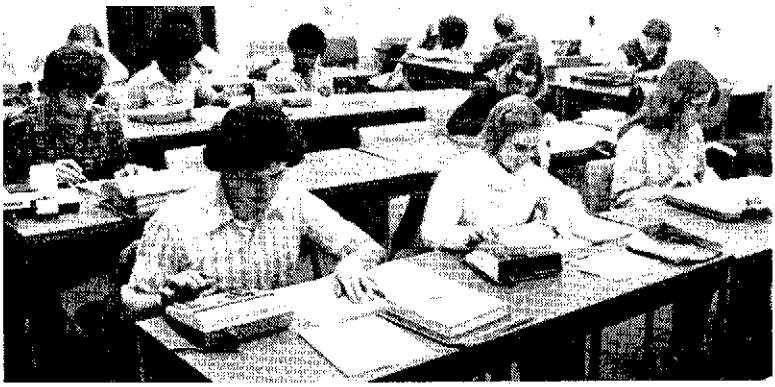
Prerequisite: Principles of Accounting 122

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.

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

Prerequisite: Principles of Accounting 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.



ANTHROPOLOGY
(ANT 351)

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

A study of the religions of non-literate peoples and of the world from an anthropological perspective. Emphasis on the role religion plays in specific cultures. Also includes an overview of contemporary cultist religious movements in consideration of their impact on modern societies.

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 under-development and cultural dependence. Dilemmas of modern peasantry and genocide 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, with an emphasis on man's ecological adaptation in the past, present and future. Particular attention will be given to recent discoveries in Africa by Jane Goodall and L.S.B. Leakey.

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 meditation and yoga 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: 211 Introduction to the Philosophy and Practice of Yoga

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: Anthropology 222, Philosophy and Practice of Yoga II

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

ARCHITECTONICS
(ARC 473)

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: Architectural Drawing 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: Construction Materials 117 and Mechanical Electrical Systems in Buildings 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: Estimating Construction Costs 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: Applied Algebra 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: Architectural Drawing 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: Architectural Drawing 122

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 301)

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

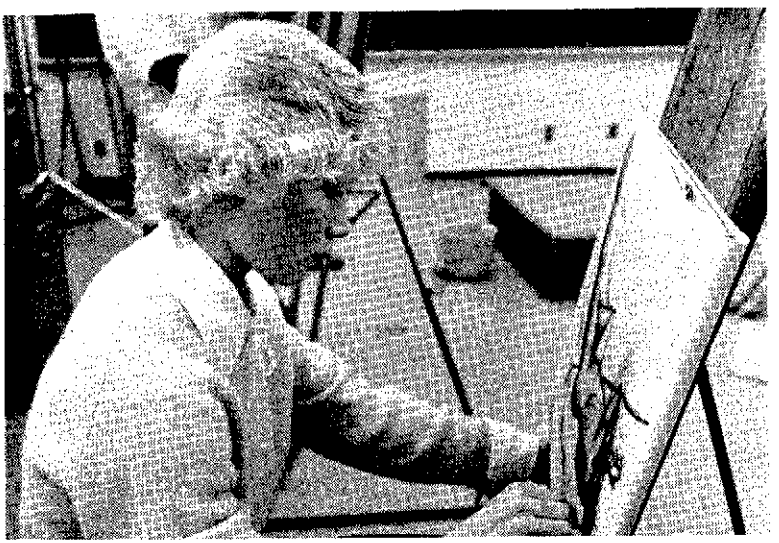
Study of two dimensional structures through the exploration of the elements of art: line, value, shape, texture, color. The visual recognition that the predominance of the whole constitutes the composition of its parts. Emphasis on experimentation and imagination to arrive at visual ordering. (6 hours 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 DRAWING.....3 credit hours

Prerequisite: Basic Drawing 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 DESIGN.....3 credit hours

Prerequisite: Basic Design 112

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

ART 125. PAINTING.....3 credit hours

Prerequisite: Painting 114 or consent

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

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

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

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

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

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

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

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

Prepares students to participate in and appreciate the arts (visual, dance, music, film, poetry, literature) of African and Afro-American people. Perspectives and definitions that differ from Western values and standards are presented. Anthropological approach used to recognize the importance of history in understanding the present. Multi-media methods. Skill development and aesthetic competence emphasized.

ASSESSMENT ADMINISTRATION
(AA 424)

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

Prerequiste: Assessment Administration—Basic 111 or equivalent

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: Assessment Administration—Intermediate 122 or equivalent

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: Assessment Administration—Basic 111 or equivalent

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: Appraisal—Basic 211 or equivalent

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: Appraisal—Intermediate 222 or equivalent

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 320)

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: Introductory Algebra 097 and General Astronomy 111

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

AUTO BODY REPAIR
(ABR 475)

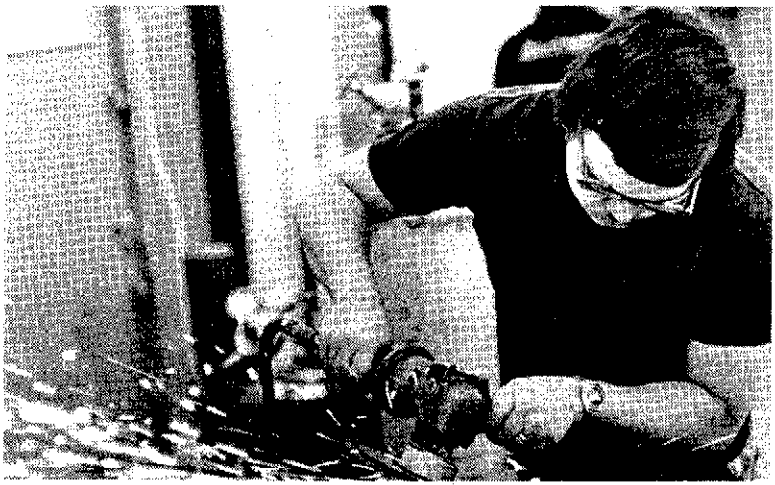
Students enrolling in the Auto Body Repair Program will be required to furnish basic tool sets. They will also be required during their training to add to the tool sets so they will be equipped upon completion of their programs.

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

Auto body repair fundamentals. 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: Auto Body Repair Fundamentals 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: Auto Refinishing Fundamentals 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.....4 credit hours

Prerequisite: Auto Body Repair Fundamentals 111 and Welding and Fabricating 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 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: Auto Refinishing Applications 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
(AS 476–AS 222)

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 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: Auto Service 110, Light Service Repair 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: Auto Service 110, Light Service Repair 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: Auto Service 110, Light Service Repair

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: Auto Service 110, Light Service Repair

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: Auto Service 110, Light Service Repair

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: Auto Service 110, Light Service Repair

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

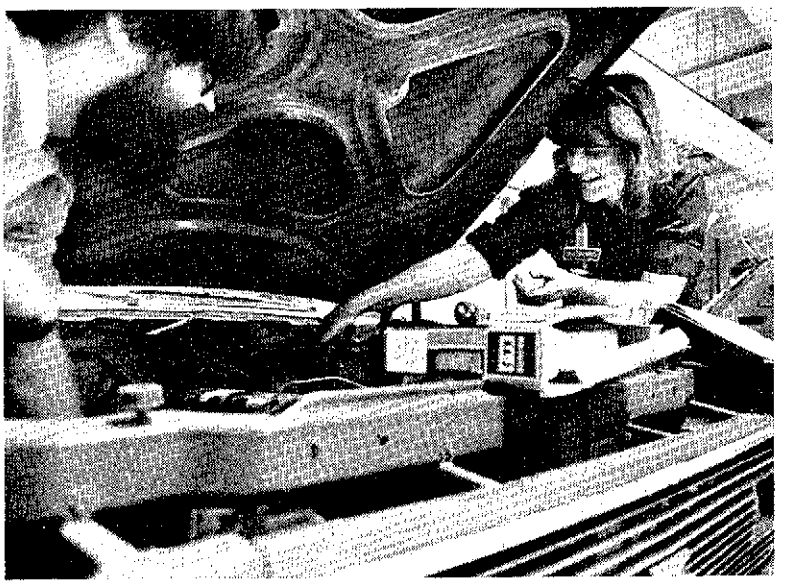
Prerequisite: Auto Service 123, Transmissions and Power Trains

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: Auto Service 124, Wheel Balancing and Alignment

Manual and power steering systems and front and rear suspension systems. Principles of operation, diagnosing and servicing procedures. Practical experience on actual vehicles. (6 hours per week)



AS 218. TUNE UP AND EMISSIONS.....4 credit hours

Prerequisite: Auto Service 116, Electrical Systems and Auto Service 128, Fuel Systems

Testing, diagnosing and servicing of the engine, ignition, fuel, cranking and charging systems and emission controls using the latest test equipment and procedures available. (8 hours per week)

AS 220. APPLIED AUTOMOTIVE WELDING.....2 credit hours

Prerequisite: Welding and Fabrication 101, Acetylene Welding

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: Auto Service 212, Automatic Transmissions—Mechanical

Automatic transmission hydraulic systems. Emphasis on testing, diagnosis and servicing actual units. (4 hours per week)

AS 227. HEATING AND AIR CONDITIONING.....2 credit hours

Prerequisite: Consent

Theory, diagnosis and servicing of actual heating and air conditioning systems and controls. Emphasis on testing and servicing vehicle units. (4 hours per week)

AS 230. PRACTICAL FIELD EXPERIENCE.....5 credit hours

Prerequisite: Consent

Provides 120 hours of work experience in the field alongside an experienced licensed mechanic. Includes a one hour per week seminar to discuss experiences the student encounters in the world of work. (Seminar 1 hour per week; Field 120 hours total)

AS 240. MEASUREMENT OF VEHICLE PERFORMANCE.....2 credit hours

Prerequisite: Consent

Engine and vehicle performance factors and operating characteristics. Emphasis on testing and servicing actual cars to achieve the optimum performance of the ignition, fuel suspension, steering and emission systems. (4 hours per week)

AS 250. NEW CAR PRODUCTS.....2 credit hours

Prerequisite: Consent

Covers new features that come on cars each model year. The content of class is changed each year to reflect these new changes. (2 hours per week)

BIOLOGY
(BIO 321)

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: Basic Anatomy and Physiology 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: Concepts of Biology 101 or permission

Intended for those who require a five credit course in human biology.

BIO 127. BOTANY.....4 credit hours

Prerequisite: Concepts of Biology 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: Concepts of Biology 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)

Judy Kirby

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 planting of selected varieties of seeds will highlight this semester with emphasis on proper care. Scheduling of plantings for continuous yield and plant rotation techniques will be demonstrated in each student's garden area. Control of pests will be an item of concern.

BIO 133. GARDEN CARE.....3 credit hours

The Summer Semester emphasizes continued care and maintenance of plants being grown. Planting schedules for continuous yield are an integral part of this semester's activities. Irrigation practices discussed are utilized. Pest control practices will continue from the previous semester. Harvesting and utilization of selected plants for food and ornamental purposes highlight semester's activities.

BIO 134. GARDEN HARVEST.....3 credit hours

The Fall Semester will begin the week following the conclusion of the Summer Semester and end earlier than the regular Fall Semester. The harvesting of plants grown in the gardens will be the main concern during this time. This will include those grown for food and ornamental purposes. Irrigation practices will be applied along with continued control of insect pests. This semester will involve the termination of the active growth period of most plants grown. Follow-up practices in preparation

for next year's garden will be of concern. There will be demonstrated methods of preserving food by various methods such as canning, freezing, drying and maintaining certain root crops in the ground for winter harvesting.

BIO 135. CANNING, FREEZING, DRYING GARDEN FOODS.....3 credit hours

This course is designed for those who garden and would like to preserve the food they have grown for use later. Correct procedures for the canning, freezing and drying of various plant crops will be discussed and demonstrated. Techniques such as cold-packing and hot-packing in glass jars will be stressed along with the advantages of using a pressure cooker. Procedures will stress the importance of proper methods to assure that the canned or frozen food will be free from organisms that may spoil the food and make it unsafe for human consumption.

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: Biology 137, Ornamental Indoor Plants

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: Concepts of Biology 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 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)

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. INTRO 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, lecures, 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. INTRO 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 & 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.....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

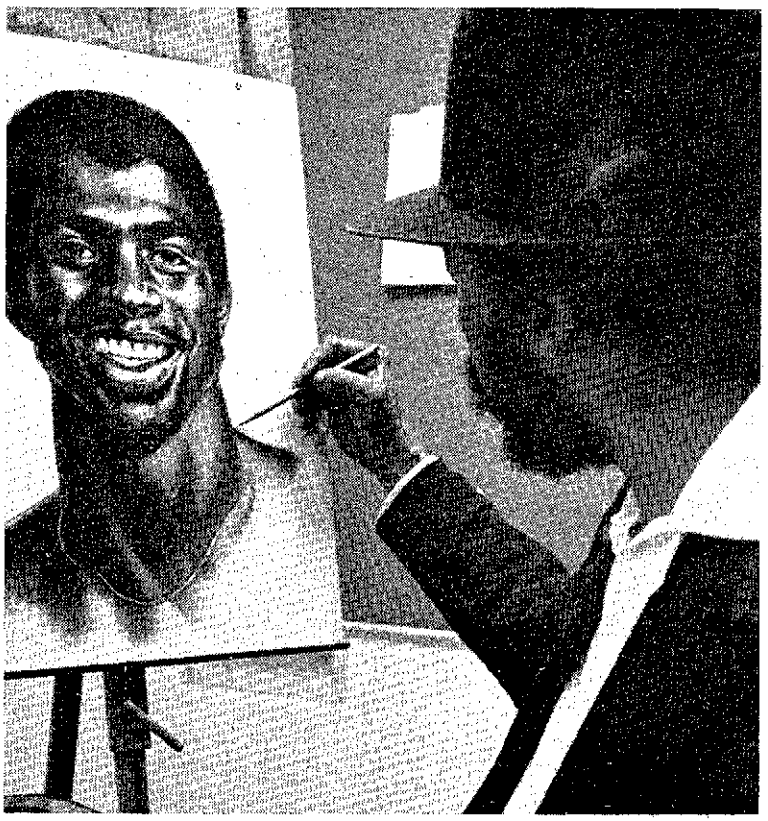
throughout the course.

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



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 instruments 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 486)

BPR 100. BLUEPRINT READING.....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.....3 credit hours

Fundamentals of blueprint reading as applied to the manufacturing industry. Basic drafting principles studied as applied to specific problems. Designed for pre-engineers, draftsmen, machine operators, machine repairmen, inspectors, welders and supervisors.

BPR 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)

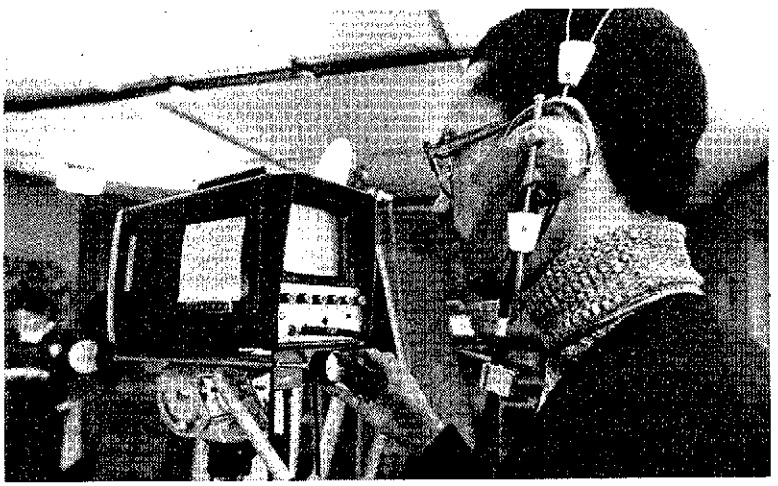
BPR 110. BLUEPRINT READING FOR CONSTRUCTION TRADES.....2 credits hours

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 296)

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 consoles, 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: Closed Circuit Television Production 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: Closed Circuit Television Production 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 TV.....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-TV 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
(GB 426)

GB 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.

GB 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.

GB 122. BUSINESS LAW.....3 credit hours

Prerequisite: Business Law 111

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

GB 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 orentation in the career opportunities available in business and industry.

GB 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)

GB 207. BUSINESS COMMUNICATION.....3 credit hours

Prerequisite: Second year standing or consent

Oral and written communication skills as they relate to business enterprise. Emphasis on social and psychological aspects and the public relations function of business communication. Importance of clarity, conciseness, accuracy and appropriateness of tone in all types of business communication. Includes business correspondence and reports and the gathering, preparation, organization and presentation of data.

CHEMISTRY
(CEM 322)

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

Corequisite or prerequisite: Introductory Chemistry 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 Introductory Chemistry 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

Prerequisite: High school chemistry or Chemistry 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: General Chemistry 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: Fundamentals of Chemistry 105 or General Chemistry 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: General Chemistry 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: General Chemistry 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

Prerequisite: Organic Chemistry 211 and General Chemistry 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: General Chemistry 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 460)

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 chidlren 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. EDUCATION 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. EDUCATION 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 DEVEOPMENT.....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 communicaton 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 325)

CPS 110. HANDHELD CALCULATOR.....2 credit hours

Individualized course providing instruction in the use of a handheld calculator to find the value of varios kinds of numerical expressions. Using either the algebraic logic type or the reverse Polish logic calculator type. Mathematical concepts and rules related to calculating techniques emphasized. Study includes basic operations, scientific

notation, squares and square roots. Optional units: powers and roots, equations and formulas, trigonometric functions, logarithmic functions and specific applications in business and finance.

CPS 130. SURVEY OF COMPUTER SCIENCE.....3 credit hours

For persons who have 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 Hewlitt-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: Introductory Algebra (Math 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: BASIC Programming I (Math 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

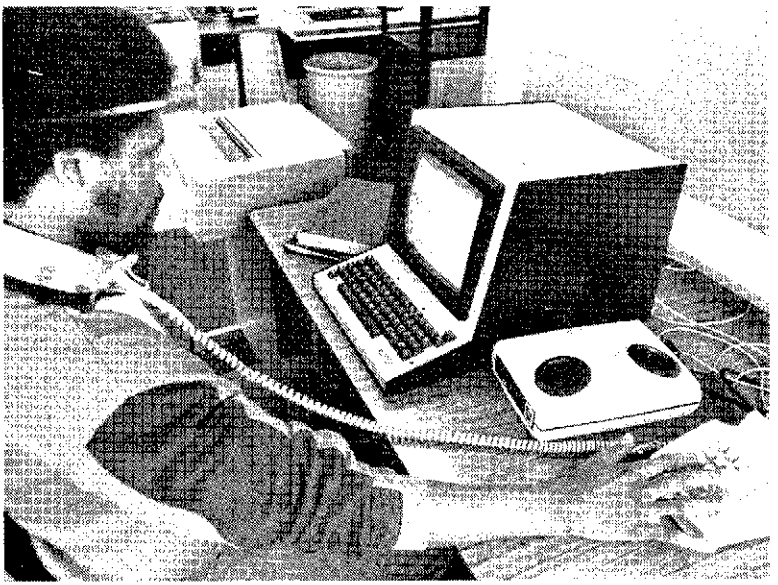
Prerequisite: Intermediate Algebra (Math 169)

Forfran 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 langauge. Opportunity to develop algorithms and write and execute selected programs. (4 hours per week)

CPS 188. ALGOL PROGRAMMING.....3 credit hours

Prerequisite: Intermediate Algebra (Math 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: Fortran Programming (Math 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: Fortran Programming (Math 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
(CT 477)

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 completeion 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: Fundamentals of Painting and Decorating 111

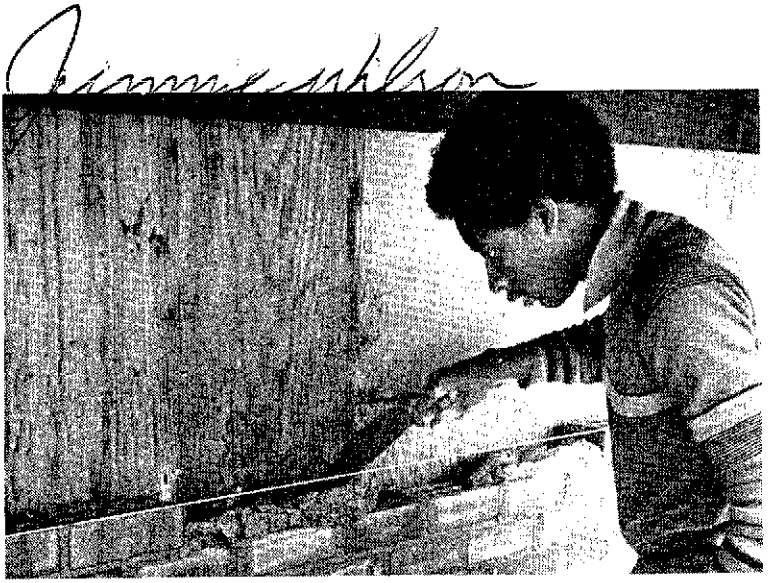
Technical details, specifications of materials and techniques of preparing surfaces, finishing and refinishing of construction materials and structures. The profit and loss aspect of "contract work" are presented as well as the utilization of scaffolding, swing staging and other equipment identified 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: Commercial Painting and Decorating 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

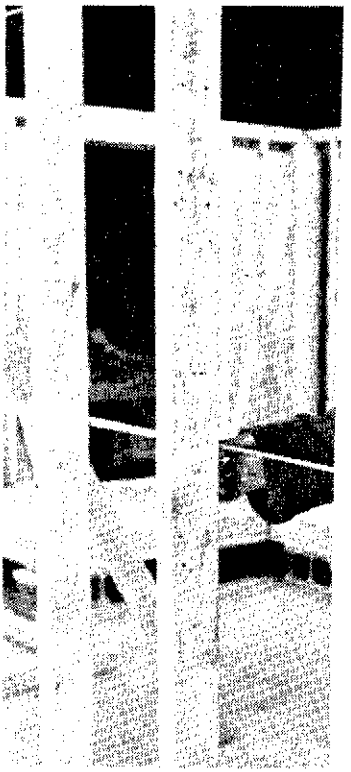
Prerequisite: Carpentry 121

A practical course in the use of machines and hand tools in the process of work necessary in light wood frame construction, aterations, 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: Electric Power Supplying 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: Carpentry and Maintenance I 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: Block Laying 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: Woodworking—Carpentry 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: Lighting Systems 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: Block Laying II 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: Woodworking 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 467)

CJ 100. INTRODUCTION TO CRIMINAL

JUSTICE. . . . . 3 credit hours

An in depth 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: Psychology 100, Introductory Psychology

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. INTRODUCTION TO CRIMINALISTICS. . . . . 3 credit hours

Criminalistics is the study and application of the physical and natural sciences to the collection and evaluation of evidence.

This course offers an introduction to the examination of physical evidence including the collection, preservation, transportation, storage and identification of physical evidence; crime laboratory resources and capabilities; and a demonstration of laboratory criminalistics. (3 hours per week)

CJ 208. CRIMINAL EVIDENCE AND PROCEDURE. . . 3 credit hours

Prerequisite: Criminal Law 209

Adjectival law, the law of evidence; role of the police, prosecutor, defense counsel, judge and jury; the judicial process; criminal procedure in various courts; law of arrest and search and seizure; and constitutional restraints. Principles of constitutional, federal and state laws as applied to law enforcement.

CJ 209. CRIMINAL LAW. . . . . 3 credit hours

For either lawyer or layman. Designed to broaden the understanding of the student concerning the various agencies involved in the administration of criminal law. Emphasis on the more important law enforcement functions from arrest to executive pardon.

CJ 210. INTRODUCTION TO CRIMINALISTICS.....3 credit hours

Application of the physical and natural sciences to the collection and evaluation of evidence. Will deal with techniques of collection and means of analyzing. Photography, plaster casting, latent prints.

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 222. THE CORRECTIONAL SEMINAR.....3 credit hours

The correctional system from historical to contemporary times. Includes probation, parole, and new treatments which are geared to deal with first offenders and repeaters.

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 464)

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. Study of the organizational structure and functions of management.

CUL 110. SANITATION AND HYGIENE.....3 credit hours

Importance of sanitation to the food service; 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, 12 hours per week)

CUL 118. PRINCIPLES OF NUTRITION.....3 credit hours

General principles of nutrition as they pertain to selection of foods, nutritional needs of all age groups; the meaning of food to people; the relationship of food and nutrition to health menu planning.

CUL 120. ORGANIZATION AND MANAGEMENT OF HOSPITALITY INDUSTRY.....3 credit hours

Prerequisite: Introduction to Hospitality Industry Mgt. 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: Elementary Food Preparation 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 vegetable presentations. (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 service 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: Quantity Food Preparation 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: Elementary Food Preparation 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: Elementary Food Preparation

A course in baking including yeast doughs, hot breads, muffins, puff pastry doughs, fillings, glazes and desserts. (6 hours per week)

CUL 224. ECONOMICS OF VOLUME FEEDING.....4 credit hours

Selection and purchasing of foods and materials used in institutions and cost control of foods and other expenses involved in the production and service of food. Field trips are an integral part of this course. (5 hours per week)

CUL 225. ADVANCED BAKING AND PASTRY.....4 credit hours

Prerequisite: Elementary Baking 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 and other classical pastry items. (6 hours per week)

CUL 227. ADVANCED CULINARY TECHNIQUES.....6 credit hours

Prerequisite: Quantity Food Production 122

A culmination of experiences for the advanced student. Hors d'oeuvres, Chaud-froid, Pot-au-feu, Ballontine and Souffle become familiar to the student. (10 hours per week)

CUL 228. LAYOUT AND EQUIPMENT.....4 credit hours

Prerequisite: Quantity Food Production 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. Through gaining "hands on" experience, students learn how to satisfy the more discriminant diner.

DANCE
(DN 300)

DN 101. MODERN DANCE.....1 credit hour

Class will consist of body stretches and warmups as well as concentrating on a movement combination.

DN 103. TAP DANCE.....1 credit hour

Class offers opportunity to learn basic tap dance vocabulary and incorporate these steps into dances.

DN 105. JAZZ DANCING.....2 credit hours

Warm up exercises, movement combinations and full production routines to familiarize students with a range of jazz techniques. Varied musical accompaniments from progressive jazz through hard rock. (2 hours per week)

DN 110. AFRO-AMERICAN DANCE.....2 credit hours

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

DATA PROCESSING
(DP 423)

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 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 B.A.S.I.C. Principles of Operating Systems and Data Communications. Discussions of job classifications in data processing and the computer's social implications. 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/ B.A.S.I.C......3 credit hours

Programming in the B.A.S.I.C. 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 B.A.S.I.C. 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 involve business applications with card and disk input. (6 hours per week, 7½ weeks)

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

Prerequisite: Data Processing 111A and 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

Prerequisite: Data Processing 111A and 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: Data Processing 122B

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

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

Prerequisite: Data Processing 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: Data Processing 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: Data Processing 213B

This modularized course covers the advanced topics in the COBOL language. Students will use alternate input and output devices including magnetic tape (simulation) 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: Data Processing 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: Data Processing 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
(DA 452)

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

DA 110. INTRODUCTION TO DENTAL ASSISTING...4 credit hours

Prerequisite: Admission to the Dental Assisting Program

Orientation to dentistry and the history of dentistry, its professional organizations, ethics and the role of the modern dental health team. The dental operatory, equipment and instruments as they relate to the chairside assistant.

DA 111. DENTAL SCIENCE.....4 credit hours

Anatomy and physiology of the head, oral cavity and the teeth. Emphasis on dental terminology and development of the human dentitions.

DA 120. ORAL DIAGNOSTIC TECHNIQUE.....2 credit hours

Designed to involve students in applying knowledge of collecting diagnostic data and the formulation of treatment plans for dental patients. Case summaries and presentations will be written on actual clinical cases being treated in the College Dental Clinic.

DA 121. INTRODUCTION TO CLINICAL PROCEDURES.....4 credit hours

Pre-clinical course exposes student to the dental assistant's role in assisting the doctor in operating techniques. Experience in manipulation

of dental materials, their chemical and physical properties, instrumentation in each operative procedure in the dental operatory and in chairside clinical application of these procedures.

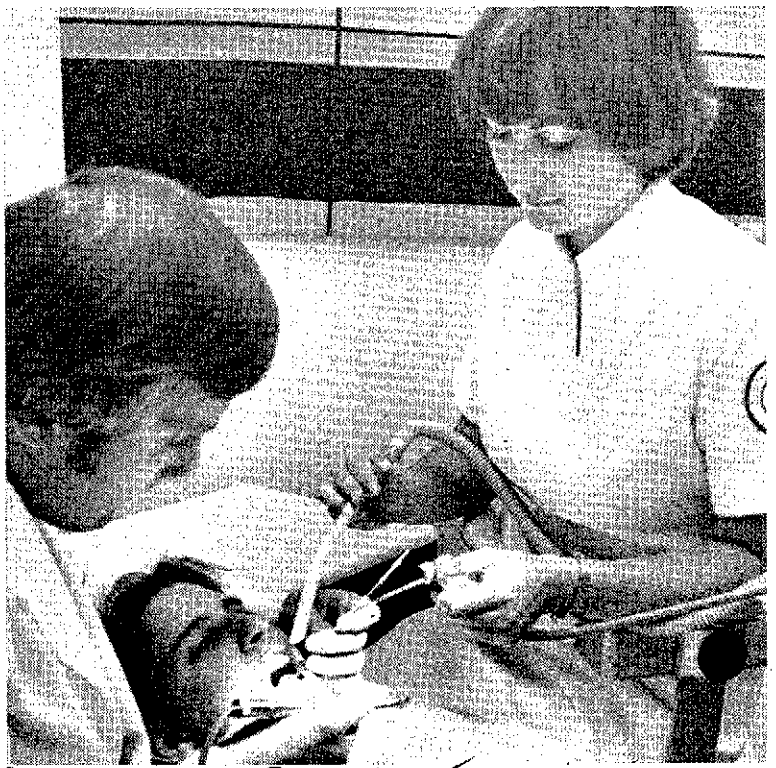
DA 122. ADVANCED DENTAL SCIENCE.....4 credit hours

Prerequisite: Dental Science 111

Continuation of Dental Science 111. Relationship of systematic health to oral health, oral pathology, diet and nutrition. Principles of oral hygiene, operative dentistry, oral surgery, anesthesia and dental prosthetics are emphasized. Presentations in medical emergencies and the use of therapeutics in dentistry.

DA 123. DENTAL MATERIALS.....2 credit hours

Uses and properties, chemical and physical, of the most commonly used dental materials and the manipulation of these materials by the dental assistant during operative and laboratory procedures.



DA 200. DENTAL ASSISTANT CLINICAL PRACTICE.....5 credit hours

Prerequisite: A 2.0 grade point average in all dental courses

Student matriculates through a sequence of clinical experiences utilizing facilities of the College Dental Clinic and The University of Michigan School of Dentistry. Student assigned required hours by instructor. Includes introduction to the specialties of dentistry. (20 hours per week)

DA 210. PRINCIPLES OF DENTAL LABORATORY PROCEDURES.....4 credit hours

A demonstration and laboratory course in which the student constructs various dental devices used in diagnoses and treatment of dental conditions. Fabrication of diagnostic models, temporary restorations and custom impression trays are emphasized.

DA 212. DENTAL OFFICE SYSTEMS AND PRACTICE MANAGEMENT.....5 credit hours

Prerequisite: 1 year of high school typing or Typewriting 110A

Emphasis on filing, dental record systems, oral and written communication, insurance management and utilization of office equipment. Problem-oriented sessions and projects enable student to develop practical knowledge of the Dental Assistant's role in business and Industrial Management and Dental Assisting.

DA 213. DENTAL ROENTGENOLOGY.....2 credit hours

Prerequisite: Dental Science 111 or consent

Principles, techniques and precautions in the operation of dental X-ray equipment. Film processing methods. Credit for Dental Roentgenology 213 and 214 given when this course is completed.

DA 214. DENTAL ROENTGENOLOGY.....2 credit hours

Prerequisite: Dental Roentgenology 213

Making X-ray exposures on patients participating in College Dental Clinic. Emphasis on safety and X-ray techniques. Credit for Dental Roetgenology 213 and 214 given when this course is completed.

DA 222. DENTAL ASSISTANT CLINICAL PRACTICE.....5 credit hours

Prerequisite: A 2.0 grade point average in all dental courses.

Advanced techniques in clinical procedures through experience at the College Dental Clinic and The University of Michigan School of Dentistry. Progress through a sequence of private dental offices within the community and participation in both general and specialty practices. (20 hours per week)

DA 224. EXPANDED DUTIES.....4 credit hours

A course designed to provide Dental Assisting students with knowledge and skill in performing intraoral functions.

ECONOMICS
(EC 352)

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 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 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: Principles of Economics 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 478)

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 030. HOME ELECTRICAL REPAIRS . . . . . 2 credit hours

A seven week course to instruct students in the correct procedures for making simple electrical repairs needed around the home. Major areas of concentration will be: simple house wiring repairs, repair of heat producing appliances and electric motor troubleshooting and repair. Lab time will be provided to practice the skills taught in the class. (3 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 050. APPLIANCE REPAIR.....2 credit hours

Emphasis in this course is placed on repairs of the types of appliances that are operated by electric motors. The common types of electric motors used in appliances will be considered in depth to the extent that the student will be able to identify each type, properly diagnose its problems, correctly disassemble, make necessary repairs, reassemble and test. Also dealt with will be the mechanical systems used to link the motor to the appliance and the methods used to control the speed of the motor. Adequate lab time will be provided to enable the student to repair appliances of the types discussed in class. (3 hours per week, 7 weeks)

EE 060. APPLIANCE REPAIR.....2 credit hours

Emphasis in this course is placed on repair of the types of appliances that are operated by electric motors. The common types of electric motors used in appliances will be considered in depth to the extent that the student will be able to identify each type, properly diagnose its problems, correctly disassemble, make necessary repairs, reassemble and test. Also dealt with will be the mechanical systems used to link the motor to the appliance and the methods used to control the speed of the motor. Adequate lab time will be provided to enable the student to repair appliances of the types discussed in class. (3 hours per week, 7 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 090. INTRODUCTORY ELECTRICITY.....3 credit hours

For students with no previous instruction in electricity-electronics. Electron theory, magnetism, electro-magnetism, sources of electricity, electrical units, alternating current, generation, inductance, and reactance. Fundamentals of house wiring, automobile electrical systems, and other common applications of basic electricity. Lecture and Lab. (4 hours per week)

EE 100. ELECTRICAL ANALYSIS.....4 credit hours

Prerequisite: Two years of high school algebra, or Math 097, and Electrical Fundamentals 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. Lecture and Lab. (6 hours per week)

EE 102. SERVICING TECHNIQUES II.....4 credit hours

Prerequisite or Corequisite: Electrical Fundamentals 111

Basic electrical circuits and devices used to operate and control electromechanical systems. Use of hand tools, electrical instruments and the special servicing techniques required for maintenance and repair. Learning and practicing the procedures necessary for troubleshooting, testing and servicing fractional horsepower A.C. motors. Lecture and Lab. (6 hours per week)

EE 110. ELECTRICAL APPLICATIONS.....2 credit hours

Corequisite: Electrical Fundamentals 111

Closely parallels Electrical Fundamentals 111 but from a more mathematical standpoint. Use of computation aids for electrical calculations. Required in the Electronic and Electrical Engineering Technician programs. (3 hours per week)

EE 111. ELECTRICAL FUNDAMENTALS.....4 credit hours

Prerequisite: One year of high school algebra or math proficiency test

Note: Electrical and Electronic Engineering Technicians and Electronic Service Technicians simultaneously enroll in Electrical Applications 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.....2 credit hours

Prerequisite: Electrical Fundamentals 111
Corequisite: Electrical Fundamentals 122

The analysis of A.C. and D.C. circuits using the "j" operator and basic network theorems. Parallels Electrical Fundamentals 122. Required in Electronic Engineering, and Service Technology programs. (3 hours per week)

EE 122. ELECTRICAL FUNDAMENTALS.....4 credit hours

Prerequisite: Electrical Fundamentals 111, Applied Algebra 151, or Intermediate Algebra 169 or Electrical Analysis 100

Note: Electronic and Electrical Engineering Technicians and Electronic Service Technicians simultaneously enroll in Electrical Applications 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: Electrical Fundamentals 111; preceded or accompanied by Electrical Fundamentals 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: Electrical Fundamentals 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: Switching Logic 137.
Corequisites: Electrical Fundamentals 122; Basic Electronics 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, buss structure and diagnostic routines. Lecture and Lab.

EE 200. CIRCUIT ANALYSIS.....3 credit hours

Prerequisite: Electrical Fundamentals 122 and Electrical Applications 120

Application of Thevenin's and Norton's theorems, super position, and reciprocity 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.

EE 210. MEASUREMENTS AND INSTRUMENTATION.....4 credit hours

Prerequisite: Basic Electronics 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, ohmeters, 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: Electrical Fundamentals 111, Intermediate Algebra Math 169, Math 151, or Electrical Analysis 100. Preceded or accompanied by Electrical Fundamentals 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 circuit, common-collector circuit, transistor switch, small signal amplifiers, load lines, bias techniques, temperature characteristics and trouble shooting procedures. Lecture and Lab. (6 hours per week)

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

Prerequisite: Basic Electronics 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.....3 credit hours

Prerequisite: Basic Electronics 211

The analysis of circuits used in radio and black and white television receivers. Low voltage power supplies, tuning circuits, RF amplifiers, LF amplifiers, video amplifiers and detectors, scanning, and synchronizing circuit fundamentals. Lecture and Lab. (5 hours per week)

EE 212B. RADIO AND TELEVISION CIRCUITRY.....3 credit hours

Prerequisite: Basic Electronics 211

The operation and servicing of raster-scan cathode ray tube displays. Characterization of CRTs, high voltage power supplies and regulators, deflection oscillators, horizontal deflection systems, vertical deflection and output circuits, display generators, video amplifiers, character and sync generators, computer terminal applications. Lecture and Lab. (5 hours per week)

EE 219. ELECTRICAL DISTRIBUTION SYSTEMS.....3 credit hours

Prerequisite or Corequisite: Electrical Fundamentals 122

Electrical generation, transmission, and distributions techniques. Conventional generation as well as optional techniques involving alternate energy sources. In-plant distribution for factories and large commercial facilities examined and advantages of alternate schemes discussed. (3 hours per week)

EE 220. ELECTRICAL INSTALLATION AND MAINTENANCE PRACTICES.....4 credit hours

Prerequisite: Electrical Fundamentals 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 222. DIGITAL ELECTRONICS I.....4 credit hours

Prerequisites: Switching Logic 137; Basic Electronics 211

Theory, analysis and application of pulse and digital circuits. Includes pulse parameters, waveform analysis, RC integrators, RC differen-

tiators, 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: Radio and Television Circuitry 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: Color Television 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: Circuit Analysis 200, Basic Electronics 211 and Radio and Television Circuitry 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: Digital Computing System I 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: Circuit Analysis 200 and Basic Electronics 211

Characteristics and application of linear circuits. Includes operational amplifiers, comparators, audio amplifiers, power amplifiers, voltage regulators, digital interface circuits and consumer/communication circuits. Operation of the power transistor, use and selection of heat sinks. 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. (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. (2 hours per week)

EE 241. DIGITAL ELECTRONICS II.....4 credit hours

Prerequisite: Digital Electronics I, Electrical Electronics 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 ELECTRONIC CIRCUITS II.....2 credit hours

Prerequisites: Switching Logic 137 and Basic Electronics 211

Digital electronic circuits. Includes operation of basic logic gates, adders, subtractors, storage register elements and shift registers. (6 hours per week, 7½ weeks)

EE 241B. DIGITAL ELECTRONIC CIRCUITS II.....2 credit hours

Prerequisite: Digital Electronic Circuits II 241A

Digital electronic circuits. Includes counters, timing circuits, decoders, encoders, memories and control waveform generation. (6 hours per week, 7½ weeks)

EE 242. HIGH FREQUENCY TRANSMISSION.....4 credit hours

Prerequisites: Circuit Analysis 200 and Basic Electronics 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: Switching Logic 137, Basic Electronics 211 and Digital Electronics II 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 8080A microprocessor chip that contains an 8-bit data bus and a 17 bit address bus. Lecture and Lab. (6 hours per week)

EE 250A. MICROPROCESSORS.....3 credit hours

Prerequisite: Electrical Fundamentals 111 or consent

For students not enrolled in Electrical/Electronic Technician Program or who do not meet all of the prerequisites. Includes number systems and binary codes, computer arithmetic, microprocessor architecture, instruction sets, addressing modes, programming, stack operations, subroutines and input/output operations. Lecture and Lab. (4 hours per week)

EE 250B. MICROPROCESSORS.....2 credit hours

Prerequisite: Microprocessors 250A or consent

Covers the same material as last half of Microprocessors 250. Includes interfacing fundamentals, interfacing with memory, interfacing with displays, peripheral interface devices, A/D converters and D/A con-

verters. Lecture and Lab. (6 hours per week, 7½ weeks)

EMERGENCY MEDICAL TECHNOLOGY
(EMT 455)

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.....2 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.....2 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.....2 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.....2 credit hours

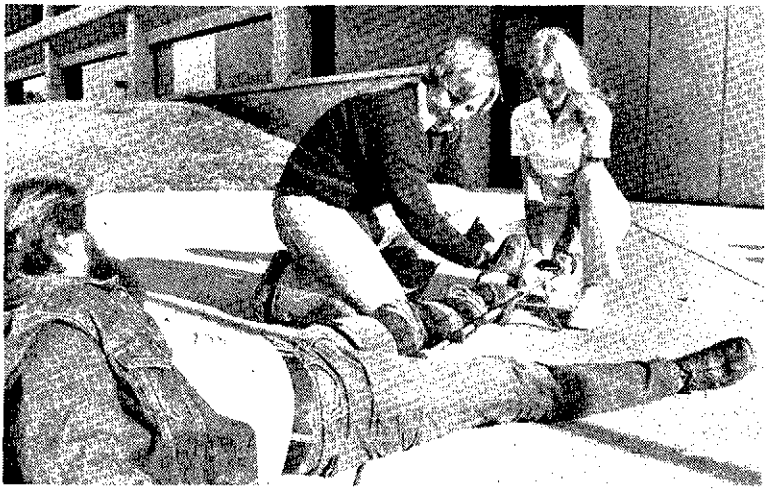
A continuation of EMT Principles I. Lectures by medical experts on other concepts of medical emergencies.

EMT 104. EMERGENCY MEDICAL TREATMENT TECHNIQUES II.....2 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 an diagnostic techniques, patient handling skills and some lab practice in basic techniques such as taking vital signs, airway management, special interview skills, etc. Also in-



cluded are several hours of observation time in a hospital emergency room. (3 hours per week)

EMT 106. EMERGENCY MEDICAL TREATMENT CLINICAL PRACTICUM.....1 credit hour

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 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.

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 INSTRUCTOR.....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.....1 credit hour

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 specialized skill areas such as IV administration, pharmacology and administration of medication.

EMT 202. LECTURE AND PRACTICAL.....8 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 arrythmia simulators.

EMT 206. CLINICAL.....4 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. providor.

ENGLISH
(ENG 302)

ENG 025. INTRODUCTION TO ENGLISH GRAMMAR.....4 credit hours

Prerequisite: Basic reading skills. Foreign students with consent

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.....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.....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.....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

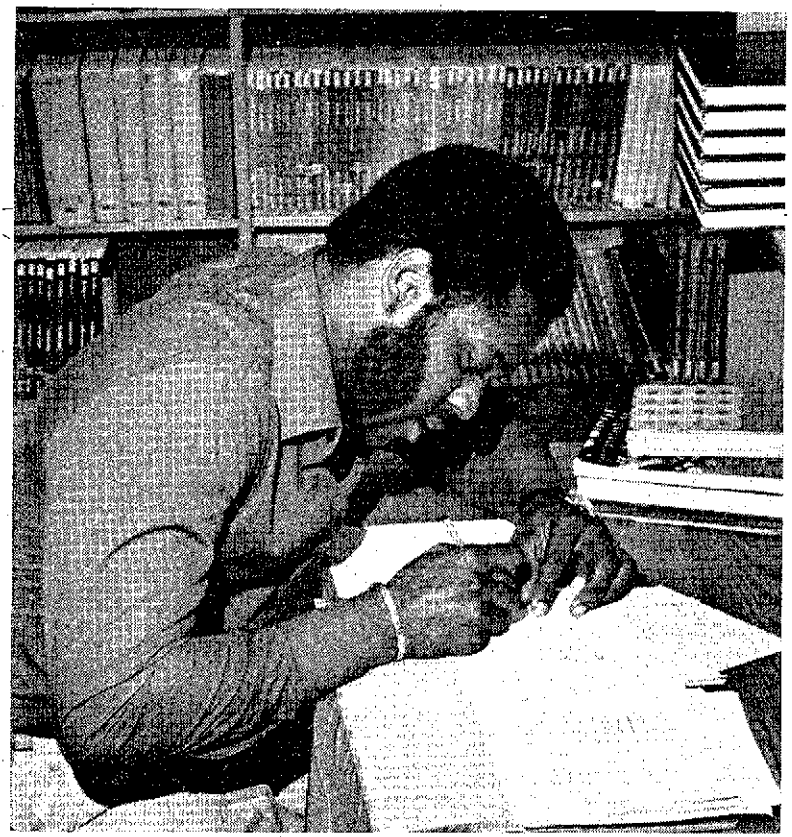
Provides occupational student with an adequate and practical background in kinds of writing necessary in his chosen field. Course tailored to specific needs of each student. English Fundamentals 091 is in no way remedial for English Composition 111.

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. Uses of audio-visual equipment, the creating of graphic presentations and the development of an appreciation of precise reporting through the use of elementary statistics.

ENG 102. LIBRARY RESEARCH PAPER.....2 credit hours

Individualized instruction for the student engaged in preparing a research paper for any WCC class. Step by step help in topic selection, information gathering and organizing, compiling notes, writing a term paper and preparing a bibliography.



ENG 107. COMMUNICATION SKILLS.....4 credit hours

Spelling, vocabulary, sentence structure, organization of oral communications, business correspondence and forms, writing of technical reports. Analysis of written material for tone, style and clarity with individual speech analysis, business and social conversations, informative talks, explanations and demonstrations. Supplementary reading assignments include suitable models for the student in his writing.

ENG 111. ENGLISH COMPOSITION.....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.....3 credit hours

Prerequisite: English Composition 111 or equivalent

A continuation of English Composition 111 with emphasis on research and critical literary papers along with narrative and persuasive writing. Specially designated sections of English 122 emphasize critical thinking, myth, poetry in song, popular culture or mass media.

ENG 140. SCIENCE FICTION.....3 credit hours

Relevancy of science fiction as prophecy and as a guide to shaping future societies. Course centers around a series of short stories while also permitting students to select and read several novel length books independently. Included are science fiction films and guest lectures though most of the class activity consists of dialogue among members.

ENG 145. WOMEN WRITERS.....3 credit hours

A survey of poetry, fiction, drama and essays by women, with an emphasis on 20th Century writers. Explores the writings of women authors and what those authors have to say about themselves and the world around them.

ENG 160. INTRODUCTION TO LITERATURE: POETRY AND DRAMA.....3 credit hours

Study of poetic and dramatic literature designed to give an understanding of literature through close reading and discussion of selected works of poetry and drama. In both English 160 and 170 students are encouraged to evolve criteria for assessing the value of literary works. Specially designated sections of English 160 emphasize poetry 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.....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.....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.....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.....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.....3 credit hours

English Literature 212 continued. A study of representative writers of the Romantic, Victorian and Modern periods.

ENG 224. WORLD LITERATURE.....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 225. INTERMEDIATE EXPOSTION.....3 credit hours

Prerequisite: English Composition 111

For Freshman and Sophomores who have taken English Composition 111. Includes a review of fundamentals of composition with further practice in writing expository prose, materials being drawn in part from the student's special field of interest.

ENG 230. NATURE OF ENGLISH LANGUAGE.....3 credit hours

The nature and development of the English language. Consideration of English from its beginning to the present. Language examined in its social context and also in terms of dialects, speech and formal structure.

ENG 260. JOURNAL WORKSHOP.....3 credit hours

Prerequisite: English Composition 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.

ENG 278. MAGAZINE PUBLICATION.....3 credit hours

Prerequisite: Consent of Instructor

Practical experience in selecting and evaluating original manuscripts, photographs and art material, editing, lay-out and distribution of periodicals and other publications. Course work completed in prearranged, concentrated work sessions.

FILM
(FLM 297)

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 cinemagraphic 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: Film 111 and 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

Prerequisite: Film 111 and 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 422)

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: Principles of Accounting 122 or equivalent

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 468)

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: Introduction to Fire Protection 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 480)

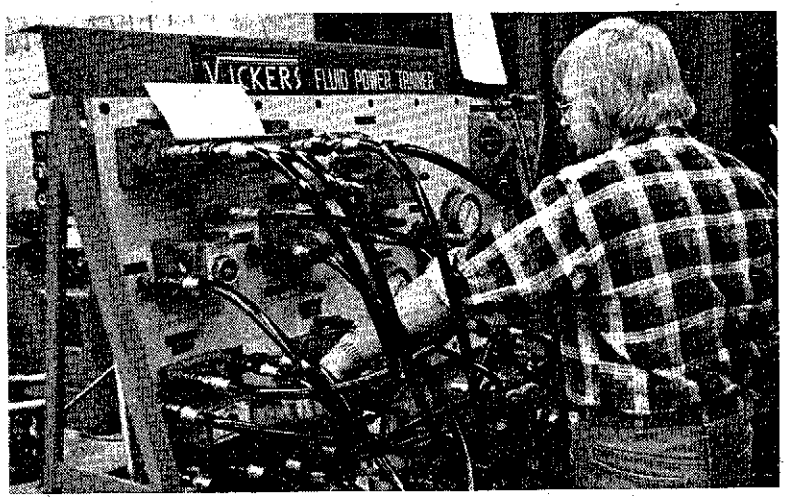
FLP 111. FLUID POWER FUNDAMENTALS.....4 credit hours

Basic components of hydraulic and pneumatic systems as well as a general understanding of the basic laws and formulas. Pumps, control valves, actuators, ANSI symbols are used for circuit construction and print reading. Laboratory experiences include assembly and disassembly of components and construction of hydraulic circuits. (5 hours per week)

FLP 122. HYDRAULIC PUMPS.....3 credit hours

Prerequisite: Fluid Power Fundamentals 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.....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.....4 credit hours

A continuation of Plumbing and Pipefitting 201 involving the study of water supply, waste disposal, drainage, venting, unit sanitation equipment and plumbing codes.

FLP 213. HYDRAULIC CONTROLS.....3 credit hours

Components used in the control of hydraulic fluids studied with emphasis placed on pressure, direction and volume control assemblies. Manual, electrical, pneumatic, mechanical and hydraulically operated valves studied and demonstrated in typical circuits. (4 hours per week)

FLP 214. BASIC HYDRAULIC CIRCUITS.....3 credit hours

Prerequisite: Fluid Power Fundamentals 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: Basic Hydraulic Circuits 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 303)

FRN 111. FIRST YEAR FRENCH.....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.....3 credit hours

Prerequisite: French 111 or consent

A continuation of French 111. Class conversation, elementary readings and langage laboratory practice stress the spoken language and help develop a basis for further study. (4 hours per week)

FRN 213. SECOND YEAR FRENCH.....3 credit hours

Prerequisite: French 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.....3 credit hours

Prerequisite: French 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 353)

GEO 100. GEOGRAPHY AND THE ENVIRONMENT.....3 credit hours

Geographic principles underlying the patterns of man's activities on the earth's surface. Includes problem-solving in land use, air and water standards, population control and conservation.

GEO 200. MICHIGAN: GEOGRAPHY AND HISTORY..3 credit hours

Survey of the various types of natural resources and regions within the state and of the cultural adjustment man has made to natural conditions. Emphasis on points of history with geographic interest. The economic, social and political development of the territory as part of the history of the Great Lakes area.

GEOLOGY
(GLG 323)

GLG 100. INTRODUCTION TO THE EARTH SCIENCES.....4 credit hours

For students who desire to obtain a broad perspective of the science. Practical training in earth science, including work with 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.....4 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: Physical Geology 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 291)

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.

HEALTH SCIENCE
(HS 450)

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.

HEATING
(HTG 527)

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 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: Heating 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: Heating 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: Heating 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 refrigration 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: Heating 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 probiems and treatment.

HTG 106. POWER PLANT ELECTRICITY.....3 credit hours

Prerquisite: 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

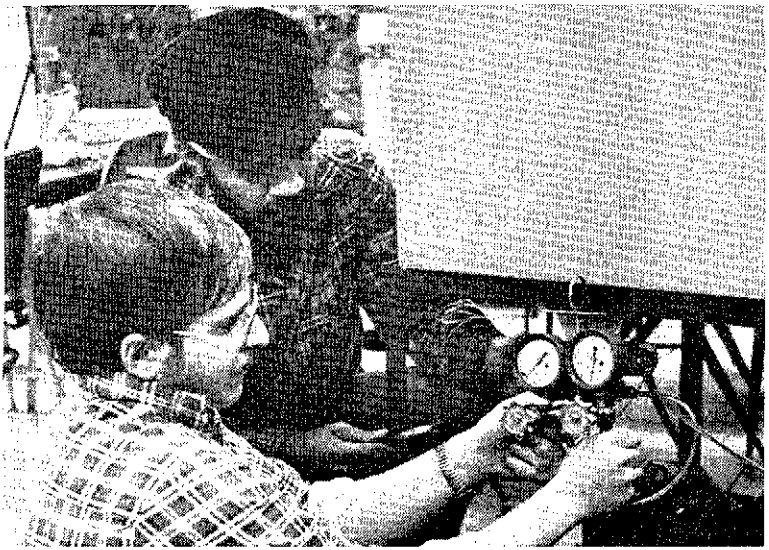
Prerequisite: Heating 106 or consent

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.

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: Heating 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 Heating 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 Heating 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 TEMP 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 354)

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 faciltate 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, 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, 1865 TO 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 sponsor-

ing institutions.

HOTEL/MOTEL MANAGEMENT
(HMT 469)

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.....5 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: Hospitality Industry Accounting 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.

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 308)

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 study of the classic and significant international, European and Asian, films and film makers. Emphasizes development of the art of seeing, the heightening of student's awareness of the nature and potential 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
(ID483)

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 (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.....4 credit hours

Prerequisite: Technical Drawing 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

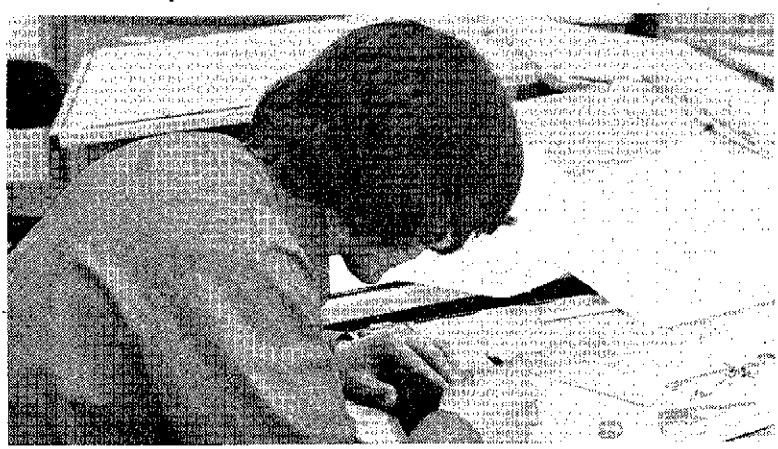
Prerequisite: Technical Drawing 100 or consent

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.....4 credit hours

Prerequisite: Industrial Drafting 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

Prerquisites: Industrial Drafting 111 and Descriptive Geometry 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: Industrial Drafting 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 & 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.....4 credit hours

Prerequisite: Fundamentals of Jigs and Fixtures 122 or concurrent registration.

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: Fundamentals of Jigs and Fixtures 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: Industrial Drafting 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. . . . . .4 credit hours

Prerequisite: Technical Drawing 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. . . . . .4 credit hours

Prerequisite: Fundamentals of Electrical Drafting 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 420)

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)*

JOURNALISM
(JRN 304)

JRN 101. WRITING FOR MASS MEDIA.....3 credit hours

Emphasizes basic journalistic techniques of recognizing, gathering, organizing and writing news for print media. Students gain practical experience in all areas as reporters for College newspaper.

JRN 102. WRITING FOR MASS MEDIA.....3 credit hours

A continuation of Journalism 101 news writing course with emphasis on advanced journalistic writing including reviews, editorials and interpretative stories. Students continue as reporters for the College newspaper.

JRN 115. INTRODUCTION TO MASS MEDIA.....3 credit hours

A survey of the structure and processes of mass media, print and electronic, and their effect on today's society.

JRN 118. WOMEN AND THE MASS MEDIA.....3 credit hours

The socializing effect of the media on women in our society. Includes consideration of media stereotypes of women as well as media manipulations of women as consumers. Concern with focus of print and electronic media, advertising and films.

JRN 121. APPLIED JOURNALISM.....3 credit hours

Newspaper production with practical experience in publishing the College newspaper. Emphasizes the mechanics of editing and headline writing. Introduces page makeup, layout and design.

JRN 122. APPLIED JOURNALISM.....3 credit hours

A continuation of Journalism 121 newspaper production with emphasis on advanced study of page makeup. Practical experience in all areas of newspaper production.

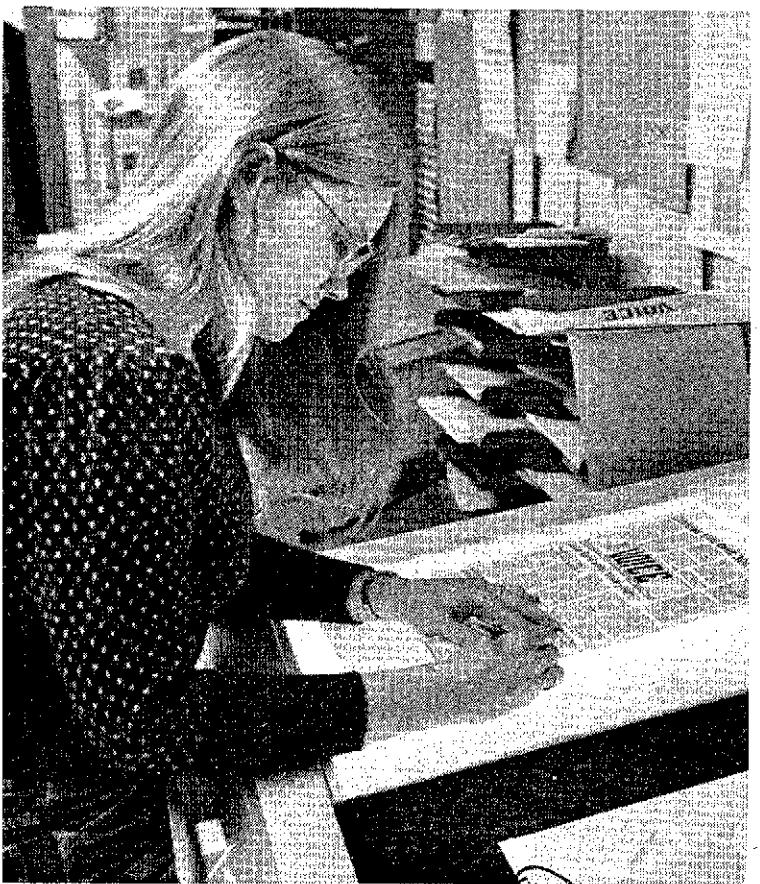
JRN 125. PHOTOJOURNALISM.....4 credit hours

A visual approach to communications. Students develop knowledge for the use of the camera, an ability to communicate through writing, a sense of the visual impact of photography and craftsmanship through printing techniques, camera and lens use and perspectives. (5 hours per week)

JRN 157. MAGAZINE PUBLICATION.....3 credit hours

Prerequisite: Consent of Instructor

Practical experience in selecting and evaluating original manuscripts, photographs and art material, editing, lay-out, and distribution of periodicals and other publications. Course work completed in pre-arranged, concentrated work sesions.



MANAGEMENT AND MARKETING
(MGT 427)

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: Business Occupational Foundations 140 or consent

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: Second year standing or consent

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

Prequisite or corequisite: Principles of Economics 211 and second year standing or equivalent

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.

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: Business Occupational Foundations 140 and Principles of Management 208 or equivalent

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

Prerequisite or corequisite: Principles of Economics 211 and second year standing or equivalent.

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: Business Occupational Foundations 140 and Principles of Salesmanship 160 or equivalent

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: Principles of Marketing 250 or consent

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 selecton and testing advertising effectiveness, as well as advertising rates and budgetary factors.

MATHEMATICS
(MTH 324)

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 from a mathematics instructor designing the number of credit hours.

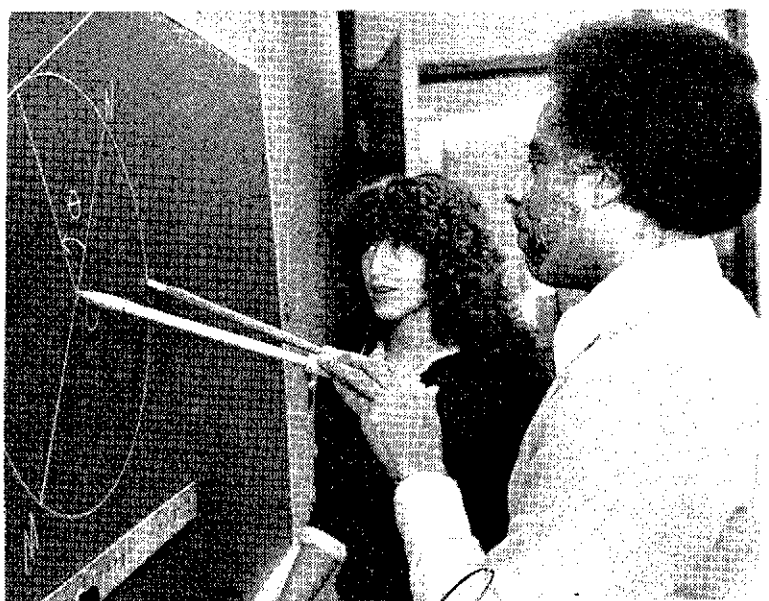
MTH 039. BASIC MATHEMATICS.....3 credit hours

A self-pace course in the Mathematics Laboratory. For the student who desires a review of basic arithmetical operations before study in 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: Basic Mathematics 039

A self-pace course 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 proportions, graphing and statistics.



William Lewis
"Bill"

MTH 097. INTRODUCTORY ALGEBRA.....4 credit hours

Prerequisite: Basic Mathematics 039

Beginning algebra; approximately equivalent to first-year high school algebra. Intended as 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: Basic Mathematics 039

The first half of Introductory Algebra (Math 097). A self-pace course 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: Introductory Algebra 097A

The second half of Introductory Algebra (Math 097). A self-pace 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: Basic Mathematics 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 instructions in the use of a handheld calculator to find the value of various kinds of numerical expressions. Students use a handheld calculator of either the algebraic logic type or the reverse Polish logic type. Developing mathematical concepts and rules related to calculating techniques. Includes basic operations, scientific notation, and squares and square roots. Optional units; powers and roots, equations and formulas, trigonometric functions, logarithmic functions and specific applications in business and finance.

MTH 130. SURVEY OF COMPUTER SCIENCE.....3 credit hours

For persons who have an interest in computer science and technology but do not necssarily 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 Hewlitt-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: Introductory Algebra 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: Basic Mathematics 039

Designed for technical students. Includes basic arithmetic, percents, ratio and proportion, operations with algebraic expressions, solution of simple equations, logarithms, solution of quadratic equations, graphing and trigonometric functions. (5 hours per week)

MTH 152. APPLIED GEOMETRY AND TRIGONOMETRY.....4 credit hours

Prerequisite: Introductory Algebra 097 or Applied Algebra 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: Basic Mathematics 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: Introductory Algebra 097 or Applied Algebra 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: Basic Mathematics 039

Designed for the student in elementary education. Intuitive approach, teaching aids and methods of teaching certain topics. Includes sets, whole numbers, integers, rational numbers, number systems and plane geometry.

MTH 160. BASIC STATISTICS.....4 credit hours

Prerequisite: Introductory Algebra 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 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: Basic Mathematics 039

Designed for business students on a four-year program. Students should follow this course with another mathematics course such as Finite Mathematics (Math 167). Topics are arithmetic, algebraic concepts, measurement, metric system, simple and compound interest, payroll and taxes, graphs and statistics. Emphasis on business applications.

MTH 165. HEALTH SCIENCE MATHEMATICS.....3 credit hours

Prerequisite: Basic Mathematics 039

Mathematics necessary for many health-related careers. Satisfies requirement for several 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: Introductory Algebra 097 or Business Mathematics 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: Introductory Algebra 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: Introductory Algebra 097

The first half of Intermediate Algebra (Math 169). A self-pace course 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: Intermediate Algebra (169A)

The second half of Intermediate Algebra (Math 169). A self-pace course 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: Introductory Algebra 097

Provides background in trigonometry for study of physics, calculus and certain technical courses. Includes degree and radian measures, trigonometric functions of an acute angle, the pythagorean theorem, trigonometric identities, solving right triangles, the law of sines and the law of cosines, solving oblique and acute triangles. Also, 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: Introductory Algebra 097

The first half of Trigonometry (Math 177). A self-pace course in the Mathematics Laboratory. Use trigonometric functions to solve triangles. Includes degree and radian measures, trigonometric functions, the pythagorean theorem, the law of sines and the law of cosines and solving triangles.

MTH 177B. TRIGONOMETRY.....3 credit hours

Prerequisite: Trigonometry 177A

The second half of Trigonometry (Math 177). A self-pace course 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: Intermediate Algebra 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, rational functions, exponential and logarithmic functions and conic sections.

MTH 179A. PRECALCULUS.....3 credit hours

Prerequisite: Intermediate Algebra 169

The first half of Precalculus (Math 179). A self-pace course in the Mathematics Laboratory. Includes exponential and logarithmic functions and conic sections.

MTH 179B. PRECALCULUS.....3 credit hours

Prerequisite: Precalculus 179A

The second half of Precalculus (Math 179). A self-pace course in the Mathematics Laboratory. Includes exponential and logarithmic functions and conic sections.

MTH 187. FORTRAN PROGRAMMING.....3 credit hours

Prerequisite: Intermediate Algebra 169

FORTRAN 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 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: Intermediate Algebra 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: Precalculus 179 and Computerized Calculus Adjunct 196 concurrently

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: Calculus 191 and Trigonometry 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 196. COMPUTERIZED CALCULUS ADJUNCT. . .2 credit hours

Prerequisite: Concurrent enrollment in Calculus 191

A course in BASIC programming with almost all examples and assignments being taken from topics under discussion in the Calculus I course. The course is intended to provide a laboratory experience for students taking Math 191. No previous experience in programming is required. (2 hours per week)

MTH 197. LINEAR ALGEBRA. . . . . .3 credit hours

Prerequisite: Calculus 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: Calculus 192 and FORTRAN Programming 187

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: FORTRAN Programming 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: Calculus 192

The third course of the 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: Calculus 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: FORTRAN Programming 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 485)

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.

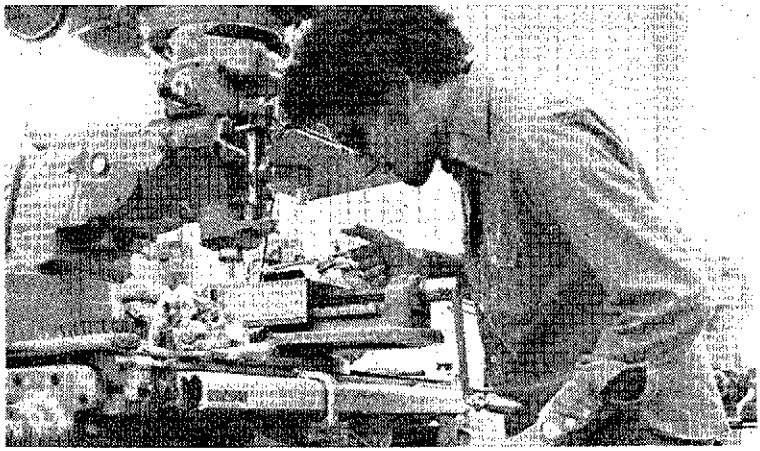
MT 111. MACHINE SHOP THEORY AND PRACTICE.....4 credit hours

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

Laboratory experiences for those students who have some background in Machine Shop Theory but lack experience on individual machines. Included are basic skills on the lathe, mill, shaper, surface grinder, drill press and other common industrial practices (3 hours per week)

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



Prerequisite: Machine Shop Theory and Practice 111 or consent of the instructor

Designed to improve skills and to increase speed of operating the basic tool room machines (lathe, mill, O.D. grinder, I.D. grinder, jig borer, drill press). (6 hours per week)

MT 123. MACHINE TOOL OPERATIONS AND SET-UP.....4 credit hours

A continuation of Mechanical Technology 122. Emphasis placed on the student's ability to complete an assigned problem. Students do all the planning, scheduling, machining and fabricating that is necessary to complete the assigned problem. (6 hours per week)

MT 201. MACHINE TOOL TECHNOLOGY.....4 credit hours

Prerequisite: Machine Tool Operation and Set-Up 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: Technical Drawing (Industrial Drafting 100) for Millwrights

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 487)

MLG 100. INTRODUCTION TO METALLURGY.....1 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. (2 hours per week, 7½ weeks)

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: Mechanical Testing 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.....2 credit hours

Prerequisite or Corequisite: Introduction to Metallurgy 100 or consent of division

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. (4 hours per week)

MLG 217. MECHANICAL TESTING.....2 credit hours

Corequisite: Testing Laboratory 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: General Metallurgy 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: Metallography 228 or consent of division

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: Heat Treatment Processes 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 305)

MUS 100. BAND.....1 credit hour

A course in performance open to all students and the public upon registration for the class. May be repeated for credit up to a maximum of four times. (2 hours per week)

MUS 103. STAGE BAND: ENSEMBLE.....1 credit hour

A course in performance open to those who desire to read, improvise and perform. Audition necessary for registration. May be repeated for credit up to a maximum of four times. (2 hours per week)

MUS 106. JAZZ COMBO.....1 credit hour

Designed for the musician with some degree of competency to gain experience and skill in performance and improvisation of different styles of jazz and blues. The group is a performing one and offers concerts in the community.

MUS 109. BRASS ENSEMBLE.....2 credit hours

An ensemble course designed for brass quartets, quintets, depending on class instrumentation. This class is also a performing group.

MUS 135. CHORUS.....1 credit hour

A course in performance open to all students and the public upon registration for the class. May be repeated for credit up to a maximum of three times.

MUS 140. BASIC MUSICIANSHIP.....3 credit hours

Designed to give students, prospective teachers and others a foundation in music theory and reading, concepts of rhythm, tonality, music composition, and other techniques, with aim of developing musical skills and understanding. No musical experience necessary.

MUS 143. COMPOSITION: THEORY AND ARRANGEMENT.....2 credit hours

Designed to enable students to develop skills and techniques in music composition, orchestration and arranging for all musical mediums.

MUS 146. CREATIVE IMPROVISATION: SONG WRITING.....3 credit hours

For the prospective song writer, deals with lyric writing and musical accompaniment. Students collaborate using their talents to produce songs and also become acquainted with musical styles through recordings and demonstrations, and the music industry and its procedures concerning how to get a song published and recorded. Other areas of study include recording, the recording-studio, record pressing and copyright procedures.

MUS 149. SIGHT SING/EAR TRAINING.....2 credit hours

An approach to listening to and reading music designed to develop composing and listening skills. An introduction in training the ear to identify intervals, chords, scales and chord progressions.

MUS 152. MUSIC THEORY I.....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 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, tamboora 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 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 230. FOLK GUITAR.....2 credit hours

Learning of techniques necessary to play folk music and folk songs. For those with some experience in guitar playing, keyed to interests and

needs of students.

MUS 233. BEGINNING GUITAR.....2 credit hours

Designed for those with limited or no experience playing the guitar. Basic chords and techniques as well as folk and Blues songs. Class keyed to interests and needs of students.

MUS 236. INTERMEDIATE GUITAR.....2 credit hours

For the student with a basic knowledge of guitar playing. There will be opportunity to learn more difficult techniques as well as learning about song arrangements and some theory. Class will be keyed to interests and needs of students.

MUS 239. JAZZ GUITAR.....2 credit hours

Designed to enable students to develop skills necessary to play the guitar. In different jazz styles. Includes improvisation work and chording. Requires basic guitar playing experience.

MUS 242. BASS GUITAR.....2 credit hours

A course in applied music (bass) designed specifically for jazz enthusiasts who want to learn techniques of jazz bass performance. Melodic, harmonic and rhythmic theory will be used to develop styles of jazz bass performance. You must have your own instrument.

MUS 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 472)

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.

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.

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 profitable 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.

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.

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)

NURSING
(NUR 451)

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 PREP.....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 and hygiene. 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. Concurrent with Nursing 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: Nursing 120 and 125. Corequisite: Concurrent with Nursing 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 clincal experience in the administration of medications. (23 hours per week, 7½ weeks)

NUR 122. PHARMACOLOGY II.....2 credit hours

Prerequisite: Nursing 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. Concurrent with Nursing 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: Nursing 120 and 125. Corequisite: Concurrent with Nursing 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: Nursing 120 and 125. Concurrent with Nursing 135

Clinical experience in obstetrics 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: Nursing 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: Nursing 120 and 125. Concurrent with Nursing 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: Nursing 121 and 126. Concurrent with Nursing 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, 7½ 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: Nursing 121 and 126. Concurrent with Nursing 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. (7½ weeks)

NUR 147. GROWTH AND DEVELOPMENT.....3 credit hours

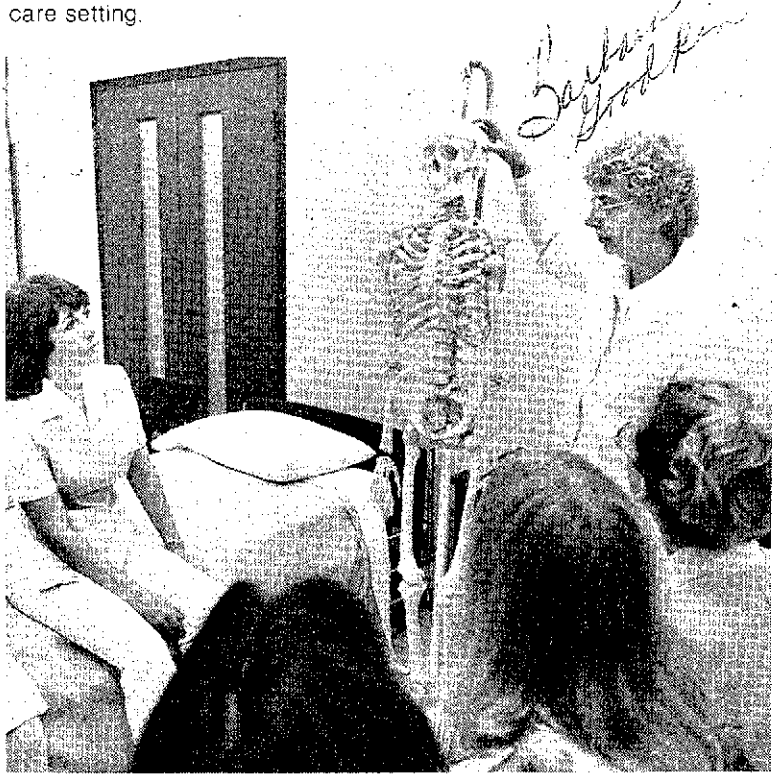
Concurrent with Nursing 135 or consent of faculty

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 298)

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 Nietzche, Kierkegaard, Heidegger, Sartre and Camus. Special attention to major existentialist themes; for example, authentic existence, integrity, freedom, anxiety, non-being, melancholy, death, guilt, conscience and values.

PHL 205. VALUES: ETHICS AND AESTHETICS.....3 credit hours

An introduction to the analysis of valuing behaviors. Deals with social values and aesthetic values. Some writing will be required in which the student will give evidence of his increased capacity to make distinctions in these areas.

PHL 250. LOGIC.....3 credit hours

An introduction to the nature of logical reasoning, especially as found in examples of everyday thought. Studies the role of language in reasoning and communication, the influence of emotions on logical thinking and the nature of inductive as well as deductive reasoning. Emphasizes developing habits of good reasoning, as well as the ability to recognize and avoid bad reasoning.

PHOTOGRAPHY
(PHO 493)

PHO 111. PHOTOGRAPHY.....4 credit hours

Principles, practices, basic application and limitations of photography as a communication form used in business and industry. Assigned field practices in the use of the still camera, composing, lighting, exposure and photo darkroom processing. (6 hours per week)

PHO 112. DARKROOM TECHNIQUES.....5 credit hours

Prerequisite: Photography 111. Corequisite: Photography 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: Darkroom Techniques 112

Specialized instruction in 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: Photography 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. Color correction for basic problem situations included. (4 hours per week)

PHO 115. PHOTO RETOUCHING.....2 credit hours

Prerequisite: Darkroom Techniques 112

Manual and spotting techniques and associated materials as applied to the retouching and processing of photographic copy. (3 hours per week)

PHO 219. PHOTOGRAPHIC DESIGN.....3 credit hours

Prerequisite: Photography 111

Specialized instruction in photographic composition with emphasis on design in the photographic image through lecture, demonstration 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. CAMERA SELECTION AND USE.....3 credit hours

Prerequisite: Studio Techniques 113; Corequisite: Photography 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 35 mm camera. (6 hours per week)

PHO 221. ADVANCED DARKROOM TECHNIQUES...3 credit hours

Prerequisite: Studio Techniques 113; Corequisite: Photography 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: Basic Color Photography 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. (6 hours per week)

PHO 223. PHOTOGRAPHIC OCCUPATIONS AND DARKROOM OPERATION.....3 credit hours

Prerequisite: Studio Techniques 113

A survey of photographic occupations: the unique problems encountered in photojournalism, retail sales of photographic materials and supplies and the development of audio-visual materials.

PHO 229. FREELANCE OPERATIONS.....3 credit hours

Prerequisite: Camera Selection and Use 220

A survey of the types of photography in which the freelance photographer is involved as a one-person 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: Advanced Darkroom Techniques 221

An opportunity for students to work independently with faculty consultation in major areas of photography. Major study areas may include: studio, commercial, architectural or industrial photography.

PHO 231. PORTFOLIO SEMINAR.....3 credit hours

Prerequisite: Advisor Approval only

Development of materials and samples to be presented for employment. Professional critiques conducted and evaluations made. (4 hours per week)

PHYSICAL EDUCATION
(PE 333)

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 wil develop a fitness program based upon an analysis of his/her fitness status. (2 hours per week)

PE 105. INDÉPENDENT SPORTS.....1 credit hour

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.....2 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, intercollegeiate meets and scrimmages.

PHYSICS
(PHY 327)

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: Mathematics 090 or equivalent. Corequisite: Mathematics 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: Mathematics 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.....4 credit hours

Prerequisite: Introductory Algebra 097. Corequisite: Math 177A and Intermediate Algebra 169

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.....4 credit hours

Prerequisite: Intermediate Algebra 169 and General Physics 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: Math 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.....3 credit hours

Prerequisite: Math 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.....3 credit hours

Prerequisite: Radiologic Physics 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.....5 credit hours

Prerequisite: Physics 105 and Calculus 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.....5 credit hours

Prerequisite: Analytical Physics 211

Continues to develop mathematical methods for understanding physical phenomena in the areas of electromagnetism, light and modern physics. (3 hours laboratory, 4 hours of lecture and recitation per week)

POLITICAL SCIENCE
(PLS 356)

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 357)

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 488)

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: Intermediate Algebra 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: Process Quality Control 101 and Sampling Quality Control 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: Quality Control by Statistical Methods 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. INTRODUCTION TO NONDESTRUCTIVE TESTING.....3 credit hours

A general introduction into the more important aspects of nondestructive testing as related to quality control and product quality assurance. A brief review of physical laws of light, wave motion, magnetism, and electricity introduced to show the relation of theory to applications. Lectures, supplemented with field trips consisting of visits to plant or equipment manufacturers, or classroom demonstration of equipment or application technique by an industrial representative.

RADIOLOGIC TECHNOLOGY
(RT 459)

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

RT 100. INTRODUCTION TO RADIOGRAPHY.....2 credit hours

Covers the history of radiography, medical specialties, health care delivery, organizational structure of a radiology department, professional development and ethics. Introductory course for the beginning radiographer; includes observation in a clinical education center. (10.2 hours per week, 7 weeks)

RT 101. METHODS OF PATIENT CARE.....2 credit hours

Designed to teach the radiographer how to interact with the patient and to provide for his or her physical and emotional needs, how to assist in moving patients by utilizing various types of transfer procedures and how to provide specific patient care procedures that will render the best health care possible. Some lab practice in basic technique such as taking vital signs, blood pressure and airway management. (4.2 hours per week, 7 weeks)

RT 110. CLINICAL EDUCATION.....2 credit hours

Structured clinical experience in a Clinical Education Center working with patients using radiographic equipment under supervision. Application of procedures learned in positioning the upper extremity. (20 hours per week)

RT 111. FUNDAMENTALS OF RADIOGRAPHY.....3 credit hours

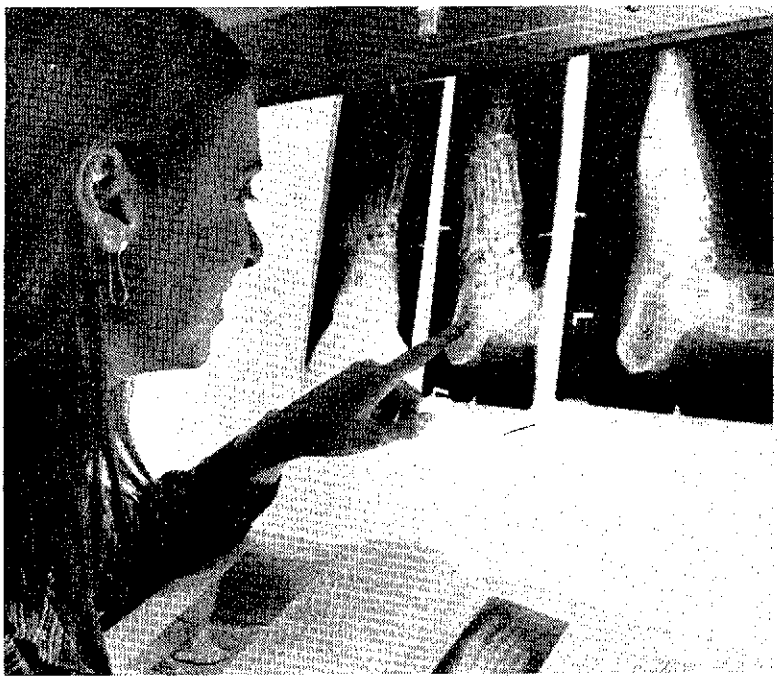
The fundamentals of radiographic imaging systems and the methods of processing the radiograph.

RT 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 upper extremity. (3 hours per week)

RT 120. CLINICAL EDUCATION.....2 credit hours

Structured clinical experience in a Clinical Education Center working with patients using radiographic equipment under supervision. Application of procedures learned in positioning the upper and lower extremities, trunk and spine. (20 hours per week)



RT 123. RADIOGRAPHIC POSITIONING.....2 credit hours

Proper positions for radiography of the lower extremity, trunk and spine. Critiques on positioning and the anatomical appearance of structures on the radiograph, an essential function of the course. Operation of the radiographic control panel with the ability to establish basic exposure techniques for various body densities. (3 hours per week)

RT 125. RADIOGRAPHIC PROCEDURES AND RELATED ANATOMY.....3 credit hours

Proper positioning and regional anatomy of the neck, thorax and abdomen, to examine radiographic procedures in which a contrast medium is used for demonstrating anatomical structures which are not well visuallzed on routine radiographs.

RT 130. CLINICAL EDUCATION.....4 credit hours

Structured clinical experience Spring and Summer semesters. Experience in a Clinical Education Center working with patients using radiographic equipment under supervision. (40 hours per week)

RT 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)

RT 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)

RT 217. CLINICAL EDUCATION.....3 credit hours

Advanced structured clinical experience in a Clinical Education Center working with patients using radiographic equipment. Application of procedures learned in positioning the upper and lower extremities, trunk, spine, skull and procedures requiring the use of a contrast medium. Evening work experience will be scheduled. (24 hours per week)

RT 218. RADIATION BIOLOGY AND PROTECTION.....3 credit hours

To acquaint the student with the effects of ionizing radiation on the cells which form human tissue; to teach the student radiographer to provide maximum safety to patient and personnel. Includes shielding, radiation monitoring and protective regulations.

RT 224. 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 given situations.

RT 227. RADIOLOGIC TECHNOLOGY LAB.....1 credit hour

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. (3 hours per week)

RT 220. SUPERVISORY MANAGEMENT.....2 credit hours

An analysis of the role and responsibilities of the supervising radiographer in the hospital and related facilities; involves managerial functions of planning, organizing, staffing, directing and influencing. The student obtains practical experience in writing job descriptions and resumes.

RT 225. CLINICAL EDUCATION.....3 credit hours

Advanced structured clinical experience in all areas of the radiology department. Electives offered to students in specialized areas where the student displays an interest, i.e., Pediatrics, Radiotherapy, Nuclear Medicine, Ultrasound and Special Procedures. Evening work experience scheduled. (24 hours per week)

RT 240. CLINICAL EDUCATION.....2 credit hours.

Internship in a Clinical Education Center working with patients using radiographic equipment. (40 hours per week)

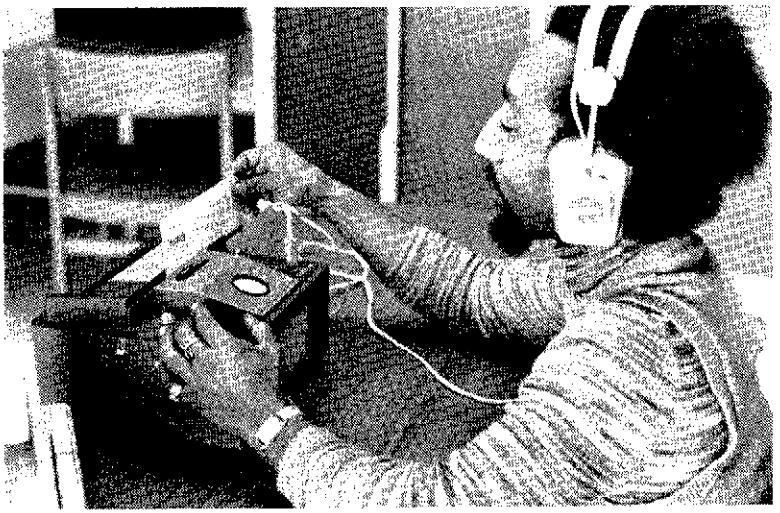
READING
(RDG 306)

READING LABORATORY

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....1 credit hour

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 Level

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.....1 credit hour

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.....1 credit hour

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. (3 hours per week)

REAL ESTATE
(RE 430)

RE 100. REAL ESTATE PRINCIPLES.....3 credit hours

An introductory course in real estate principles, practices and concepts. The student will be exposed to a broad overview of the real estate field including the nomenclature, documents, legal aspects and licensure, property descriptions, appraisal, financing, title insurance, construction, builders, property management, condominiums, buying and selling, realtor functions, the Board of Realtors, ethics. An opportunity for the student to participate in an essential learning process leading to valuable real estate career. (3 hours per week)

REFRIGERATION / AIR CONDITIONING
(RAC 543)

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.

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: Refrigeration 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

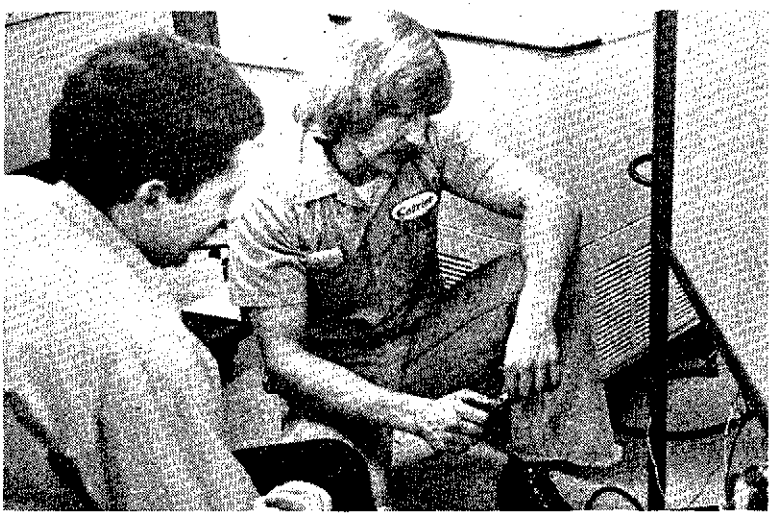
Prerequisite: Refrigeration 111, 124 and consent. RSES membership required

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: Refrigeration 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: Refrigeration 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.

RAC 214. CONTROL SYSTEMS.....5 credit hours

Prerequisite: Basic Controls 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: Control Systems 214. RSES membership required

An advanced, comprehensive study of the theory and applications of refrigeration and air conditioning control systems and devices; electromechanical, electronic and solid state. Problem-solving experiences are offered through operational sequencing examples and wiring diagrams on name brand systems such as Carrier, Trane, Climatrol, Honeywell, Penn, Westinghouse, Allen-Bradley, etc. (5 hours per week)

RAC 216. SYSTEMS LABORATORY.....5 credit hours

Prerequisite: Refrigeration and Air Conditioning Systems 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: Advisor's Consent

American National Standard B9 ASHRAE Standard and City of Ann Arbor Reciprocal Council.

RESPIRATORY THERAPY
(RTH 454)

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 THERAPY.....3 credit hours

Prerequisite: Introductory Chemistry 057 and 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: Basic Anatomy and Physiology 111, Chemistry for Respiratory Therapists

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 LAB AND RECITATION.....3 credit hours

Prerequisite: Basic Anatomy and Physiology III. Corequisite: Respiratory Therapy 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 THERAPY.....2 credit hours

Prerequisite: Basic Anatomy and Physiology III

A survey of drugs used to treat disease, with emphasis on drugs commonly used to treat cardiopulmonary disorders.

RTH 149. PATHOLOGY FOR RESPIRATORY THERAPY.....2 credit hours

Prerequisite: Biology 111 and Biology 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: Basic Equipment and Procedures 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: Ventilators and Diagnostic Tests 212 and Intensive Care 213 and Pathology 149 (can be taken concurrently)

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: Ventilators and Diagnostic Tests 212 and Intensive Care 213 and Pediatrics 219

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, cardiodiagnostic or burn medicine. (16 hours per week)

RTH 212. VENTILATORS AND DIAGNOSTIC TESTS..3 credit hours

Prerequisite: Basic Equipment and Procedures 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

Prerequisite: Chemistry 106 and Ventilators and Diagnostic Tests 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: Anatomy and Physiology 111 and 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 catherization, 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

Prerequisite: Basic Equipment and Procedures 121 and Respiratory Physiology 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 428)

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 intermediate typewriting 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: Foundations of Law 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: Foundations of Occupational Mathematics 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/ TRANSCRIPTION EQUIPMENT.....2 credit hours

Prerequisite: Word Processing 151 and high school typewriting proficiency or concurrent enrollment in intermediate typewriting or equivalent

An integrative approach to the study and use of modern dictation equipment designed to acquaint the student with the theory and principles of dictation 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: Word Processing 151 and high school typewriting profi-

ciency or concurrent enrollment in intermediate typewriting 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: Typewriting 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: Foundations of Law (Secretarial and Office 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: Typewriting 203 or equivalent

Designed for students who plan to specialize in the legal field. General objectives: familiarize students with legal terms and procedures, to ex-

pand 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: Word Processing 151, 152, 153 and high school typewriting proficiency or concurrent enrollment in intermediate typewriting 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: Typewriting 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: Word Processing Principles 151 and Word Processing Applications 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: Typewriting 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 advanced typewriting or equivalent

A practical study of the fundamental systems and procedures comprising the modern business offices. Emphasis on developing insights into the responsibilities of the office staff, personal qualifications, human relations factors and their essential relationship to the effective integration of all systems and procedures. Includes the study of filing and records management, telephone and telegraph communications and written reports. (4 hours per week, plus minimum of weekly machine room hours)

SOCIAL SCIENCE
(SS 350)

SS 105. WOMEN AND THE LAW.....1 credit hour

A look at the topics of credit, discrimination, employment, insurance, ERA. Empahsis 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. ADVANCED WOMEN AND THE LAW.....3 credit hours

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/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 ASSERTED 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.

SOCIOLOGY
(SOC 359)

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, adjustment of the individual to problems of everyday living, techniques of adjusting to conflict situations, emotions, perception, personality.

SOC 154. THE BLACK FAMILY.....3 credit hours

Structure and functions of the Black family as a dynamic social organization. An analysis of African roots, the impact of the slave experience on Black families in the America, 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 conceptual framework is Black urban history as a protracted struggle. Emphasis on Black ideological and institutional development.

SOC 250. JUVENILE DELINQUENCY.....3 credit hours

The growing-up process of late childhood and adolescence from a sociological and cultural viewpoint. Problems of the individual in his/her social environment, group forces which lead to maladjustment and sociological principles for working with youth from the viewpoint of parent, teacher, police and youth organization leader.

SOC 260. WOMEN IN TODAY'S WORLD.....3 credit hours

This course is designed to help students develop an awareness of woman's position in today's world and to identify the economic consequences of that position. Among topics included in discussion are: identity, marriage as a contract, legalities and economics of divorce, women in the work force, benefit programs, political action and women's legal status rights.

SOC 262. WOMEN'S HEALTH CARE.....3 credit hours

Patient's rights, malpractice, natural childbirth, menopause, birth control research, medical experimentation, prescription drugs, doctor/-patient relationship, breast self-exam, unnecessary surgery and other issues relating to medical care for women.

SOC 263. HEALTH CARE ISSUES.....3 credit hours

A practical study of the legal and ethical responsibility of health care providers. Course coverage includes: malpractice, negligence, medical ethics, federal and state laws governing medical practice, patient informed consent, medical experimentation, FDA and HEW guidelines and the consumer health movement.

SOC 264. ASSERTIVENESS TRAINING/WOMEN....3 credit hours

Teaches non-aggressive means of reducing fears, resolving conflicts, expressing likes and dislikes more fully, experiencing personal rights, increasing self respect.

SOC 266. MARRIAGE-DIVORCE.....3 credit hours

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

SPANISH
(SPN 307)

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 119. SPANISH LANGUAGE ADVENTURES.....1 credit hour

A course of independent study to be undertaken during any of the College field trip "Adventures" to Spanish speaking countries and their centers of culture. Students will live in the individual country for the duration of the "Adventure" visit and study first-hand the outstanding cultural attractions and practice Spanish throughout their stay.

SPN 120. BEGINNING SPANISH.....2 credit hours

Conversational in approach and assumes no previous knowledge of the language. Designed for persons interested in practicing the fundamentals of spoken Spanish to enhance their travel enjoyment in Spain and Latin America as well as to promote an appreciation of these exciting cultures. May be taken as a review for students already enrolled in the first year course.

SPN 121. INTERMEDIATE SPANISH.....2 credit hours

Prerequisite: Spanish 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: Spanish 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.....3 credit hours

Prerequisite: Spanish 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.....3 credit hours

Prerequisite: Spanish 213, its equivalent or consent

Continuation of Spanish 213 with special attention to Spanish literature.

SPEECH
(SPH 309)

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)

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 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 495)

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

Prerequisite: Technical Drawing 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.....3 credit hours

Prerequisite: Perspective and Parallel Projection 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: Technical Rendering 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: Perspective and Parallel Projection 100, Basic Drawing 111 and Basic Design 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: Technical Illustration 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: Basic Design 112, Basic Drawing 111 and Perspective and Parallel Projection 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: Commercial Rendering 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: Advertising Layout 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 497)

WF 100. FUNDAMENTALS OF WELDING.....2 credit hours

A basic combination welding course dealing with oxy-acetylenes and arc welding designed to meet the needs of students enrolled in Auto Body Repair, Auto Mechanics, Detailer Draftsman, etc. Typical applications made in a laboratory setting. (4 hours per week)

WF 101. ACETYLENE WELDING.....2 credit hours

Designed for students who need a knowledge of oxy-acetylene welding and a degree of skill required by industry. Primarily for students whose occupations are associated with welding. (4 hours per week)

WF 102. ARC-WELDING.....2 credit hours

An introductory course in arc welding covering theory and practice: proper procedures for various welding positions; both A.C. and D.C. welding is covered; electrode identification, classification and proper applications to typical operations. (4 hours per week)

WF 103. HELI-ARC WELDING.....2 credit hours

Instruction given in tungsten, inert gas, shielded arc-welding, with manually operated torch on such metals as aluminum, stainless and mild steels; includes theory directly related to the composition and properties of these metals. (4 hours per week)

WF 104. SOLDERING AND BRAZING.....2 credit hours

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

WF 106. WELDING FOR ELECTRICIANS.....3 credit hours

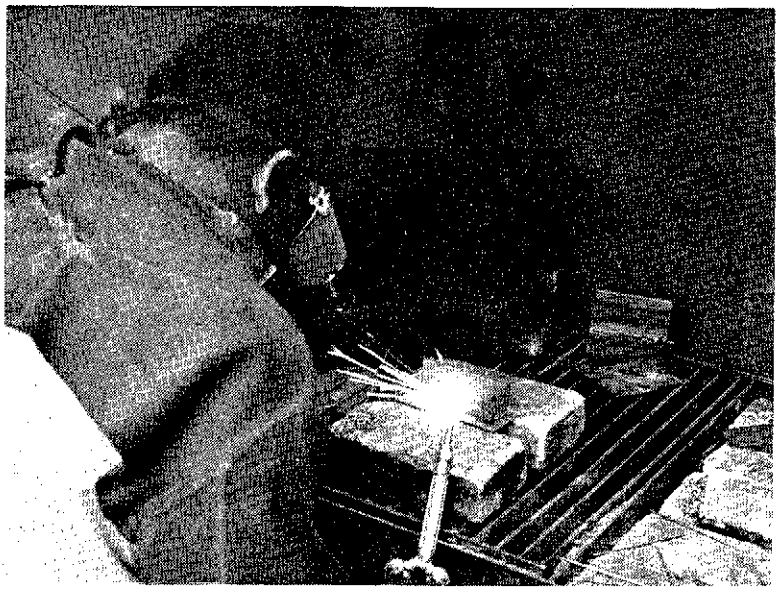
A basic course designed for electrical trade tasks. Electricians are given training in the proper usage and applications of welding equipment and related safety. This course includes fusion welding of steel, brazing, silver and soft soldering of copper and brass. (4 hours per week)

WF 108. WELDING/ELECTRICIAN.....3 credit hours

Course designed for electricians, masons, carpenters and other trade tasks. Necessary skills acquired for American Welding Certification enabling students to perform necessary welding functions on the job. (4 hours per week)

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: Welding and Fabrication 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: Welding and Fabrication 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 200. LAYOUT AND THEORY FOR WELDERS.....2 credit hours

Layout problem-solving for the welder including techniques using layout die, combination squares, protractors, center heads trammel, points, dividers and straight edges. Template making for pipe cutting and joining emphasized. A basic math review and the properties of a circle such as a radius, chords, and degrees of angularity for jobs done in the field included.

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)

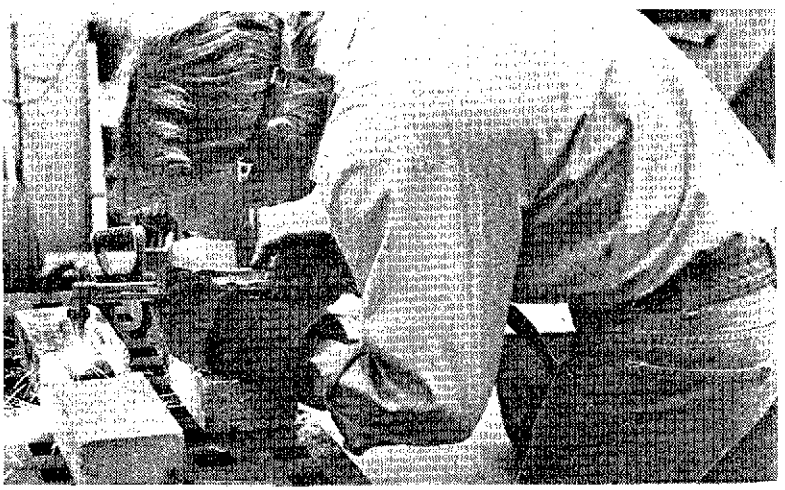
WF 221. APPLIED AUTOMOTIVE WELDING.....1 credit hour

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)



CAREER PROGRAMS

ACCOUNTING AND DATA PROCESSING CAREERS

Accounting

Two-Year Program: Code 521
Advisor: Paul C. Kokkales

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	GB 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 167	Finite Mathematics or	
	MTH 090	Fundamentals of Occupational Mathematics or Main 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
5	SPH 101	Fundamentals of Speaking	3
8	PLS 108	Government and Society	3
			15
	Third Term		
3	ACC 213	Intermediate Accounting	3
6	GA 111	Business Law	3
6	EC 211	Principles of Economics	3
2	GB 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

*Student may elect additional course in data-record operations.
**GB 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, John R. Wotring, James Burkett

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	GB 140	Business Occupational Foundations	3
1	DP 111A	Data Processing/Computer Concepts*	3
2	DP 111B	Data Processing/Computer Functions*	3
2	MTH 090	Foundations or Occupational Mathematics 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	
	GB 207	Business Communication (division consent required)	4
5	SPH 101	Fundamentals of Speaking	3
			16
	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	GB 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
			18

Total Credit Hours for Program: 68

*Meets 6 hours per week for 7½ weeks

Data Record Operation
One-Year Program: Code 532
Advisor: John R. Wotring

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
2	DP 111A	Data Processing/Computer Concepts	3
2	DP 111B	Data Processing/Computer Functions	3
1	GB 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 112B	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

AUTOMOTIVE SERVICE CAREERS

Automotive Body Service
Two-Year Program: Code 811
Advisors: Edward A. Cammet, Lester Jordan

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			14

	Spring/Summer		
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Alignment	2
			4
	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
			15
	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
			13

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 Body Repair Program
One-Year Program: Code 812
Advisors: Edward Cammet, Lester Jordan

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			12
	Spring/Summer		
5	ABR 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Alignment	2
			4

Total Credit Hours for Program: 31

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
			15
	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
			14
	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 Sequence Course	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 Tranmissions-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 MTH 100 (or higher).

Automotive Mechanics

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

Part-Time Sequence	Full-Time Sequence Course	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
5	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
5	AS 218	Tune Up and Emissions	4
			15

Total Credit Hours in Program: 30

BUSINESS CAREERS

Management

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.

	First Term		
1	GB 140	Business Occupational Foundations	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
5	GB 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	4
	ACC 092	Fundamentals of Accounting or	
5	ACC 122	Principles of Accounting	3
			19
	Third Term		
3	MGT 208	Principles of Management	3
4	MGT 250	Principles of Marketing	3
7	GB 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

*Student may elect additional courses in data-record operations.

MARKETING TECHNOLOGY

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	GB 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	GB 207	Business Communications or	
	ENG 111	English Composition or	
	ENG 122	English Composition	4
6	GB 111	Business Law	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
			19
	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

*Student may elect additional courses in data-record operations.

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	GB 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	GB 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 Sequence Course	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
			16
	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	4
	ENG 122	English Composition or Elective**	3
			16
	Third Term		
5	MGT 240	Personnel Management	3
4	ACC 091	Fundamentals of Accounting or	
	ACC 111	Principles of Accounting	3
4	GB 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
			18
	Fourth Term		
6	EC 111	Consumer Economics	3
5	ACC 092	Fundamentals of Accounting or	
	ACC 122	Principles of Accounting	3
6	GB 207	Business Communication	3
7	SOC 100	Principles of Sociology	3
8	IE 200	Internship-Externship or Elective**	3
			15

Total Credit Hours for Program: 65

*Student may elect additional courses in data-record operations.
**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

DENTAL AUXILIARY CAREERS

Dental Assisting

Two-Year Program: Code 711
Advisors: Betty Ladley, LaRuth Edwards-Martin

(The program requires four consecutive semesters and may be started in September or January)

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	DA 110	Introduction to Dental Assisting	3
1	DA 111	Dental Science	4
1	BIO 111	Basic Anatomy and Physiology	4
1	BIO 112	Basic Anatomy and Physiology Laboratory	1
6	ENG 111	English Composition or	
	ENG 091	English Fundamentals	4
			16
	Second Term		
2	DA 120	Oral Diagnosis Technique	2
2	DA 121	Introduction to Clinical Procedures	4
2	DA 122	Advanced Dental Science	4
2	DA 123	Dental Materials	2
2	SO 101	Typewriting* and	2
	SO 102	Elective in English, Speech, or Art**	3
			17
	Third Term		
5	DA 200	Dental Assistant Clinical Practice	5
3	DA 210	Principles of Dental Laboratory Procedures	4
3	DA 212	Dental Office Systems and Practice Management	5
3	DA 213	Dental Roentgenology	2
			16
	Fourth Term		
4	DA 214	Dental Roentgenology	2
6	DA 222	Dental Assistant Clinical Practice	5
6	PLS 108	Government and Society or	
	PLS 150	State and Local Government	3
		Elective in Psychology, Sociology, History**	3–4
		Elective in Chemistry, Mathematics, Geology or Physical Science**	3–4
			16–17

Total Credit Hours for Program: 65-66

*A student who has had one year of typing may elect a course of his choice.
**Electives subject to approval of advisor.
A student must maintain a minimum of a "C" grade in each major field course to qualify for graduation and meet the standards of the National Certification Examination.

DRAFTING AND CONSTRUCTION TECHNOLOGY CAREERS

Architectural Drafting

Two-Year Program: Code 821
Advisors: David Byrd, Michael Pogliano

Part-Time Sequence	Full-Time Sequence Course	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 111	English Composition	4
			18
	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
			17
	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	3
			17
	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
			14

Total Credit Hours for Program: 66

Architectural Drafting Detailing

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	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

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
			16
	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
			17
	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
			19
	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
			15

Total Credit Hours for Program: 67

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

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
			16
	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
			17
	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
			19
	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*	2
			16

Total Credit Hours for Program: 68

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

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
			16
	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
			17

Total Credit Hours for Program: 33

Construction Technology (Wood, Plastics, Metal)

Two-Year Program: Code 828

Advisors: David Byrd, Clarence Helzerman

Part-Time Sequence	Full-Time Sequence Course	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	3
			14
	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
			11
	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
			12
	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
			14
	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
			12

Total Credit Hours for Program: 63

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	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 Sequence Course	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

ELECTRICITY AND ELECTRONICS CAREERS

Electrical Engineering Technology

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	EE 110	Electrical Applications	4
1	EE 111	Electrical Fundamentals	2
5	ID 100	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
			18
	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
			17
	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
			16
	Third (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
			16

Total Credit Hours for Program: 67

Electronic Engineering Technology

Two-Year Program: Code 832

Advisors: Albert Robinson, Roger Collard, Kenneth Wheeler, Johnny Williams

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	EE 110	Electrical Applications	2
1	EE 111	Electrical Fundamentals	4
6	ID 100	Technical Drawing or	
	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 Electronics	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

Electrical Equipment Repair

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

Part-Time Sequence	Full-Time Sequence Course	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
			18
	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
			17

Total Credit Hours for Program: 35

Electronic Service Technology

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

Part-Time Sequence	Full-Time Sequence Course	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
			18
	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
			17
	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
			15
	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	
	PLS 108	Government and Society	3
			17

Total Credit Hours for Program: 67

Digital Equipment Technology Program

Two-Year Program: Code 835

Advisors: Albert D. Robinson, Roger S. Collard

Part-Time Sequence	Full-Time Sequence Course	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
			17
	Second Term		
2	EE 122	Electrical Fundamentals	4
2	EE 120	Electrical Applications	2
2	PLS 108	Government and Society	3
3	EE 211	Basic Electronics	4
			13
	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
			15
	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
			15

Total Credit Hours for Program: 60

FOOD AND HOSPITALITY CAREERS

Culinary Arts

Two-Year Program: Code 641
Advisors: James Beaton, Dallas Garrett, Jillaine Beauchamp

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			15
	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
			14
	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
13	CUL 199	On-the-Job Training—20 hours per week, 15 weeks	3
12	DP 100	Introduction to Computers (7½ weeks)	3
			16–17

Total Credit Hours for Program: 67–68

Food Services

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

Part-Time Sequence	Full-Time Sequence Course	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
			15
	Second (Winter) Term		
5	CUL 122	Quantity Food Preparation	6
3	ENG	English Elective	3
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)
			15–16
	Third (Spring) Term		
6	CUL 227	Advanced Culinary Arts Techniques or	6
6	DP 100	Introduction to Computers and	3
	HMT 100	Service Industry Accounting	3
			6

Total Credit Hours for Program: 36–37

Hotel/Motel Management

Two-Year Program: Code 661

Advisors: James Beaton, Don Garrett, Jillaine Gannon

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			17
	Third (Spring) Term		
9	PSY 100	Introduction to Psychology	3
9	PLS 108	Government and Society	3
			6
	Fourth (Fall) Term		
7	CUL 120	Organization and Management	3
7	CUL 150	Dining Room Management	6
10	DP 100	Introduction to Computers	3
			12

	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
			13

Total Credit Hours for Program: 63

INDUSTRIAL TECHNOLOGY CAREERS

Fluid Power Technology

Two-Year Program: Code 841
Advisor: George Agin

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			15
	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
			18
	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
			17

Total Credit Hours for Program: 65

Hydraulic Assembly

One-Year Program: Code 842
Advisor: George Agin

Part-Time Sequence	Full-Time Sequence Course	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 Sequence Course	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
			15

Total Credit Hours for Program: 66

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	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
			17
	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	3
			16

Total Credit Hours for Program: 33

Electro-Mechanical Technology
Two-Year Program: Code 854
Advisors: Dallas Garrett, Roger Dick

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
3	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
			18
	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
			18

	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
			16
	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
			16

Total Credit Hours for Program: 68

Numerical Control Technology

Two-Year Program: Code 871
Advisor: Dallas Garrett

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			18
	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	MTH 187	Fortran Programming	3
			16
	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
			17

Total Credit Hours for Program: 66

*Electives as Recommended by Advisor

Numerical Control Machine Operation

One-Year Program: Code 872
Advisor: Dallas Garrett

Part-Time Sequence	Full-Time Sequence Course	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
			15
	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
			18

Total Credit Hours for Program: 33

Welding and Fabrication Technology

Two-Year Program: Code 891
Advisors: Daniel Gray, Lester Morgan, William Figg

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	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
			18
	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
			15

	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
			16
	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	4
	MTH 154	Layout Math	3
9	PLS 108	Government and Society	3
			16–17

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 Sequence Course	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
			18
	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
			15

Total Credit Hours for Program: 33

NURSING CAREERS

Practical Nursing

One-Year Program: Code 760

Advisors: Phyllis Grzegorczyk, 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.

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	English Elective	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 II	2
		14
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

**PSY 100—Introduction to Psychology is an equivalent course.

Sequence II

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

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 8 weeks)	2
NUR 120	Medical-Surgical Nursing Practice	3
NUR 122	Pharmacology II (first 8 weeks)	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 7 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
		14

Total Credit Hours for Program: 49

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.

PUBLIC SERVICE CAREERS

Fire Protection

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

Part-Time Sequence	Full-Time Sequence Course	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
			17
	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
			15
	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
			14
	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
			15

Total Credit Hours for Program: 61

Child Care

Two-Year Program: Code 640
Advisor: Phillip A. Ludos

Part-Time Sequence	Full-Time Sequence Course	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
			16
	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
			15
	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
			15

	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
			15

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 Sequence Course	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
			16
	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
			15
	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
		One of the following:	
		History	
		Political Science	
		Economics	
		Logic	3
			15

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
			15

Total Credit Hours for Program: 61

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

RADIOLOGIC TECHNOLOGY CAREERS

Radiologic Technology

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	3
BIO 112	Anatomy and Physiology Laboratory	1
BIO 105	Medical Terminology	2
		13
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: 71

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 CAREERS

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
		15
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
		14
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
		13
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
		14
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	4
		17

Total Credit Hours for Program: 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

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	2
		8
Second Term		
EM 103	EMT Principles II	2
EM 104	EMT Techniques II	2
EM 106	EMT Clinical Practicum	1
		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.

SECRETARIAL AND OFFICE CAREERS

Secretary

Two-Year Program: Code 561

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	SO 101	Typewriting and/or Elective* (102, 203)	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
			16-17
	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
			15
	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
			18
	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
			16

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
GB 122	Business Law
MGT 230	Office Management
DP 111D	Data Processing/Programming B.A.S.I.C.

Clerk-Typing

One-Year Program: Code 562

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
1	SO 101	(102, 203) Typewriting and/or Elective*	3
3	GB 140	Business Occupational Foundations	3
3	MTH 090	Foundations of Occupational Mathematics or Mathematics Elective	3
4	ENG 091	English Fundamentals or	
	ENG 111	English Composition	4
		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.)

Medical Secretary

Two-Year Program: Code 731

Advisor: Jerry Patt

Part-Time Sequence	Full-Time Sequence Course	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	3
2	HS 113	Introduction to Medical Science	2
3	BIO 105	Medical Terminology	2
4	MTH 090	Occupational Mathematics	3
			16
	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	

		Data Processing Programming, or BASIC 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
			15-16
	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	3
			16

Total Credit Hours for Program: 62-64

Legal Secretary

Two-Year Program: Code 563

Advisors: Jerry Patt, Evylyn Wilson

Course	Description	Hrs.
First Term		
SO 102	Typewriting	3
DP 100	Data Processing or	3
SO 151	Word Processing	(3)
ENG 111	English Composition or	4
ENG 091	English Fundamentals	3
SO 110	Foundations of Law	4-3
SO 131	Shorthand 132, 133, 203 or	(2)
SO 141	Machine Shorthand	15-17
Second Term		
SO 203	Typewriting	3
SO 132	Shorthand or	3
SO 142	Machine Shorthand	(2)
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	3
SO 243	Machine Shorthand	(2)
SO 213	Legal Typewriting	3

SO 130	Business Machines	3
ACC 111	Principles of Accounting or	3
ACC 091	Fundamentals of Accounting	(3)
SO 212	Legal Research	3
		14-15

Fourth Term

SO 231	Shorthand 232 or	3
SO 244	Machine Shorthand	(2)
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	3
MGT 230	Office Management or Business Elective	(3)
		15-16

Total Credit Hours for Program: 61-66

Word Processing

Two-Year Program: Code 564

Advisors: Jerry Patt, Eleanor Charleton, Evylyn Wilson, Wanda Burch

Course	Description	Hrs.
First Term		
SO 151	Word Processing Principles	3
SO 102	Typewriting 203 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
		16
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
		16
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
		16
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
			15

Total Credit Hours for Program: 63

*Suggested business electives via program advisor consultation:
SO 130 Business Machines
SO 107 Clerical Methods and Procedures

VISUAL ARTS TECHNOLOGY CAREERS

Commercial Art

Two-Year Program: Code 882
Advisor: John Martin

Part-Time Sequence	Full-Time Sequence Course	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.

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

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
	First Term		
2	TCA 110	Lettering and Layout	4
1	ART 111	Basic Drawing	3
2	ID 100	Technical Drawing or	
	ID 111	Industrial Drafting	4
1	BPR 100	Blueprint Reading for Construction Trades or	
	BPR 101	Blueprint Reading	2-3
1	MTH 090	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.

Photographic Technology
Two-Year Program: Code 885
Advisors: J. Raymond Steinbach, J. David Patterson

Part-Time Sequence	Full-Time Sequence Course	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
			17
	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
			17
	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	3
3	MGT 209	Small Business Management	3
			16
	Fourth Term		
9	PHO 229	Freelance Operations	3
8	PHO 230	Specialized Studies in Photography	2-4
9	PHO 231	Portfolio Seminar	3
7	PSY 150	Industrial Psychology	3
			11-13

Total Credit Hours for Program: 61-63

Photographic Technology (Marketing Option)

Two-Year Program: Code 887

Advisors: J. Raymond Steinbach, J. David Patterson

Part-Time Sequence	Full-Time Sequence Course	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
			17
	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
			17

	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
			16
	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
			15

Total Credit Hours for Program: 65

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

Photographic Assisting

One-Year Program: Code 886

Advisors: J. Raymond Steinbach, J. David Patterson

Part-Time Sequence	Full-Time Sequence Course	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
			17
	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
			17

Total Credit Hours for Program: 34

APPRENTICE AND EMPLOYEE TRAINING AND TRADE RELATED INSTRUCTION

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.

Journeyman Engineering Technician

Associate Degree Program: Code 990
Advisor: Robert Jackson

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

- Drafting
- Electrical
- Fluid Power
- Management
- Metallurgy
- Construction
- 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

Advisor: Robert Jackson

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.

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.

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
MLG 215	Heat Treat Processes	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.

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.

Machine Repair Apprentice
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 Apprentice Committees.

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.

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.

Millwright Apprentice
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.

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.

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.

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.

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.

Refrigeration Mechanic Apprentice
Code 943
Advisor: Robert Jackson

Part-Time Sequence	Full-Time Sequence Course	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.

Quality Control Technology
Two-Year Program: Code 944
Advisor: Robert Jackson

Core Courses

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
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 255	Quality Control Management	3
6	QC 266	Introduction to Nondestructive Testing or Computer Science	3
			18

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
		60

60 credit hours minimum required

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

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
		61

60 credit hours minimum required

Approoriate 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 reaidng, and shop terminology. If there are deficiencies in these subject areas, additional courses may be recommended.

Specialty Option

Course	Description	Hrs.
QC	Core Courses	18
	Electives	36
PLS 150	State and Local Government and Politics	3
ENG 111	English Composition or	
ENG 100	Technical Communications	4
		61

60 credit hours minimum required

Purpose of specialty is to meet the needs of students working in diverse fields of Quality Control.

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

Inspection—Quality Control

One-Year Program: Code 946
Advisor: Robert Jackson

Part-Time Sequence	Full-Time Sequence Course	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
3	MLG 122	General Metallurgy	4
			18
	Second Term		
2	MLG 217	Mechanical Testing	2
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
			15

Total Credit Hours for Program: 33

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

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
		64

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	Applicance 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
		64

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
		66

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
		67

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
		62

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
		62

Automobile Service Supplies and Equipment

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

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
		68

Construction and Building Supplies Option

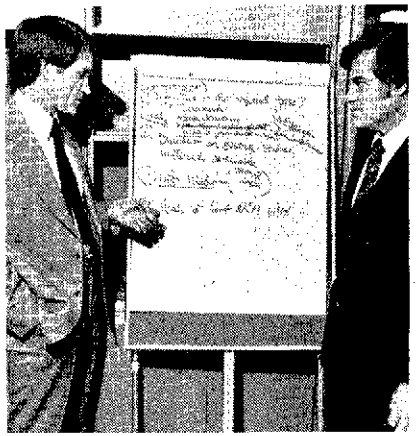
Course	Description	Hrs.
	Core Courses	31
BPR 100	Blueprint Reading—Construction	2
BPR 110	Blueprint Reading—Construction	2
ARC 109	Site Layout	3
ARC 117	Construction Materials	3
CT 121	Carpentry	4
CT 221	Carpentry	4
CT 131	Electric Power Supply	4
		4

CT 171	Cabinet Making	
CT 242	Crafts in Wood, Plastics, and Metals	4
CT 111	Fundamentals of Painting and Decorating	4
		65

Refrigeration, Heating, Air Conditioning Equipment and Supplies

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
		66

PERSONNEL



BOARD OF TRUSTEES

Member	Term Expires
Anthony J. Procassini, *Chairperson* Ann Arbor	December 31, 1980
Ann C. Kettles, *Vice Chairperson* Ypsilanti	December 31, 1984
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James W. Anderson, Jr., *Treasurer* Ann Arbor	December 31, 1984
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Henry S. Landau, *Trustee* Ann Arbor	December 31, 1982
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WCC Board of Trustees: Front Row: James W. Anderson, Jr.; Richard W. Bailey; Anthony J. Procassini; Ann C. Kettles. Second Row: Henry S. Landau; Judy Shelton; Richard L. Boyd.

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**
Vice President
B.Ed.—University of Alberta
M.A.—Michigan State University

Pollock, David S. **1966**
Assistant to the President for Community Relations
A.B.—The University of Michigan
M.A.—Eastern Michigan University

Brengle, Geraldine H. **1966**
Administrative Assistant, President's Office
Tiffin University
Washtenaw Community College
The University of Michigan

Braun, George, J., Jr. **1969**
Coordinator, Advanced Institutional Development Program
A.B.—The University of Michigan
M.B.A.—The George Washington University
Registered School Business Official—A.S.B.O.

Arcure, Catherine **1979**
Community Relations Assistant
B.A.—The University of Michigan

INSTRUCTION

Lederer, Norman **1977**
Dean, Occupational and General Education
B.S.—University of Wisconsin
M.A.—Lousiana State University
Rice University

Bertoia, Roger R. **1966**
Associate Dean, Occupational Education
B.S.—The University of Michigan
M.S.—The University of Michigan

Hackney, Larry, H. **1973**
Associate Dean, Evening Programs
B.A.—Tennessee State University
M.A.—The University of Michigan
Ph.D.—The University of Michigan

Thomson, Mehran, Jr. **1966**
Associate Dean, General Education
B.A.—Eastern Michigan University
M.B.S.—University of Colorado

Bickner, Robert **1979**
Coordinator, Indo-Chinese Education Program
B.A.—Catholic University of America
M.A.—The University of Michigan

Diggs, Kathryn **1979**
Director, Curriculum Development
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

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

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

Wolven, Frederick F. **1966**
Director, Instructional Services
A.B.—Central Michigan University
M.A.—Central Michigan University

STUDENT SERVICES

Jones, James A. **1966**
Dean, Student Services
B.A.—Southern Illinois University
M.A.—Southern Illinois University

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

Jones, Lola M. **1974**
Adult Resources Coordinator
A.B.—Wayne State University
M.S.W.—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

Fortner, Janis **1978**
Technician, Career Placement
A.D.—Monroe County Community College
B.A.—Eastern Michigan University

Frye, Iota H. **1975**
Financial Aids Officer
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University

Heliner, 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**
Nurse/Health Service
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.—Estern Kentucky University
M.A.—Eastern Kentucky University

LEARNING RESOURCES CENTER

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

Phibbs, John **1969**
Technician, Instructional Media
A.D.—Washtenaw Community College
B.B.A.—Eastern Michigan University

Scott, Adella **1975**
Librarian
A.B.—The University of Michigan
M.A.L.S.—The University of Michigan

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

Kooi, Lucy A. 1977
Computer Programmer Analyst
A.B.—The University of Michigan
Washtenaw Community College

Merrill, Martha 1979
Planning Assistant
B.A.—The University of Michigan
M.A.—The University of Michigan

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
Ohio University
Washtenaw Community College

ACCOUNTING AND DATA PROCESSING

Finkbeiner, Charles A. 1975
Coordinator, Data Processing/Acctg./General Business

A.D.—Washtenaw Community College
B.S.—The University of Michigan
M.S.—The University of Michigan

Brukett, James **1978**
Data Processing
B.A.—Kent State University
M.S.—University of Miami

Kokkales, Paul C. **1966**
Accounting
B.S.—Eastern Michigan University
M.A.—The University of Michigan

Wotring, John R. **1969**
Data Processing
B.A.—University of Philippines

AUTOMOTIVE SERVICE

Brown, Eugene **1977**
Coordinator, Automotive Service
A.D.—Washtenaw Community College
B.S.—The University of Michigan

Barron, Kenneth E. **1966**
Automotive Service
B.S.—Central Michigan University
Certified General Auto Mechanic

Cammet, Edward **1975**
Automotive Body Repair
Army Mechanic School
Ford Motor Institute
Bear Frame School
Ditzler Paint Instructors School
Martin Senour Refinishing School

Hopper, Thomas W. **1967**
Automotive Service
Certificate—Army Mechanic School
Ford Motor Institute

Jordan, Lester **1979**
Automotive Body Repair
B.A.—Eastern Michigan University

Mann, John B. **1971**
Automotive Service
Washtenaw Community College
B.S.—Eastern Michigan University
M.A.—The University of Michigan

McGlinchey, Michael L. **1978**
Technician, Automotive Service
B.S.—Eastern Michigan University

M.A.—Eastern Michigan University
M.S.—Eastern Michigan University

Weid, Richard **1979**
Automotive Service
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University
M.S.—Eastern Michigan University

BEHAVIORAL SCIENCES

Kollen, G. Michael **1969**
Coordinator, Psychology
B.A. Knox College
M.A.—New Mexico Highlands University
M.A.—The University of Michigan

Bylsma, Donald Jr. **1966**
Sociology
B.S.—Wayne State University
M.S.—Wayne State University
Ph.D.—The University of Michigan

Campbell, Benjamin I. **1968**
Psychology
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

Zeeb, Ronald E. **1968**
Marketing/General Business
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University

DENTAL AUXILIARY

Ladley, Betty A. **1969**
Coordinator, Dental Assisting
A.A.—Grand Rapids Junior College
C.D.A.—American Dental Assistants' 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
University of Detroit
B.S.—Shaw College of Detroit

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

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

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

Russell, Dean A. **1966**
Electricity/Electronics
B.S.—Easten 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, Reading
A.B.—The University of Michigan
M.A.—The University of Michigan

Allen, Jacqueline **1978**
Technician, Writing Workshop
B.A.—Case Western Reserve University

Cherniak, William **1966**
English
B.A.—University of Western Ontario
A.M.—The University of Michigan
Ed.D.—The Univesity 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

Daisher, Nollie, M. **1968**
English
B.S.—Wayne State University
M.S.—Syracuse University
Ed.D.—Wayne State University
The University of Michigan
Wayne State University

Fritts, Ruth **1968**
English
B.A.—The University of Michigan
Gaughan, John T. **1968**
English
B.A.—St. Mary's College
B.S.—St. Mary's College
M.A.—Eastern Michigan University
Hunt, Barbara **1968**
English
B.A.—University of Toledo
M.A.—The University of Michigan
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**
Art
B.A.—Yale University
B.F.A.—Yale University
M.F.A.—The University of Michigan

Lawrence, Morris J. **1969**
Music
Certificate—Straight Business College
B.S.M.E.—Xavier University
M.M.—The University of Michigan
Ph.D.—Bernadean University

McClatchey, Merrill W. **1966**
Speech/Humanities
B.A.—Wayne State University
M.A.—Columbia University

Radick, Lawrence J. **1966**
French/Art
B.A.—Michigan State University
M.A.—Michigan State University
Certified Flight Instructor, ASELS

Salerno, Douglas **1969**
Speech
B.A.—Western Michigan University
M.A.—Western Michigan University
M.A.—The University of Michigan

Stotland, Dorothy E. **1968**
English
A.B.—The University of Michigan
M.A.—The University of Michigan
The University of Washington

Zenian, Paul **1968**
Art
B.S.—The University of Michigan
M.F.A.—The University of Michigan

INDUSTRIAL TECHNOLOGY

Garrett, Dallas O. **1967**
Coordinator, Numerical Control/Mechanical Technology
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**
Biology
B.A.—Ohio Northern University
M.A.—Syracuse University

Grossman, Esta **1975**
Biology
B.A.—Pembroke College in Brown University
M.A.—The City College of the City University of New York

Niehaus, Paul J. **1966**
Biology
B.A.—Eastern Michigan University
M.S.—The University of Michigan

Slepsky, Lawrence **1968**
Physical Education
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University
Ed.S.—Eastern Michigan University

Tatar, George D. **1968**
Biology
B.S.—The University of Michigan
M.S.—The University of Michigan

MATHEMATICS

Mealing, Percy **1966**
Coordinator, Mathematics
B.A.—Talladega College
M.A.—The University of Michigan

Bila, Dennis W. **1969**
Mathematics
B.S.—Central Michigan University
M.A.—Wayne State University

Bottorff, Ralph S. **1966**
Mathematics
B.A.—University of Northern Iowa
M.A.—University of Illinois
Ph.D.—The University of Michigan

Daehler, A. Arden **1968**
Physics/Mathematics
B.S.—University of Colorado
M.A.—Eastern Michigan University

Dowding, Tasman A. **1967**
Mathematics
B.S.—Kent State University
Ed.M.—Kent State University
Journeyman-Carpenter

Goldberg, David **1977**
Mathematics/Science
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

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

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

PRACTICAL NURSING

Grzegorczyk, 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

Beaubien, Mary **1979**
Technician, Practical Nursing
B.S.N.—Wayne State University

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

VanHouten, Lee Ann **1979**
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

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

Redick, Martin **1978**
Coordinator, 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)
Hammond, Carl F. **1967**

Respiratory Therapy
B.S.—Eastern Michigan University
M.S.—The University of Michigan
RRT (National Board for Respiratory Therapy)

Yonutas, David **1979**
Technician, Respiratory Therapy
B.S.—The University of Michigan
M.S.—Michigan State University
Certified Respiratory Therapist

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, Evylyn 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**
History
B.A.—University of North Carolina
M.A.—Xavier University

Miller, Louis R. **1969**
Political Science
B.S.—Eastern Michigan University
A.M.—The University of Michigan

Reps, Flavia, P. **1966**
History/Western Civilization
B.A.—St. Joseph College
M.A.—Georgetown University

Thomas, Ervin L. **1969**
Anthropology/—Philosophy/Sociology
B.A.—Wayne State University
M.A.—Wayne State University

Vass, Steven T. **1967**
Economics
B.S.—Academy of Military Science
B.S.Ed—Black Hills State College
M.A.—The University of Michigan
Ph.D.—The University of Michigan

Whiteford, Priscilla S. **1971**
Anthropology
B.A.—Western Michigan University
M.A.—The University of Michigan

VISUAL ARTS TECHNOLOGY

Patterson, J. David **1977**
Coordinator, Photography
Kent State University
Eastern Michigan University
The University of Michigan

Martin, John W. **1968**
Commercial Art/Technical Illustration
Certificate—Miensinger Art School
Certificate—Arts and Crafts School
A.A.—Macomb County Community College

Steinbach, J. Raymond **1969**
Photography
B.S.—Michigan State University

Yank, Terry L. **1978**
Technician, Photography
B.F.A.—Center for Creative Studies, College of Art and Design

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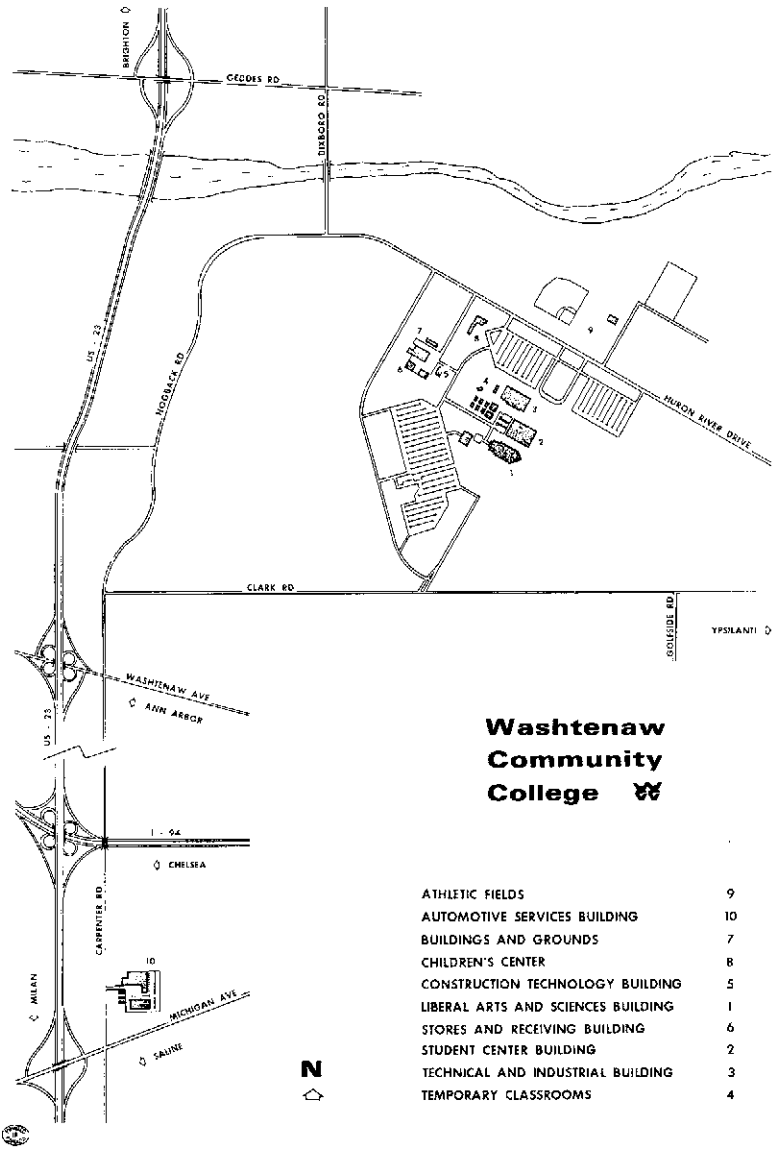

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