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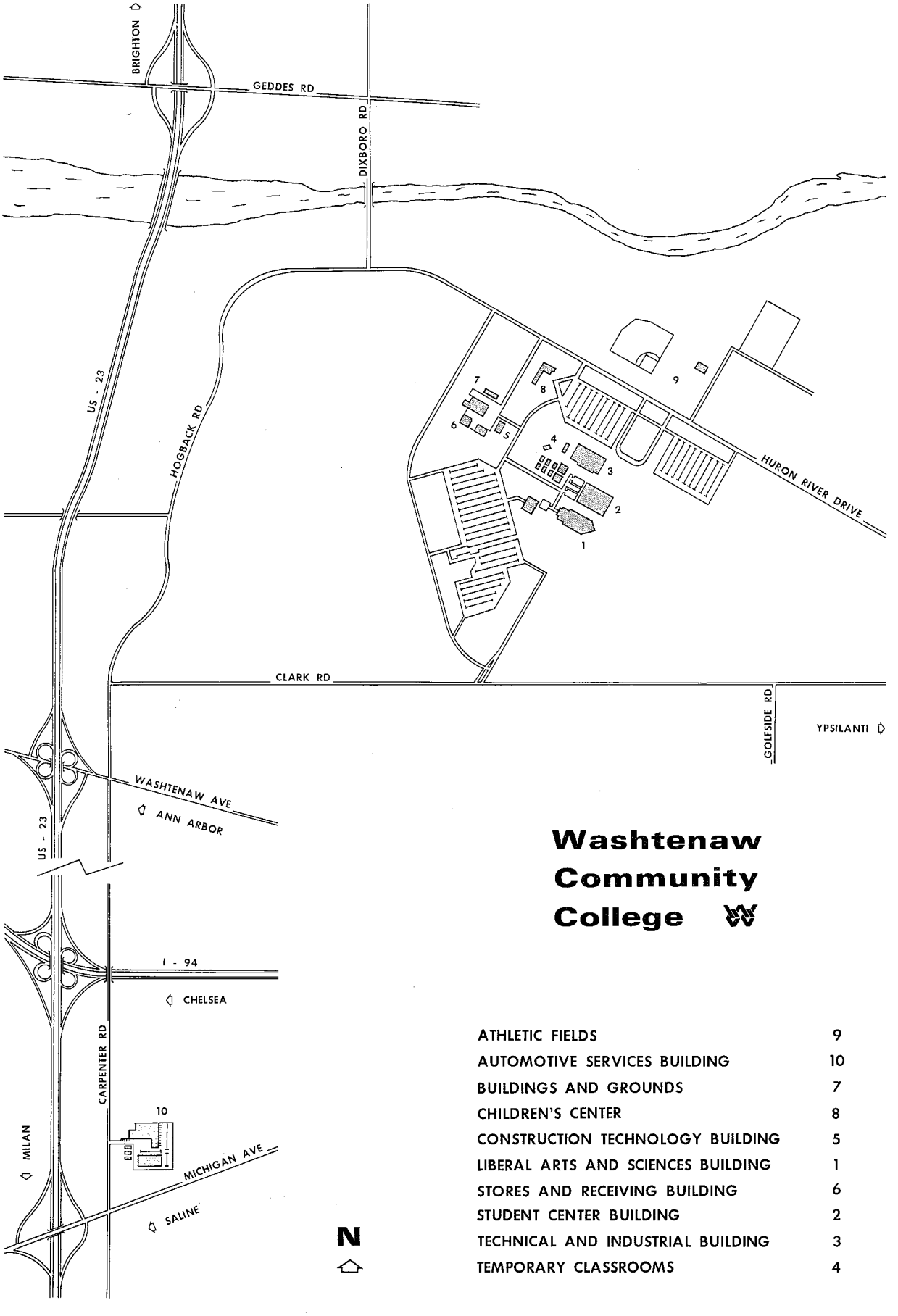
WASHTENAW COMMUNITY COLLEGE BULLETIN

ANN ARBOR, MICHIGAN

VOL 9 ISSUE 1 MARCH 1979



Washtenaw Community College

ATHLETIC FIELDS	9
AUTOMOTIVE SERVICES BUILDING	10
BUILDINGS AND GROUNDS	7
CHILDREN'S CENTER	8
CONSTRUCTION TECHNOLOGY BUILDING	5
LIBERAL ARTS AND SCIENCES BUILDING	1
STORES AND RECEIVING BUILDING	6
STUDENT CENTER BUILDING	2
TECHNICAL AND INDUSTRIAL BUILDING	3
TEMPORARY CLASSROOMS	4

Washtenaw Community College

4800 EAST HURON RIVER DRIVE

ANN ARBOR, MICHIGAN 48106

TELEPHONE: (Area Code 313) 973-3300

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Table of Contents

Washtenaw Community College

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

COLLEGE INFORMATION

Use of This Catalog

The information contained in this catalog is designed to assist our students and potential students, local community members and area school staffs, especially counseling personnel, to better understand Washtenaw Community College. Contained in the College Information section is a short history of the College, a message from the President, a statement of the purpose and mission of the College, along with a photographic view of the institution.

Details on admission, financial aid, student services and activities, and registration are included in the Student Information section and an Application for Admission form is located on the final page of the catalog.

Washtenaw Community College offers a wide range of programs of study and an extensive list of specific courses of instruction. All formal programs of study are included in the Student Program section. Programs are arranged in groups of related fields of study. This should promote student browsing for programs to match personal interest and at the same time provide complete details concerning program and degree requirements.

For ease in finding specific programs consult the Program Index or the comprehensive Catalog Index, both located in the back of this catalog.

Courses are listed alphabetically and in numerical order in each instructional area listing in the Course Description section. Special requirements for admission to a course are stated after the word *prerequisite*.

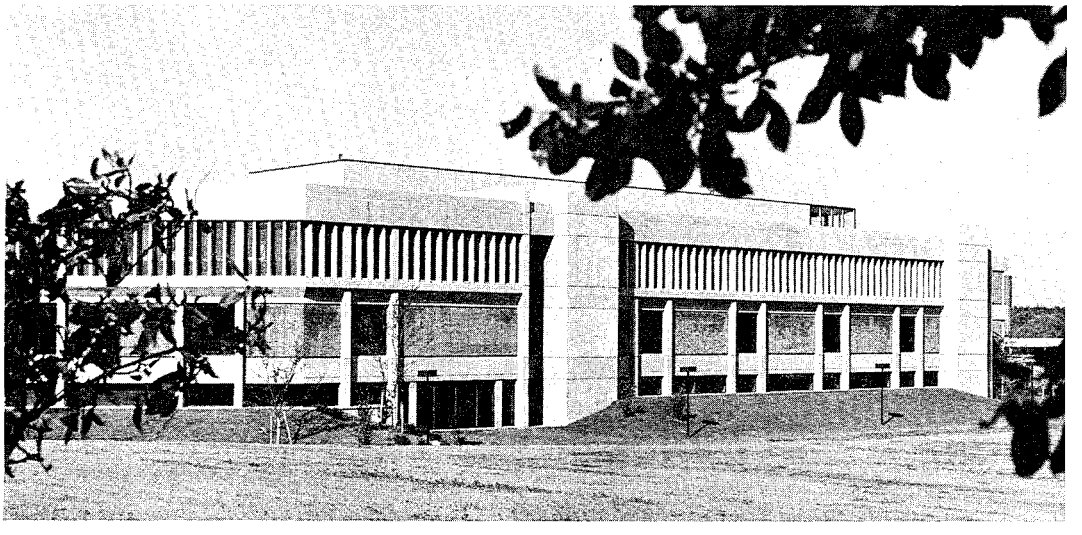
An alpha code is used in the program listing of courses and to identify each instructional area in the course description section (i.e., English, ENG; ENG 111). The following list of standard abbreviations is used as the alpha code:

Accounting (ACC)
Anthropology (ANT)
Architectonics (ARC)
Art (ART)
Assessment Administration (A A)
Astronomy (AST)
Auto Body Repair (ABR)
Automotive Service (A S)
Biology (BIO)
Black Studies (B S)
Blue Print Reading (BPR)
Broadcasting (BRC)
Business (G B)
Chemistry (CEM)
Child Care Worker (CCW)
Computer Science (CPS)
Construction Technology (C T)
Criminal Justice (C J)
Culinary Arts (CUL)
Data Processing (D P)
Dental Assisting (D A)
Economics (E C)
Electricity/Electronics (E E)
Emergency Medical Technology (EMT)
English (ENG)
Film (FLM)
Fire Protection (F P)
Fluid Power (FLP)
French (FRN)
Geography (GEO)
Geology (GLG)
German (GER)
Heating (HTG)
History (HST)
Hotel-Motel Management (HMT)
Humanities (HUM)
Industrial Drafting (I D)
Internship-Externship (I E)
Journalism (JRN)
Management and Marketing (MGT)
Mathematics (MTH)
Mechanical Technology (M T)
Metallurgy (MLG)
Music (MUS)
Numerical Control (N C)
Nursing-Practical (NUR)
Philosophy (PHL)
Photography (PHO)
Physical Education (P E)
Physics (PHY)
Political Science (PLS)
Psychology (PSY)

Quality Control (Q C)
Radiologic Technology (R T)
Reading (RDG)
Refrigeration/Air Conditioning (RAC)
Respiratory Therapy (RTH)
Secretarial and Office (S O)
Sociology (SOC)
Spanish (SPN)
Speech (SPH)
Technical and Commercial Art (TCA)
Welding and Fabrication (W F)

Important College Telephone Numbers

General Information	(313) 973-3300
Admissions	973-3543
Athletics Office	973-3440
Auto Service Building	434-1555
Counseling Center	973-3464
Dean of Occupational and General Education	973-3493
Dean of Student Services	973-3500
Financial Aids Office	973-3525
President's Office	973-3491
Registration	973-3548
Security	973-3502
Ypsilanti Center	482-2230



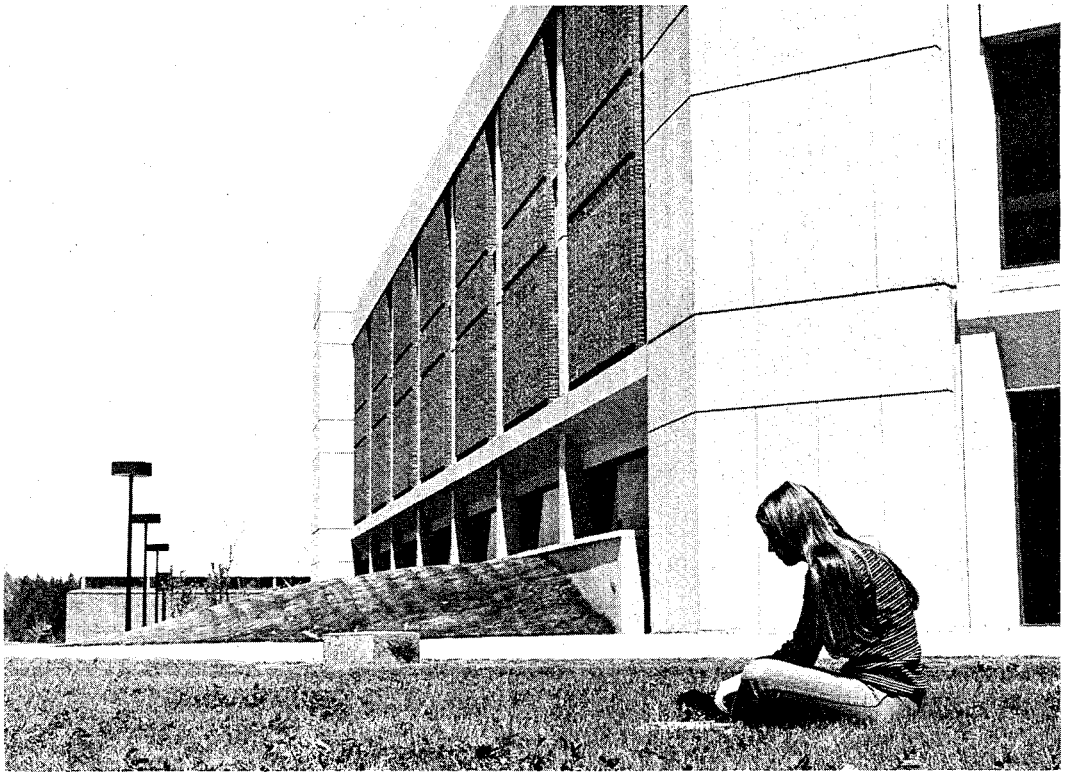
Disclaimer

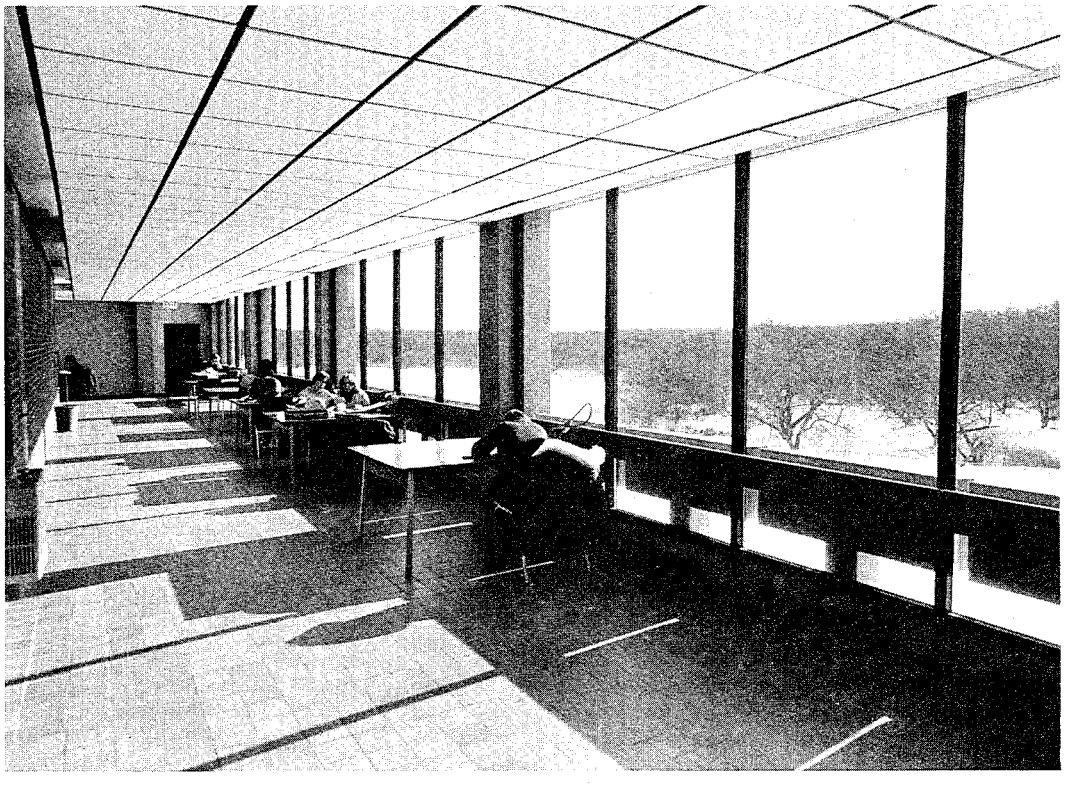
This document is for information purposes only and is not to be construed as a contract between the College and the student.

This document was prepared on January 20, 1979 and is subject to change without prior notice.

This *Bulletin* (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.





A Brief History of the College

Washtenaw Community College was created in 1965 when the citizens of Washtenaw County followed the recommendations of a special study group and voted financial support for its establishment. A Board of Trustees was elected and a nation-wide search for administrators and faculty was initiated while a study to look for a permanent campus was begun.

The Board decided to open the college and begin construction in September, 1966. A 100-day push to prepare temporary facilities in the Willow Run Village area of Ypsilanti Township began. The first students were enrolled on September 12, 1966, and in the first semester 1200 students signed up for some 30 different occupational programs and transfer courses.

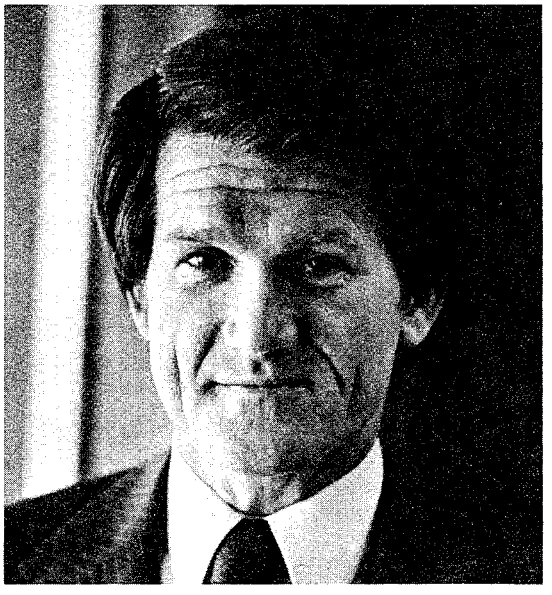
Classes opened in Willow Run Village in an old elementary school, a fire station that once protected the frame barracks of assembly-line workers who were employed at the Willow Run B-24 bomber plant, and a bowling alley which had originally been used by defense plant workers. Students in automotive programs took courses in a one-time dairy distribution plant, while those in health programs were taught in the basement of a church in downtown Ann Arbor.

The completion of the Technical and Industrial Building and the Liberal Arts and Sciences Building in 1969 marked the opening of the permanent campus between Clark Road and Huron River Drive, near Ann Arbor. A growing student population made the addition of 25 temporary classroom buildings necessary in 1970, and the Student Center Building opened in 1976.

The Automotive Services Building, 5115 Carpenter Road, was completely remodeled and modernized in 1975, and the Automotive Services Annex is presently being constructed.

An off-campus center was established in 1975 in Ypsilanti for extension classes, workshops, seminars, and counseling. Classes are also offered at off-campus locations in cooperation with school districts in Washtenaw County and in area correctional institutions.

Enrollment has steadily increased and in the Winter term of 1978, more than 7500 students were enrolled in occupational programs, general education and transfer classes, and community services offerings.



Gunder A. Myran

President

Board of Trustees

Trustees of Washtenaw Community College (seated, left to right, in photo above): James W. Anderson, Jr., treasurer; Richard W. Bailey, secretary; Anthony J. Procassini, chairperson; Ann C. Kettles, vice-chairperson; and standing left to right: Henry S. Landau, Judy Shelton, and Richard L. Boyd. The Board of Trustees meets monthly in public session. Trustees are elected by the voters of the College district for six-year terms; usually two trustees are elected every two years at the general election in the Fall.

Message from the President

Washtenaw Community College was created by the citizens of Washtenaw County fourteen years ago with the mandate to provide comprehensive community college services to the people of this area. With a 1978 enrollment of 7,500 students, we have reached the point in our history where our values and characteristics as an institution are quite clear:

1. Quality teaching: Washtenaw Community College is a *teaching* institution, and we leave research and major publication endeavors to the universities. Our faculty members are experienced professionals who are committed to teaching as a career.
2. Diversity of programming: The College provides a wide range of degree, certificate, and short-term educational programs to respond to the varied needs of our students.
3. Individual attention to students: The College offers extensive counseling, tutorial, advisement, and career planning and placement services to students. In addition, we limit the size of classes to insure that each individual student can work closely with instructors.
4. Linkages with the community: In a wide variety of ways, the College maintains contact with employers and other community groups to insure that our programs are current and responsive to community needs.
5. Services to a varied student body: Persons of all ages, income levels, and backgrounds are valued members of our student body. Some services focus on recent high school graduates, while others focus on women preparing for a new career, workers in local industries and businesses, retired persons, or handicapped persons. We offer day, evening, and weekend classes to serve these students, as well as off-campus programs offered in cooperation with the public and private schools of the county.
6. Low tuition: The College keeps the cost to students as low as possible through modest tuition charges and an extensive financial assistance program.

Our emphasis as a college is on occupational programs which prepare persons for employment, whether those programs are to be completed at Washtenaw Community College or continued at a university, and we view this as the cornerstone of future college development. Our function as a "people's college" requires that we continue to provide for the diverse educational needs of the people who come to us: those seeking to prepare for or advance themselves in a career, those seeking to complete the first two years of a four-year college degree, those seeking to improve their basic math and communication skills, and those seeking educational experiences of a short-term nature which complement other important life roles. We value highly the opportunity we have to grow in service to these diverse student groups.

Gunder A. Myran
President

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.

Instruction

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, and Social Science. A Mathematics Center, Reading Center and Writing Center offer students a wide range of services ranging from individualized and programmed instruction to diagnostic skill testing and tutoring.

Principal objectives of studies in general education include the development of basic reading, writing, thinking, listening, and speaking skills. In addition to basic 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 reponsible citizenship training.
- Engage in relevant educational experiences.
- Undertake ethnic studies offered in an interdisciplinary approach.

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

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

Another array of Occupational Education programs includes studies in Auto Service and Electrical Careers, Drafting and Construction Technology Careers, Industrial Technology Careers, Practical 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 and cooperative educational work experience.
- 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.

State Articulation Agreement (Macrao Agreement)

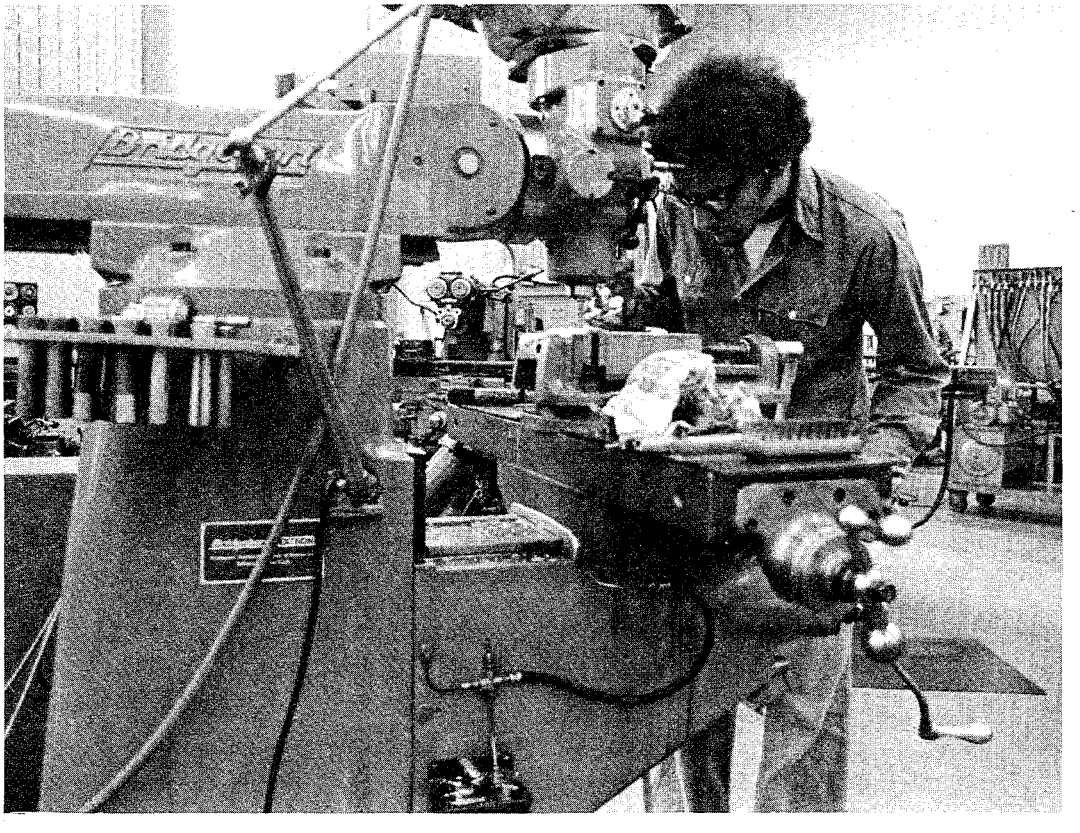
An agreement between Michigan's two- and four-year colleges and universities has been developed to assist students who complete an associate degree at a Michigan public community college in transfer of credit earned to a four-year institution. The agreement insures that students receiving associate degrees at Washtenaw Community College, and meeting the requirements indicated below, will have satisfied the basic first two-year requirements of Michigan four-year institutions who have signed this agreement.

Basic Requirements of Agreement

The basic requirement 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 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) 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 would enable 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:

Number of Semester Courses Recommended	CURRICULUM AREA
4	MATHEMATICS Analytic Geometry, Calculus, Linear Algebra, Differential Equations
2	PHYSICS / Classical (Mechanics, Heat, Light, Sound, Magnetism, & Electricity) Using Calculus
2	CHEMISTRY / General
1	COMPUTER PROGRAMMING Fortran Preferred
2	ENGLISH Literature & Composition
2	HUMANITIES
2	SOCIAL SCIENCE
15	TOTAL

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

Community Services

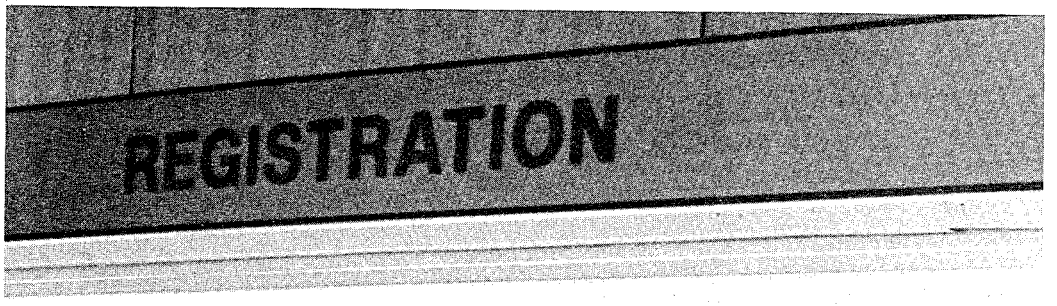
Community Services means many things to many people. At W.C.C. it means short-term courses, seminars, workshops, institutes, demonstrations, and performances on a non-credit or credit basis in response to requests and needs of the community.

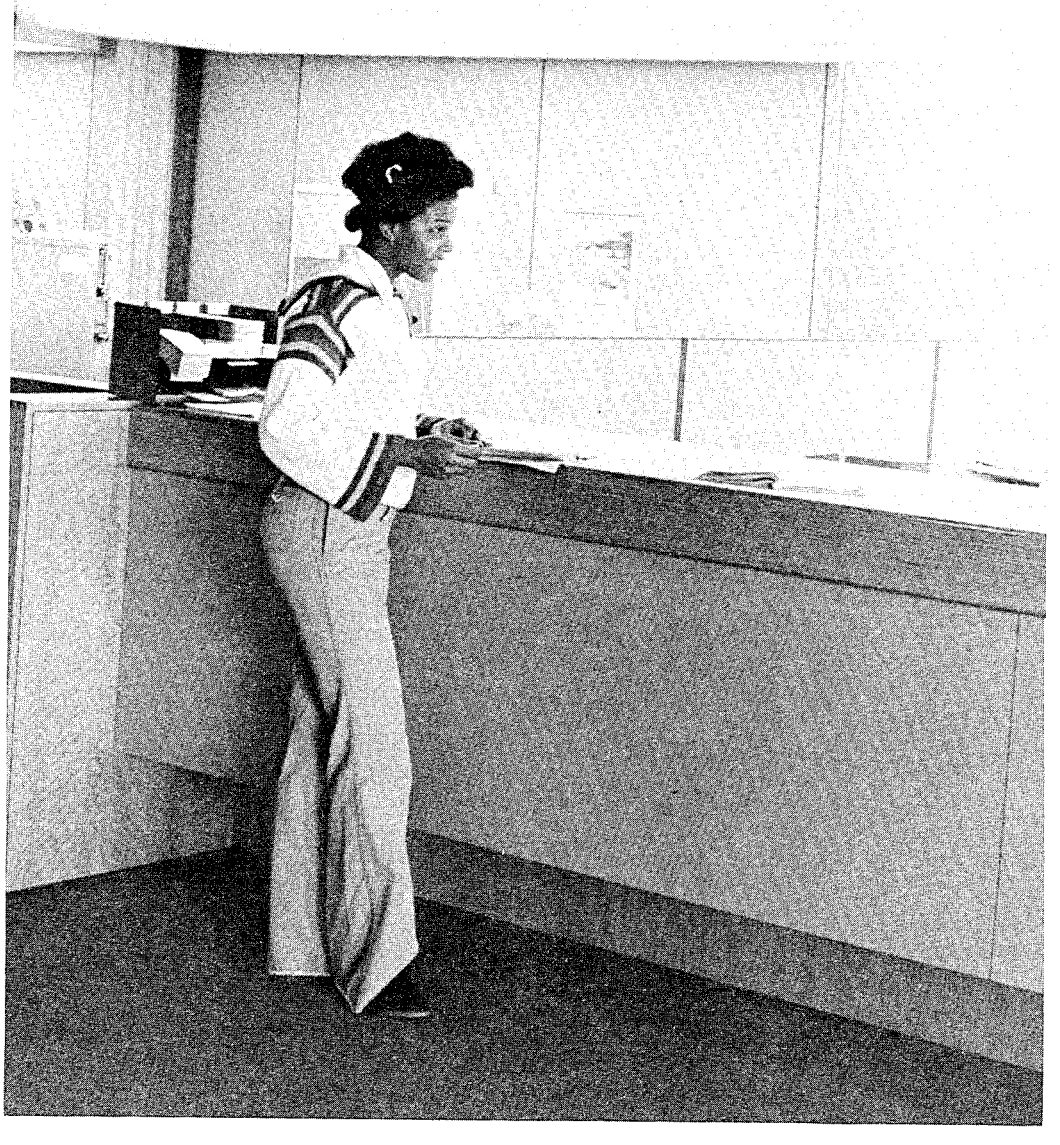
Classes and activities are held throughout the year on campus and in a variety of locations throughout Washtenaw County. Most classes are in the evenings but there are also weekday and weekend offerings.

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 W.C.C. 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 endeavors to provide 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 no-credit studies, may range from coping with handicaps or managing stress to obtaining real-estate information and becoming a more knowledgeable consumer.

STUDENT INFORMATION





Admissions Procedure

Eligibility for Admission

A student who has completed high school is eligible for admission.

A student who is not a high school graduate, but is 18 years of age or older, is eligible when:

a. he or she submits an equivalency diploma, or
b. he or she can profit from instructional programs for which he or she has the proper background, experience, and capability.

A student may apply for admission to one of the following periods:

Fall Semester
Winter Semester
Spring Session
Summer Session

Admission Procedure

1. The student must fill out the Application for Admission form supplied by the Registrar's Office.
2. A non-refundable application fee of $10 is required of all students who wish to enroll. A check or money order for this amount made payable to Washtenaw Community College must accompany the application.
3. A student must request his or her high school to send a transcript of records to the Registrar's Office.
4. A student intending to use courses completed at another college toward earning a Certificate of Achievement or an Associate Degree, must request a complete transcript of his or her record to date. If presently enrolled, the student should request that an additional official transcript be forwarded immediately upon completion of the present semester's work. Transcripts must be sent from each college directly to the Registrar's Office.

Students will be notified of their admission status when the above procedure has been complete.

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 Appication for Readmission to re-activate and update their files.

Counseling

The College Counseling Services are available to all students admitted to the College. The new student must arrange an appointment with the Counseling Office to plan his or her career objectives prior to enrolling for classes.

Registration

Prior to the beginning of each semester, each student will receive registration information and a scheduled period of registration. Full tuition fees must be paid at registration.

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

Veterans Eligibility*

Washtenaw Community College is approved for training allowance for enrolled veterans as follows:

Full Time	12 or more credits
¾ Time	9 through 11 credits
½ Time	6 through 8 credits
Less than ½ Time	Less than 6 credits

Students who are eligible for veterans' benefits should clear their eligibilty for training with the Veterans' Representative in the Registrar's Office.

*These credit amounts apply to full 13 week sessions only. See Veterans' Affairs Office for short-term credit requirements.

Tuition, Fees, and Residency Policy

Tuition*

In-District Resident:
$14.00 per credit hour

Michigan, Out-of-District Resident:
$27.00 per credit hour

Out-of-State Resident:
$38.00 per credit hour

Courses, varying in length from several clock hours up to a semester (fifteen weeks), will be offered for part-time, adult students. Tuition for these courses will be determined by the subject content and the length of the course.

Fees*

Application and records fee $10

A non-refundable fee of $10.00 is assessed one time for *all* students applying for admission to the College. This fee is collected at the time of application and must be paid before the student can register for classes.

Late registration fee ..... $ 5

In some cases students may be required to purchase certain individual supplies and materials.

Refunds

Refund of seventy-five percent (75%) of tuition will be made to a student who withdraws from the College during the first ten (10) days of classes. A fifty percent (50%) refund will be made for students withdrawing after the first ten (10) days of classes but before the end of the fourth (4th) week of classes. No tuition refund will be made after the fourth (4th) week of classes.

If in the case of extreme hardship a student must withdraw after the fourth week of classes and wishes to be considered for a refund, he or she must petition the Registrar, in writing, stating the reasons why such a refund should be granted.

*All tuition fees are subject to change by the Board of Trustees.

Residency Policy

Tuition costs at the College are based on a sharing by the students, the taxpayers of the district, and the state. District taxes supplement student tuition and state aid for *in-district* students; therefore, the tuition charged the student who lives outside the College district but within the state is greater than the tuition charged the in-district student. Students who reside out-of-state are charged the highest tuition.

In-district Residency

A student who is a resident of the Washtenaw Community College District, as determined by the College.

Out-of-district Resident

A student who is not a resident of the Washtenaw Community College District, but is a resident of the State of Michigan.

Certification of Veteran Students for 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. 3 must be in English and 3 in Political Science.
   c. Veteran students accumulating more than 12 credits of 'F' grades will not b 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 he 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 tose 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.

General Regulations

Students entering college for the first time might need to be reminded of the added responsibilities of attending college. It should be recognized that the College must have a minimum number of rules if its objectives are to be accomplished. Regulations are based upon respect for the rights of others and observance of civil and moral laws. All who enroll in Washtenaw Community College must realize that success rests upon personal efforts, attitudes, honor, integrity, and common sense; that attendance at this institution is a privilege.

Credit Hours

All courses are given on a semester basis, and credits earned are semester credits.

Each course usually carries a specific number of credits based upon the number of hours each week for lecture and laboratory plus the estimated time which an average student spends in outside preparation.

Generally, one credit hour is earned by attending a lecture class for a fifty-five minute period, once a week, for a fifteen-week session. In a laboratory class, one credit hour is granted for, from two to four, fifty-minute periods per week in a laboratory.

Credit Load

The normal credit load for a full-time student is fifteen credit hours. Special permission must be obtained from the Dean of Student Services to register for more than eighteen credit hours. A full-time course load for the spring or summer session is six to eight credit hours and special permission must be obtained from the Dean of Student Services to register for more than eight credit hours.

Students must carry at least twelve credits a semester in order to:

1. **be qualified to hold student office**
2. **qualify for the Dean's Honor List for the semester**

Most scholarships, awards, and financial aids are limited to students carrying at least twelve credits a semester. Students should determine the specific requirements from the appropriate agency.

It is recommended that employed students consult with a counselor about their course load.

Classification of Students

Full time: A student who carries twelve or more credit hours.

Part-time: A student who carries less than twelve credit hours

First-year (Freshman): A student who has completed fewer than twenty-eight credit hours.

Second-year (Sophomore): A student who has completed twenty-eight 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.

Special: A student who is enrolled for courses but is not pursuing a degree or certificate of achievement.

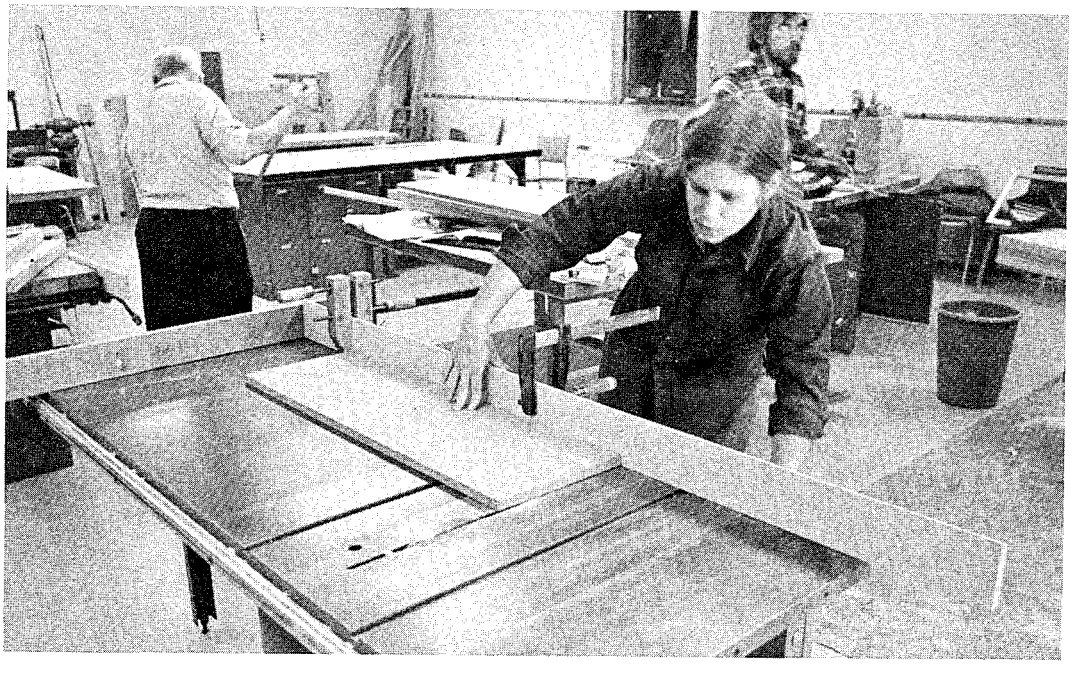
Grade System

A system of evaluation and a means of letting the student know the degree of progress he is making can be achieved in numerous ways. One means is by testing, assigning of grades, completion of credit hours, and accumulation of grade points.

Grades	Grade points per credit hour
A—superior	4
B—excellent	3
C—average	2
D—inferior	1
F—failure	0
S—satisfactory	
U—unsatisfactory	
I—incomplete—credit withheld	
W—withdrawal	
DF—deferred	
N—non-attendance	
V—visitor	

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.

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'.

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.

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

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

Repeat Courses

A student who received a grade of 'D' or below may repeat that course on a credit basis.

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.

Student Evaluation (examinations)

Washtenaw Community College believes that scheduled evaluations are a very important part of the instructional program. As such, the student should be prepared not only for mid-semester and 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.

Grade-point Average

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

A student who enrolls in college for the first time usually is not familiar with the terms grade points and grade-point average. 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.

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

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

Attendance

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

1. Students should explain the reason for absence to their instructors.
2. It is the responsibilty of the student to make up work missed because of any absence.
3. Students are required to be present at examination in order to receive credit in a course.

Credit for Military

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.

Course Elections

Faculty Consent: Prior to registration for a course which requires CONSENT for enrollment, a student must have his registration card or add card signed by the instructor. Program advisors, area coordinators and sometimes, counselors or a dean can provide such consent if the course instructor is unavailable.

Change of Enrollment

Students are expected to complete the courses in which they are registered. If a change is necessary, it may be made only with the appropriate approvals as explained below.

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 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 wich 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.

Off-campus Extension Registration

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.

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.

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 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, 100, 107, 111, 122).
3. Complete three credit hours of political science. (State of Michigan requirement)
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 Registrars Office.

Commencement ceremonies for all Washtenaw Community College graduates are held in 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 required 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.

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".

Seminars and Workshops

The College offers opportunities for students to enroll in short courses, conferences, workshops, and seminars. These vary in lenght from one or two meetings of short duration to units necessitating several clock hours accumulated over a period of weeks. These specialized courses will be offered by various divisions to meet the explicit needs of business and industrial firms in Washtenaw County.

Request for Transcript

A student requesting that a transcript of his 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.

Dismissal

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

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.

I. 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:

A. Other school officials, including faculty within Washtenaw Community College, who have a legitimate educational interest;

B. 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 indentification of such students after the data has been collected;

C. 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;

D. Accrediting organizations in order to carry out their accrediting functions;

E. 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;

F. In compliance with judicial order or lawfully issued subpoena with notice to the student of such orders or subpoenas prior to compliance therewith; and

G. In connection with the student's application 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 for a hearing 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.

Student Services

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

Counseling

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 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 their goals. In order to accomplish this, instruc-

tors are committed to assisting students on an individual basis. Students are encouraged to confer with their instructors when problems or questions arise.

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

Student 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.

Alumni Association

Because the college doesn't exist in a vacuum, its relations with the community become a potent factor. 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.

Further, the college seeks to provide benefits to the community through direct service by faculty and students and by making available the use of college facilities where feasible.

Adult Resources Center

The Adult Resources Center is a continuing service for adults who are re-entering school after a period of years. The Center is designed to assist people who are examining career options, looking for new directions in their lives, or improving professional and personal skills. The Center sponsors workshops, seminars, and discussion groups of particular interest to the older re-entering student. For further information call 973-3528. The center is located on the first level of the Student Center Building.

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.

Student Government

All enrolled students are eligible for membership. Its purposes are:

1. To provide for dialogue among students in order to clarify and implement their needs and interests at the college;

2. To resolve grievances and to allow for student input into the governance of the college;

3. To promote fellowship among students and to encourage leisure-time activities.

Career Placement

Assistance is provided to students completing occupational programs to secure full-time employment appropriate to their training at the College. Contact with business and industry in the area is maintained by instructors in Occupational Studies as well as the Career Placement Center on campus..

The Career Placement Center also maintains a list of part-time and seasonal work which is available to students. Students seeking part-time employment while attending school are encouraged to seek help in the Placement Center. The Center is located on the first level of the Student Center Building.

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. Several College teams have won conference titles and individuals have won conference state recognition. Teams and individuals qualifying for national tournaments have been accorded this privilege.

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.

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.

Health Service

The Student Health Service provides many services for the student—pregnancy testing and counseling, menu planning for weight reduction, first-aid, referals, 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.

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.

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.

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.

Student Financial Services

The Financial Aids Office at Washtenaw Community College exists to help students with financial difficulties they may encounter while attending W.C.C. The main function of the Financial Aids Office is to provide financial assistnace to students who are in need of additional funds to attend college. W.C.C. 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 W.C.C. are jointly sponsored with the federal government and are based on a student's financial "need". Need is determined by calculating a student's expected family contribution and subtract-

ing 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 application which must be processed by American College Testing Service. Results are sent directly to the student, who must then bring them to W.C.C. 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 elegibility requirements to receive financial aid at W.C.C.

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 W.C.C.
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 approved pre-school program, and full-time military service in an active combat zone.

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

College Work-study Program (CWS)

The College Work-study Program provides jobs for students with financial need for up to twenty hours a week on the W.C.C. 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.

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 $14 per credit hour for Washtenaw County residents, $27 per credit hour for out-of-county residents, and $38 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 W.C.C. 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 W.C.C. are notified if the loan is approved. Undergraduates may borrow a maximum of $1500 if full-time and $750 if part-time. The maximum interest rate charged to the student is 7% simple interest which begins the day the loan proceeds are disbursed.

W.C.C. 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.

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.

W.C.C. Student Emergency Loan Fund

A small revolving loan fund is available to W.C.C. students for emergency situations. Students can receive up to $50, depending on the availability of funds and their stated need. Applications are available thru the Financial Aids Office.

Law Enforcement Education Program

Grants for tuition are available to full-time law enforcement and corrections officers to attend W.C.C. 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.

Special Opportunities

Washtenaw Community College operates a number of special programs aimed at making educational opportunities available to all segments of the area population.

These include:

Community Outreach

Washtenaw Community College has developed a special instructional program to serve the educational and training needs of institutionalized people in the Michigan State Correctional System.

Known as the Community Outreach Project, it allows residents of the institutions to work toward their short-, intermediate-, and long-range educational goals.

Community Outreach Project is aimed at providing institutionalized people with an opportunity to enhance their knowledge and skills giving them greater vocational employability and improved chances of adapting to society.

Classes offered include oral and written communicative skills, psychology, biology, ecology, food service occupations, automotive services and other occupational career programs as well as personal and consumer finance insights.

In addition, learning opportunities are offered in the areas of political science, art and music to contribute to the students' political awareness and cultural enhancement.

Timing of the courses and programs is adapted to the students' residency periods to allow regular attendance and completion.

Retired Citizens

Retired persons have special opportunities at W.C.C. 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: 973-3300, extension 525.

Learning Resource Center

The Learning Resource Center is an integral segment of the total W.C.C. learning environment. As the materials center of the college, the LRC offers students and facilty 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 LRC, the librarians provide group instruction and assist in independent study activities.

LRC 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. LRC staff help students use this equipment.

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

Faculty Speakers Bureau

The Washtenaw Community College Speakers Bureau is a vital link between the College and the community. Faculty speakers present a wide range of views and ideas, music, childrens theatre, and poetry readings. These programs are offered without charge as a service to the community. Organizations may request a program by calling the College three weeks in advance.

Family Education Center

Washtenaw Community College attempts to make educational opportunities more available to parents by operating the W.C.C. Family Education Center. Composed of five portable classrooms, located on the northwest section of the campus, the center includes one classroom for toddlers, age 18 months to 2½ years; two for 2½–4 year olds; one for 4–5 year olds.

Objectives of the center are to: (1) provide child care services allowing parents to attend Washtenaw Community College, (2) provide environmental educational opportunities for the well-rounded growth and development of the children at the center and (3) provide educational opportunities for students in Child Care Studies and related fields on campus.

The Center is open Monday through Friday, 7:30 a.m. to 5:30 p.m. and accepts children 18 months through 5 years of age. Student parents may enroll their children at W.C.C.'s Center while they are attending classes and for some on-campus study time.

Center fees are charged based on each family's income. Contact the Center for the current rates.

Center enrollment papers may be picked up at the center or from the counseling department. All papers must be returned to the center before your child is officially enrolled and a place saved for him or her. Enrollment closes when hourly individual

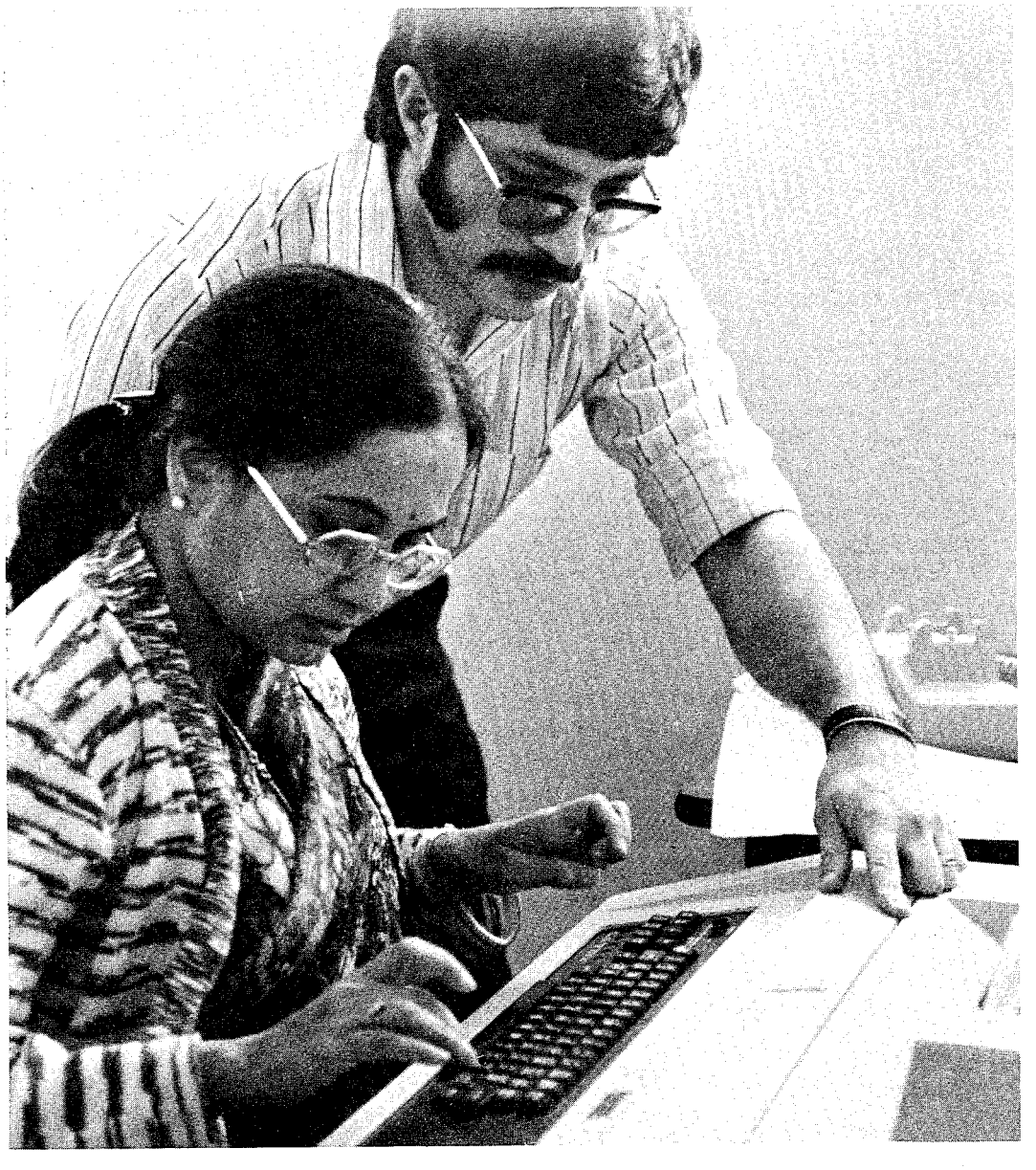
room quotas are reached. These quotas are determined by State Standards requiring specific space, toilet, equipment, and staff ratios.

The first week of W.C.C. registration will be reserved for registration of children currently enrolled at the Center. The following weeks of registration will be open to all on a first come-first served basis.

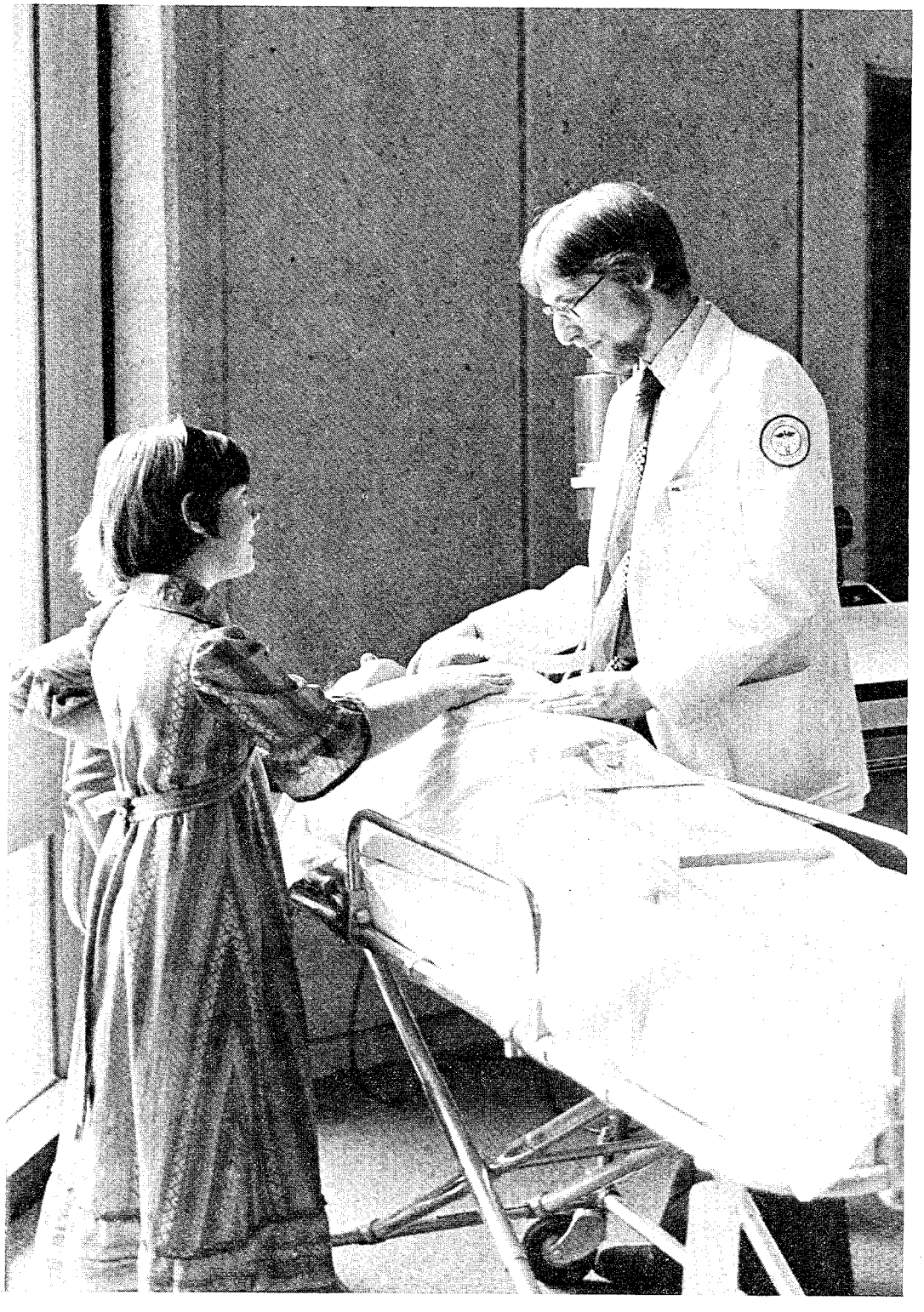
Further information about the W.C.C. Family Education Center is available by calling the center at 973-3538.

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.



STUDENT PROGRAMS



Accounting and Data Processing Careers

ACCOUNTING TECHNICIAN Two-Year Program—Code 521

Advisor—P. Kokkales

Course	Description	Hrs.
FIRST TERM		
GB 140	Business Occupational Foundations	3
ACC 111	Principles of Accounting	3
D P 111A	Data Processing/Computer Concepts*	3
D P 111B	Data Processing/Computer Functions	3
MTH 167	Finite Mathematics or	
MTH 090	Fundamentals of Occupational Mathematics or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
		18
SECOND TERM		
ACC 122	Principles of Accounting	3
S O 130	Business Machines	3
ENG 111	English Composition or	
ENG 122	English Composition	3
SPH 101	Fundamentals of Speaking	3
PLS 108	Government and Society	3
		15
THIRD TERM		
ACC 213	Intermediate Accounting	3
GB 111	Business Law	3
E C 211	Principles of Economics	3
GB 207	Business Communication	3
MGT 230	Office Management	3
		15
FOURTH TERM		
ACC 225	Principles of Cost Accounting	3
MGT 200	Human Relations in Business & Industry	3
E C 222	Principles of Economics	3
FIN 200	Principles of Finance	3
I E 200	Internship-Externship or Business Elective**	3
		15

Total Credit Hours for Program—63

*Student may elect additional course in data-record operations.
**G B 122 Business Law.
**ACC 200 Personal Tax Accounting
**Other Electives (with) Program Adviser Consultation.

DATA PROCESSING TECHNICIAN Two-Year Program—Code 531

Advisors—C. A. Finkbeiner, J. R. Wotring

Course	Description	Hrs.
FIRST TERM		
G B 140	Business Occupational Foundations	3
D P 111A	Data Processing/ Computer Concepts*	3
D P 111B	Data Processing/Computer Functions*	3
MTH 090	Foundations or Occupational Mathematics or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
		15
SECOND TERM		
D P 122B	Data Processing Programming/ RPG I & II* or	
D P 111C	Data Processing Programming/ Business FORTRAN IV* or	
D P 111D	Data Processing Programming/ B.A.S.I.C.*	3
D P 122A	Data Processing/Computer Flowcharting Techniques*	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
ENG 111	English Composition or	
ENG 122	English Composition or	
G B 207	Business Communication (division consent required)	3
SPH 101	Fundamentals of Speaking	3
		15

THIRD TERM		
D P 213A	Computer Programming Introductory COBOL*	3
D P 213B	Computer Programming/ Intermediate COBOL*	3
ACC 092	Fundamentals of Accounting or	
ACC 122	Principles of Accounting	3
G B 111	Business Law	3
E C 211	Principles of Economics	3
PLS 108	Government and Society	3
		18

FOURTH TERM		
D P 213C	Computer Programming/ Advanced COBOL*	3
D P 224A	Data Processing/Computer File Design Concepts*	3
MGT 230	Office Management	3
MGT 200	Human Relations in Business & Industry	3
E C 222	Principles of Economics	3
I E 200	Intern-Extern or Business Elective (Optional)	3
		18

Total Credit Hours for Program—66

*Meets 6 hours per week for 7½ weeks

DATA RECORD OPERATOR One-Year Program—Code 532

Advisor—R. Wotring

Course	Description	Hrs.
FIRST TERM		
D P 111A	Data Processing/Computer Concepts	3
D P 111B	Data Processing/Computer Functions	3
G B 140	Business Occupational Foundations	3
MTH 090	Foundations of Occupational Mathematics or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
		15

SECOND TERM		
D P 122A	Data Processing/Computer Flowcharting Techniques	3
D P 112B	Data Processing Programming/ RPG I & II	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
MGT 200	Human Relations in Business & Industry	3
I E 200	Internship-Externishp or Business Elective	3
SPH 101	Fundamentals of Speaking	3
		18

Total Credit Hours For Program—33

Automotive Service Careers

AUTO BODY SERVICE TECHNICIAN Two-Year Program—Code 811

Advisors—E. Cammet, L. 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	W F 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	W F 102	Arc Welding	2
4	A S 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	A S 124	Wheel Balancing & Alignment	3
6	ENG 107	Communication Skills	3
			14

FOURTH TERM			
8	ABR 230	Specialized Study	4
9	ABR 199	On The Job Training	*4
8	A S 227	Heating and Air Conditioning	2
9	PLS 108	Government and Society	3
			13

TOTAL CREDIT HOURS = 60

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

AUTO BODY REPAIRER One-Year Program—Code 812

Advisors—E. Cammet, L. Jordan

Part Time Sequence	Course	Full Time Sequence Description	Hrs.
FIRST TERM			
1	ABR 111	Auto Body Repair Fundamentals	4
2	ABR 112	Auto Refinishing Fundamentals	4
1	ABR 113	Light Body Service	1
1	ABR 114	Applied Auto Body Welding	1
1	W F 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	W F 102	Arc Welding	2
			12

SPRING/SUMMER			
5	ARB 125	Flat Rate Estimating	2
5	ABR 126	Fundamentals Frame & Body Align.	2
			4

Total Credit Hours for Program—31

AUTOMOBILE SPRAY PAINTER One-Year Program—Code 813

Advisors—E. Cammet, L. Jordan

Part Time Sequence	Course	Full Time Sequence 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	Light Body Service	1
2	ABR 114	Applied Auto Body Welding	1
2	W F 101	Acetylene Welding	2
3	MTH 090	Foundations of Occupational Math	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	Communications Skills	3
			13

SPRING/SUMMER			
4	ABR 125	Flat Rate Estimating	2

Total Credit Hours for Program—30

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

AUTO-MECHANIC TECHNICIAN Two-Year Program—Code 815

Advisors—K. Barron, E. Brown, T. Hopper, J. Mann

Part Time Sequence	Course	Full Time Sequence Description	Hrs.
FIRST TERM			
1	A S 110	Light Service Repair	2
1	A S 111	Engine Repair	4
3	A S 116	Electrical Systems	4
3	W F 101	Acetylene Welding	2
6	MTH 090	Foundations of Occupational Math	3
			15
SECOND TERM			
4	A S 123	Transmissions and Power Trains	2
2	A S 124	Wheel Balancing and Alignment	3
2	A S 125	Brake Systems	3
4	A S 128	Fuel Systems	3
8	PHY 110	Applied Physics	4
			15
THIRD TERM			
5	A S 212	Automatic Transmissions—Mechanical	2
5	A S 214	Steering and Suspension Systems	3
7	A S 218	Tune Up and Emissions	4
9	ENG 107	Communication Skills	3
7	A S 220	Applied Automotive Welding	2
9		Approved Elective*	3
			17
FOURTH TERM			
6	A S 222	Automatic Transmissions—Hydraulic	2
6	A S 227	Heating and Air Conditioning	2
8	A S 230	Practical Field Experience	5
10	A S 240	Measurement of Vehicle Performance	2
10	PLS 108	Government and Society	3
8	A S 250	New Car Products	2
			16

Total Program Credit Hours = 63

*Approved List of Electives: PSY 150 Industrial Psychology, A S 199 On Job Training, A S 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 MECHANIC One-Year Program—Code 816

Advisors—K. Barron, E. Brown, T. Hopper, J. Mann

Part Time Sequence	Course	Full Time Sequence Description	Hrs.
FIRST TERM			
1	A S 110	Light Service Repair	2
1	A S 111	Engine Repair	4
3	A S 116	Electrical Systems	4
3	W F 101	Acetylene Welding	2
5	MTH 090	Foundations of Occupational Math	3
			15
SECOND TERM			
4	A S 123	Transmissions and Power Trains	2
2	A S 124	Wheel Balancing and Alignment	3
2	A S 125	Brake Systems	3
4	A S 128	Fuel Systems	3
5	A S 218	Tune Up and Emissions	4
			15

Total Credit Hours in Program = 30

Business Careers

MANAGEMENT TECHNICIAN Two-Year Program—Code 541

Advisors—R. W. Paulson, R. Zeeb

Course	Description	Hrs.
FIRST TERM		
G B 140	Business Occupational Foundations	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
G B 111	Business Law	3
ENG 091	Fundamentals of English or	
ENG 111	English Composition	3
MTH 163	Math for Business Occupations or Math Elective	3
		15
SECOND TERM		
SPH 101	Fundamentals of Speaking	3
S O 130	Business Machines	3
D P 111A	Data Processing/Computer Concepts*	3
D P 111B	Data Processing/Computer Functions*	3
ENG 111	English Composition or	
ENG 122	English Composition	3
ACC 092	Fundamentals of Accounting or	
ACC 122	Principles of Accounting	3
		18
THIRD TERM		
MGT 208	Principles of Management	3
MGT 250	Principles of Marketing	3
G B 207	Business Communication	3
E C 211	Principles of Economics	3
MGT 160	Principles of Salesmanship or	
I/E 200	Internship-Externship	3
		15
FOURTH TERM		
MGT 200	Human Relations in Business & Industry	3
MGT 240	Personnel Management	3
E C 222	Principles of Economics	3
I/E 200	Internship-Externship or Business Elective	3
PLS 108	Government and Society	3
		15

Total Credit Hours for Program—63

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

MARKETING TECHNICIAN Two-Year Program—Code 542

Advisors—R. Zeeb, R. Paulson

Course	Description	Hrs.
FIRST TERM		
G B 140	Business Occupational Foundations	3
MTH 163	Math for Business Occupations or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
MGT 160	Principles of Salesmanship	3
		15
SECOND TERM		
D P 111A	Data Processing/Computer Concepts	3
D P 111B	Data Processing/Computer Functions*	3
S O 130	Business Machines	3
G B 207	Business Communications or	
ENG 111	English Composition or	
ENG 122	English Composition	3
G B 111	Business Law	3
ACC 092	Fundamentals of Accounting or	
ACC 122	Principles of Accounting	3
		18
THIRD TERM		
MGT 200	Human Relations in Business & Industry	3
E C 211	Principles of Economics	3
MGT 250	Principles of Marketing	3
MGT 208	Principles of Management	3
SPH 101	Foundations of Speaking	3
		15
FOURTH TERM		
MGT 260	Sales Management	3
MGT 270	Advertising Principles	3
E C 222	Principles of Economics	3
I E 200	Internship-Externship or Business Elective	3
PLS 108	Government and Society	3
		15

Total Credit Hours for Program—63

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

MARKETING AIDE One-Year Program—Code 543

Advisor—R. Zeeb

Course	Description	Hrs.
FIRST TERM		
G B 140	Business Occupational Foundations	3
MTH 163	Math for Business Occupations or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
SPH 101	Fundamentals of Speaking	3
PSY 100	Introductory Psychology	3
		15
SECOND TERM		
MGT 250	Principles of Marketing	3
MGT 160	Principles of Salesmanship	3
MGT 200	Human Relations in Business & Industry	3
G B 111	Business Law	3
S O 130	Business Machines	3
I E 200	Internship-Externship or Business Elective	3
		18

Total Credit Hours For Program—33

PUBLIC ADMINISTRATION TECHNICIAN Two-Year Program—Code 551

Advisors—R. Zeeb, R. W. Paulson

Course	Description	Hrs.
FIRST TERM		
PLS 108	Government and Society or Elective**	3
PSY 100	Introductory Psychology	3
MTH 163	Math for Business Occupations	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
SPH 101	Fundamentals of Speaking	3
		15
SECOND TERM		
MGT 208	Principles of Management	3
PLS 150	State and Local Government & Politics	3
PHL 101	Introduction to Philosophy	3
ENG 111	English Composition or	
ENG 122	English Composition	3
Elective**		3
		15
THIRD TERM		
MGT 240	Personnel Management	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
G B 111	Business Law	3
D P 111A	Data Processing/Computer Concepts*	3
D P 111B	Data Processing/Computer Functions	3
I E 200	Internship-Externship or Elective**	3
		18
FOURTH TERM		
E C 111	Consumer Economics	3
ACC 092	Fundamentals of Accounting or	
ACC 122	Principles of Accounting	3
G B 207	Business Communication	3
SOC 100	Principles of Sociology	3
I E 200	Internship-Externship or Elective**	3
		15

Total Credit Hours For Program—63

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

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

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

Dental Auxiliary Career

DENTAL ASSISTING Two-Year Program—Code 711

Advisors—B. Ladley, R. Edwards

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

Course	Description	Hrs.
FIRST TERM		
D A 110	Introduction to Dental Assisting	3
D A 111	Dental Science	4
BIO 111	Basic Anatomy & Physiology	4
BIO 112	Basic Anatomy & Physiology Laboratory	1
ENG 111	English Composition or	
ENG 091	English Fundamentals	3
		15
SECOND TERM		
D A 120	Oral Diagnosis Technique	2
D A 121	Introduction to Clinical Procedures	4
D A 122	Advanced Dental Science	4
D A 123	Dental Materials	2
S O 101 &102	Typewriting*	2
	Elective in English, Speech, or Art**	3
		17
Total Credit Hours For Program—64-65		

THIRD TERM		
D A 200	Dental Assistant Clinical Practice	5
D A 210	Principles of Dental Laboratory Procedures	4
D A 212	Dental Office Systems and Practice Management	5
D A 213	Dental Roentgenology	2
		16
FOURTH TERM		
D A 214	Dental Roentgenology	2
D A 222	Dental Assistant Clinical Practice	5
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

*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 TECHNICIAN Two-Year Program—Code 821

Advisors—D. Byrd, M. Pogliano

Part-Time Sequence	Full-Time Sequence Course	Description	Hrs.
FIRST TERM			
1	ARC 111	Architectural Drawing	6
4	S O 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	3
			17
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—65

ARCHITECTURAL DRAFTING DETAILER One-Year Program—Code 822

Advisors—D. Byrd, M. Pogliano

Part-Time Sequence	Course	Description	Hrs.	Full-Time Sequence	Course	Description	Hrs.
FIRST TERM				SECOND TERM			
1	ARC 111	Architectural Drawing	6	2	ARC 122	Architectural Drawing	6
3	S O 090	Fundamentals of Typewriting	1	3	ARC 120	Mechanical Equipment	2
2	ARC 117	Construction Materials	3	6	ARC 150	Presentation Drawings and Models	4
4	MTH 169	Intermediate Algebra	4	5	ARC 109	Site Layout or	
5	ENG 091	English Fundamentals or			ARC 209	Surveying	3
	ENG 111	English Composition	3	4	ARC 100	Specifications	1
			17				16

Total Credit Hours For Program—33

INDUSTRIAL DRAFTING TECHNICIAN (TOOLING OPTION) Two-Year Program—Code 825

Advisors—R. J. Packard, A. Stager, A. Ford

Part-Time Sequence	Course	Description	Hrs.	Full-Time Sequence	Course	Description	Hrs.
FIRST TERM				THIRD TERM			
1	I D 111	Industrial Drafting	4	3	I D 107	Mechanisms	4
3	M T 111	Machine Shop Theory and Practice	4	5	I D 213	Fundamentals of Die Drafting	4
2	I D 112	Descriptive Geometry	4	5	TCA 100	Perspective and Parallel Projection	4
1	MTH 151	Applied Algebra	4	6	N C 100	Introduction to Numerical Control	3
			16	6	ENG 100	Technical Communications	3
							18
SECOND TERM				FOURTH TERM			
2	PHY 110	Applied Physics	4	5	I D 206	Fundamentals of Plant Layout	3
2	I D 114	Industrial Drafting	4	5	I D 224	Fundamentals of Industrial Tooling*	3
3	I D 122	Fundamentals of Jigs and Fixtures	3	7	N C 121	Programming for Numerical Control	3
4	I D 125	Industrial Materials	2	7	PLS 108	Government and Society	3
2	MTH 152	Applied Geometry and Trigononmetry	4		PSY 150	Industrial Psychology	3
			17				15

Total Credit Hours For Program—66

*ID 199 On the job training may be substituted for ID 224 Fundamentals of Industrial Tooling.

PART-TIME STUDENTS: Students who can take 6-9 credit hours per term should follow the order of courses to be taken as shown to the LEFT of the course title. For example, the fifth term a student would elect all courses numbered 5. A similar election would be made for each of the other terms to complete the program.

INDUSTRIAL DRAFTING & DESIGN TECHNICIAN (PRODUCT OPTION) Two-Year Program—Code 826

Advisors—R. J. Packard, A. Stager, A. Ford

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	I D 111	Industrial Drafting	4
3	M T 111	Machine Shop Theory and Practice	4
2	I D 112	Descriptive Geometry	4
1	MTH 151	Applied Algebra	4
			16
SECOND TERM			
2	PHY 110	Applied Physics	4
2	I D 114	Industrial Drafting	4
3	I D 122	Fundamentals of Jigs and Fixtures	3
4	I D 125	Industrial Materials	2
2	MTH 152	Applied Geometry and Trigonometry	4
			17
THIRD TERM			
3	I D 107	Mechanisms	4
4	I D 251	Fundamentals of Electrical Drafting	4
5	TCA 100	Perspective and Parallel Projection	4
6	ENG 100	Technical Communications	3
	PSY 150	Industrial Psychology	3
			18
FOURTH TERM			
5	I D 240	Fundamentals of Product Layout	4
6	I D 206	Fundamentals of Plant Layout	3
7	I D 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—67

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

PART—TIME STUDENTS: Students who can take 6-9 credit hours per term should follow the order of courses to be taken as shown to the LEFT of the course title. For example, the fifth term a student would elect all courses numbered 5. A similar election would be made for each of the other terms to complete the program.

DRAFTER-DETAILER One-Year Program—Code 827

Advisors—R. J. Packard, A. Stager

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	I D 111	Industrial Drafting	4
2	I D 112	Descriptive Geometry	4
3	M T 111	Machine Shope Theory and Practice	4
4	MTH	Mathematics Elective	4
			16
SECOND TERM			
3	TCA 100	Perspective and Parallel Projection	4
2	I D 114	Industrial Drafting	4
3	I D 122	Fundamentals of Jigs and Fixtures	3
4	I D 125	Industrial Materials	2
4	ENG	English Elective	3
			16

Total Credit Hours For Program—32

PART-TIME STUDENTS: Students who can take 6-9 credit hours per term should follow the order of courses to be taken as shown to the LEFT of the course title. For example, the fifth term a student would elect all courses numbered 5. A similar election would be made for each of the other terms to complete the program.

CONSTRUCTION TECHNICIAN Artisan—Wood, Plastics, Metal
Two-Year Program—Code 828
Advisor—D. Byrd

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	ARC 117	Construction Materials	3
1	C T 121	Carpentry	4
1	ENG 100	Technical Communications	3
1	MTH 151	Applied Algebra	3
			13
SECOND TERM			
2	BPR 100	Blueprint Reading for Construction Trades	2
2	C T 221	Carpentry	4
2	ARC 100	Specifications	1
2	MTH 169	Intermediate Algebra	4
			11
SIX WEEKS INTERNSHIP			
3	C T 199	On-the-Job Training—40 hr. week	6
3	C T 199	On-the-Job Training—40 hr. week	6
			12
FOURTH TERM			
3	C T 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	C T 262	Building Component Fabrication	4
5	ARC 208	Estimating Construction Costs	2
5	PLS 108	Government & Society	3
5	SPH 101	Fundamentals of Speaking	3
			12

Total Credit Hours For Program—62

PART-TIME STUDENTS: Students who can take 6-9 credit hours per term should follow the order of courses to be taken as shown to the LEFT of the course title. For example, the fifth term a student would elect all courses numbered 5. A similar election would be made for each of the other terms to complete the program.

CONSTRUCTION SPECIALIST One-Year Program—Code 823
Advisor—D. Byrd

Part-Time Sequence	Course	Full-Time Sequence 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	G B 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	3
			14

Total Credit Hours For Program—30

ARCHITECTONICS Lighting Specialist Two-Year Program—Code 829

Advisor—D. Byrd

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	C T 131	Electric Power Supplying	4
2	BPR 100	Blueprint Reading for Construction Trades	2
1	MTH 169A	Intermediate Algebra	3
2	E E 101	Servicing Techniques I	4
2	ENG 100	Technical Communications	3
			16
SECOND TERM			
3	C T 231	Lighting Systems	4
1	ARC 117	Construction Materials	3
3	ARC 100	Specifications	1
2	MTH 169B	Intermediate Algebra	3
1	E E 111	Electrical Fundamentals	4
			15
*SIX WEEKS INTERNSHIP			
	C T 199	On-the-Job Training—40 hr. week (Between 2nd and 3rd term)	6
			6
THIRD TERM			
2	E E 122	Electrical Fundamentals	4
3	BPR 110	Blueprint Reading for Construction Trades	2
4	PSY 150	Industrial Psychology	3
3	E E 102	Servicing Techniques II	4
			13
FOURTH TERM			
4	C T 263	Lighting Calculations and Design	4
4	ARC 207	Estimating Construction Costs	2
4	E E 220	Electrical Installation and Maint. Practices	4
3	PLS 108	Government and Society	3
			13

Total Credit Hours For Program—63

*Or Approved Elective

Electricity & Electronics Careers

ELECTRICAL ENGINEERING TECHNICIAN Two-Year Program—Code 831

Advisors—R. Collard, D. Russell, L. Kramer, A. Robinson, K. Wheeler

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	E E 110	Electrical Applications	4
1	E E 111	Electrical Fundamentals	2
5	I D 100	Technical Drawing	4
1	MTH 169	Intermediate Algebra or	
	E E 100	Electrical Analysis	4
8	ENG 091	English Fundamentals or	
	ENG 111	English Composition	3
			17
SECOND TERM			
2	E E 122	Electrical Fundamentals	2
2	E E 120	Electrical Applications	4
4	E E 127	Industrial Electricity	4
2	PSY 150	Industrial Psychology	3
4	E E 211	Basic Electronics	4
			17
THIRD (FALL) TERM			
3	E E 200	Circuit Analysis	3
7	E E 137	Switching Logic	3
7	E E 219	Electrical Distribution Systems	3
3	E E 210	Measurements and Instrumentation	4
		Non Technical Elective	3
			16
THIRD (WINTER) TERM			
6	E E 220	Electrical Installation and Maintenance Practices	4
8	E E 239	Electrical Design	3
8	E E 240	Career Practices	2
7	PLS 108	Government and Society	3
8	E E 102	Servicing Techniques	4
			16

Total Credit Hours For Program—66

ELECTRONICS ENGINEERING TECHNICIAN

Two-Year Program—Code 832

Advisors—A. Robinson, R. Collard, K. Wheeler, J. Williams

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	E E 110	Electrical Applications	2
1	E E 111	Electrical Fundamentals	4
6	I D 100	Technical Drawing or	4
	I D 102	Technical Drawing	4
1	MTH 169	Intermediate Algebra or	
	E E 100	Electrical Analysis	4
7	ENG 091	English Fundamentals or	
	ENG 111	English Composition	3
			17
SECOND TERM			
2	E E 120	Electrical Applications	2
2	E E 122	Electrical Fundamentals	4
4	E E 127	Industrial Electricity	4
2	PSY 150	Industrial Psychology	3
4	E E 211	Basic Electronics	4
			17
THIRD (FALL) TERM			
3	E E 200	Circuit Analysis	3
7	E E 137	Switching Logic	3
7	PLS 108	Government and Society	3
3	E E 210	Measurements and Instrumentation	4
5		Science or Technical Elective	4
			17
FOURTH (WINTER) TERM			
8	E E 238	Electronic Analog Circuits	4
6	E E 222	Digital Electronics I	4
8	E E 239	Electrical Design	3
8	E E 240	Career Practices	2
6		Approved Non-Technical Elective	3
			16

Total Credit Hours For Program—67

ELECTRICAL EQUIPMENT REPAIRER One-Year Program—Code 833

Advisors—D. Russell, J. Williams, L. Kramer, R. Collard, K. Wheeler

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	E E 110	Electrical Applications	2
1	E E 111	Electrical Fundamentals	4
3	E E 101	Servicing Techniques	4
1	MTH 151	Applied Algebra	4
4	ENG 100	Technical Communications	3
			17
SECOND TERM			
2	E E 120	Electrical Applications	2
2	E E 122	Electrical Fundamentals	4
4	E E 102	Servicing Techniques	4
3	E E 211	Basic Electronics	4
2	PSY 150	Industrial Psychology	3
			17

Total Credit Hours For Program—34

ELECTRONIC SERVICE TECHNICIAN Two-Year Program—Code 834

Advisors—J. Williams, D. Russell, L. Kramer, K. Wheeler

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	E E 110	Electrical Applications	2
1	E E 111	Electrical Fundamentals	4
3	E E 101	Servicing Techniques	4
1	MTH 151	Applied Algebra	4
4	ENG 101	Technical Communications	3
			17
SECOND TERM			
2	E E 120	Electrical Applications	2
2	E E 122	Electrical Fundamentals	4
4	E E 102	Servicing Techniques	4
3	E E 211	Basic Electronics	4
2	PSY 150	Industrial Psychology	3
			17

THIRD (FALL) TERM			
5	E E 212	Radio and Television Circuitry	5
7	E E 137	Switching Logic	3
7	E E 210	Measurements and Instrumentations	4
5	MGT 209	Small Business Management	3
			15

FOURTH (WINTER) TERM			
6	E E 223	Color Television	4
8	E E 224	Television Service Procedures and Practices	4
6	E E 220	Electrical Installation and Maintenance Practices	4
8	E E 240	Career Practices	2
8	PLS 150 PLS 108	State and Local Government or Government and Society	3
			17

Total Credit Hours For Program—66

Engineering Career

PRE-ENGINEERING AND MATHEMATICS MAJORS Two-Year Program

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

Course	Description	Hrs.
FIRST TERM		
MTH 191	Calculus I	5
CPS 187	Fortran Programming	3
ENG 111	English Composition	3
CEM 111	General Chemistry	4
		15
SECOND TERM		
MTH 192	Calculus II	4
CEM 122	General Chemistry	4
ENG 122	English Composition or an approved elective	3
PLS 108 PLS 112	Government and Society or Introduction to Amer. Gov't. or	
PLS 150	State and Local Gov't.	3
		14

THIRD TERM			
MTH 293	Calculus III		4
MTH 197	Linear Algebra		3
PHY 211	Analytical Physics		5
ENG 212	English Literature or an approved elective		3
			15
FOURTH TERM			
MTH 295	Differential Equations		4
PHY 222	Analytical Physics		5
ENG 213	English Literature or an approved elective		3
I D 100 I D 111	Technical Drafting or Industrial Drafting		4
			16

Total Credit Hours for Program — 60

Food & Hospitality Careers

CULINARY ARTS TECHNICIAN Two-Year Program—Code 641

Advisors—J. Beaton, D. Garrett, J. Gannon

Part-Time Sequence Students Entering Fall Only

Course	Description	Hrs.
FIRST TERM (FALL)		
1 CUL 100	Intro to Hospitality Industry Mgt	3
4 CUL 111	Elementary Food Prep	6
1 CUL 110	Sanitation & Hygiene	3
3 CUL 118	Principles of Nutrition	3
		15

Full-Time Sequence

SECOND TERM (WINTER)			
5	CUL 122	Quantity Food Production	6
8	CUL 228	Layout & Equipment	4
3	ACC 090	Fundamentals of Accounting or	
6	ACC 111	Principles of Accounting	3
			13
THIRD TERM (SPRING)			
9	CUL 227	Advanced Culinary Arts Technique	6

FOURTH TERM (FALL)

7	CUL 224	Economics of Volume Feeding	4
2	CUL 150	Dining Room Management	6
6	PLS 108	Government & Society	3
10	CUL 120	Organization & Management	3
			16

Total Credit Hours For Program—66-67

FIFTH TERM (WINTER)

	CUL	Electives (Choose 2)	7-8
	CUL 219	Elementary Baking	(4)
11	CUL 210	Garde-Manger	(4)
	CUL 225	Advanced Baking & Pastry	(4)
	CUL 250	Advanced Service Techniques	(3)
12	ENG	Elective	3
13	CUL 199	On the Job Training 20 hrs. per week, 15 weeks	3
12	D P 100	Intro to Computers (7½ weeks)	3
			16-17

FOOD SERVICE SPECIALIST One-Year Program—Code 642

Advisors—J. Beaton, D. Garrett, J. Gannon

Part-Time Sequence Students Entering Fall Only — Full-Time Sequence

FIRST TERM (FALL)

	Course	Description	Hrs.
1	CUL 100	Intro to Hospitality Industry Mgt.	3
4	CUL 111	Elementary Food Preparation	6
1	CUL 110	Sanitation & Hygiene	3
2	CUL 118	Principles of Nutrition	3
			15

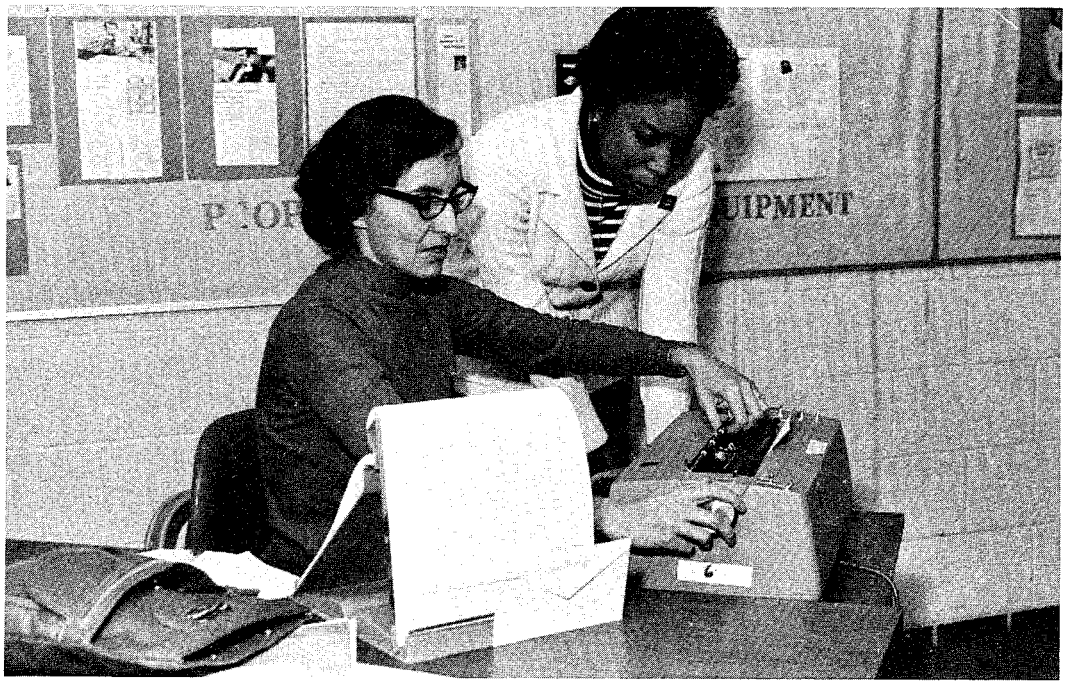
SECOND TERM (WINTER)
(See instructor about setting up winter schedule)

3	ENG	English Elective	3
2	MTH 090	Occupational Math	3
	CUL	*Electives (Choose 2)	7
5	CUL 299	Dining Room Management	(4)
	CUL 122	Quantity Food Prep	(6)
	CUL 219	Elementary Baking	(4)
7	CUL 210	Garde-Manger	(4)
	CUL 300	Advanced Service Techniques	(3)
		minimum	13

SPRING

	CUL 227	Advanced Culinary Arts Techniques or	6
6	D P 100	Intro to Computers and	3
	HMT 100	Service Industry Accounting	3
			6

Total Credit Hours for Program—Minimum 34



HOTEL/MOTEL MANAGEMENT Two-Year Program—Code 661

Advisors—J. Beaton, D. Garrett, J. Gannon

Part-Time Sequence Students Entering Fall Only — Full-Time Sequence

	Course	Description	Hrs.
FIRST TERM (FALL)			
1	CUL 100	Intro to Hospitality Industry Mgt.	3
4	CUL 111	Elementary Food Preparation	6
2	CUL 110	Sanitation & Hygiene	3
1	CUL 118	Principles of Nutrition	3
			15
SECOND TERM (WINTER)			
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	3
			16
THIRD TERM (SPRING)			
9	PSY 100	Intro to Psychology	3
9	PLS 108	Government & Society	3
			6
FOURTH TERM (FALL)			
7	CUL 120	Organization & Management	3
7	CUL 150	Dining Room Management	6
10	D P 100	Intro to Computers	3
11	HMT 223A	Practicum in Lodging Mgt.	3
			15
FIFTH TERM (WINTER)			
8	HMT 230	Hospitality Law	4
10	HMT 223B	Practicum in Lodging Mgt.	3
8	CUL 118	Principles of Nutrition	3
10	HMT 224	Front Office Procedures	3
8	CUL 250	Advanced Service Techniques	3
			16

Total Credit Hours For Program—68

Industrial Technology Careers

FLUID POWER TECHNICIAN Two-Year Program—Code 841

Advisor—G. 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	E E 111	Electrical Fundamentals	4
1	MTH 169	Intermediate Algebra	4
			15
SECOND TERM			
2	FLP 122	Hydraulic Pumps	4
2	FLP 226	Pneumatics	3
3	M T 111	Machine Shop Theory and Practice	4
3	W F 100	Fundamentals of Welding	2
7	SPH 101	Fundamentals of Speaking	3
			16
THIRD TERM			
3	FLP 213	Hydraulic Controls	3
2	N C 100	Introduction of Numerical Control	3
5	I D 100	Technical Drawing	4
6	PHY 110	Applied Physics	4
7	ENG 100	Technical Communications	3
			17
FOURTH TERM			
4	FLP 225	Advanced Hydraulic Circuits	3
		Elective in Ind. Technology	4
6	M T 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 ASSEMBLER One-Year Program—Code 842

Advisor—G. Agin

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	FLP 111	Fluid Power Fundamentals	4
2	FLP 214	Basic Hydraulic Circuits	3
3	W F 111	Welding and Fabrication	4
4	MTH 151	Applied Algebra	4
			15
SECOND TERM			
2	FLP 122	Hydraulic Generators (Pumps)	4
1	FLP 226	Pneumatics	3
2	BPR 101	Blueprint Reading	3
4	M T 100	Machine Shop Theory	3
4	SPH 101	Fundamentals of Speaking	3
			16

Total Credit Hours For Program—31

MECHANICAL-ENGINEERING TECHNICIAN Two-Year Program—Code 851

Advisors—P. Wiernik, D. Garrett, B. Lowe

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	M T 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	3
			18
SECOND TERM			
2	M T 122	Machine tool Operation and Set-Up	4
2	I D 111	Industrial Drafting	4
2	MTH 152	Applied Geometry and Trigonometry	4
	N C 100	Introduction to Numerical Control	3
			15
THIRD TERM			
3	MLG 101	Industrial Materials	2
5	E E 111	Electrical Fundamentals	4
5	FLP 111	Fluid Power Fundamentals	4
3	M T 123	Machine Tool Operation and Set-Up	4
5	N C 122	N/C Machine Tool Operation	3
			17
FOURTH TERM			
4	M T 201	Machine Tool Technology	4
4	MLG 123	Metallurgical Testing Procedures	2
4	FLP 214	Basic Hydraulic Circuits	3
6	PLS 108	Government & Society	3
	N C 121	Manual Programming for Numerical Control	3
			17

Total Credit Hours For Program—67

TOOLROOM MACHINE OPERATOR One-Year Program—Code 853

Advisors—D. Garrett, P. Wiernik

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	M T 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	3
			16
SECOND TERM			
2	M T 122	Machine Tool Operation and Set-Up	4
2	N C 100	Intro. to Numerical Control	3
3	MLG 215	Heat Treatment Processes	2
3	I D 100	Technical Drawing	4
2	MTH 152	Applied Geometry and Trigonometry	3
			16

Total Credit Hours For Program—32

ELECTRO-MECHANICAL TECHNICIAN Two-Year Program—Code 854

Advisor—D. Garrett

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
3	E E 111	Electrical Fundamentals	2
3	E E 110	Electrical Applications	4
1	M T 111	Machine Shop Theory and Practices	4
1	MTH 151	Applied Algebra	4
6	ENG 100	Technical Communications or	
	ENG 111	English Composition	3
			17
SECOND TERM			
4	E E 120	Electrical Applications	2
4	E E 122	Electrical Fundamentals	4
1	I D 111	Industrial Drafting	4
2	M T 122	Machine Tool Operation and Set-Up	4
	MTH 152	Applied Geometry and Trigonometry	4
			18
THIRD TERM			
2	N C 100	Introduction to Numerical Control	3
2	FLP 111	Fluid Power Fundamentals	4
4	E E 127	Industrial Electricity	4
6	PLS 108	Government & Society	3
5	MLG 101	Industrial Materials	2
			16
FOURTH TERM			
3	M T 123	Machine Tool Operation and Set-Up	4
5	E E 137	Switching Logic	3
5	W F 100	Fundamentals of Welding	2
5	N C 121	Manual Programming for Numerical Control	3
	PHY 111	General Physics	4
			16

Total Credit Hours For Program—67

METALLURGICAL TECHNICIAN Two-Year Program—Code 861

Advisor—D. Gray

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	MLG 100	Intro. to Metallurgy	1
2	MLG 202	Manufacturing Processes	3
1	MLG 215	Heat Treatment	2
2	MTH 169	Intermediate Algebra	4
1	ENG 111	English Composition	3
3	M T 111	Machine Shop Theory and Practice	4
			17
SECOND TERM			
3	MLG 101	Industrial Materials	2
4	MLG 122	General Metallurgy	3
5	ENG 100	Technical Communications	3
4	I D 100	Technical Drawing	4
5	W F 100	Fundamentals of Welding	2
			14
THIRD TERM			
6	MLG 207	Testing Laboratory	2
6	MLG 217	Mechanical Testing	2
7	MLG 228	Metallography	4
7	CEM 111	General Chemistry	4
6	PSY 150	Industrial Psychology	3
			15
FOURTH TERM			
9	MLG 229	Specialized Study	5
8	PHY 111	General Physics	4
9	PLS 108	Government and Society	3
		Approved Elective	4
			16

Total Credit Hours For Program—62

NUMERICAL CONTROL TECHNICIAN Two-Year Program—Code 871

Advisor—D. Garrett

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	N C 100	Introduction to Numerical Control	3
1	M T 111	Machine Shop Theory and Practice	4
3	I D 111	Industrial Drafting	4
1	MTH 151	Applied Algebra	4
			15
SECOND TERM			
2	N C 121	Manual Programming for Numerical Control	3
2	N C 122	N/C Machine Tool Operation	3
4	M T 122	Machine Tool Operation and Set-Up	4
4	I D 112	Descriptive Geometry	4
1	MTH 152	Applied Geometry and Trigonometry	4
			18
THIRD TERM			
3	N C 213	Compact II Computer Programming	4
	I D 121	Theory of Jigs & Fixtures	2
	PLS 108	Government & Society	3
	ENG 100	Technical Communications	3
	MTH 187	Fortran Programming	3
			15
FOURTH TERM			
	N C 224	APT III Computer Programming	4
	N C 225	Numerical Control Graphics	3
	N C 111	Manufacturing Processes for N/C	3
		Elective*	2
		Elective*	3
			15

Total Credit Hours For Program—63

*Electives as Recommended by Advisor

NUMERICAL CONTROL MACHINE OPERATOR One-Year Program—Code 872

Advisor—D. Garrett

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	N C 100	Introduction to Numerical Control	3
1	M T 111	Machine Shop Theory and Practice	4
3	I D 100 I D 111	Technical Drawing or Industrial Drafting	4
1	MTH 151	Applied Algebra	4
			15
SECOND TERM			
2	N C 121	Manual Programming for Numerical Control	3
2	N C 122	Numerical Control Machine Tool Operation	3
3	M T 122	Machine Tool Operation and Set-Up	4
4	ENG 100	Technical Communications	3
4	MTH 152	Applied Geometry and Trigonometry	4
			17

Total Credit Hours For Program—32

WELDING AND FABRICATION TECHNICIAN Two-Year Program—Code 891

Advisors—D. Gray, L. Morgan, W. Figg

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	W F 111	Welding and Fabrication (Basic Oxy-Acetylene)	4
2	W F 112	Welding and Fabrication (Basic Arc)	4
7	M T 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	3
			17
SECOND TERM			
3	W F 123	Welding and Fabrication (Advanced Oxy-Acety.)	4
4	W F 124	Welding and Fabrication (Advanced Arc)	4
8	MLG 122	General Metallurgy	3
1	MTH 151	Applied Algebra	4
			15
THIRD TERM			
5	W F 215	Welding and Fabrication (Tig)	4
6	I D 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	W F 226	Welding and Fabrication (Specialized)	4
9	FLP 111	Fluid Power Fundamentals	4
10	W F 200	Layout & 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—64-65

COMBINATION WELDER-MECHANIC One-Year Program—Code 892

Advisors—D. Gray, L. Morgan, W. Figg

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	W F 111	Welding and Fabrication	4
2	W F 112	Welding and Fabrication	4
1	BPR 103	Sheet Metal Blueprint Reading and Layout	3
4	ENG 091	English Fundamentals	3
3	MLG 100	Introduction to Metallurgy	1
3	MLG 215	Heat Treatment Process	2
			17
SECOND TERM			
3	W F 123	Welding and Fabrication	4
4	W F 124	Welding and Fabrication	4
2	MLG 122	General Metallurgy	3
5	MTH 151	Applied Algebra	4
			15

Total Credit Hours For Program—32

Practical Nurse Career

PRACTICAL NURSE* One-Year Program—Code 760

Advisors— P. Grzegorczyk, B. Goodkin, J. 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	3
NUR 117	Nutrition for Nurses	2
NUR 111	Pharmacology I	1
NUR 118	Personal and Community Health	1
		18
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 (2nd 7½ weeks)	2
NUR 121	Medical-Surgical Nursing Practice (2nd 7½ weeks)	3
NUR 122	Pharmacology II	2
HS 121	Interpersonal Dynamics of Patient Care or	
PSY 100	Intro Psych.2	2
		14
THIRD (SPRING/SUMMER) TERM		
NUR 135	Parent-Child Nursing with Laboratory (1st 8 weeks)	2
NUR 130	Parent-Child Nursing Practice (1st 8 weeks)	4
NUR 140	Advanced Medical-Surgical Nursing Practice (2nd 6 weeks)	3
NUR 145	Advanced Medical-Surgical Nursing with Laboratory (2nd 6 weeks)	2
NUR 147	Growth and Development	3
NUR 133	Pharmacology III	2
		16

Total Credit Hours For Program—48

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

SEQUENCE II

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

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	3
		18
SECOND (SPRING/SUMMER) TERM		
NUR 125	Medical-Surgical Nursing with Laboratory (1st 8 weeks)	2
NUR 120	Medical-Surgical Nursing Practice	3
NUR 122	Pharmacology II (1st 8 weeks)	2
NUR 135	Parent-Child Nursing with Laboratory (2nd 8 weeks)	2
NUR 130	Parent-Child Nursing Practice (2nd 8 weeks)	4
NUR 147	Growth and Development	3
		16
THIRD (FALL) TERM		
NUR 126	Medical-Surgical Nursing with Laboratory (1st 7 weeks)	2
NUR 121	Medical-Surgical Nursing Practice (1st 7 weeks)	3
NUR 145	Advanced Medical-Surgical Nursing with Laboratory (2nd 6 weeks)	2
NUR 140	Advanced Medical-Surgical Nursing Practice (2nd 6 weeks)	3
NUR 133	Pharmacology III	2
H S 121	Interpersonal Dynamics of Patient Care or	
PSY 100	Intro Psych.	2
		14

Total Credit Hours For Program—48

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 TECHNICIAN Two-Year Program—Code 631

Advisor—P. A. Ludos

Course	Description	Hrs.
FIRST TERM		
F P 100	Introduction to Fire Protection	3
F P 101	Hydrostatics	4
CEM 097	Chemistry of Combustibles	3
PSY 100	Introductory Psychology	3
ENG 100	Technical Communications or	
ENG 111	English Composition	3
		16
SECOND TERM		
F P 099	Labor Relations In the Public Sector	3
F P 122	Fire Prevention Theory & Application	3
SOC 205	Racial and Ethnic Relations	3
SPH 101	Fundamentals of Speech	3
SOC 100	Introductory Sociology	3
		15
THIRD TERM		
F P 210	Introduction to Fire Administration	3
F P 213	Fire Investigation & Arson	3
PLS 150	State and Local Government	3
BPR 100	Blueprint Reading For Construction Trades	2
F P 103	Flammable Hazardous Material	3
		14
FOURTH TERM		
F P 189	Study Problems	3-6
F P 209	Advanced Strategy	3
F P 224	Protection Systems in Industry	3
S O 101	Typewriting	3
		15

Total Credit Hours For Program—60

CHILD CARE WORKER Two-Year Program—Code 640

Course	Description	Hrs.
FIRST TERM		
CCW 101	Child Development	3
CCW 108	Educational Experiences in Expressive Arts*	3
CCW 105	Practicum I*	3
ENG 111	English Composition or	
ENG 091	English Fundamentals	3
SPH 101	Fundamentals of Speaking	3
		15
SECOND TERM		
CCW 103	Alternative Programs in Child Care	3
CCW 110	Social/Emotional Development	3
BLS 107	Black Psychology	3
ENG 210	Children's Literature	3
**	Elective	3
		15
THIRD TERM		
CCW 107	Educational Experiences in Science and Math*	3
CCW 106	Practicum II*	3
CCW 200	Staff/Parent Interpersonal Relations	3
PLS 150	State and Local Government or	
PLS 108	Government and Society	3
**	Elective	3
		15
FOURTH TERM		
CCW 100	Exceptional Pre-School Child	3
CCW 114	Practicum III*	4
CCW 111	Day Care Administration* or	
CCW 116	Seminar in Infant Care*	3
CUL 118	Principles of Nutrition or	3
P E 120	Healthful Living	3
P E 130	American Red Cross	2
		15

Total Credit Hours For Program—60

*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
E C 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 TECHNICIAN Two-Year Program—Code 651

Advisor—P. A. Ludos

Course	Description	Hrs.
FIRST TERM		
ENG 100	Technical Communications or	
ENG 111	English Composition	3
PSY 100	Introductory Psychology	3
PLS 150	State & Local Government	3
*C J 100	Introduction to Criminal Justice	3
SOC 100	Introductory Sociology	3
		15
SECOND TERM		
PSY 108	Dynamics of Behavior or	
PSY 209	Psychology of Adjustment	3
C J 111	Police Community Relations	3
SOC 250	Juvenile Delinquency or	
C J 223	Juvenile Justice	3
SOC 202	Criminology	3
BLS 107	Black Psychology or	
SOC 205	Racial & Ethnic Relations	3
		15
THIRD TERM		
C J 209	Criminal Law	3
C J 224	Criminal Investigation	3
C J 205	Applied Psychology for Police or	
PSY 257	Abnormal Psychology	3
SPH 101	Fundamentals of Speech	3
	One of the Following:	
	History	
	Political Science	
	Economics	
	Logic	3
		15
FOURTH TERM		
C J 210	Introduction to Criminalistics	3
C J 122	Correctional Systems	3
C J 225	Seminar in Criminal Justice	3
C J 208	Evidence and Procedure	3
Elective	(open choice)	3
		15

Total Credit Hours For Program—60

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

Radiologic Technology Career

RADIOLOGIC TECHNOLOGY Two-Year Program—Code 741

Advisors—R. Nelson, G. Baker

Course	Description	Hrs.
FIRST (SUMMER) TERM 7 Weeks		
R T 100	Intro to Radiography	2
R T 101	Methods of Patient Care	2
MTH 165	Health Science Math	3
		7
SECOND (FALL) TERM 15 Weeks		
R T 110	Clinical Education	2
R T 111	Fundamentals of Radiography	3
R T 112	Radiographic Positioning	2
BIO 111	Anatomy and Physiology	3
BIO 112	Anatomy and Physiology Lab	1
BIO 105	Medical Terminology	2
		13
THIRD (WINTER) TERM 15 Weeks		
R T 120	Clinical Education	2
R T 123	Radiographic Positioning	2
R T 125	Radiologic Procedures and Anatomy	3
ENG	English Elective	3
PSY	Psychology Elective	3
		13
FOURTH (SPRING/SUMMER) TERM 14 Weeks		
R T 135	Pathology for Radiographers	2
R T 130	Clinical Education	4
		6

SECOND YEAR

Course	Description	Hrs.
FIFTH (FALL) TERM 15 Weeks		
R T 217	Clinical Education	3
R T 215	Radiography of the Skull	2
R T 218	Radiation Biology & Protection	3
PHY 141	Radiologic Physics	3
SOC	Sociology Elective	3
		14
SIXTH (WINTER) TERM 15 Weeks		
R T 225	Clinical Education	3
R T 224	Principles of Radiographic Exposures	3
R T 227	Radiologic Technology Lab	1
R T 228	Supervisory Management	2
PHY 142	Radiologic Physics	3
PLS	Political Science Elective	3
		15
SEVENTH (SPRING) TERM 7 Weeks		
R T 240	Clinical Education	2
		2

Total Credit Hours For Program—70

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 THERAPIST Two-Year Program—Code 721

Advisors—C. Hammond, M. Redick

Course	Description	Hrs.
FIRST TERM		
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 Lab 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 Math	3
		14

FIFTH TERM

RTH 201	Specialty Clinical Practice	4
RTH 231	Cardio Diagnostics	3
SOC	Sociology Elective (Medica Soc 201, or 100, 150, 202, 207, 250)	3
PLS	Political Science (PLS 108, 112, or 150)	3
ENG	English or Speech Elective	3
		16

Total Credit Hours For Program—72

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 THERAPIST Alternate "B" One-Year Program—Code 723

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 Lab 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 TECHNICIAN One-Year Program—Code 751

Advisor—C. Dunham

Course	Description	Hrs.
FIRST TERM		
E M 101	EMT Principles I	2
E M 102	EMT Techniques I	2
E M 105	Patient Care Procedures	2
E M 111	Psychological Assessment for EMT	2
		8
SECOND TERM		
E M 103	EMT Principles II	2
E M 104	EMT Techniques II	2
E M 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 Cardio-pulmonary 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, Ypislanti, FontanaTaylor 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: E. Charlton, J. Patt, E. Wilson, W. Burch

Course	Description	Hrs.
FIRST TERM		
S O 101	Typewriting and/or Elective* (102, 203)	3
S O 131	(132, 133) Shorthand and/or Elective*	3-4
G B 140	Business Occupational Foundations	3
MTH 090	Foundations of Occupational Math or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
		15-16
SECOND TERM		
S O 102	(203) Typewriting and/or Elective*	3
S O 132	(133, 231) Shorthand and/or Elective*	3
S O 130	Business Machines	3
PLS 108	Government and Society	3
SPH 101	Fundamentals of Speaking	3
		15
THIRD TERM		
S O 133	(231, 232) Shorthand and/or Elective*	3
D P 100	Intro. to Computers	3
D P 111D	Data Processing/Programming, BASIC	3
G B 111	Business Law	3
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
MGT 200	Human Relations in Business or	
MGT 230	Office Management	3
		18
FOURTH TERM		
S O 250	Office Systems and Procedures	4
ACC 092	Fundamentals of Accounting or	
ACC 122	Principles of Accounting	3
G B 207	Business Communication	3
S O 231	(232) Shorthand	3
I E 200	Internship-Externship or Business Elective	3
		16

Total Credit Hours For Program—64-65

*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:
S O 151 Word Processing Principles
E C 211 Principles of Economics
G B 122 Business Law

CLERK-TYPIST One-Year Program—Code 562

Advisors—E. Charlton, J. Patt, E. Wilson, W. Burch

Course	Description	Hrs.
FIRST TERM		
S O 101	(102, 203) Typewriting and/or Elective*	3
G B 140	Business Occupational Foundations	3
MTH 090	Foundations of Occupational Math or Math Elective	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
	Business Elective	3
		15

SECOND TERM		
S O 102	(203) Typewriting and/or Elective*	3
G B 207	Business Communication	3
S O 130	Business Machines	3
S O 107	Clerical Methods and Procedures	4
I E 200	Internship-Externship or Business Elective	3
		16

Total Credit Hours For Program—31

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

MEDICAL OFFICE SPECIALIST Two-Year Program—Code 731

Advisor—J. Patt

Course	Description	Hrs.
FIRST TERM		
S O 101	Typewriting	3
D P 100	Data Processing	3
ENG 091	English Fundamentals or	
ENG 111	English Composition	3
H S 113	Intro. to Med. Science	2
BIO 105	Medical Terminology	2
MTH 090	Occupational Math	3
		16
SECOND TERM		
S O 102	Typewriting	3
BIO 111	Anatomy & Physiology	4
PSY 100	Intro. to Psych	3
S O 130	Business Machines	3
Elective	Shorthand 131 or Mach. Shorthand 141 or Accounting 090 or 111 Data Processing Programming, or BASIC 111D	2-3
		15-16

THIRD TERM		
S O 210	Medical Transcription	3
S O 107	Clerical Procedures	3
PLS 108	Government and Society	3
I E 200	Intern-Externship	3
Elective	Shorthand or Mach. Shorthand or Accounting or Electrocardiogram HS 114	2-3
		14-15
FOURTH TERM		
S O 250	Office Systems & Procedures	4
S O 223	Medical Typewriting (Insurance/ office forms)	3
G B 207	Business Communications	3
I E 200	Intern-Externship	3
Elective	Speech 100 or Office Management 230 or Human Relations 200	3
		16

LEGAL SECRETARY Two-Year Program—Code 563

Advisors—J. Patt, E. Wilson

Course	Description	Hrs.
FIRST TERM		
S O 102	Typewriting	3
D P 100	Data Processing or	3
S O 151	Word Processing	(3)
ENG 111	English Composition or	3
ENG 091	English Fundamentals	(3)
S O 110	Foundations of Law	3
S O 131	Shorthand 132, 133, or 203	4-3
	or	
S O 141	Machine Shorthand	(2)
		15-16
SECOND TERM		
S O 203	Typewriting	3
S O 132	Shorthand or	3
S O 142	Machine Shorthand	(2)
G B 111	Business Law	3
MTH 090	Occupational Math	3
S O 122	Domestic Relations	3
PLS 108	Government and Society	3
		17-18
THIRD TERM		
S O 133	Shorthand (231) or	3
S O 243	Machine Shorthand	(2)
S O 213	Legal Typewriting	3
S O 130	Business Machines	3
ACC 111	Principles of Accounting or	3
ACC 091	Fundamentals of Accounting	(3)
S O 212	Legal Research	3
		14-15
FOURTH TERM		
S O 231	Shorthand (232) or	3
S O 244	Machine Shorthand	(2)
G B 207	Business Communications	3
S O 227	Legal Office Systems and Procedures	4
I E 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—61-65

WORD PROCESSING OFFICE SPECIALIST Two-Year Program—Code 564

Advisors—J. Patt, E. Charleton, E. Wilson, W. Burch

Course	Description	Hrs.
FIRST TERM		
S O 151	Word Processing Principles	3
S O 102	Typewriting (203) and/or Elective	3
G B 140	Business Occupational Foundations	3
MTH 090	Foundations of Occupational Math or Math Elective	3
ENG 090	English Fundamentals or	
ENG 111	English Composition	3
		15
SECOND TERM		
S O 152	Word Processing Applications/ Dictation Equipment	2
S O 153	Word Processing Applications/ Basic Practice	2
S O 203	Typewriting and/or Elective	3
I C 200	Internship-Externship or Business Elective*	3
D P 100	Data Processing	3
D P 111D	Data Processing/Programming BASIC	3
		16
THIRD TERM		
S O 214	Word Processing Applications/ Advanced Practice	3
S O 250	Office Systems and Procedures	4
ACC 091	Fundamentals of Accounting or	
ACC 111	Principles of Accounting	3
G B 207	Business Communications	3
I E 200	Intern/Externship or Business Elective	3
		16
FOURTH TERM		
S O 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—62

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

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 examination. 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.

Associate Degree Program for JOURNEYMAN ENGINEERING TECHNICIAN —Code 990

Advisor—R. 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 ASSOCIATE 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
N C 121	Programming for Numerical Control	3
N C 122	Numerical Control Machine Tool Operations	3
N C 213	Compact II Computer Programming	4
N C 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

Minimum 60 Hours

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—R. 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

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

60 credit hours minimum required

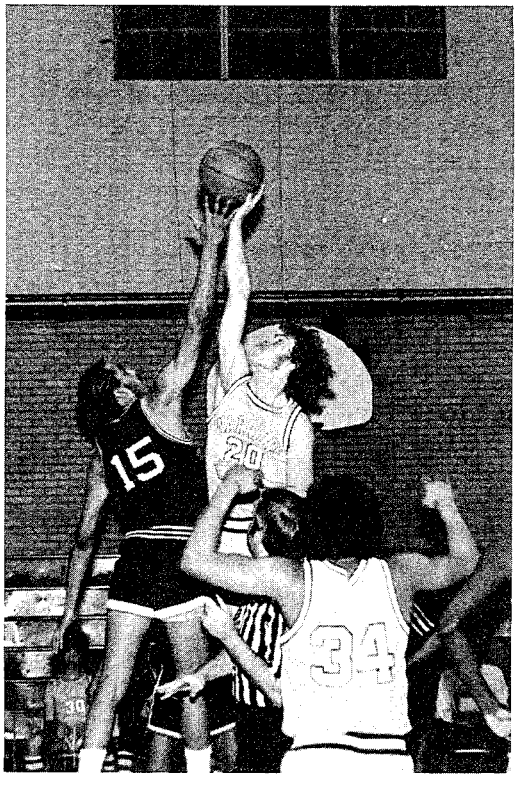
The list of the following Apprenticeship Programs are only a few of the standard ones offered at the College. Others may be arranged by contacting the Coordinator.

TOOLMAKER APPRENTICE
Code-902
Advisor—R. Jackson

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

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. Jackson

Course	Description	Hrs.
M T 100	Machine Shop Theory	3
BPR 101	Blueprint Reading	3
MTH 151	Applied Algebra or Appropriate Level Math	4
I D 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
I D 111	Industrial Drafting	4
I D 212	Theory of Dies	2
MLG 215	Heat Treat Processes	2

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. Jackson

Course	Description	Hrs.
BPR 101	Blueprint Reading	3
M T 111	Machine Shop Theory and Practice	4
MTH 151	Applied Algebra or Appropriate Level Math	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
I D 100	Technical Drawing	4
I D 121	Theory of Jigs and Fixtures	2
I D 212	Theory of Dies	2

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	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
I D 100	Technical Drawing	4
W F 104	Soldering and Brazing	2

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. 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
I D 100	Technical Drawing	4

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. Jackson

Course	Description	Hrs.
BPR 103	Sheet Metal Layout Blueprint Reading	3
BPR 101	Blueprint Reading	3
M T 100	Machine Shop Theory	3
MTH 151	Applied Algebra	4
MTH 152	Applied Geometry and Trigonometry	4
I D 100	Technical Drawing	4
M T 240	Plant Layout and Material Handling Systems	4
PHY 110	Applied Physics or Appropriate Level Course	4
W F 102	Arc Welding	2
M T 101	Millwright Theory	2

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. Jackson

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

There is a minimum of 576 classroom hours of instruction required, and 8000 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—R. 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 & 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

There is a minimum of 576 classroom hours of instruction required, and 8000 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 SERVICER Code 943

Advisor—R. Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or	
MTH 169	Intermediate Algebra	4
E E 111	Electrical Fundamentals	4
RAC 111	Refrigeration	5
RAC 122	Refrigeration	5
W F 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
		57

TINSMITH/SHEETMETAL APPRENTICE Code-913

Advisor—R. Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	4
MTH 152	Applied Geometry and Trigonometry	4
I D 100	Technical Drawing (Layout)	4
I D 112	Descriptive Geometry (Layout)	4
BPR 103	Blueprint Reading Sheet Metal	3
BPR 105	Advanced Sheet Metal	3
W F 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 8000 hours of on-the-job training.

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

HEATING AND VENTILATING SERVICE Code-986

Advisor—R. Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	4
E E 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

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 $32.00. Test books for the three heating courses are expensive averaging approximately $35.00 each. Consent of advisor is required for registration.

REFRIGERATION MECHANIC APPRENTICE Code-943

Advisor-R. Jackson

Course	Description	Hrs.
MTH 151	Applied Algebra or Appropriate Level Math	4
E E 111	Electrical Fundamentals	4
RAC 111	Refrigeration	5
RAC 123	Systems Laboratory	5
RAC 124	Basic Controls	5
RAC 214	Control Systems	5
W F 104	Soldering and Brazing	2

There is a minimum of 576 classroom hours of instruction required, and 8000 hours of on-the-job training.

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

QUALITY CONTROL TECHNICIAN

Two-Year Program—Code 944

Advisor—R. Jackson

CORE COURSES

Course	Description	Hrs.
Q C 101	Process Quality Control	3
Q C 122	Sampling Quality Control	3
Q C 213	Quality Control by Statistical Methods	3
Q C 224	Quality Control Program Solving	3
Q C 255	Quality Control Management	3
Q C 266	Introduction to Nondestructive Testing	3
		18

ASSOCIATE DEGREE OPTIONS

Materials & Testing Option

Advisor—R. Jackson

Course	Description	Hrs.
Q C	Core Courses	18
MTH 151	Applied Algebra or	
MTH 169	Intermediate Algebra	4
BPR 101	Blueprint Reading	3
MLG 101	Industrial Materials	2
MLG 100	Introduction to Metallurgy	1
MLG 122	General Metallurgy	3
MLG 217	Mechanical Testing	2
MLG 215	Heat Treatment Processes	2
MLG 228	General Metallography	4
MLG 217	Mechanical Testing	2
D P 111	Principles of Data Process	5
ENG 111	English Composition	3
PLS 150	State and Local Government and Politics	3
CEM 111	General Chemistry	4
PHY 110	Physics or	
PHY 111	Physics	4
		60

MANAGEMENT OPTION

Q C	Core Courses	18
MTH 169	Intermediate Algebra	4
MTH 160	Basic Statistics	4
ENG 111	English Composition and	
ENG 122	English Composition	6
E C 211	Principles of Economics and	
E C 222	Principles of Economics	6
ACC 111	Principles of Accounting and	
ACC 222	Principles of Accounting	6
D P 111	Principles of Data Processing	5
D P 122	Data Processing Applications	2
PLS 150	State and Local Government and Politics	3
SPH 101	Fundamentals of Speaking	3
PSY 100	Introductory Psychology or Elective (check advisor)	3
	Minimum Required	60

ELECTRONICS OPTION

Q C	Core Courses	18
MTH 169	Intermediate Algebra or	
MTH 151	Applied Algebra	4
E E 110	Electrical Applications	2
E E 111	Electrical Fundamentals	4
E E 120	Electrical Applications	2
E E 122	Electrical Fundamentals	4
E E 200	Audio and Power Transmission	3
E E 211	Basic Electronics	4
E E 238	Electronic Analog Circuits	4
PLS 150	State and Local Government and Politics	3
ENG 111	English Composition and	
ENG 122	English Composition	6
D P 111	Principles of Data Processing	5
	Minimum Required	60

SCIENCE AND ENGINEERING OPTION

Q C	Core Courses	18
MTH 169	Intermediate Algebra	
MTH 179	Precalculus	
MTH 191	Calculus-First Course	
MTH 192	Calculus-Second Course	18
PHY 111	Introductory Physics	
PHY 122	General Physics	8
CEM 111	General Chemistry and	
CEM 122	General Chemistry	8
ENG 111	English Composition and	
ENG 122	English Composition	6
PLS 150	State and Local Government and Politics	3
	Minimum Required	61

1. Appropriate work experience credit may be awarded in lieu of certain courses.
2. Certain assumptions are made as to the student's capabilities in basic algebra, blueprint reading, and shop terminology. If there are deficiencies in these subject areas, additional courses may be recommended.

SPECIALTY OPTION

Q C	Core Courses	18
	Electives	36
	Purpose of specialty is to meet the needs of students working in diverse fields of Quality Control	
	PLS 150 State and Local Government and Politics	3
	ENG 111 English Composition or ENG 100 Technical Communications	3
	Minimum Required	60

INSPECTOR-QUALITY CONTROL One-Year Program—Code 946

Advisor—R. Jackson

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	MGL 100	Introduction to Metallurgy	1
1	M T 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	Q C 225	Quality Control Management	3
3	MTH 152	Applied Geometry and Trigonometry	4
			15

Total Credit Hours For Program—30

SALES REPRESENTATIVE INDUSTRIAL DISTRIBUTION—Code-970

Advisor—R. Jackson

CORE COURSES

Course	Description	Hrs.
G B 140	Business Occupational Foundations	3
ENG 100	Technical Communications or	
ENG 111	English Composition	3
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
E C 211	Principles of Economics	3
PLS 108	Government and Society or PLS 150 or PLS 122	3
MTH 097	Algebra (if needed)	
		30

Course	Description	Hrs.
	Core Courses	30
E E 101	Servicing Techniques	4
E E 110	Electrical Applications	2
E E 111	Electrical Fundamentals	4
E E 102	Appliance Repair	4
E E 122	Electrical Fundamentals	4
E E 127	Industrial Electricity	4
E E 211	Basic Electronics	4
E E 220	Electrical Installation and Maintenance	4
E E 237	Electronic Switching and Control	3
		63

WELDING SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30
W F 111	Basic Oxy-Acetylene	4
W F 112	Basic Arc	4
W F 123	Advanced Oxy-Acetylene	4
W F 124	Advanced Arc	4
W F 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
M T 100	Machine Shop Theory	3
BPR 102	Bluepring Reading-Maintenance	3
		63

HYDRAULIC-PNEUMATIC SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30
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
M T 111	Machine Shop Theory and Practice	4
M T 122	Machine Tool Operation and Set-Up	4
BPR 102	Blueprint Reading and Maintenance	3
E E 101	Servicing Techniques	4
		65

DATA PROCESING, OFFICE, SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30
S O 110	(A, B, C) Typewriting	3
D P 111A	Data Processing/Computer Concepts	3
D P 111B	Data Processing/Computer Functions	3
D P 122A	Data Processing/Computer Flowcharting	3
D P 122B	Data Processing Programming/ RPG 1 and 2	3
ACC 111	Principles of Accounting	3
ACC 122	Principles of Accounting	3
D P 213A	Computer Programming/ Introductory COBOL	3
D P 213B	Computer Programming/ Intermediate COBOL	3
S O 130	Business Machines	3
D P 213C	Computer Programming/Advanced	3
D P 224A	Data Processing/Computer Design Concepts	3
		66

RESTAURANT, INSTITUTION, FOOD SERVICE SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30
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 Mangement of Hospitality Industry	3
CUL 224	Economics of Volume Feeding	4
E C 222	Principles of Economics	3
CUL 228	Equipment and Layout	4
		61

PHOTOGRAPHIC SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30-34
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
G B 111	Business Law	3
		61-64

AUTOMOBILE SERVICE SUPPLIES AND EQUIPMENT

Course	Description	Hrs.
	Core Courses	30
A S 110	Light Service Repair	2
A S 111	Engine Repair	4
A S 116	Electrical Systems	4
A S 123	Transmissions and Power Trains	2
A S 124	Wheel Balancing and Alignment	3
A S 125	Brake Systems	3
A S 128	Fuel Systems	3
A S 218	Tune Up and Emissions	4
A S 227	Heating and Air Conditioning	2
ABR 111	Auto Body Repair Fundamentals	4
		61

ELECTRONIC SUPPLIES AND EQUIPMENT OPTION

Course	Description	Hrs.
	Core Courses	30
E E 101	Servicing Techniques	4
E E 110	Electrical Applications	2
E E 111	Electrical Fundamentals	4
E E 102	Appliance Repair	4
E E 120	Electrical Applications	2
E E 122	Electrical Fundamentals	4
E E 211	Basic Electronics	4
E E 212	Radio and Television Circuitry	5
E E 223	Color Television	4
E E 230	Communications Electronics	4
		67

CONSTRUCTION AND BUILDING SUPPLIES OPTION

Course	Description	Hrs.
	Core Courses	30
BRP 100	Blueprint Reading-Construction	2
BPR 110	Blueprint Reading-Construction	2
ARC 109	Site Layout	3
ARC 117	Construction Materials	3
C T 121	Carpentry	4
C T 221	Carpentry	4
C T 131	Electric Power Supply	4
C T 171	Cabinet Making	4
C T 242	Crafts in Wood, Plastics, and Metals	4
C T 111	Fundamentals of Painting and Decorating	4
		64

REFRIGERATION, HEATING, AIR CONDITIONING EQUIPMENT AND SUPPLIES

Course	Description	Hrs.
	Core Courses	30
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
		65

Visual Arts Technology Careers

COMMERCIAL ARTIST Two-Year Program—Code 882

Advisor—J. Martin

Part-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	3
2	MTH 090	Foundations of Occupational Mathematics or	
	PHY 110	Applied Physics	3-4
			16-17
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—65-66

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

TECHNICAL ILLUSTRATOR Two-Year Program—Code 884

Advisor—J. Martin

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
2	TCA 110	Lettering and Layout	4
1	ART 111	Basic Drawing	3
2	I D 100	Technical Drawing or	
	I D 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	3
			15
THIRD TERM			
5	TCA 101	Technical Illustration	4
5	BPR 103	Sheet Metal Blueprint Reading and Layout or	
	I D 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—64-67

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

PHOTOGRAPHIC TECHNICIAN Two-Year Program—Code 885

Advisor—J. R. Steinback, J. D. Patterson

Part-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	3
6	PLS 108	Government and Society	3
			16
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 & Use	3
5	PHO 221	Advanced Darkroom Techniques	3
7	PHO 222	Advanced Color Photography	4
7	PHO 223	Photographic Occupations	3
7	PSY 150	Industrial Psychology	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
3	MGT 209	Small Business Management	3
			11-13

Total Credit Hours For Program—60-62

PHOTOGRAPHIC TECHNICIAN Two-Year Program—Code 887 (Marketing Option)

Advisor—J. R. Steinbach

Part-Time Sequence	Course	Description	Hrs.
FIRST TERM			
1	PHO 111	Photography	4
1	MTH 090*	Foundations of Occupational Mathematics	3
4	G B 140	Business Occupational Foundations	3
4	ENG 100	Technical Communications	3
5	PLS 108	Government and Society	3
			16
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	E C 211	Principles of Economics	3
7	G B 111	Business Law	3
7	MGT 250	Principles of Marketing	3
8	MGT 260	Sales Management	3
			15

Total Credit Hours For Program—64

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

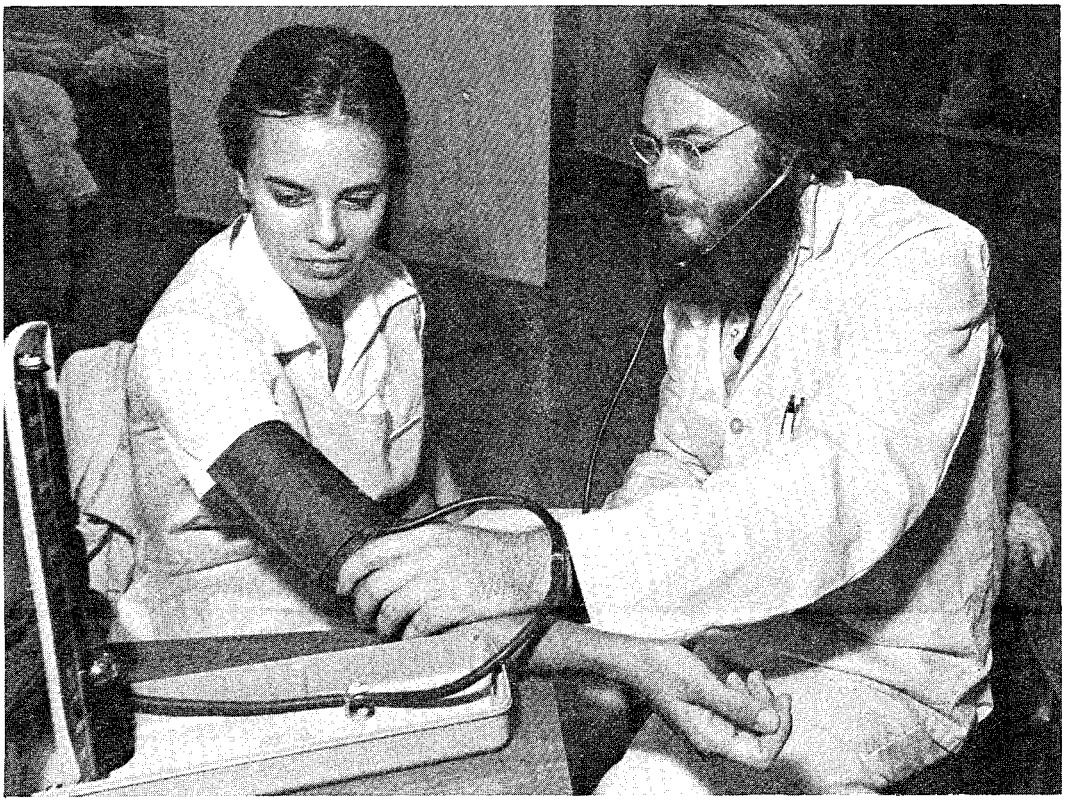
PHOTOGRAPHIC ASSISTANT One-Year Program—Code 886

Advisors—J. R. Steinbach, J. D. Patterson

Part-Time Sequence	Course	Full-Time Sequence Description	Hrs.
FIRST TERM			
1	PHO 111	Photography	4
3	ART 112	Basic Design	3
1	MTH 090	Foundations of Occupational Mathematics	3
4	ENG 100	Technical Communications	3
5	PLS 108	Government and Society	3
			16

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
			14

Total Credit Hours For Program—30



COURSE DESCRIPTIONS

In this section descriptions of all courses offered at Washtenaw Community College are listed alphabetically.

The number of hours each class meets per week is indicated if it is different from the number of credit hours for the class (i.e., 3 credit hours = 3 hours of class per week). This applies to a 15 week session. During short terms the number of class hours per week increases.

Because some course numbers have been changed occasionally there is citing of the previous course number. For example:

Electricity/Electronics
137 Switching Logic (formerly Switching & Controls 237) ..... 3 credit hours

Economics
103 Consumer Rights (GS 103) ..... **3 credit hours**

Two courses available to students in most career programs are Study Problems and On-The-Job Training.

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

Prerequisite: Consent of area

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

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

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

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

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

Accounting (ACC)

091 Fundamentals of Accounting ..... **3 credit hours**

Prerequisite or co-requisite: 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 majors; does not give transfer college credit.

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.

111 Principles of Accounting ..... **3 credit hours**

Prerequisite: Foundations of Occupational Mathematics 090.

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

122 Principles of Accounting ..... **3 credit hours**

Prerequisite: Principles of Accounting 111.

Accounting, perceived as an essential function in achieving sound business goals and management reports, and analysis. Required of all accounting majors and Business Administration transfer students.

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.

213 Intermediate Accounting ..... **3 credit hours**

Prerequisites: 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.

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 all accounting majors.

Anthropology (ANT)

150 Religions of the World ..... **3 credit hours**

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

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 civilizations as a background for understanding such contemporary developments as economic underdevelopment and cultural dependence. Dilemmas of modern peasantry and genocide of Amazonian tribes receive special emphasis.

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. (3 hours per week)

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 LSB Leakey. (3 hours per week)

207 Sources of Indian Tradition ..... **3 credit hours**

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

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.

222 Philosophy and Practice of Yoga II ..... **3 credit hours**

Prerequisite: 211 Intro. to the Philosophy and Practice of Yoga.

A continuation of ANT 211. More time will be spent relating the knowledge gained from Indian classical literature to the knowledge gained from practicing the yoga asanas.

223 Psycho-Physiology of Yoga ..... **3 credit hours**

Prerequisite: 222 Philosophy and Practice of Yoga II.

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

Architectonics (ARC)

100 Specifications ..... **1 credit hour**

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

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.

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)

117 Construction Materials ..... **3 credit hours**

A survey of typical types of materials used in basic construction. Emphasis is placed on the properties, selection, and building techniques appropriate for a wide range of materials. Included are woods, metals, plastics, glass, and aggregate materials.

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.

122 Architectural Drawing ..... **6 credit hours**

Prerequisite: Architectural Drawing 111.

Preparing architectural drawings from diagrammatic sketches, pictures, surveys, and conference notes from an individual. The student is taught to develop preliminary studies and working drawings for an architectural project approved by the instructor. (12 hours per week)

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 to enhance financial and other forms of support needed to make proposal a reality. (6 hours per week)

207 Estimating Construction Costs ..... **2 credit hours**

Prerequisite: Construction Materials 117 and Mechanical Equipment 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.

208 Estimating Construction Costs ..... **2 credit hours**

Prerequisite: Estimating Construction Costs 207.

Advanced course in estimating construction cost. For larger scale construction projects including more detailed type of building construction.

209 Surveying ..... **3 credit hours**

Prerequisite: Applied Algebra 151.

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

210 Structure in Architecture ..... **2 credit hours**

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

213 Architectural Drawing ..... **6 credit hours**

Prerequisite: Architectural Drawing 122.

Major problems in architectural drawing are studied through the preparation of drawings and cost estimates for a moderate sized building such as a school or church. (12 hours per week)

224 Architectural Drawing ..... **6 credit hours**

Prerequisite: Architectural Drawing 213.

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

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)

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 111 or Painting 114.

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)

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)

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 breaches some of the gaps between the various communities through visual means. (6 hours per week)

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 towards painting regardless of subject matter or style. (6 hours per week)

120 Portrait Painting and Life Drawing ..... **3 credit hours**

Work from live models, 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)

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)

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)

125 Painting ..... **3 credit hours**

Prerequisite: Painting 114 or consent

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

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.

140 Life Drawing ..... **3 credit hours**

Drawing from 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)

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.

143 Art & Culture of AfroAmerica ..... **3 credit hours**

Prepares students to participate in and appreciate the arts (visual, dance, music, film, poetry, literature) of African and Afroamerican 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 (A A)

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).

122 Assessment Administration - Intermediate ..... **3 credit hours**

Prerequisite: Assessment Administration - Basic 111, or equivalent.

Continuation of 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).

123 Assessment Administration - Advanced ..... **3 credit hours**

Prerequisite: Assessment Administration - Intermediate 122, or equivalent.

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

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 - (3 hours). Architectural Types and Construction - (3 hours). Residential Appraisals - (9 hours).

222 Appraisal - Intermediate ..... **3 credit hours**

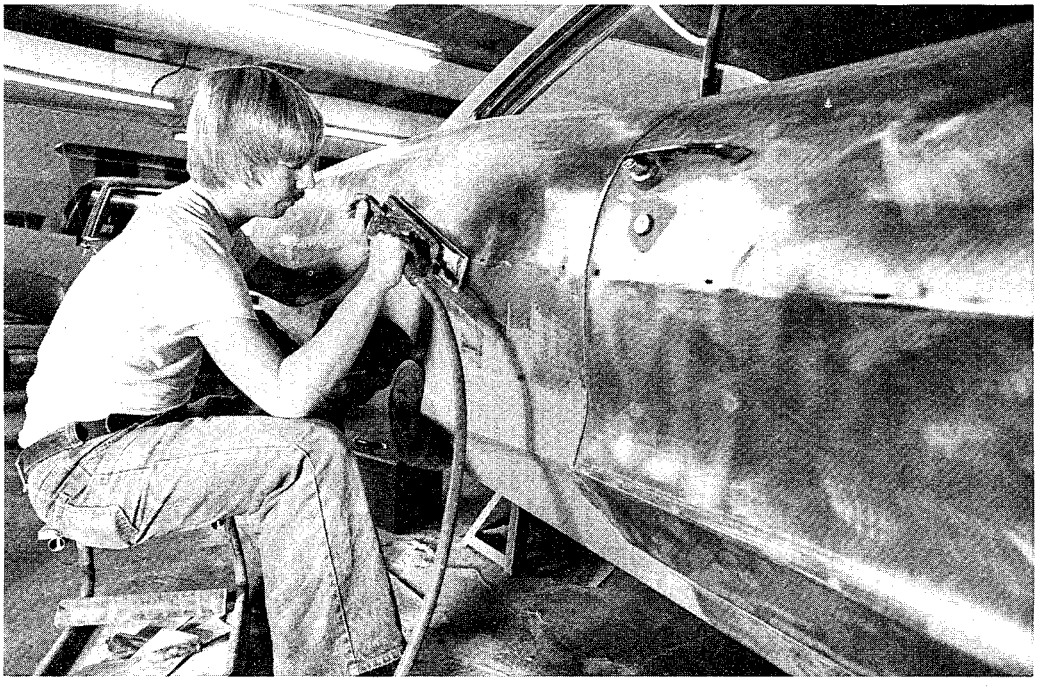
Prerequisite: Appraisal - Basic 211, or equivalent.

Continuation of 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 Appraisals - (6 hours).

223 Appraisal - Advanced ..... **3 credit hours**

Prerequisite: Appraisal - Intermediate 222, or equivalent.

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



Astronomy (AST)

100 Introductory Astronomy ..... **1 credit hour**

The sun, moon, planets and stars observed directly and by 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)

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)

122 Modern Astronomy ..... **3 credit hours**

Prerequisite: Introductory Algebra 097 and General Astronomy 111.

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

Auto Body Repair (ABR)

Students enrolling in the Auto Body Repair Program 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 programs.

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)

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)

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)

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)

123 Body Repair Applications ..... **4 credit hours**

Prerequisite: Auto Body Repair Fundamentals 111.

Continuation of 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)

124 Auto Refinishing Applications ..... **4 credit hours**

Prerequisite: Auto Refinishing Fundamentals 112.

Continuation of units in 112. Lab assignment on live 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)

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)

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, diagrams, and portable body-frame straightening equipment to make a diagnosis and set up corrective hook ups. (4 hours per week)

127 Major Repair Fundamentals ..... **2 credit hours**

Prerequisite: Auto Body Repair Fundamentals 111, and W F 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)

219 Major Repair Applications ..... **4 credit hours**

Prerequisite: Body Repair Applications 123, and Major Repair Fundamentals 127.

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 hardward, replacement and aligning various body components. (8 hours per week)

220 Enamel Refinishing Practices ..... **4 credit hours**

Prerequisite: Auto Refinishing Applications 124.

Study of modern acrylic and poly-urethane enamels which includes surface preparation mixing and application of solid and metallic colors. Live cars and light trucks provide the student diversified experience and skill development. (8 hours per week)

230 Specialized Study ..... **4-8 credit hours**

Prerequisite: Consent

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

Automotive Service (AS)

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.

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)

111 Engine Repair ..... **4 credit hours**

Prerequisite: AS 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)

116 Electrical Systems ..... **4 credit hours**

Prerequisite: AS 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)

123 Transmissions and Power Trains ..... **2 credit hours**

Prerequisite: AS 110, Light Service Repair or concurrently.

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

124 Wheel Balancing and Alignment ..... **3 credit hours**

Prerequisite: AS 110, Light Service Repair or concurrently.

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 live units. (6 hours per week)

125 Brake Systems ..... **3 credit hours**

Prerequisite: AS 110, Light Service Repair or concurrently.

Drum and disc brake systems. The theory, diagnosis, servicing of drums, rotors, master cylinders, calipers, wheel cylinders, linings, and warning systems. Wherever possible, work performed on live vehicles. (6 hours per week)

128 Fuel Systems ..... **3 credit hours**

Prerequisite: AS 110, Light Service Repair or concurrently.

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)

212 Automatic Transmissions - Mechanical ..... **2 credit hours**

Prerequisite: AS 123, Transmissions and Power Trains.

Automatic transmissions study with emphasis placed on the principles of operation. Instruction coordinated with servicing live units, which includes complete transmission overhaul. (4 hours per week.)

214 Steering and Suspension Systems ..... **3 credit hours**

Prerequisite: AS 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 live vehicles. (6 hours per week)

218 Tune Up and Emissions ..... **4 credit hours**

Prerequisite: AS 116, Electrical Systems and AS 128, Fuel Systems.

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

220 Applied Automotive Welding ..... **2 credit hours**

Prerequisite: WF 101, Acetylene Welding

Applying the fundamentals of gas and acetylene welding to the automobile working on live vehicles. (4 hours per week)

222 Automatic Transmissions - Hydraulic ..... **2 credit hours**

Prerequisite: AS 212, Automatic Transmissions - Mechanical.

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

227 Heating and Air Conditioning ..... **2 credit hours**

Prerequisite: Consent.

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

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)

240 Measurement of Vehicle Performance ..... **2 credit hours**

Prerequisite: Consent.

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

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.

Biology (BIO)

101 Concepts of Biology ..... **4 credit hours**

Basic principles and concepts of biology studied in lecture and laboratory with emphasis on their practical application and their effects on the environment. For the non-science student, but basic introduction for advanced biology courses. Lecture and laboratory. (6 hours per week)

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 humans and their environment. Microscope, dissection, observation, and measuring techniques. An introduction to human biology for the beginning student. (6 hours per week)

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.

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.

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.

111 Basic Anatomy and Physiology ..... **4 credit hours**

Survey of the basic structures, functions, and 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.

112 Basic Anatomy & Physiology Laboratory ..... **1 credit hour**

Co-requisite: Basic Anatomy & 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)

123 Physiology ..... **1 credit hour**

Prerequisite or co-requisite: Human Biology 102 or Basic Anatomy and Physiology 111.

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

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)

128 Zoology ..... **4 credit hours**

Prerequisite: Concepts in 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)

130-139 Applied Plant Science Sequence

A series of courses designed to enable students to apply basic botannical 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 propogation, growth, maintenance, harvesting and utilization. Students are encouraged to enroll in the sequence beginning with BIO 131 and Outdoor Garden Preparation in the Winter Semester, continuing through the Spring and Summer Semesters into the Fall Semester with BIO 132, BIO 133, and BIO 134. See individual courses below.

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 collection 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.

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 areas are available in the early weeks of this semester. Transplanting of seedlings and direct planting of selected varieties of seeds will highlight this semester with emphasis on proper care. Scheduling of plantings for continuous yield and plant rotation techniques will be demonstrated in each students garden area. Control of pests will be an item of concern.

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 and 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.

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.

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.

137 Ornamental Indoor Plants ..... **3 credit hours**

This course is designed for the person who enjoys houseplants and desires 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 their collection of houseplants by at least fifteen different varieties. Proper care of houseplants will be stressed, relating to: soil, potting, transplanting, watering, fertilizers, insects, and control of growth and flowering.

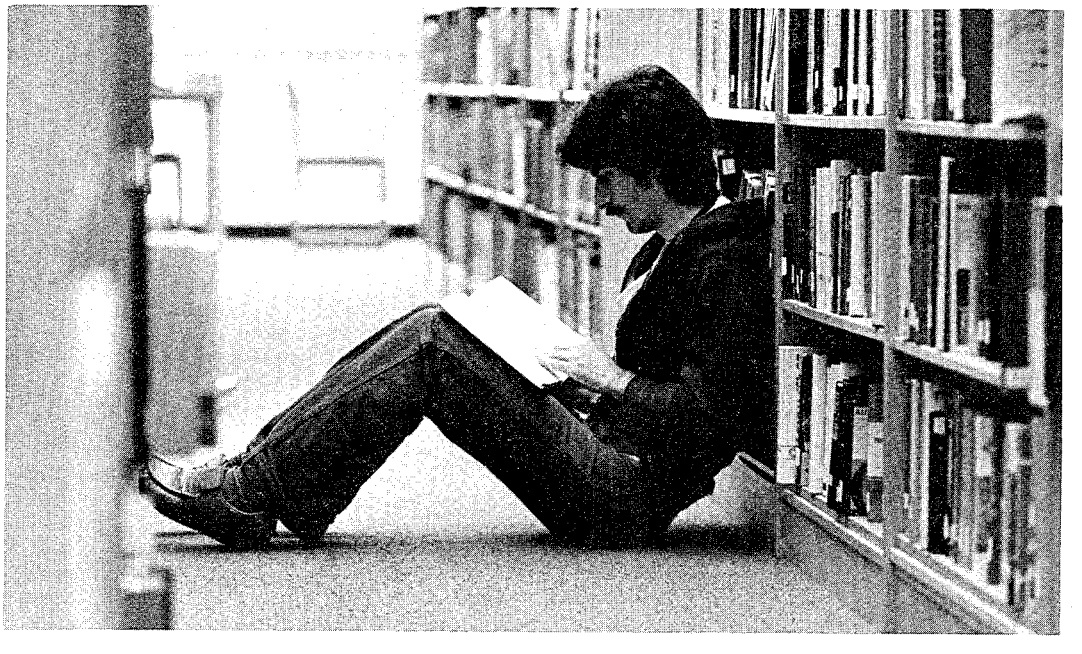
138 Advanced Indoor Gardening ..... **3 credit hours**

Prerequisite: Ornamental Indoor Plants (BIO 137).

This course is designed primarily for those students who have taken the ORNAMENTAL INDOOR PLANTS course. Growth of plants from seeds and cuttings will be a concern with some of the more difficult and expensive varieties being utilized. Specialty gardening techniques for more involved indoor plantings will be discussed and demonstrated, including terraria, hanging gardens, and solarium plantings. Visitations will be conducted to demonstrate what can be accomplished with plants indoors.

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)



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)

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.

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. (6hours per week)

237 Microbiology ..... **4 credit hours**

Prerequisite: Concepts of Biology 101 or permission of instructor.

Micro-organisms and their activities conducted in lecture and laboratory. (9 hours per week)

240-289 Field Study Biology Sequence

Students who enjoy outdoor activities will find the following courses to their liking. They are nature study for real and yield one credit hour. Most courses meet outdoors involving a three hour block of time for five weeks. See individual courses below.

240 Field Study of Invetebrates ..... **1 credit hour**

Stresses field recognition of the organisms and their habits.

247 Field Study of Insects ..... **1 credit hour**

Recognition of insects and their habits is stressed. Primarily conducted in the field.

248 Field Study of Reptiles and Amphibians ..... **1 credit hour**

Reptiles and amphibians studied in the field with stress on recognition and habits.

249 Field Study of Birds ..... **1 credit hour**

Indentification of birds and their songs and nesting habits.

250 Field Study of Mammals ..... **1 credit hour**

The habits, food, behavior and life history of mammals.

256 Field Study of Mosses and Ferns ..... **1 credit hour**

Stress is on the identification and habitat of mosses and ferns.

257 Field Study of Mushrooms ..... **1 credit hour**

Stresses Identification of flowerless plants.

258 Field Study of Tress and Shrubs ..... **1 credit hour**

Identification and habitat study of woody plants.

259 Field Study of Common Plants ..... **1 credit hour**

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

260 Spring Wild Flowers ..... **1 credit hour**

The Spring flora is studied with stress placed on recognition.

267 Winter Field Studies ..... **1 credit hour**

Biological organisms are studied in their winter conditions.

288 Advanced Beekeeping ..... **2 credit hours**

Deals with stocking the hive, ordering bees, handling the queen, and the commercial aspects of beekeeping.

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 meet 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.

In addition to reading about colony manipulation, participants will have an opportunity to try their skill at such activities as finding the queen, reversing supers, top and bottom supering, uniting colonies, making divisions, requeening a colony, hiving a swarm, identifying laying workers, and learning how to raise and store queens.

This course is primarily for those who have taken a beginning beekeeper course or who own at least one colony of honeybees.

Black Studies (BLS)

101 Media and the Black Community ..... **3 credit hours**

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

102 Black Women ..... **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.

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, lectures, video tapes, readings and individual research projects.

107 Black Psychology ..... **3 credit hours**

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

108 Intro Afro-Amer Soc ..... **3 credit hours**

Designed to introduce AfroAmerican 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.

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.

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 breaches some of the gaps between the various communities through visual means. (6 hours per week)

120 Portrait Painting and Life Drawing ..... **3 credit hours**

Work from 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)

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.

143 Art & Culture of AfroAmerica ..... **3 credit hours**

Prepares students to participate in and appreciate the arts (visual, dance, music, film, poetry, literature) of African and AfroAmerican 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.

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.

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 AfroAmerican from the Revolutionary War to the present.

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.

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 they are related to African-American cultural history. Includes the African cultural heritage in the Americas, race relations, oral literary history, genealogical research, the Black family during the pre-Civil War and Reconstruction periods of American history.

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.

158 Black Mus Creat/Imp ..... **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.

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.

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.

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.

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.

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.

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.

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.

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.

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 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 Ghettoes. The organizing conceptual framework is Black urban history as a protracted struggle. Emphasis on Black ideological and institutional development.

Blueprint Reading (BPR)

100 Blueprint Reading for Construction Trades ..... **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.

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, electronic techncians, inspectors, welders, and supervisors.

103 Sheet Metal Blueprint Reading and Layout ..... **3 credit hours**

Elementary sheet metal layout. Emphasis 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)

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 and fabrication of the fittings most often needed in today's modern heating, ventilating and air conditioning systems emphasized. (4 hours per week)

110 Blueprint Reading for Construction Trades ..... **2 credit hours**

Advanced blueprint reading for persons in the construction trades. Emphasis on the application of blueprint reading, principles, and fundamentals to the construction process. Large scale construction projects are the base of instruction.

Broadcasting (BRC)

101 Media and the Black Community ..... **3 credit hours**

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

103 Special Radio Production Projects (RAD 130) ..... **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 semester.

104 Special Television Production Projects ..... **3 credit hours**

Offered only in the Spring. A practicum for students who have completed a minimum of one semester 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.

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.

110 Radio Station Operation (RAD 101) ..... **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.

111 Close Circuit Television Production (TV 101) ..... **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.

122 Advanced Closed Circuit Television Production (TV 210) ..... **3 credit hours**

Prerequisite: Broadcasting 111.

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

127 Advanced Radio Station Operation (RAD 201) ..... **3 credit hours**

Prerequisite: Broadcasting 110.

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

128 Television Acting (TV 109) ..... **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.

213 Audio-Visual Methods for TV (TV 106) ..... **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.

244 Radio-Television Writing (BRC 103) ..... **3 credit hours**

The writer as the basic program source. Includes program formats, continuity books, rewriting and writing for the ear not the eye. Covers the one minute commercial form, dialoguing, characterization, and voiceovers. Also, study of the documentary, its history and current status.

245 Multi-Media Advertising (BRC 105) ..... **3 credit hours**

Stressing that small local agencies must be equipped to provide service for clients in radio and television as well as te 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.

246 Radio-TV Station Management (TV 203/BRC 203) ..... **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 (G B)

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 partnership.

122 Business Law ..... **3 credit hours**

Prerequisite: Business Law 111.

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

140 Business Occupational Foundations ..... **3 credit hours**

Functions, objectives, problems, organization, and management of modern business. The free-enterprise system of business-economic activity and the impact of the consumer and governmental forces upon the system. Develops insight into vital role of the administrative function in our economy as a whole and in the operation of a single business unit. Practical orientation in the career opportunities available in business and industry.

200 Independent Directed Study ..... **2-8 credit hours**

Prerequisite: Consent.

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, reports. (Hours to be arranged)

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)

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 the student wishing to improve his background before taking General Chemistry 111, or by the student desiring a terminal exposure to chemistry. Credit for Introductory Chemistry 057 is contingent on the successful completion of introductory Chemistry Laboratory 058.

058 Introductory Chemistry Laboratory ..... **1 credit hour**

Co-requisite 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)

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 hazzards.

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)

111 General Chemistry ..... **4 credit hours**

Prerequisite: High school chemistry, 1 year high school algebra.

A beginning general college chemsitry 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)

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, and the quantitative determination of unknown substances using elementary instrumental techniques. (8 hours per week)

140 Organic Biochemistry ..... **4 credit hours**

Prerequisite: 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. Normally offered Winter Semester only. (6 hours per week)

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.

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)

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)

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)

100 The Exceptional Preschool Child ..... **3 credit hours**

For those with no background in special education. Overview of the various physical, sensory, intellectual, social, and emotional differences found in children from birth through six years of age. Identifying and working with handicapped and gifted children within the regular child care setting. Various community, state, and national resources to assist exceptional children identified.

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.

103 Alternative Programs in Child Care ..... **3 credit hours**

Philosophy and theory of program 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.

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)

106 Practicum II ..... **3 credit hours**

A continuation of 105. Recommended that CCW 106 be taken concurrently with CCW 107 or CCW 108. (9 hours per week)

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.

108 Educational Experiences in the Expressive Arts ..... **3 credit hours**

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

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.

110 Social/Emotional Development ..... **3 credit hours**

A multi-cultural approach to the study of the personality development during the first six years of life. Exploration of the characteristics and needs that emerge with each developmental stage with emphasis on methods, suggestions and practical guides for meeting these needs. Emphasis on child management in the child care setting.

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.

114 Practicum III ..... **4 credit hours**

A continuation of 106. Recommended that CCW 114 be taken concurrently with CCW 111, or CCW 116. (10 hours per week)

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. Supervised observation and experiences in the infant care setting.

200 Staff/Parent Interpersonal Relations ..... **3 credit hours**

Explores the many facets of parent and staff involvement in the child care setting. The various forms of parent participation, ways of increasing positive communication with parents, cultural differences and goals of parents, and planning parent education programs. Emphasis given to the individual parent/teacher conference: preparation, mechanics and techniques.

Computer Science (CPS)

110 Handheld Calculator ..... **2 credit hours**

Individualized course providing instruction in the use of a handheld calculator to find the value of various 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 sqaure roots. Optional units: powers and roots, equations and formulas, trigonometric functions, logarithmic functions, and specific applications in business and finance.

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 is not a programming course.

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.

133 Basic Programming I ..... **3 credit hours**

Prerequisite: Introductory Algebra (MTH 097).

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

134 Basic Programming II ..... **3 credit hours**

Prerequisite: Basic Programming I (MTH 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)

187 Fortran Programming ..... **3 credit hours**

Prerequisite: Intermediate Algebra (MTH 169).

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

188 Algol Programming ..... **3 credit hours**

Prerequisite: Intermediate Algebra (MTH 169).

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

287 Advanced Fortran Programming ..... **3 credit hours**

Prerequisite: Fortran Programming (MTH 187).

This course assumes a basic knowledge of Fortran or WATFIV. The more advanced features of Fortran and of scientific and data structure programming in general (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)

299 Interactive Computer Graphics ..... **3 credit hours**

Prerequisite: Fortran Programming (MTH 187).

Principles of interactive computer programming using graphical input-output devices. Covers graphical devices, interactive methods, dynamic array management, data structures, error recovery, file manipulation, graphical techniques, dynamic compilation-loading-execution of program segments. Emphasis on production programming. 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 (C T)

Students enrolling in the Construction Trades will be required to furnish basic tool sets. Tools are necessary for laboratory practice. Students should accumulate tools during training to be equipped for employment upon completion of their program.

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)

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)

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)

122 Commercial Painting and Decorating ..... **4 credit hours**

Prerequisite: C T 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)

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)

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)

171 Cabinet Making ..... **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)

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 systems. (6 hours per week)

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, drydocks, 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)

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, alterations, and maintenance. The scope of the work shall include the repair and replacement of major structural elements. Methods of aligning floors, walls, and ceiling. The restoration of architectural woodwork and component parts. Insulating and fire protecting old construction. (6 hours per week)

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 creative effects with lights, installation of conduits and raceways. (6 hours per week)

242 Crafts in Wood, Plastics ..... **4 credit hours**

Prerequisite: Carpentry 221.

A practical course in working materials used in the manufacturing and fabrication of building components. (6 hours per week)

261 Block Laying II ..... **4 credit hours**

Prerequisite: Block Laying I 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)

262 Building Component Fabrication ..... **4 credit hours**

Prerequisite: Crafts in Wood 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)

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)

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)

271 Cabinet Making ..... **4 credit hours**

Prerequisite: Cabinet Making 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 (C J)

100 Introduction to Law Enforcement and Criminal Justice ..... **3 credit hours**

A detailed analysis of the nature, purpose and functions of major law enforcement operations to include patrol, investigation, traffic, research, and juvenile divisions.

111 Police Community Relations ..... **3 credit hours**

Role of the 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.

122 The Correctional System ..... **3 credit hours**

The correctional system from historical to contemporary times. Includes probation, parole, and new treatments.

205 Applied Psychology for Policemen ..... **3 credit hours**

Prerequisite: PSY 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.

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.

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.

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.

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.

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.

224 Criminal Investigation ..... **3 credit hours**

Investigative techniques used in many criminal justice agencies.

225 Seminar in Criminal Justice ..... **3 credit hours**

Prerequisite: 15 hours completed in program.

A unifying experience and evaluation of criminal justice policies and practices. Preparation of a concluding research paper.

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.

Culinary Arts (CUL)

100 Introduction to Hospitality Industry Mgt. ..... **3 credit hours**

Designed to give the student the history of the restaurant industry, trends, developments and opportunities in the industry today. Study of the organizational structure, and functions of management.

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.

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. (lab and lecture, 15 hours per week)

118 Principles of Nutrition ..... **3 credit hours**

General principles of nutrition as it pertains 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.

120 Organization and Management of Hospitality Industry ..... **3 credit hours**

Prerequisite: Intro to Hospitality Industry Mgt. 100.

Types of organization and functions of managment, tools of management recruitment, selection, training and evaluation, labor policies and collective bargaining; human relation techniques in personnel management.

122 Quantity Food Production ..... **6 credit hours**

Prerequisite: Elementary Food Preparation 111.

Application of techniques learned in Elementary Food Production course. Students assume various positions for preparation of soups, sauces, meats, breads, desserts, salads, appetizers and vegetable production on a rotation basis. (14 hours per week)

150 Dining Room Management ..... **6 credit hours**

Provides hands on experience in four styles of food service. Focusing on the point of sale students perform responsibilities of the cahsier, waitress/waiter, host/hostess, and supervisor. Includes menu format, food preparation terms, policy making, wine identification and service. (lab and lecture 12 hours per week)

199 On-The-Job-Training ..... **3 credit hours**

A total of 300 hours will be spent working in a commercial kitchen under supervised conditions.

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 materials utilization, buffet salads, vegetable carving, food decorating techniques, and garnish techniques. (6 hours per week)

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 are suggested areas of research and preparation. (6 hours per week)

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)

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)

225 Advanced Baking and Pastry ..... **4 credit hours**

Prerequisite: Elementary Baking 219.

Experience through involvement in production, advanced baking skills, cake decorating, piping gel, puff pastry, danish and breads including work with buffet display pieces, including pastillage, nougat work, and other classical pastry items. (6 hours per week)

227 Advanced Culinary Techniques ..... **6 credit hours**

Prerequisite: Quantity Food Production 122.

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

228 Layout and Equipment ..... **4 credit hours**

Prerequisite: Quantity Food Prep 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)

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.

Data Processing (D P)

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 describe the impact of computers on present and future societies. (6 hours per week, 7½ weeks)

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)

111B Data Processing/Computer Functions ..... 3 credit hours

Continuation of DP 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)

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)

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)

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)

122A Data Processing/Computer Flowcharting Techniques ..... 3 credit hours

Prerequisite: DP 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)

122B Data Processing Programming/RPG I & II ..... 3 credit hours

Prerequisite: DP 111A and DP 111B.

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

122C Data Processing/Computer Disk Techniques ..... 3 credit hours

Prerequisite: DP 122B.

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

213A Computer Programming/Introductory COBOL ..... 3 credit hours

Prerequisite: DP 122A

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

213B Computer Programming/Intermediate COBOL ..... 3 credit hours

Prerequisite: DP 213A.

A modularized study of additional COBOL language features including additional input and output forms. Students learn conditional names, GOTO 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)

213C Computer Programming/Advanced COBOL ..... 3 credit hours

Prerequisite: DP 213B.

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

213D Computer Programming/Advanced Business Fortran IV ..... **3 credit hours**

Prerequisite: DP 111C.

Continuation of 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)

224A Data Processing/Computer File Design Concepts ..... **3 credit hours**

Prerequisite: DP 213B.

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

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 the programmer so the programmer may contribute significantly to the overall project. (6 hours per week, 7½ weeks)

Dental Assisting (D A)

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

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.

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.

120 Oral Diagnostic Technique ..... **1 credit hour**

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.

121 Introduction to Clinical Procedures ..... **5 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. (6 hours per week)

122 Advanced Dental Science ..... **4 credit hours**

Prerequisite: Dental Science 111.

Continuation of Dental Science 111. Relationship of systemic 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.

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.

200 Dental Assistant Clinical Practice ..... **5 credit hours**

Prerequisite: A 2.0 G.P.A. in all dental courses.

Student matriculates through a sequence of clinical experience 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 specialities of dentistry. (20 hours per week)

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.

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.

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 given after satisfactory completion of Dental Roentgenology 214.

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 Roentgenology 213 and 214 given when this course is completed.

222 Dental Assistant Clinical Practice ..... **5 credit hours**

Prerequisite: A 2.0 G.P.A. 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)

Economics (E C)

101 Legal Rights (G S 101) ..... **3 credit hours**

A course on everyday legal questions and matters which covers the basic rights and protection 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.

103 Consumer Rights (G S 103) ..... **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; and insurance. A class designed to help consumers, it is in part shaped by the interests and needs of the students.

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 sciences.

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.

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.

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.

Electricity/Electronics (E E)

090 Introductory Electricity ..... **3 credit hours**

For students with no previous instruction in electricity-electronics. Electron theory, magnetism, electromagnetism, 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)

100 Electrical Analysis ..... **4 credit hours**

Prerequisite: Two years of high school algebra, or Math 077, 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.

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)

102 Servicing Techniques II (Formerly: Appliance Repair) ..... **4 credit hours**

Prerequisite or Co-Requisite: Electrical Fundamentals III.

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

110 Electrical Applications ..... **2 credit hours**

Co-requisite: 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)

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).

120 Electrical Applications ..... **2 credit hours**

Prerequisite: Electrical Fundamentals 111. Co-requisite: Electrical Fundamentals 122.

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

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)

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 transformers and transformer circuits, industrial rectifiers; single-phase and three-phase a/c motors; standard motor controls. Lecture and Lab. (6 hours per week)

137 Switching Logic (formerly Switching & Control 237) ..... **3 credit hours**

Prerequisite: One year high school algebra or math proficiency test. Co-requisite: 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)

138 Digital Computing Systems I ..... **4 credit hours**

Prerequisite: Switching Logic 137. Co-requisites: 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.

200 Circuit Analysis (formerly Audio & Power Transmission) ..... **3 credit hours**

Prerequisites: Electrical Fundamentals 122 and Electrical Applications 120.

Application of Thevenin's theorem, Norton's theorem, super position, and reciprocity of DC and AC networks. Four terminal networks, transient analysis of RC, RL, and RCL circuits, common logarithims, natural logarithims, decibels, and power reference levels are also studied. The "j" operator used extensively.

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, DC meters, AC meters, voltmeters, ohmeters, DC bridges, AC 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)

211 Basic Electronics ..... **4 credit hours**

Prerequisites: Electrical Fundamentals III, Intermedate 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)

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 using functional block and equipment schematic diagrams. Lecture and Lab. (9 hours per week)

219 Electrical Distribution Systems ..... **3 credit hours**

Prerequisite or co-requisite: Electrical Fundamentals 122.

Electrical generation, transmission, and distribution 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.

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)

222 Digital Electronics I (formerly Pulse Circuits) ..... **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 differentiators, clippers clampers, the bipolar junction transistor inverter, the CMOS inverter, flip-flops, the Schmitt trigger, sweep and sampling circuits. Lecture and Lab. (6 hours per week)

223 Color Television ..... **4 credit hours**

Prerequisite: Radio and Television Circuitry 212.

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

224 Television Service Procedures and Practices ..... **4 credit hours**

Prerequisite or co-requisite: 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)

230 Communications Electronics ..... **4 credit hours**

Prerequisites: Circuit Analysis 200, Basic Electronics 211, and Radio and TV 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)

233 Digital Computing Systems II ..... **4 credit hours**

Prerequisite: Digital Computing Systems I.

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

238 Electronic Analog Circuits (formerly Industrial Electronic 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 integrated circuits. Operation of the power transistor, use and selection of heat sinks. Lecture and Lab. (6 hours per week)

239 Design Practices and Standards (formerly Electrical Design) ..... **3 credit hours**

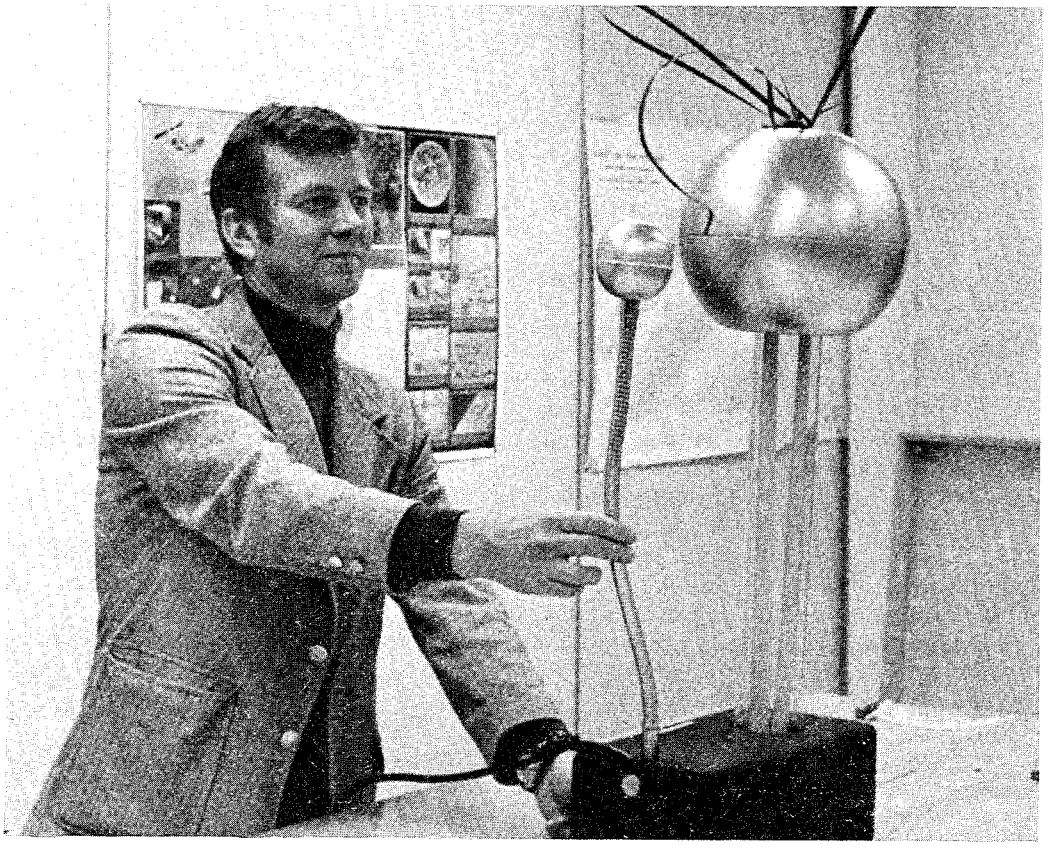
Prerequisite: For graduation candidates only.

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 selected by students and constructed outside of regular class period.

240 Career Practices Seminar (formerly Practices & Standards Seminar) ..... **2 credit hours**

Prerequisite: Electrical Fundamentals 111.

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.



241 Digital Electronics II ..... **4 credit hours**

Prerequisite: Digital Electronics I (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)

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)

241B Digital Electronic Circuits II ..... **2 credit hours**

Prerequisite: Digital Electronics II - 241A.

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

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)

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 architure, programming, input/output interfacing and peripherals. Laboratory exercises emphasize the Intel 8080A microprocessor chip that contains an 8-bit data bus and a 16 bit address bus. Lecture and Lab. (6 hours per week)

250A Microprocessors ..... **3 credit hours**

Prerequisite: Electrical Fundamentals 111 or consent.

For students not enrolled in Electrical/Electronic Technician Programs 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)

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

Emergency Medical Technology

037 Emergency First Aid ..... **1 credit hour**

Designed to train foster care parents and others in some emergency care procedures to be used before an ambulance or doctor arrives. Skills taught include artificial respiration, bleeding control and splinting; treating poisoning, burns and fainting.

097 Emergency Medical Review ..... **2 credit hours**

Designed to update and refresh the skills and techniques of practicing E.M.T.s. Meets requirements of the Michigan Department of Public Health for Continuing Education to maintain state licensure.

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 of water safety, practical aspects of auto extrication among other basic principles are included in lecture sessions.

102 Emergency Medical Treatment Techniques I ..... **2 credit hours**

Correct procedures of emergency medical 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 chidbirth, automobile extrication, backboarding and water safety.

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.

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. Orientation to hospital clinical emergencies provided.

105 Patient Care Procedures ..... **2 credit hours**

Course includes patient assessment and diagnostic techniques, patient handling skills and some lab practice in basic techniques such as taking vital signs, airway management, special interview skills and so forth. (3 hours per week). Also included are several hours of observation time in a hospital emergency room.

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)

111 Psychological Assessment - EMT ..... **2 credit hours**

This course is devoted to the handling and evaluation of the psychological needs of the patient and of the E.M.T. 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.

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.

130 Emergency Medical Services Development and Operation ..... **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.

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)

132 Cardio-pulmonary Resuscitation Instructor ..... **1 credit hour**

Students who have completed H S131 learn how to be effective instructors of cardio-pulmonary 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)

133 Cardio Pulmonary 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.

134 Advanced First Aid ..... **3 credit hours**

The course provides the student with the information necessary to improve and develop first aid knowledge, skill ability, and personal judgement. Upon successful completion the student will be awarded certification by the American Red Cross. Classroom is devoted to both didactic and practical objectives.

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.

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.

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.

English (ENG)

025 Introduction to English Grammar ..... **3 credit hours**

Prerequisite: Basic reading skills. Foreign students with consent.

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

030 Basic English ..... **3 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.

031 Basic English II ..... **3 credit hours**

A continuation of 030 with an individualized program of studies in basic writing skills.

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)

051 English for the Foreign Born ..... **2 credit hours**

A continuation of all of the aspects covered in English 050. (3 hours per week)

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.

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 home and school problems. (3 hours per week)

091 English Fundamentals ..... **3 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.

100 Technical Communications ..... **3 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. Students learn methods of reporting factual information through the analysis of problems and events related to his 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.

102 Library Research Paper ..... **2 credit hours**

Individualized instruction for the students 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.

107 Communication Skills ..... **3 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, information talks, explanations and demonstrations. Supplementary reading assignments include suitable models for the student in his writing.

111 English Composition ..... **3 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.

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 122 emphasize critical thinking, myth, poetry in song, popular culture, or mass media.

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 lecturers though most of the class activity consists of dialogue among members.

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.

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 160 and 170 students are encouraged to evolve criteria for assessing the value of literary works. Specially designated sections of 160 emphasize poetry in songs.

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 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.

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.

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.

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.

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 programs, nursery and day care work, and as general education for parents.

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.

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.

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.

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.

223 English Literature ..... **3 credit hours**

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

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.

225 Intermediate Exposition ..... **3 credit hours**

Prerequisite: Eng. Comp. 111.

For freshmen 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.

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.

260 Journal Workshop ..... **3 credit hours**

Prerequisite: English Composition 111 or consent.

Workshop facilitates 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.

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 designed for persons seeking an avocation in creative writing with interest in learning the fundamentals of the craft. An annual two-week summer workshop is offered.

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)

103 Workshop on Motion Picture Production (FLM 130) ..... **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.

111 Introduction to Motion Picture Production (FLM 101) ..... **3 credit hours**

No prior experience in still photography or motion pictures required. The Super 8MM camera today as 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 TV and less concern in education where its lesser investment and lower operating costs for comparable filmic expression are most important.

122 Advanced Motion Picture Production (FLM 103) ..... **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 16MM.

213 Motion Picture Production: Special Effects (FLM 203) ..... **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.

214 Motion Picture Production: Animation (FLM 205) ..... **3 credit hours**

Prerequisites: Film 111 and 122.

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

225 Film Production for Television (FLM 201) ..... **3 credit hours**

Non-dramatic film production for TV. 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 TV footage using technical skills learned in 111 and 122.

Finance (FIN)

100 Personal and Consumer Finance ..... **3 credit hours**

Role of the individual as consumer: cost of establishing and maintaining a household; problems of personalconsumer credit, installment buying; taxes; basic finance concepts; insurance; investments; health services; governmental influence and protection; personal-consumer savings; banking.

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)

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 hazzards.

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.

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 hazzards; and the problems and possible solutions for current and future fire protection.

101 Hydraulics ..... **4 credit hours**

Basic skills relevant to fire service hydrostatics operation. Emphasis on types and styles of pumps, construction, testing, and maintenance procedures.

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.

122 Fire Prevention Theory and Application ..... **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.

209 Advanced Strategy ..... **3 credit hours**

Covers fireground operations, strategy and judgements 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.

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.

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.

224 Protection Systems in Industry ..... **3 credit hours**

Attitudes prevalent in industry toward fire protection; development of fire and safety organizations in industry; relationships between private and public fire protection organizations. Also includes industrial obligations to communities in regard to fire and safety; current trends, deficiencies, and possible solutions for fire protection problems facing industry today.

Fluid Power (FLP)

111 Fluid Power Fundamentals ..... **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)

122 Hydraulic Generators (Pumps) ..... **4 credit hours**

Prerequisite: Fluid Power Fundamentals 111 or consent.

Experience with a variety of different types and styles of pumps including piston, vane, gear, and combination pumps. Construction, testing, and maintenance procedures laboratory experiences. (5 hours per week)

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.

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.

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)

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)

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 component sizing stressed. Applications for fluidies introduced. (4 hours per week)

226 Pneumatics ..... **3 credit hours**

Basic air systems as a control medium in industrial applications, such as presses, clamps, transfer devices, etc. Valves, cylinders, motors, compressors, regulators, filters, and other power components included. (4 hours per week)

French (FRN)

111 First Year French ..... **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)

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. 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.

122 First Year French ..... **3 credit hours**

Prerequisite: French 111 or consent.

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

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 122. Students with good high school backgrounds in French may be eligible for admission without French 111 and 122.

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)

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.

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)

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 geologic interest is included in the three weekly laboratory hours. (5 hours per week)

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.

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.

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.

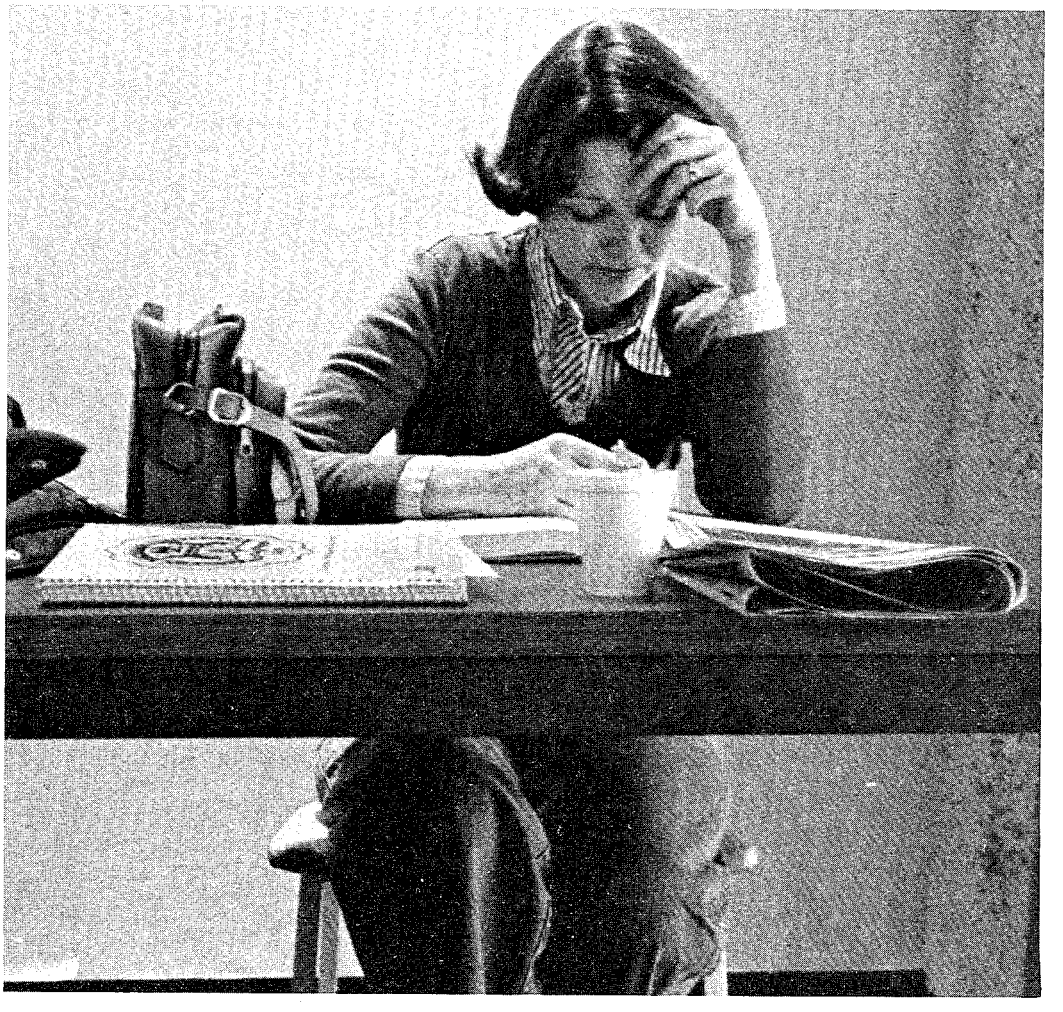
114 Physical Geology ..... **4 credit hours**

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 lecture and laboratory. (5 hours per week)

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)

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. 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 (H S)

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.

121 Interpersonal Dynamics of Patient Care ..... **2 credit hours**

Studies 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)

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.

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.

101 Boiler Accessories ..... **3 credit hours**

Prerequisite: HTG 100 or consent.

Devoted to boiler settings, combustion equipment, fuels, heating surfaces,stokers, pumps, safety valves, steam traps, separators, and other accessories. Keeping of records, logs, and inspection preparation.

102 Boiler Auxiliaries ..... **3 credit hours**

Prerequisite: HTG 101 or consent.

Continuing the study of accessories and auxiliaries covering injectors, feedwater heaters, deaerators and evaporators, economizers, air preheaters, cooling towers, etc.

103 Power Plant Engines and Turbines ..... **3 credit hours**

Prerequisite: HTG 102 or consent.

Principles of operation and maintenance practices of steam engines and turbines are presented. Studying construction, mechanisms, engine indicators, governors, engine rating and efficiency.

104 Power Plant Refrigeration ..... **3 credit hours**

A basic refrigeration course for Boiler Operators and Power Plant Engineers covering fundamentals of refrigeration including: terminology, cycle, mechanics of compression, fundamentals of energy, elementary thermo-dynamics, refrigerants and lubricating oils.

105 Power Plant Air Conditioning Systems ..... **3 credit hours**

Prerequisite: HTG 104.

The continuation of 104 devoted to Power Plant cooling systems covering centrifugal, reciprocating cascade and absorption systems, evaporators, controls and metering devices, cooling towers, water problems and treatment.

106 Power Plant Electricity ..... **3 credit hours**

Prerequisite: Employed Operating Boilers or consent.

Introduces operator to basic electricity and the basic application of electrical measuring instruments including: basic terms, volts, ohms, amps, power factors, AC and DC principles, single and 3 phase circuits, motor protectors (fuses, heaters, breakers, etc.) sub-stations, transformers, etc.

107 Power Plant Electricity II ..... **3 credit hours**

Prerequisite: HTG 106 or consent.

A continuation of HTG 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, transformers lines, breakers, start and run capacitors, and control of plant power factors. Safety and appropriate codes discussed.

111 Heating Fundamentals ..... **5 credit hours**

Prerequisite: RSES 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.

122 Heating Systems ..... **5 credit hours**

Prerequisite: HTG 111 and RSES or consent.

Building upon 111, Heating Systems covers applications, installation and start-up of heating equipment, oil, gas, electric warm air and hydronic.

213 Heating Controls ..... **5 credit hours**

Prerequisite: RSES Membership and HTG 122.

The third course focuses on controls and troubleshooting heating equipment and systems.

214 Heating Codes ..... **3 credit hours**

Prerequisite: 2 years experience or HTG 213.

National and local codes, covering materials, installation and operation of heating equipment and systems, discussed and interpreted.

215 Heat Pump Servicing ..... **5 credit hours**

Prerequisite: RSES 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 would be awarded a certificate of completion, with the stipulation that he or she will be required to reappear for the examination every three years.

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)

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.

102 Western Civilization from 1600 to the Present ..... **3 credit hours**

Cultural developments and the growth of institutions from the late Renaissance to the present. Emphasis on the expansion of European civilization.

103 History of Near East and Indian 1500-1960 ..... **3 credit hours**

Islam and Hinduism, the rise and fall of the Moghul, Safavid and Ottoman Empires and the response of each to western emperialism. Emphasis on emergence of nationalisms in both areas and on the problems currently facing India and the states of the Middle East.

107 History and Literature ..... **3 credit hours**

Historical events seen through eyes of poets, dramatists and playwrights. Begins with the struggle between the Church and State in 12th century England and continues through Chaucer's view of medieval society and Shakespeare's Renaissance. The English Civil War and the French and Industrial Revolutions, as interpreted by the literature, followed by criticisms of 19th century imperialism. Closes with the poetry of World War I.

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.

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.

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.

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.

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.

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.

203 Growth of American Labor ..... **3 credit hours**

Present concerns of labor placing them in historical perspective. Major themes emphasized are history of American labor, how the historical origins of labor affect all industrial relations, and special contemporary concerns of labor men and women today.

204 Oral History ..... **3 credit hours**

Tape recording the memoirs of people around us. Oral history project initiation and management via lectures, guest speakers. Special emphasis on class participation and practical field work. Guidance given to persons developing individual projects for themselves or their sponsoring institutions.

Hotel/Motel Management (HMT)

100 Hospitality Industry Accounting ..... **3 credit hours**

Bookkeeping and accounting systems. Provides basic knowledge of bookkeeping skills and orientation to office procedures.

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.

222 Lodging Management and Promotion ..... **3 credit hours**

Prerequisite: Service Industry Accounting 100.

Functions of organization, supervision and activation in organizations providing overnight accommodations. Consideration of ethics, policies, trade associations, collective bargaining, employee training and emphasis on human relationship.

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.

223A 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)

223B Practicum in Lodging Management ..... **3 credit hours**

A continuation of 223A. (20 hours per week)

Humanities (HUM)

101 Introduction to Humanities ..... **3 credit hours**

Exploration of the humanities considering the creative nature of man with its focus on art, literature, music, philosophy, human thought, and man's relationship to his culture.

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.

105 Survival of Humanity ..... **3 credit hours**

Course bias centers upon the proposition that the human is and ought to remain the highest value. Focus on those issues which support the continuity and growth of the human as the highest value. Issues include loneliness, freedom and self-transcendence.

135 Life: Work and Leisure ..... **3 credit hours**

Different ways of thinking about life, work and leisure through readings and discussions. Student experience and aspirations considered and serve as a basis for statements about our ways of living.

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.

150 International Cinema ..... **3 credit hours**

A study of the classic and significant international, European and Asian, films and filmmakers. Emphasizes development of the art of seeing, the heightening of students' awareness of the nature and potential of the film medium.

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 (I D)

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)

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)

107 Mechanisms ..... **4 credit hours**

The principles of linkage, cams, centros, displacements, motions, velocities, mechanisms, vectors and applications presented graphically.

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)

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)

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 a tolerance study, and use of commercial standards. (6 hours per week)

121 Theory of Jigs and Fixtures ..... **2 credit hours**

Prerequisite: For apprentices in Tool & Die Making.

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)

122 Fundamentals of Jigs and Fixtures ..... **3 credit hours**

Prerequisites: Industrial Drafting 111 and Descriptive Geometry 112.

A continuation of 121. (6 hours per week)

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)

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.

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. (3 hours per week)

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)

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)

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 maximum use of standard, components, fastening techniques, product serviceability, and the proper material and finish specifications.

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.

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 boards, 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 (I E)

200 Internship-Externship ..... **2-6 credit hours**

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 pruposes 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)

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.

102 Writing for Mass Media ..... **3 credit hours**

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

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.

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.

121 Applied Journalism ..... **3 credit hours**

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

122 Applied Journalism ..... **3 credit hours**

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

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)

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 prearranged, concentrated work sessions.

Management and Marketing (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; and the nature, content, and problem areas of the collective bargaining process.

160 Principles of Salesmanship ..... **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.

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.

208 Principles of Management ..... **3 credit hours**

Prerequisite or co-requisite: 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.

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.

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.

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.

250 Principles of Marketing ..... **3 credit hours**

Prerequisite or co-requisite: 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.

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 emphasied.

270 Advertising Principles ..... **3 credit hours**

Prerequisite or co-requisite: Principles of Marketing 250 or equivalent 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 selection, and testing advertising effectiveness, as well as advertising rates and budgetary factors.

Mathematics (MTH)

037 Independent Study ..... **1 - 3 credit hours**

Student works on a mathematical project or weakness for the primary purpose of strengthening a specific area. Not intended to replace the formal study of another mathematics course. Requires approval from a mathematics instructor designating the number of credit hours.

039 Basic Mathematics ..... **3 credit hours**

A self-pace course in the Mathematics Laboratory. For 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 numbers, common fractions, decimals, and the three types of percent problems.

090 Occupational Mathematics ..... **3 credit hours**

Prerequisite: Basic Mathematics MTH 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.

097 Introductory Algebra ..... **4 credit hours**

Prerequisite: Basic Mathematics MTH 039.

Beginning algebra; approximately equivalent to first-year high school algebra. Intended as lead to Intermediate Algebra (MTH 169) but also serves as a terminal algebra course for some program of study. Includes properties of real numbers, operations with algebraic expressions, polynommials, 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)

097A Introductory Algebra ..... **3 credit hours**

Prerequisite: Basic Mathematics MTH 039.

The first half of Introductory Algebra MTH 097. A self-pace course in the Mathematics Laboratory. Equivalent to first-semester high school algebra. Includes properties of real numbers, operations with algebraic expressions, solving simple equations, ratio and proportion, and applications.

097B Introductory Algebra ..... **3 credit hours**

Prerequisite: Introductory Algebra MTH 097A.

The second half of Introductory Algebra MTH 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.

099 The Metric System of Measurement ..... **2 credit hours**

Prerequisite: Basic Mathematics MTH 039.

For students wishing to familarize themselves with the metric system of measurement. Includes review of English units of measurement, analysis of metric units of measurement, English and metric converstions (de-emphasized), reading uniform scales of measuring devices, and indirect measurements resulting from calculations.

110 Handheld Calculator ..... **2 credit hours**

Individualized course providing instruction 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.

130 Survey of Computer Science ..... **3 credit hours**

For persons who have an interest in computer science and technology but do not necessarily have any previous background. Includes how a computer works, what is the influence of computers on society, and problems people encounter with these machines. Some programming included but is not a programming course.

132 Computer Programming Classroom Applications (MTH 250) ..... **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.

133 Basic Programming I ..... **3 credit hours**

Prerequisite: Introductory Algebra MTH 097.

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

134 Basic Programming II ..... **3 credit hours**

Prerequisite: Basic Programming I MTH 133.

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, and educational and scientific applications. (4 hours per week)

151 Applied Algebra ..... **4 credit hours**

Prerequisite: Basic Mathematics MTH 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)

152 Applied Geometry and Trigonometry ..... **4 credit hours**

Prerequisite: Introductory Algebra MTH 097 or Applied Algebra MTH 151.

For technical students. Development of geometric and trigonometric concepts needed for solving and 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.

154 Layout Mathematics ..... **3 credit hours**

Prerequisite: Basic Mathematics MTH 039.

Application of basic mathematics to problems of job layout for skilled tradesmen. Emphasizes mathematical techniques used in the preparation of materials for welding, cutting, drilling, etc. Includes: review of basic arithmetical operations, measurement, economy layout, uses of layout tools, estimation, patterns and templates, fabrication, and applications of trigonometric functions to right triangles.

155 Plane Geometry ..... **4 credit hours**

Prerequisite: Introductory Algebra MTH 097 or Applied Algebra MTH 151.

Plane Euclidean geometry. Includes: concepts of logic, similarity, parallelism, areas, circles, Euclidean constructions, and applications.

158 Mathematics for Elementary Teachers ..... **4 credit hours**

Prerequisite: Basic Mathematics MTH 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.

160 Basic Statistics ..... **4 credit hours**

Prerequisite: Introductory Algebra MTH 097.

A non-theoretical course for students in business, education, psychology, or a social science who need only one course in statistics. May serve as stepping-stone to other more sophisticated statistics courses. Includes tabulation of data, graphic representation, measure of central tendency, measures of dispersion, probability, sampling, estimation of parameters, tests of hypotheses, and correlation.

161 Chess Practice and Theory ..... **1 credit hour**

In recognition of the profound hold Chess has over the imagination of mankind 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)

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)

163 Business Mathematics ..... **3 credit hours**

Prerequisite: Basic Mathematics MTH 039.

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

165 Health Science Mathematics ..... **3 credit hours**

Prerequisite: Basic Mathematics MTH 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, integrers, equation solving, ratio and proportion, instrumentation, graphs, statistics, and logarithms.

167 Finite Mathematics ..... **3 credit hours**

Prerequisite: Introductory Algebra MTH 097 or Business Mathematics MTH 163.

Algebra course designed for the student on a transfer business program. Includes set theory, linear equations and equalities, linear programming, systems of linear equations, matrix algebra, probability, and statistics.

169 Intermediate Algebra ..... **4 credit hours**

Prerequisite: Introductory Algebra MTH 097.

A second course in beginning algebra equivalent to second-year high school algebra. Concepts developed in Algebra 097 are extended. Intended as lead to Precalculus (MTH 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.

169A Intermediate Algebra ..... **3 credit hours**

Prerequisite: Introductory Algebra MTH 097.

The first half of Intermediate Algebra MTH 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.

169B Intermediate Algebra ..... **3 credit hours**

Prerequisite: Intermediate Algebra MTH 169A.

The second half of Intermediate Algebra MTH 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.

177 Trigonometry ..... **4 credit hours**

Prerequisite: Introductory Algebra MTH 097.

Provides background in trigonometry for study of physics, calculus, and certain technical courses. Includes degree and radian measures, trigonometric functions of any angle, 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.

177A Trigonometry ..... **3credit hours**

Prerequisite:: Introductory Algebra MTH 097.

The first half of Trigonometry (MTH 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.

177B Trigonometry ..... **3 credit hours**

Prerequisite: Trigonometry MTH 177A.

The second half of Trigonometry (MTH 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 a handheld calculator encouraged.

179 Precalculus ..... **4 credit hours**

Prerequisite: Intermediate Algebra MTH 169.

A college level algebra course designed to provide the algebra background needed for the calculus sequence. Also serves as a terminal algebra course, fulfilling the mathematics requirement of certain transfer programs. Includes set theory, properties of real number, relations and functions, rational functions, exponential and logarithmic functions, and conic sections.

179A Precalculus ..... **3 credit hours**

Prerequisite: Intermediate Algebra MTH 169.

The first half of Precalculus MTH 179. A self-pace course in the Mathematics Laboratory. Includes set theory, properties of real numbers, relations and functions, and rational functions.

179B Precalculus ..... **3 credit hours**

Prerequisite: Precalculus MTH 179A.

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

187 Fortran Programming ..... **3 credit hours**

Prerequisite: Intermediate Algebra MTH 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 of the features of the Fortran programming language. Opportunity to develop algorithms, and write and execute selected programs. (4 hours per week)

188 Algol Programming ..... **3 credit hours**

Prerequisite: Intermediate Algebra MTH 169.

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

191 Calculus I ..... **5 credit hours**

Prerequisites: Precalculus MTH 179 and Computerized Calculus Adjunct (MTH 196) concurrently.

The first course 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.

192 Calculus II ..... **4 credit hours**

Prerequisite: Calculus I MTH 191 and Trigonometry (MTH 177).

The second course of a three-course sequence in elementary calculus. Topics are: applications of the definite integral; differentiation and integration of exponential, trigonometric and hyperbolic functions; techniques of integration; and sequences and series.

197 Linear Algebra ..... **3 credit hours**

Prerequisite: Calculus I MTH 191.

For the student who has had at least one course in elementary calculus. Includes vector spaces, linear transformations, matrices, determinants, orthogonality, and applications.

243 Introductory Numerical Analysis ..... **3 credit hours**

Prerequisites: Calculus II MTH 192 and Fortran Programming MTH 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.

287 Advanced Fortran Programming ..... **3 credit hours**

Prerequisite: Fortran Programming MTH 187.

This course assumes a basic knowledge of FORTRAN or WATFIV. The more advanced features of FORTRAN and of scientific and data structure programming in general. Includes interactive programming, I/O to and from disk and tape files, direct access I/O, implementation of stacks, queues, linked lists, trees, hash tables, simulation, and character manipulation in FORTRAN. All work done with a standard FORTRAN compiler. (4 hours per week)

293 Calculus III ..... **4 credit hours**

Prerequisite: Calculus II MTH 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.

295 Differential Equations ..... **4 credit hours**

Prerequisite: Calculus II MTH 192.

Techniques of solving ordinary differential equations. Includes equations of the first order and first degree, equations of the first order and higher degree, linear differential equations, and systems of linear differential equations. Applications from physics and chemistry part of the course.

299 Interactive Computer Graphics ..... **3 credit hours**

Prerequisite: Fortran Programming MTH 187.

Principles of interactive computer programming using graphical input-output devices. Covers graphical devices, interactive methods, dynamic array management, data structures, error recovery, file manipulation, graphical techniques, dynamic compilation-loading-execution of program segments. Emphasis on production programming incorporating these topics. Projects developed and executed using the M.T.S. Level G and H Fortran Compiler and Integrated Graphics Package. (4 hours per week)

Mechanical Technology (M T)

100 Machine Shop Theory ..... **3 credit hours**

Precision and semi-precision instruments and their application; and use of basic principles of machine tool operations. Films supplement the laboratory experiences.

101 Millwright Theory ..... **2 credit hours**

Millwright practices encompassing major units such as: millwright fundamentals, fibre 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.

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 O.D. and I.D. grinders. (6 hours per week)

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.

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 operating the basic tool room machines (lathe, mill, O.D. grinder, I.D. grinder, jig bore, drill press). (6 hours per week)

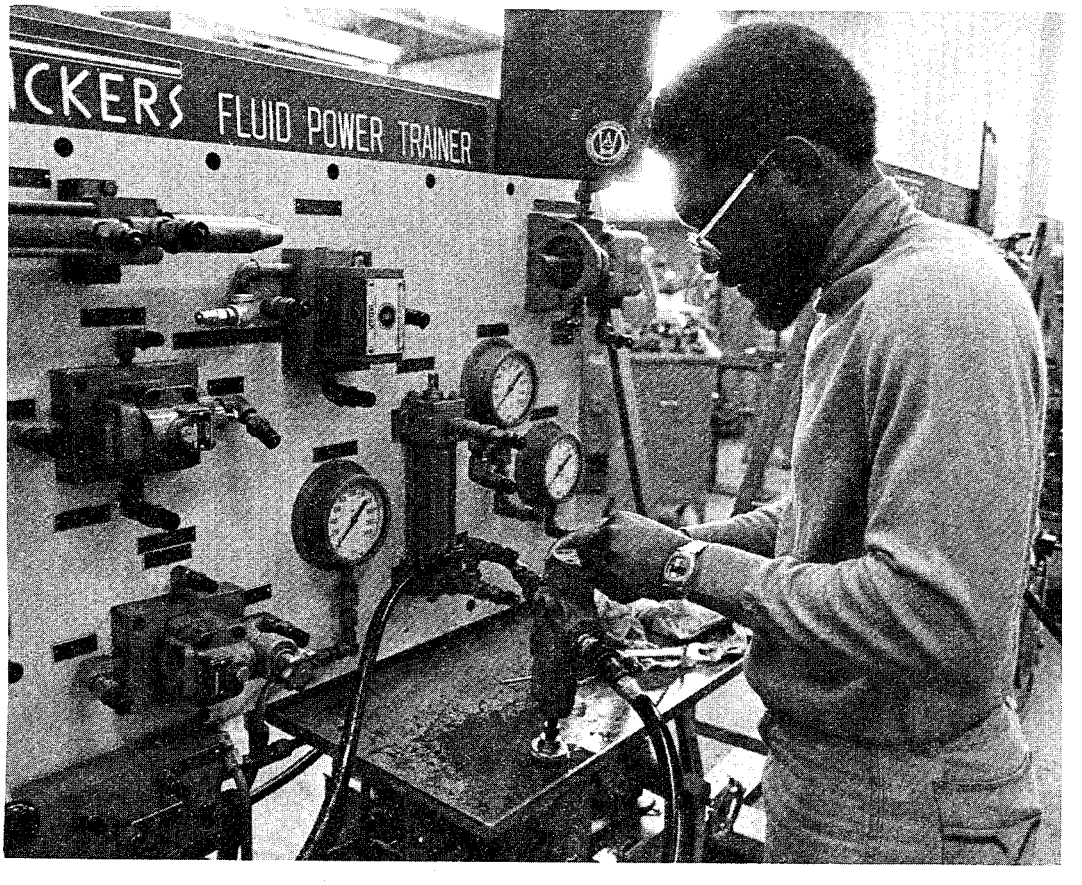
123 Machine Tool Operations and Set-Up ..... **4 credit hours**

(A continuation of MT-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)

201 Machine Tool Technology ..... **4 credit hours**

Prerequisite: Machine Tool Operation and Set-Up MT-122

Advanced methods of setting up and operating common machine tools. Typical industrial applications to demonstrate measuring instruments, gauges, thread cutting, gear cutting, speeds and feeds, tolerances, tool grinding and indexing. (6 hours per week)



205 Diecast 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.

240 Plant Layout and Material Handling Systems ..... **4 credit hours**

Prerequisite: Technical Drawing (ID-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)

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)

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)

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 treatments. (4 hours per week)

202 Manufacturing Processes ..... **3credit hours**

An introduction to modern industrial processes and how metallic materials behave when subjected to them: forging, casting, extrusion, stamping, machining, rolling, plating, testint, 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 machinability, expansion contraction, torque-tension relationships, hot and cold deformation, seizure, galling, and fatigue. (4 hours per week)

207 Testing Laboratory ..... **2 credit hours**

Co-requisite: MLG 217 Mechanical Testing.

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

215 Heat Treatment Processes ..... **2 credit hours**

Prerequisite or Co-requisite: 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, 7½ weeks)

217 Mechanical Testing ..... **2 credit hours**

Co-requisite: 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)

228 Metallography ..... **4 credit hours**

Prerequisite: General Metallurgy 122.

Units of study include: sample preparation for microscopic examination and photo microsgraphy; 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.

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 chosen area of employment. Independent work on an advanced project showing proficiency in the field. (6 hours per week)

230 Heat Treatment Laboratory ..... **1 credit hour**

Co-requisite: 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)

100 Band (MUS 125) ..... **1 credit hours**

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)

103 Stage Band: Ensemble (MUS 130) ..... **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)

106 Jazz Combo (MUS 000) ..... **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.

109. Brass Ensemble (MUS 180) ..... **2 credit hours**

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

135 Chorus (MUS 140) ..... **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. (2 hours per week)

140 Basic Musicianship (MUS 150) ..... **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.

143 Composition: Theory and Arrangement (MUS 163) ..... **2 credit hours**

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

146 Creative Improvisation: Song Writing (MUS 161) ..... **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.

149 Sight Sing/Ear Training (MUS 187) ..... **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.

152 Music Theory I (MUS 110) ..... **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.

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.

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 tabla. 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.

161 Conducting (MUS 200) ..... **3 credit hours**

Deals with various styles and techniques of conducting ensembles. Covers styles of all music periods. Hand position, metric conducting, dynamics, and other such techniques as score reading and musical phrasing techniques discussed.

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.

180 Music Appreciation (MUS 160) ..... **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.

183 Music of the African-American Culture (MUS 157) ..... **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.

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.

200 Beginning Recorder (MUS 100) ..... **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 Rennaisance will be performed.

210 Functional Piano (MUS 170) ..... **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 melodicaly. 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.

213 Intermediate Piano (MUS 171) ..... **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.

216 Piano: Jazz and Blues (MUS 173) ..... **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.

220 Applied Music: Brass (MUS 199) ..... **2 credit hours**

Introductory group instruction in brass instruments. Instruction geared to student's level.

225 Beginning Jazz Drum (MUS 183) ..... **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.

230 Folk Guitar (MUS 192) ..... **2 credit hours**

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

233 Beginning Guitar (MUS 193) ..... **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 students' interests and needs.

236 Intermediate Guitar (MUS 194) ..... **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 students' interests and needs.

239 Jazz Guitar (MUS 195) ..... **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.

246 Beginning Banjo (MUS 196) ..... **2 credit hours**

Group instruction for beginners in banjo to provide the necessary skills for performing elementary banjo music.

266 Saxophone (Classical) (MUS 197) ..... **2 credit hours**

An applied music course in saxophone technique, and performance of classical literature for saxophone. Requires basic playing experience (audition).

269 Saxophone Jazz (MUS 198) ..... **2 credit hours**

Introductory group instruction in jazz saxophone techniques and various styles. Requires basic saxophone playing experience.

Numerical Control (N-C)

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.

111 Manufacaturing Processes for Numerical Control ..... **3 credit hours**

N/C part hold techniques, feed and speeds for N/C Machining, cutting tools used for N/C, stock removal techniques and comparisons of manual vs computer programming. Special emphasis placed on part processing including per unit cost analysis. (4 hours per week)

121 Manual Programming for Numerical Control ..... **3 credit hours**

Manual programming for N/C machines including tab sequential, word address, and fixed sequential formats. Special emphasis placed on part holding for N/C machining including complete part processing.

122 Numerical Control Machine Tool Operation ..... **3 credit hours**

Precision set-up and operation of N/C machine tools. Special emphasis placed on the time-saving techniques used in profitable N/C machine tool operation. (4 hours per week)

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 N/C problems with the aid of Compact II. Computer tape preparation and verification techniques practiced.

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 a computer to solve N/C problems verified on the plotter terminal and N/C machine tools.

225 Numerical Control Graphics ..... **3 credit hours**

N/C 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—Practical (NUR)

(Enrollment priority for these courses is granted students admitted to this program. Courses must be taken in sequence outlined in the curriculum unless consent is obtained from the nursing division after review of previous transcripts.)

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.

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.

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.

110 Nursing Clinical Experience ..... **1 credit hour**

Supervised clinical experience in a longterm health care facility applying basic nursing skills in simple nursing situations.

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.

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.

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.

120 Basic Medical Surgical Nursing Practice ..... **3 credit hours**

Concurrent with NUR 125. Prerequisite: 1st semester courses.

Clinical experience in caring for adult patients with medical-surgical problems. Includes experience in the operating room, recovery room, and emergency room, and outpatient department. (23 hours per week, 7½ weeks)

121 Intermediate Medical-Surgical Nursing Practice ..... **3 credit hours**

Prerequisite: First semester courses and NUR 120 and 125

Co-requisite: Concurrent with NUR 126

Clinical experience in caring for adult patients with medical-surgical problems. Includes experience in the operating room, recovery room and emergency room, and the outpatient department. Also includes clinical experience in the administration of medications. (23 hours per week, 7½ weeks)

122 Pharmacology II ..... **2 credit hours**

Prerequisite: NUR 111.

Study of drug action, uses, and effects in the administration of drug therapy. Includes a unit on drug abuse.

125 Medical-Surgical Nursing with Laboratory ..... **2 credit hours**

Prerequisite: First semester courses. Concurrent with NUR 120.

Study of the adult patient with common medical-surgical problems. Includes principles and skills that assist the student in meeting the needs of the patient in the clinical situation. Pharmacology and diet therapy interrelated with the study of disease conditions. (7½ weeks)

126 Medical-Surgical Nursing ..... **2 credit hours**

Prerequisite: First semester courses and NUR 120 and 125.

Co-requisite: Concurrent with NUR 121.

Continued study of the adult patient with common medical-surgical problems. Includes principles and skills that assist the student in meeting the needs of the patient in the clincal situation. Pharmacology and diet therapy inter-related with the study of disease conditions. (7½ weeks)

130 Parent-Child Nursing Practice ..... **4 credit hours**

Concurrent with NUR 135. Prerequisite: NUR 120, 125

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)

135 Parent-Child Nursing ..... **2 credit hours**

Prerequisite: Nur 125, 120. Concurrent with NUR 130

Study of the nursing care of mothers during the reproductive cycle, the care of the newborn, and the care of the ill children.

133 Pharmacology III ..... **2 credit hours**

Prerequisite: NUR 111 and NUR 122.

Continued study of drug action, uses, and effects, with emphasis on a body system.

140 Advanced Medical-Surgical Nursing Practice ..... **3 credit hours**

Concurrent with NUR 145. Prerequisite: NUR 129, 125, 121, 126.

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)

144 Pharmacology for LPN ..... **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)

145 Advanced Medical-Surgical Nursing ..... **2 credit hours**

Prerequisite: NUR 125, 120, 121, 126. Concurrent with NUR 140

Study of medical-surgical problems in the specialty areas. Prepares the student for the role of the practical nurse, including legal and ethical implications. (7½ weeks)

147 Growth and Development ..... **3 credit hours**

Concurrent with NUR 135 or consent of faculty.

Study of the physical, psychological and social growth of the individual from birth to maturity. Includes the study of the family in society.

150 Extended Care Nursing ..... **3 credit hours**

Includes essentials of the nursing process related to geriatrics and care of the long-term chronically ill patient. Patient's psychological needs, nutrition problem solving, rehabilitation and maintenance regimes examined through case studies and special student projects.

Designed for the advanced student nurse or for the graduate nurse working in or intending to work in private duty, nursing home or extended care setting.

Philosophy (PHL)

101 Introduction to Philosophy ..... **3 credit hours**

The general nature of philosophical thought, its basic methods, problems, and 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.

200 Existentialism ..... **3 credit hours**

A general introduction to the existentialist tradition of philosophy as it is presented in the works of such representative thinkers as Nietzsche, Kierkegaard, Heidegger, Sartre, and Camus. Special attention to major existentialist themes; for example, authentic existence, integrity, freedom, anxiety, non-being, melancholy, death, guilt, conscience and values.

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.

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)

111 Photography (PHO 214) ..... **4 credit hours**

Principles, practices, and the 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)

112 Darkroom Techniques (PHO 215) ..... **5 credit hours**

Prerequisite: Photography 111, Photography 113 co-requisite.

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)

113 Studio Techniques (PHO 217) ..... **3 credit hours**

Co-requisite: 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)

114 Basic Color Photography (PHO 216) ..... **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)

115 Photo Retouching (PHO 218) ..... **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)

219 Photographic Design ..... **3 credit hours**

Prerequisite: Photography 112

Specialized instruction in photographic composition with emphasis on design in the photographic image through lecture, demonstration and darkroom practices. Included are a survey of contemporary photographers and new directions in modern photographic images and design. (4 hours per week)

220 Camera Selection and Use ..... **3 credit hours**

Prerequisite: Studio Techniques 113. Co-requisite: 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. (4 hours per week)

221 Advanced Darkroom Techniques ..... **3 credit hours**

Prerequisite: Darkroom Techniques 112. Co-requisite: 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)

222 Advanced Color Photography ..... **4 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)

223 Photographic Occupations & Darkroom Operation ..... **3 credit hours**

Prerequisite: Studio Techniques 113

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

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-man 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)

230 Specialized Studies in Photography ..... **2-4 credit hours**

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.

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 scheduled, 3 hours per week arranged)

Physical Education (P E)

100 Conditioning Activities ..... **1 credit hour**

A basic course to develop an understanding of the role and importance of physical activities in daily living. The student will develop a fitness program based upon an analysis of his/her fitness status. (2 hours per week)

105 Independent 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. (2 hours per week)

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.

120 Healthful Living ..... **3 credit hours**

Provides information to help the students make intelligent decisions regarding their health and the health of those affected by them. 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)

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.

137 Techniques of Officiating ..... **2 credit hours**

Consists of a study of the rules and techniques involved in officiating various interscholastic sports. The official's duties, personal characteristics, relationships with coaches and school administrators emphasized. Course will consist of classroom and laboratory experiences. Some practical experience will be gained by officiating in intramural games, intercollegiate meets, and scrimmages.

Physics (PHY)

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.

105 Introductory Physics ..... **4 credit hours**

Prerequisite: Mathematics 090 or equivalent

Co-requisite: 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 and 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)

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)

111 General Physics ..... **4 credit hours**

Prerequisite: Introductory Algebra 097

Co-requisite: Math 136 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)

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)

131 Physics for Respiratory Therapy ..... **3 credit hours**

Prerequisite: Mathematics 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)

141 Radiologic Physics ..... **3 credit hours**

Prerequisite: Mathematics 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)

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 Xray 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)

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. Fortran Programming 187 recommended. (3 hours laboratory, 4 hours lecture and recitation per week)

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)

Political Science 108, 112, and 150 all meet the minimum requirements of Michigan Law for the Associate Degree.

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.)

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.

150 State and Local Government and Politics ..... **3 credit hours**

Forms and functions of state and local governments in the United States. Relationship of development of the urban community to the politics of metropolitan areas analyzed. Theories of studying community decision-making evaluated.

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.

200 Introducton 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.

211 Introduction to Comparative Government ..... **3 credit hours**

A survey of the political systems of Great Britain, France, Italy, Germany and the Soviet Union.

230 Political Parties and Pressure Groups ..... **3 credit hours**

An analysis of American political parties and pressure groups; emphasizes their origins, functions, organization, methods, and the relationship between party politics and public opinion.

Psychology (PSY)

050 New Careers and Life Styles ..... **2 credit hours**

Finding and using interests and aptitudes. Group and individual counseling. Career development and opportunities. Goals for mid-life and pre-retirement. Life review and 2nd and 3rd career models. (3 hours per week, 8 weeks).

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, emotions, perception, intelligence, aptitudes, and personality. Basic principles and their practical application discussed.

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.

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.

107 Black Psychology ..... **3 credit hours**

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

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.

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.

200 Child Psychology ..... **3 credit hours**

Stresses the child as an individual, his original nature and temperament, and his 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.

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.

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.

257 Abnormal Psychology ..... **3 credit hours**

A course dealing with the abnormalities of certain types of personalities, their origin, symptoms, developments and treatment, short of psychiatric competence. Main topics—simple maladjustment; disturbances of emotional nature, of perception, memory, judgment, thought; disorders of mobility, speech, etc.; early symptoms of schizophrenia.

Quality Control (QC)

101 Process Quality Control ..... **3 credit hours**

The concepts of variation and methods of measuring, evaluating, and interpreting industrial data. An indepth 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.

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.

213 Quality Control by Statistical Methods ..... **3 credit hours**

Prerequisite: Process Quality Control 101 and Sampling 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.

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.

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.

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)

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

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)

101 Methods of Patient Care ..... **2 credit hours**

Designed to teach the radiographer how to interact with the patient and to provide for their 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)

111 Fundamentals of Radiography ..... **3 credit hours**

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

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)

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)

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 visualized on routine radiographs.

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)

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)

218 Radiation Biology & 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.

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.

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)

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.

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)

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)

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)

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 extremeties, trunk, spine, skull and procedures requiring the use of a contrast medium. Evening work experience will be scheduled. (24 hours per week)

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)

240 Clinical Education ..... **2 credit hours**

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

Reading (RDG)

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.

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 diagnostic reading test and a personal interview.

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 readingrelated home and school problems. (3 hours per week)

100 Spelling and Vocabulary Power ..... **1 credit hour**

Designed for the student interested in strengthening his spelling skills and expanding his 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)

103 Study Skills ..... **3 credit hours**

Prerequisite: High School Reading Level.

Designed for the competent student interested in improving his study and note taking skills. Reading and note taking techniques appropriate to specific course materials stressed. Essential for a student electing this course also to be enrolled in English, Humanities, Social or Exact Science course to which he shall apply his newly learned study skills.

104 Study Skills ..... **1 credit hour**

Designed for the competent student interested in improving his 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)

105 Spelling and Vocabulary Power ..... **3 credit hours**

Designed for the student interested in strengthening his spelling skills and expanding his 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.

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 his material and purposes. Class meets for half a regular semester. (3 hours per week)

Refrigeration/Air Conditioning (RAC)

Basically this is a trade-related instruction program. Its purpose is to upgrade persons currently employed in this industry; however, students who are not currently employed in the industry are welcome. Presently courses are offered in the evenings only. Membership in the Educational Society of the Refrigeration Service Engineers is required. Initiation fee and dues are approximately $35.00. Consent of advisor is required for registration.

111 Refrigeration ..... **5 credit hours**

Prerequisite or co-requisites: Electrical Fundamentals 111, Applied Algebra 151 or equivalent, and RSES membership.

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. RSES 1

122 Refrigeration Equipment ..... **5 credit hours**

Prerequisite: Refrigeration 111 or consent.

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, and estimating heat loads (commercial refrigeration). RSES 11

123 Refrigeration and Air Conditioning Systems ..... **5 credit hours**

Prerequisites: Refrigeration 111, 124.

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)

124 Basic Controls ..... **5 credit hours**

Prerequisite: Electrical Fundamentals 111 and Refrigeration 111.

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 R/AC controls. Safety included and seriously emphasized. RSES E-1

213 Air Conditioning ..... **5 credit hours**

Prerequisite: Refrigeration 122 or consent.

Air conditioning 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 grilles, blowers and fans, air filters, safety, first aid and codes. RSES 111

214 Control Systems ..... **5 credit hours**

Prerequisites: Basic Controls 124 and Air Conditioning 213.

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. RSES E-11

215 Troubleshooting Controls ..... **5 credit hours**

Prerequisite: Control Systems 214.

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. RSES E-111

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)

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)

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

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)

106 Chemistry for Respiratory Therapy ..... **3 credit hours**

Prerequisites: Introductory Chemistry 057 and 058.

Intended primarily for students in the 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.

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. Involved are three hours of laboratory and one hour of lecture.

122 Respiratory Physiology ..... **2 credit hours**

Prerequisites: Basic Anatomy and Physiology III, Chem for RTH 106.

For respiratory therapy students only: an in-depth study of the anatomy and physiology of the respiratory system and the diseases that affect it.

123 Respiratory Physiology Lab and Recitation ..... **3 credit hours**

Prerequisite: Basic Anatomy and Physiology III.

To be taken concurrently with 122 Respiratory Physiology; intended for respiratory therapy students only. Dissection of animal lungs, heart, and chest muscles. Experiments with mtabolic rate, lung volumes, etc. Students will research and present the causes and treatment of respiratory diseases. (1 hour laboratory, 2 hours lecture)

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 cardio-pulmonary disorders.

149 Pathology for Respiratory Therapy ..... **2 credit hours**

Prerequisite: Basic Anatomy and Physiology III.

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

198 Work Experience - Respiratory Therapy ..... **6 credit hours**

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

199 General Clinical Practice ..... **3 credit hours**

Prerequisite: Basic Equip and Procedures 121.

Bedside practice of general respiratory therapy techniques, such as intermittent positive pressure breathing, oxygen therapy, humidity therapy, cardio-pulmonary 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)

200 Advanced Clinical Practice ..... **4 credit hours**

Prerequisites: Ventilators and Diagnostic Tests 212 and Intensive Care 213.

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)

201 Specialty Clinical Practice ..... **4 credit hours**

Prerequisites: Ventilators and Diagnostic Tests 212 and Intensive Care 213.

Pediatrics 219 prior or concurrent. 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)

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 trouble shooting of medical ventilators, pulmonary function testing devices, and other respiratory therapy equipment.

213 Intensive and Rehabilitative Respiratory Care ..... **3 credit hours**

Prerequisite: Basic Equipment and Procedures 121.

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.

214 Cardiodiagnostics ..... **3 credit hours**

Prerequisites: Anatomy and Physiology 111 and 112 or Equiv. (Open to students other than Respiratory Therapy).

A survey of invasive and noninvasive methods of studying the heart and cardio vascular system. Swan Gantz catheterization, echocardiography, stress tests, ECG interpretation, etc.

217 Seminar - Respiratory Therapy ..... **2 credit hours**

Discussion of current problems, credentialing systems, job attainment skills, psychological assessment of patients, teaching and management techniques.

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 cardioplumonary diseases of children, infants, and neo-nates explained.

Secretarial and Office (SO)

090 Fundamentals of Typewriting ..... **1 credit hour**

A basic typewriting course designed to meet the needs of the non-secretarial student in developing basic typing skills. (2 hours per week PLUS 4-6 practice hours)

101, 102, 203 Typewriting ..... **3 credit hours**

An integrative, programmed 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 word processing. Credit and contact hours are progressive (101, 102, 203) and are contingent on student progress as determined by proficiency tests. (4 hours per week Plus minimum 8 practice hours)

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, systems, and procedures. Includes the study of filing and records systems, telephone and telegraph communication, written reports, transcribing and duplicating equipment. (4 hours per week plus minimum of 4 weekly machine room hours)

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.

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.

130 Business Machines ..... **3 credit hours**

Prerequisite: Foundations of Occupational Mathematics 090 or equivalent.

Instruction in the basic business 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)

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)

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 it relates 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)

151 Word Processing Principles (WP 111) ..... **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.

152 Word Processing Applications/Dictation Equipment (WP 122) ..... **2 credit hours**

Prerequisites: WP 111 and high school typewriting proficiency or concurrent enrollment in intermediate typewriting or equivalent.

An integrative applied approach to the study and use of modern dictation equipment designed to acquaint the student with the theory and principles of dictation equipment as it relates to business and industry and other specialized fields. Skill development and speed building in transcription emphasized.

153 Word Processing Applications/Basic Practice ..... **2 credit hours**

Prerequisites: WP 111, WP 122 and high school typewriting proficiency or concurrent enrollment in intermediate typewriting or equivalent.

An integrative applied approach to the study of modern word processing typewriters designed to acquaint the student with the use of word processing typewriters as it relates to business and industry and other specialized fields. Skill development and speed building in recording and playing back emphasized.

210 Medical Transcription ..... **3 credit hours**

Prerequisite: Typewriting 110B 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)

212 Legal Research ..... **3 credit hours**

Prerequisite: Foundations of Law 110.

Introduction to legal research methodology and source material; designed for the legal assistant, with emphasis on practical problems rather than legal theory.

213 Legal Typewriting ..... **3 credit hours**

Prerequisite: Typewriting 110C or equivalent.

Designed for students who plan to specialize in the legal field. General objectives: familiarize students with legal terms and procedures, to expand students' vocabulary and improve their spelling; to provide practice material for legal dictation and for legal typewriting; to establish typewriting response patterns through repetitive practice on legal forms; to refresh and sharpen skills of the legal secretary whose legal education needs updating. (4 hours per week, plus a minimum of 4 practice hours)

214 Word Processing Applications/Advanced Practice (WP 124) ..... **3 credit hours**

Prerequisites: WP 111, WP 122, WP 123 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.

223 Medical Typewriting (formerly 115) ..... **3 credit hours**

Prerequisite: Typewriting 110B 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)

225 Word Processing Systems Procedures (WP 200) ..... **3 credit hours**

Prerequisite: Word Processing Principles 111 and Word Processing Applications 122, 123, 124.

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 factors and their essential relationship 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.

227 Legal Office Systems and Procedures ..... **4 credit hours**

Prerequisite: Typewriting 110C or equivalent.

A practical study of the fundamental systems and procedures comprising the modern legal business office. emphasis placed on teaching students the importance of cooperation and communication and other valuable skills such as keeping legal files, typing new case reports and legal documents, keeping a calendar, making court dates and appointments, taking phone calls and writing checks and ledger cards. Concentration made on the 4 fields of law: real estate and property transfer; litigation; wills and estates; and corporations and partnerships. (4 hours per week, plus a minimum of 4 weekly machine room hours)

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 systems, telephone and telegraph communications, written reports, transcribing, duplicating equipment, and word processing. (4 hours per week, plus minimum of 4 weekly machine room hours)

Sociology (SOC)

100 Principles of Sociology ..... **3 credit hours**

Emphasis placed on basic concepts used in an analysis of social behavior and the processes by which new members of groups are oriented to prevailing patterns of behavior. A study of the process of cultural change basic to all programs in social work, or advanced work in the social sciences.

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.

108 Introductory Afro-Amer Sociology ..... **3 credit hours**

Designed to introduce AfroAmerican 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 societies organization and the conditions which foster development of social change.

150 Marriage and the Family ..... **3 credit hours**

Designed for all students, 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.

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.

201 Medical Sociology (HS 201) ..... **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.

202 Criminology ..... **3 credit hours**

An examination of the theories which attempt to explain criminal behavior. Punishment vs. rehabilitation schools of thought dealt with as well as capital punishment. Attention also given to the functioning of police and court systems.

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, and majorities and minorities in racial subgroups.

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 industrialism with the major theme being the disruptive disparity between the rates of technological and societary change and the consequent need to cultivate sciences concerned with human behavior.

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 Ghettoes. The organizing conceptual framework is black urban history as a protracted struggle. Emphasis on black ideological and institutional development.

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 his maladjustment, and sociological principles for working with youth from the viewpoint of parent, teacher, police, and youth organization leader.

260 Women in Today's World (SS 100) ..... **3 credit hours**

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

262 Women's Health Care (SS 109) ..... **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 otherissues relating to medical care for women.

263 Health Care Issues (SS 201) ..... **3 credit hours**

A practical study of the legal and ethical responsibilities 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.

264 Assertiveness Training/Women (SS 115) ..... **3 credit hours**

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

266 Marriage-Divorce (SS 157) ..... **3 credit hours**

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

Spanish (SPN)

111 First Year Spanish ..... **3 credit hours**

A beginning course in Spanish using the conversational approach. Spoken language mastered through classroom and laboratory practice. Cultural aspects of Spain and Latin America highlighted. (4 hours per week)

119 Spanish Language Adventures ..... **1 credit hour**

A course of independent study to be undertaken during any of the College field trip "Adventures" to Spanishspeaking 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.

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 appreciation of these exciting cultures. May be taken as a review for students already enrolled in the first year course.

121 Intermediate Spanish ..... **2 credit hours**

Prerequisite: Spanish 111 or Spanish 120, 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.

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)

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.

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)

101 Fundamentals of Speaking (SPH 100) ..... **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 large or a small group or to a familiar or an unfamiliar audience.

131 Radio-Television Speech (SPH 103) ..... **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, news, interviews, features, commercials and music continuity. Basic oral reading techniques and a brief introduction to the International Phonetic Alphabet.

142 Oral Interpretation of Literature (SPH 187) ..... **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.

152 Acting for the Theatre (SPH 191) ..... **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.

162 Basic Staging for the Theatre (SPH 192) ..... **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 prospectve teachers, and those interested in the production of plays.

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.

185 Public Speaking and Debate ..... **3 credit hours**

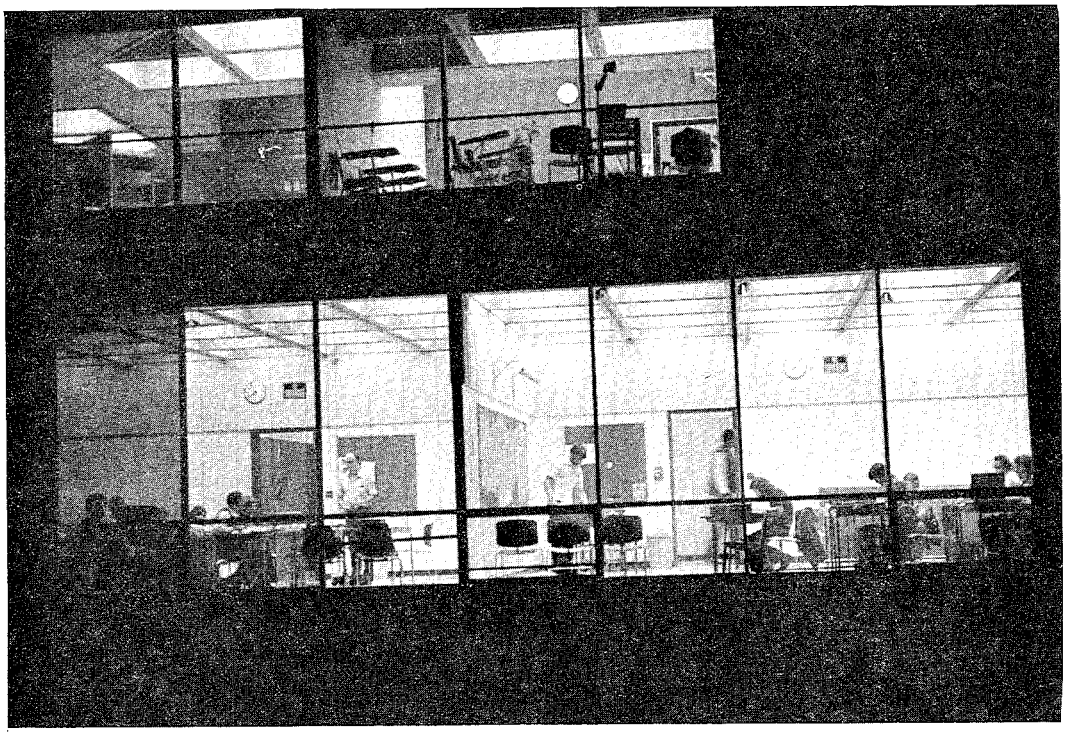
An introduction to the rhetoric of persuasive and argumentative speaking. The historical and contemporary forms of debate. Experience in the preparation and delivery of major speeches, and experience in team debating.

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.

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 student a functional experience with a sampling of the black theatre literature.



Student Personnel Services (SPS)

100 Career Planning Seminar ..... **3 credit hours**

Designed for persons undecided in their career and life goals and interested in exploring alternatives to current careers or who are interested in clarifying tentative decisions. For all academic levels and ages. 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.

Technical and Commercial Art (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 obligue, one point, isometric, two points, and three point perspective projection. Projects utilizing parallel and perspective projected shadow construction emphasized. (6 hours per week)

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)

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.

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 Balsa Art. Emphasis on 2-D and 3-D media.

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)

111 Basic Drawing ..... **3 credit hours**

See ART for course description.

112 Basic Design ..... **3 credit hours**

See ART for course description.

120 Commerical Rendering ..... **4 credit hours**

Co-requisite: 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, and pen and ink. (6 hours per week)

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)

122 Technical Rendering ..... **4 credit hours**

Co-requisite: 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)

140 Life Drawing ..... **3 credit hours**

See ART for course description.

214 Photography ..... **4 credit hours**

See PHOTOGRAPHY for course description.

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)

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 display.s Emphasis on design, the working drawing or blueprint, and the construction of a functioning model. (6 hours per week)

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. (6 hours per week)

2228 Airbrush Techniques ..... **4 credit hours**

Co-requisite: 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)

230 Freelance Operations ..... **3 credit hours**

Prerequisites: Advertising Layout 121.

An in-depth study of some of the problems involved in operating a free-lance commercial art studio. A survey of types of Commercial Art and Advertising Design that the Freelance Commercial Artist would come in contact with as a one person operation. Guest speakers and various field trips will be taken to studios. (4 hours per week)

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 concentration effort on assignments to demonstrate the individual's development and understanding within selected occupational areas. Major study areas of specialization may include: animation and cartooning, medical illustration, animal illustration, commercial photography, graphic reproduction, advertising and lettering, layout, fashion illustration, and commercial displays. (Class hours arranged)

Welding and Fabrication (WF)

100 Fundamentals of Welding ..... **2 credit hours**

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

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)

102 Arc-Welding ..... **2 credit hours**

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

103 Heli-Arc Welding ..... **4 credit hours**

Indstruction 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.

104 Soldering and Brazing ..... **2 credit hours**

Course designed for basic knowledge of soft soldering, brazing, and silver soldering, cooper tubing and fittings, brazing of steel, silver soldering of copper and stainless. Practical application included (4 hours per week)

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)

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)

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)

113 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)

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)

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 are covered for cutting, beveling, and fabricating various welded joints. Related theory, codes, and standards included. (8 hours per week)

200 Layout and Theory for Welders ..... **2 credit hours**

Layout problem solving for the welder including techniques using layut 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 cricle such as radius, chords, and degrees of angularity for jobs done in the field included.

215 Welding and Fabrication (T.I.G.) ..... **4 credit hours**

Prerequisite: Consent.

Tungsten-insert-gas shield arc welding with manually operated torch on such metals as aluminum, mild steel, and stainless steel. Technical theory directly related to tig welding including the composition and properties of metals included. (8 hours per week)

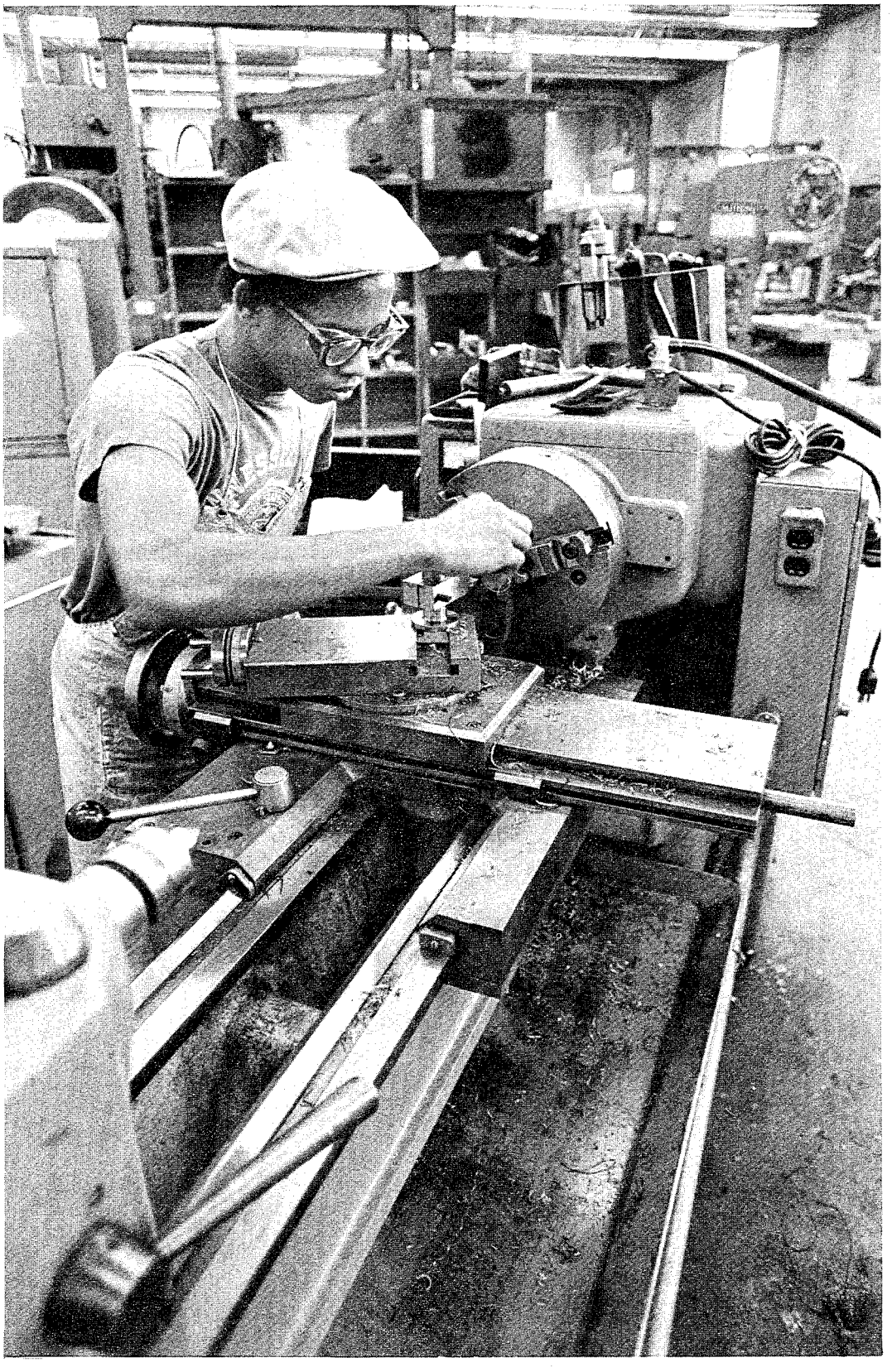
221 Applied Automotive Welding ..... **1 credit hour**

Practice in the application of welding fundamentals, with emphasis on cutting and brazing (2 hours per week, 7½ weeks)

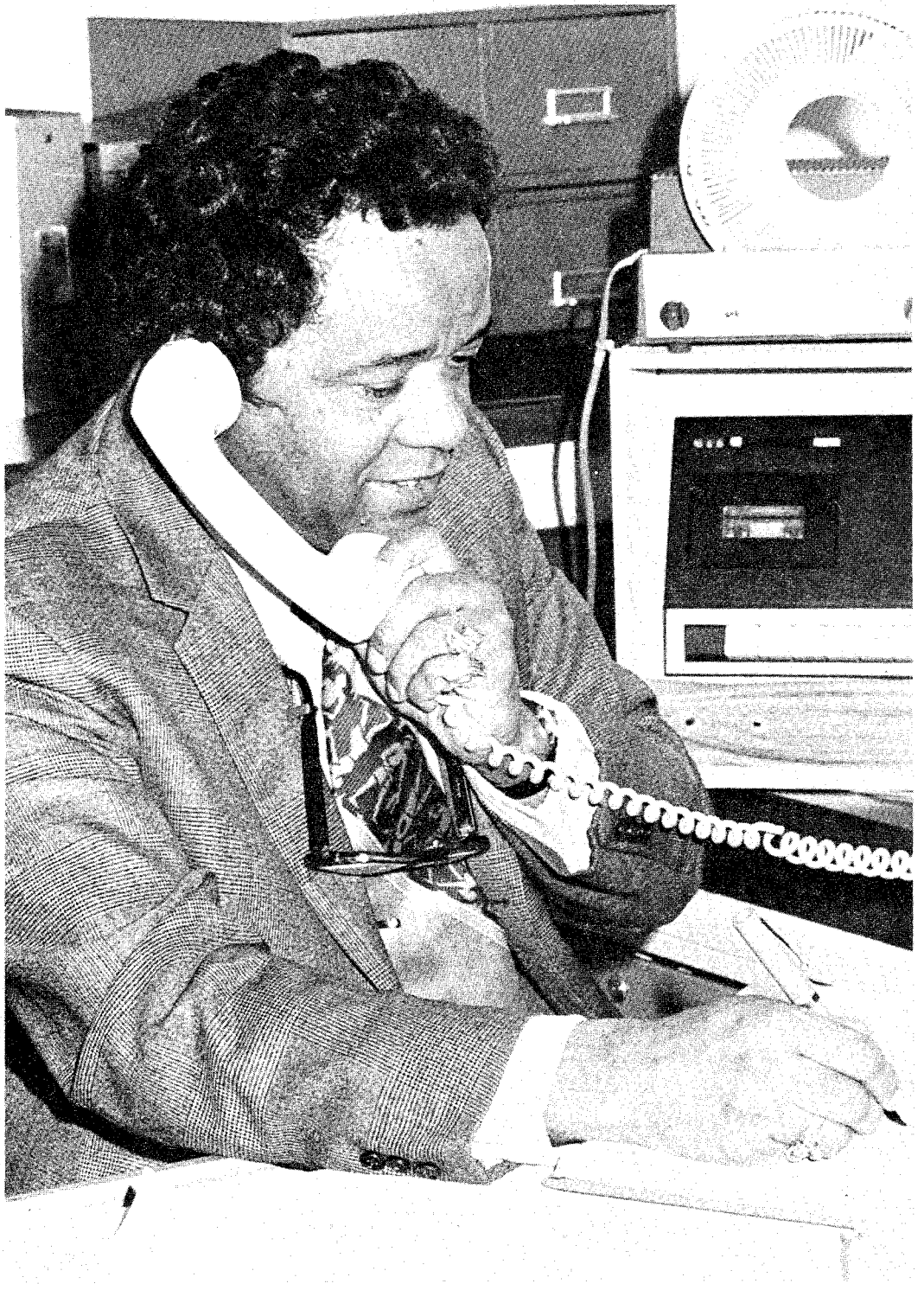
226 Welding and Fabrication (Specialized) ..... **4 credit hours**

Prerequisite: Consent.

Specialized oxy-acetylene welding, inert-gas-shielded 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, tantalum, columbium, zirconium, and molybdenum included. (8 hours per week)



COLLEGE PERSONNEL



Board of Trustees

Member	Title	Term Expires
Anthony J. Procassini Ann Arbor	Chairperson	December 31, 1980
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Henry S. Landau Ann Arbor	Trustee	December 31, 1982
Judy Shelton Ypsilanti	Trustee	December 31, 1980

Executive Officers

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

Konschuh, Harry J., 1972, ... **Vice President**
B.Ed. — University of Alberta
M.A. — Michigan State University

Hurd, John D., 1977 ..... **Dean, Business Operations**
B.B.A. — The University of Michigan
M.B.A. — The University of Michigan

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

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

Wooden, John P., 1966 ..... **Dean, College Development**
B.S. — Winona State College
M.A. — New Mexico State University

Administrative Staff

Albert, Rudolph, A., 1968 ..... **Coordinator, Instructional Media**
B.S. — Bradley University
M.A. — The University of Michigan

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

Bosch, Barbara J., 1966 ..... **Supervisor, Technical Processing, LRC**
Henry Ford Community College
Washtenaw Community College
Friden Educational Center

Bostwick, Phyllis M., 1966 ..... **Supervisor, Clerical Services**
A.A. — Flint Junior College
B.G.S. — Wayne State University

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.

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

Brukett, James, 1978 ..... **Computer Analyst/Programmer**
B.A. — Kent State University
M.S. — University of Miami

Chambers, John F., 1977 ..... **Controller**
B.S. — Ohio State University
M.B.A. — University of Detroit
C.P.A. — State of Michigan

Galant, Richard, 1978 ..... **Interim Director of Institutional Research**
A.B. — The University of Michigan
A.M. — The University of Michigan
Ph.D. — 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

Harrison, Marcia, 1978 ..... **Director, CETA Operations**
A.D. — Northwestern Michigan College
B.A. — Eastern Michigan University

Jackson, Robert L., 1966 ..... **Coordinator, Trade Related Instruction**
A.D. — Washtenaw Community College
Manufacturing Technologist — S.M.E. Certified
Journeyman — Tool & Die & Diecast Die Maker
Henry Ford Community College
Tool & Processing Engineer

Jacques, Edith N., 1976 ..... **Director, Community Services**
B.A. — D'Youville College
M.A. — The University of Michigan

Mallory, Richard H., 1966 ..... **Director, Auxiliary Services**
B.A. — University of Detroit

Munn, Ben F., 1974 ..... **Director, Computer Services**
B.S. — The University of Michigan

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

Reeves, Robert A., 1968 ..... **Associate Dean, Employee Relations**
B.A. — Eastern Michigan University
M.A. — Eastern Michigan University

Sabada, Mary L., 1966 ..... **Personnel Assistant**
Ohio University
Washtenaw Community College

Sims, Donald L., 1968 ..... **Registrar and Director of Admissions**
B.S. — Wayne State University
M.A. — The University of Michigan

Spickard, James F., 1977 ..... **Security and Public Safety Officer**
B.S. — Eastern Michigan University

Stallworth, Clarence A., 1974 ..... **Director, Building & Grounds**
B.S.E — The University of Michigan
M.S.E. — The University of Michigan

Taylor, O'Leta F., 1966 ..... **Staff Benefits Specialist**
West Virginia Business College
Washtenaw Community College
The University of Michigan
Wayne State University

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

Travis, Patricia A., 1974 ..... **Coordinator, Children's Center**
B.A. — The University of Michigan
M.A. — Eastern Michigan University

Wienner, Jane, 1977 ..... **Supervisor, Children's Center**
B.S. — Boston University

Wojnowski, Judith L., 1978 ..... **Coordinator, Accounting**
B.S. — Canisius College
C.P.A.

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

The Faculty

Agin, George C., 1968 ..... **Mechanical Technology/Fluid Power**
B.S. — Wayne State University
M.A. — Eastern Michigan University
General Motors Training Center

Allen, Jacqueline, 1978 ..... **Tech. Instr. Asst., Writing Workshop**
B.A. — Case Western Reserve University

Amaru, Augustine, 1966 ..... **Political Science**
B.A. — Boston University
M.A. — Michigan State University
University of Michigan
University of Washington

Amundsen, Jack, 1975 ..... **Physics/Mathematics**
B.A. — The University of Michigan
M.A. — The University of Michigan

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

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

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

Bellers, Clifford, 1969 ..... **Physical Education**
B.B.A. — Eastern Michigan University
M.A. — Eastern Michigan University

Bellers, Robert, 1968 ..... **Tech. Instr. Asst., Electricity/Electronics**
A.D. — Washtenaw Community College
Electronics Engineering Technician Trade School
Grantham Electronics School
F.C.C. License
Journeyman Electrician

Biederman, Rosalyn, L., 1967 ..... **Spanish/English**
B.A. — Ohio State University
M.A. — Ohio State University

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

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

Burch, Wanda, 1977 ..... **Office Occupations**
A.D. — Washtenaw Community College
B.S. — The University of Michigan
M.A. — 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

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

Byrd, David R., 1966 ..... **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

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

Campbell, Benjamin I., 1968 ..... **Psychology**
B.M. — Peabody Institute
M.A. — The University of Michigan

Carpenter, Robert, 1976 ..... **Tech. Instr. Asst., Physical Science**
B.S.E.E. — North Caroline State University
M.S. — The University of Michigan

Charlton, Eleanor, 1966 ..... **Secretarial Studies**
B.S. — Central Michigan University
M.A. — Central Michigan University

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

Clark, William G., 1968 ..... **Counselor**
B.R.E. — Grand Rapids Baptist College
M.A. — Western Michigan University

Collard, Roger, 1976 ..... **Electricity/Electronics**
A.D. — Flint Junior College
B.S.E. — The University of Michigan

Croake, Edith M., 1966 ..... **English**
B.A. — The University of Michigan
M.A.T. — Northwestern University
M.A. — Northwerstern University
D.A. — The University of Michigan

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

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

Davenport, James M., 1966 ..... **Biology**
B.A. — Ohio Northern University
M.A. — Syracuse 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

Devereaux, William, 1976 ..... **Speech**
B.A. — Michigan State University
M.A. — Michigan State University
Ed.D. — Laurence University

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

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 Dept. of Publich Health (MDPH)
Certified EMT Instructor/Coordinator — MDPH

Eaglin, Marguerite, 1967 ..... **Counselor**
B.S. — Eastern Michigan University
M.A. — Eastern Michigan University
Ed.S. — Eastern Michigan University

Edwards, LaRuth, 1974 ..... **Dental Assisting**
C.D.A. — American Dental Assisting Association
University of Detroit
B.S. — Shaw College of Detroit

Figg, William, 1972 ..... **Welding and Fabrication**
Washtenaw Community College

Finkbeiner, Charles A., 1975 ..... **Data Processing/Acctg./General Business**
A.D. — Washtenaw Community College
B.S. — The University of Michigan
M.S. — 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

Forsythe, Carolyn S., 1973 ..... **Tech. Serv. Asst., Computer Services**
A.D. — Washtenaw Community College
Brown's Business School — Diploma
Nassau Community College

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

French, Gargi, 1974 ..... **Chemistry**
B.Sc. — University of Bombay
Ph.D. — Radcliffe College

Harvard University

Fritts, Ruth, 1968 ..... **English**
B.A. — The University of Michigan

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

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

Garrett, Dallas O., 1967 ..... **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

Gaughan, Joan M., 1969 ..... **History**
B.A. — St. Teresa College
M.A. — Eastern Michigan University
Ph.D. — 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

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

Gaughan, John T., 1968 ..... **English**
B.A. — St. Mary's College
B.S. — St. Mary's College
M.A. — Eastern Michigan University

Glusac, Ivan C., 1966 ..... **Political Science/Economics**
B.S. — Wayne State University
M.A. — The University of Michigan

Goldberg, David, 1977 ..... **Mathematics/Science**
B.S. — The University of Michigan

Goodkin, Barbara H., 1975 ..... **Practical Nursing**
B.S.N. — The University of Michigan
M.S. — The University of Michigan

Gray, Daniel C. 1966 ..... **Welding and Fabrication**
Journeyman Pipe Fitter and Boilermaker
Air Force Technical School
Certified Welder — Navy, Air Force, Army

Griswold, George H., 1966 ..... **Chemistry**
B.A. — College of Wooster
M.S. — Eastern Michigan University

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

Grzegorczyk, Phyllis, 1978 ..... **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

Hakeem, Ivan P., 1968 ..... **Sociology**
I.D.D. — Agricultural Institute
A.B. — Clark College
M.A. — Atlanta University
M.Ed. — Eastern Michigan University

Hall, Clyde, 1978 ..... **Tech. Instr. Asst., Welding and Fabrication**
A.D. — Washtenaw Community College

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

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

Hastings, Janet G., 1967 ..... **Mathematics**
B.A. — The University of Michigan
M.A. — Cornell University

Hentz, Gary R., 1967 ..... **Counselor**
B.S. — Eastern Michigan University
M.A. — Eastern Michigan University

Hinds, Dwight D., 1968 ..... **Physics/Mathematics**
B.S. — Eastern Michigan University
M.S. — Michigan State University

Ho, Leo C., 1975 ..... **Media Librarian**
B.A. — National Cheng Chi University
M.L.S. — Atlanta University
Ph.D. — Wayne State University

Holmes, George H., III, 1968 ..... **History**
B.A. — University of North Carolina
M.A. — Xavier University

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

Horowitz, Frederick A., 1968 ..... **Art**
B.A. — Yale University
B.F.A. — Yale University
M.F.A. — The University of Michigan

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

Hunt, Barbara, 1968 ..... **English**
B.A. — University of Toledo
M.A. — The University of Michigan

Jones, Lola M., 1974 ..... **Student Life Officer**
A.B. — Wayne State University
M.S.W. — The University of Michigan

Jordan, Diane, 1978 ..... **Technical Service Asst., Financial Aids**
Washtenaw Community College

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

Kapp, George, 1970 ..... **Mathematics/Physics**
A.D. — Washtenaw Community College
B.S.E. — The University of Michigan

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

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

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

Kooi, Lucy A., 1977 ..... **Technical Service Asst., Computer Services**
B.S. — The University of Michigan
Washtenaw Community College

Kramer, Lawrence, 1977 ..... **Electricity/Electronics**
B.S. — The University of Michigan

Ladley, Betty A., 1969 ..... **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

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

Lewis, William A., 1969 ..... **Mathematics**
B.S. — North Carolina Central University
M.A. — The University of Michigan

Lockard, Jon M., 1970 ..... **Black Art**
Certificate — Meinzinger Art School
Certificate — Obleton Advertising Company
Wayne State University

Lowe, Burton, C., 1968 ..... **Mechanical Technology/Blueprint Reading**
Journeyman Industrial Machinist, Machine Repairman
Ford Motor Company Apprenticeship School
Wayne State University

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

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

Martin, Herbert L., 1967 ..... **Psychology**
B.A. — Eastern Michigan University
M.A. — Eastern Michigan University
M.S.W. — 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

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

McClellan, Elwood, 1967 ..... **English**
B.A. — Michigan State University
M.A. — The University of Michigan

McCoy, Robert, 1971 ..... **Career Placement Officer**
B.S. — Western Michigan University
M.A. — Western Michigan University
M.A. — The University of Michigan

McGee, Sophie, 1969 ..... **English**
A.B. — The University of Michigan
M.G. — The University of Michigan

McGill, John B., 1966 ..... **Mathematics**
B.S. — Eastern Michigan University

McGlinchey, Michael L., 1978 ..... **Tech. Instr. Asst., Auto Service**
CS Mott Community College
Washtenaw Community College
Master Mechanic-Automotive (State of Michigan Certificate)

McNally, Robert C., 1968 ..... **Counselor**
Four Year Graduate — General Motors Institute
M.B.A. — The University of Michigan
M.A. — University of Detroit

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

Mealing, Robert C., 1966 ..... **Mathematics**
Journeyman, Industrial Machinist — Machine Repairman
Ford Motor Company Apprenticeship School
B.S. — Wayne State University

Meeks, Sandra S., 1969 ..... **Nurse/Health Service**
B.S.N. — The University of Michigan
M.S. — The University of Michigan
Registered Nurse

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

Mitchell, W. Bede, 1967 ..... **English**
A.B. — Wayne State University
M.A. — 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 Tech.

Moy, William, 1968 ..... **Psychology**
A.B. — Valparaiso University

Murdoch, Diane L., 1978 ..... **Tech. Instr. Asst., Respiratory Therapy**
A.A. — Highland Park College
RRT (National Board for Respiratory Therapy)

Nagel, Rosemarie E., 1967 ..... **Reading**
A.B. — The University of Michigan
M.A. — The University of Michigan

Napier, Beverly, 1977 ..... **Tech. Instr. Asst., Practical Nursing**
B.S.N. — The University of Michigan

Nelson, Robert, 1966 ..... **Radiologic Technology**
A.A. — Fort Scott Community Junior College
A.D. — Washtenaw Community College
B.S.Ed. — The University of Michigan
M.S. — The University of Michigan
Alexian Brothers Hospital School of Radiologic Technology

Nevers, William B., 1975 ..... **Dental Assisting**
B.S. — Wayne State University
D.D.S. — The University of Michigan School of Dentistry

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

Noack, Diane, 1977 ..... **Tech. Instr. Asst., Practical Nursing**
B.S.N. — The University of Michigan

Packard, R. James, 1969 ..... **Industrial Drafting**
A.D. — Washtenaw Community College
B.S.M.E. — University of Wisconsin
M.A.Ed. — Wayne State University

Palay, Roger M., 1975 ..... **Mathematics**
B.S. — University of Chicago
M.S. — University of Wisconsin

Partlo, Beverly D., 1978 ..... **Tech. Instr. Asst., Practical Nursing**
B.S.N. — Eastern Michigan University

Patt, Jerry, 1968 ..... **Secretarial Studies/Accounting**
B.S. — Eastern Michigan University

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

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

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

Plummer, Robert H., 1967 ..... **Political Science**
B.A. — Wabash College
M.S. — Indiana University
Ed.D. — Indiana University
M.P.H. — The University of Michigan

Pogliano, Michael F., 1969 ..... **Architectonics/Construction Technology**
B.Arch. — The University of Michigan
Registered Architect, Michigan
N.C.A.R.B. Certified

Pool, Milton, 1969 ..... **Chemistry**
B.S. — Eastern Michigan University

Prichard, Lawrence, 1968 ..... **Mathematics**
B.S. — Eastern Michigan University
M.A. — Eastern Michigan University

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

Redick, Martin, 1978 ..... **Respiratory Therapy**
B.S. — The University of Michigan
M.S. — The University of Michigan
RRT (National Board for Respiratory Therapy)

Rees, Gerald M., 1967 ..... **Physics/Mathematics**
B.S. — The University of Michigan
M.S. — The University of Michigan

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

Roberts, Alvin, 1968 ..... **Psychology**
B.S. — Prairie View A&M College
M.S.W. — Wayne State University

Roberts, Shirley, 1968 ..... **Clinical Psychologist**
B.A. — The University of Michigan
M.A. — The University of Michigan

Robinson, Albert, 1974 ..... **Electricity/Electronics**
B.A. — Indiana University
M.S. — 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

Russell, Dean A., 1966 ..... **Electricity/Electronics**
B.S. — Eastern Michigan University
M.A. — Eastern Michigan University

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

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

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

Synder, Marcia, 1978 ..... **Tech. Instr. Asst., Culinary Arts**
A.D. — Culinary Institute of America

Soderberg, James, 1978 ..... **Tech. Serv. Asst., Registrar Aid**
A.B. — The University of Michigan

Stager, Augustus P. III, 1977 ..... **Industrial Drafting/Mechanical Technology**
B.S.M.E. — The University of Michigan

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

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

Strayer, James L., 1969 ..... **Biology**
B.S. — Eastern Michigan University
A.M. — The University of Michigan

Susnick, Stuart B., 1969 ..... **Anthropology**
B.A. — Brooklyn College

Swatz, Donna, 1973 ..... **Tech. Instr. Asst., Dental Assisting**
A.A.S. — Ferris State College
C.D.A. — American Dental Assisting Association

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

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

Thompson, Doreen, 1975 ..... **Sociology**
A.B. — Atlantic Union College
Licence ès Lettres — University of Paris
M.P.H. — The University of Michigan

VanderVeen, Judith, Sr., 1976 ..... **Practical Nursing**
Diploma — Mercy Central School of Nursing
B.S.N. — Mercy College of Detroit

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

Vrabel, George, 1969 ..... **Career Placement Officer**
B.S. — Western Michigan Univesity
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

Wheeler, Kenneth, 1966 ..... **Electricity/Electronics**
B.S.E.E. — Detroit Institute of Technology
Member Institute of Electrical and Electronic Engineers

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

Wiernik, Peter R., 1969 ..... **Mechanical Technology**
Highland Park College
Wayne State University
Journeyman-Toolmaker and Machinist

Williams, Calvin E., 1969 ..... **Counselor**
B.A. — Western Michigan University
M.A. — The University of Michigan
Ph.D. — The University of Michigan

Williams, Johnny L., 1967 ..... **Electricity/Electronics**
U.S. Navy Retired — Radio Electronics
B.S. — The University of Michigan

Williams, Thomas G., 1971 ..... **Black Literature/Afro-American History**
B.S. — Eastern Michigan University

Wilson, Evylyn Y., 1967 ..... **Secretarial Studies/Management/General Business**
B.S.S.S. — Ohio University
M.S. — Ohio University

Wirbel, Johanna V., 1968 ..... **Counselor**
B.A. — Kent State University
M.A. — The University of Michigan

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

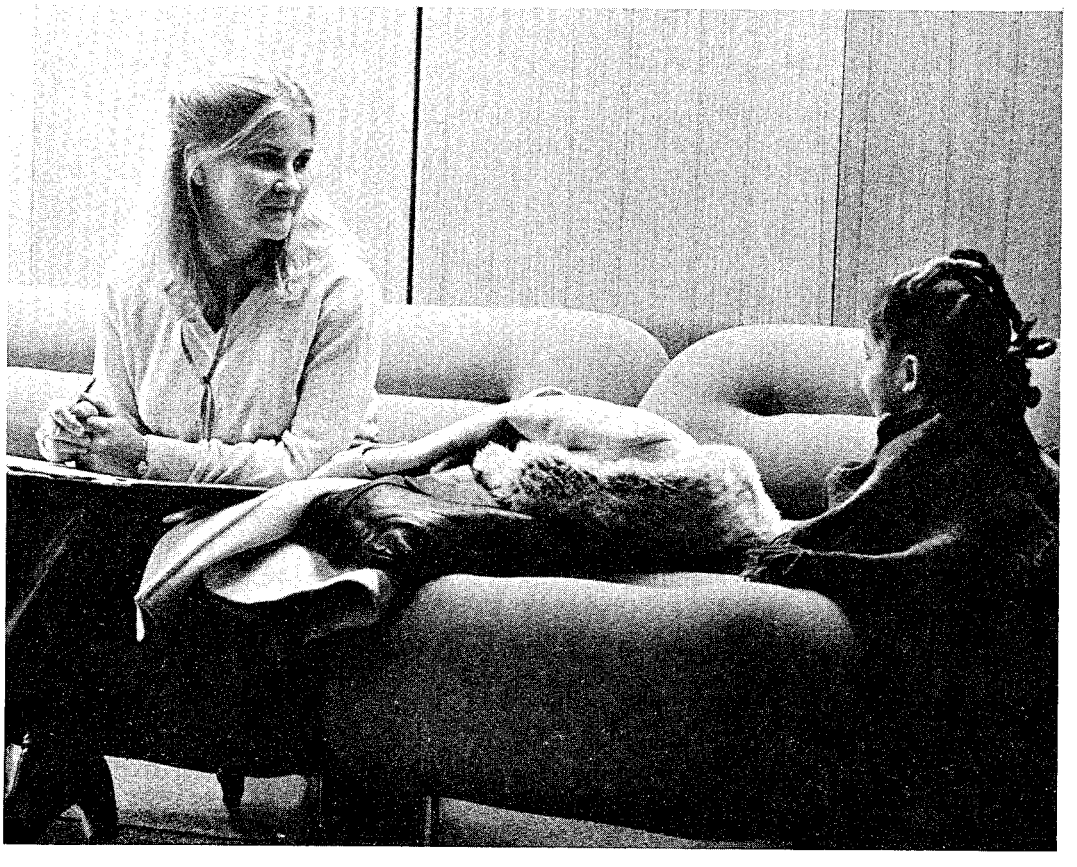
Yank, Terry L., 1978 ..... **Tech. Instr. Asst., Photography**
B.F.A. — Center for Creative Studies, College of Art & Design

Young, Mary E., 1975 ..... **Counselor**
B.R.E. — Detroit Bible College
B.A. — Eastern Kentucky University
M.A. — Eastern Kentucky University

Zaremba, Ernest, 1969 ..... **Psychology**
A.B. — The University of Michigan

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

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



Program Index

Index

WASHTENAW COMMUNITY COLLEGE

ANN ARBOR, MICHIGAN 48106

APPLICATION FOR ADMISSION

FEE		K.P.	
FEE BK.		ACC. LT.	
TRANS. Dr.		H.O.	

**This application must be accompanied by a $10.00 check or money order. This fee is non-refundable and is assessed one time for all students applying for admission to the college. New Students Only.

Date _____
Month Day Year

Please Check One:

☐ Former Student
Last Semester in Attendance _____

☐ New Student**

1. This application is for: FALL 19____ WINTER 19____ SPRING 19____ SUMMER 19____
2. Social Security No. _____ / _____ / _____
3. Name _____ Female ☐ Male ☐
(Please Print) Last First Middle/Maiden
4. Date of Birth _____ Age _____ Place of Birth _____
5. Permanent Address _____
No. and Street City State Zip County
6. Mailing Address _____
No. and Street City State Zip County
7. Home Telephone (____) _____ Mailing Address Telephone (____) _____
8. How long have you lived in Washtenaw County? _____
9. What will be your major at Washtenaw Community College? _____
10. Are you retired? Yes ☐ No ☐ Veteran? Yes ☐ No ☐
11. List most recent high school and ALL colleges you have attended:**

Name of School	Address	Months and Years of Attendance	Graduate Date
		____ 19__ to ____ 19__	
		____ 19__ to ____ 19__	
		____ 19__ to ____ 19__	

**If you plan to receive a certificate or degree from Washtenaw Community College, please request an official transcript from all college attended.

12. List FULL-TIME employment within the past year:

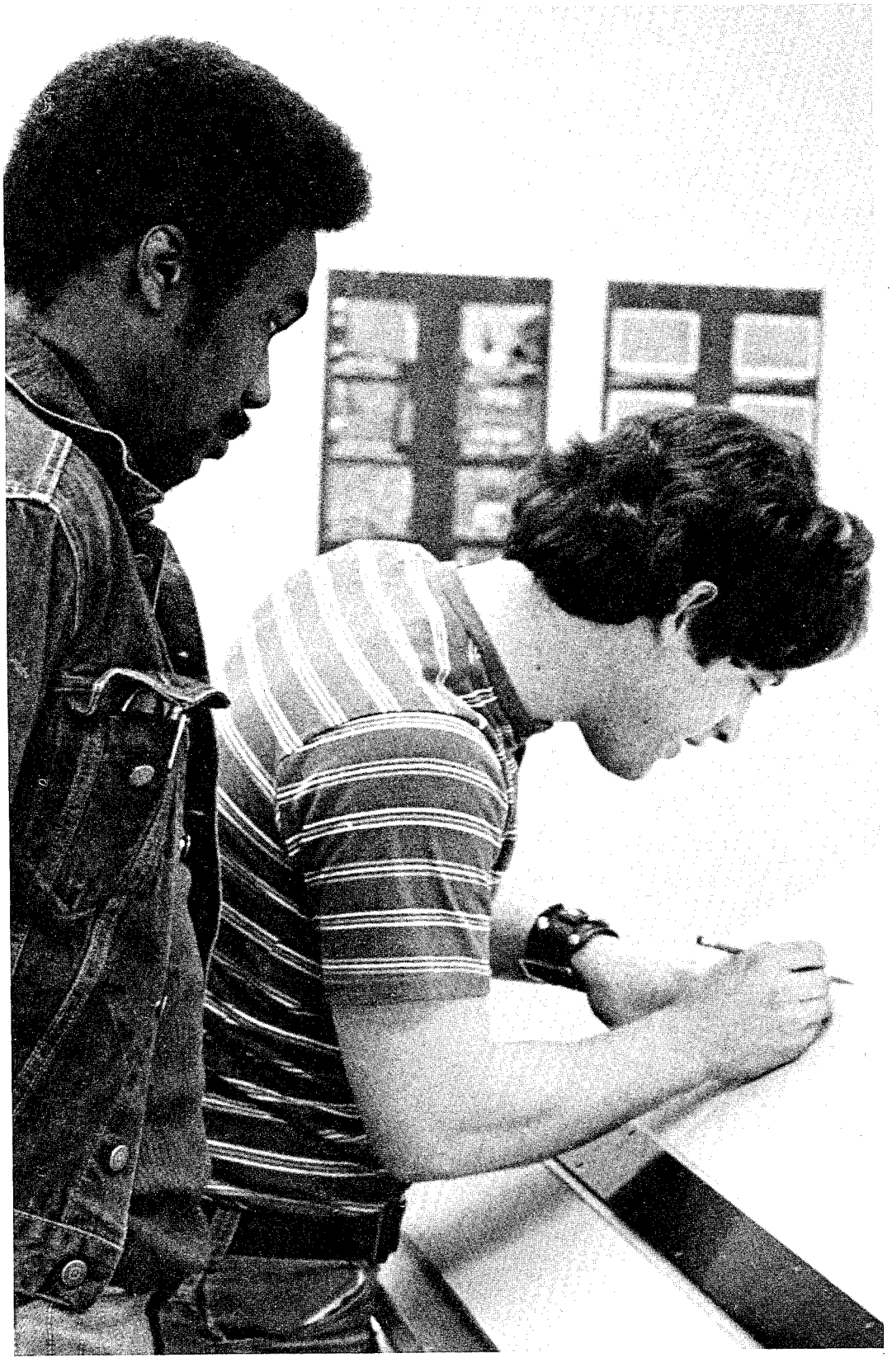
Place of Employment	City and State	Dates — From: To:

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 our Title IX Coordinator. (See current Schedule of Courses for name and location.)

Do not write below this line

Sex	Class	Residence	Program	Birthdate	Previous School	Adm.	Term of Adm.		High Sch. Grad.	Previous College	Clsf	Survey	County	Cn	Adv

CUT ON THIS LINE



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