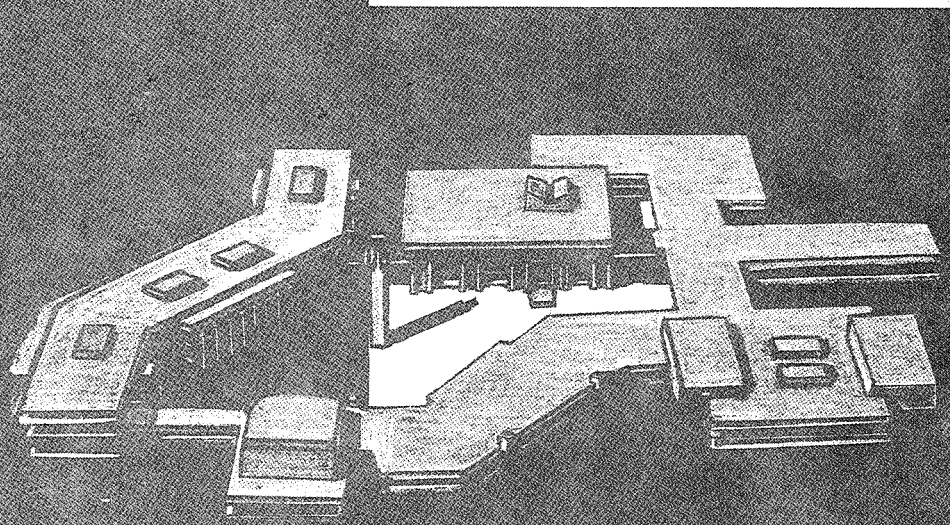
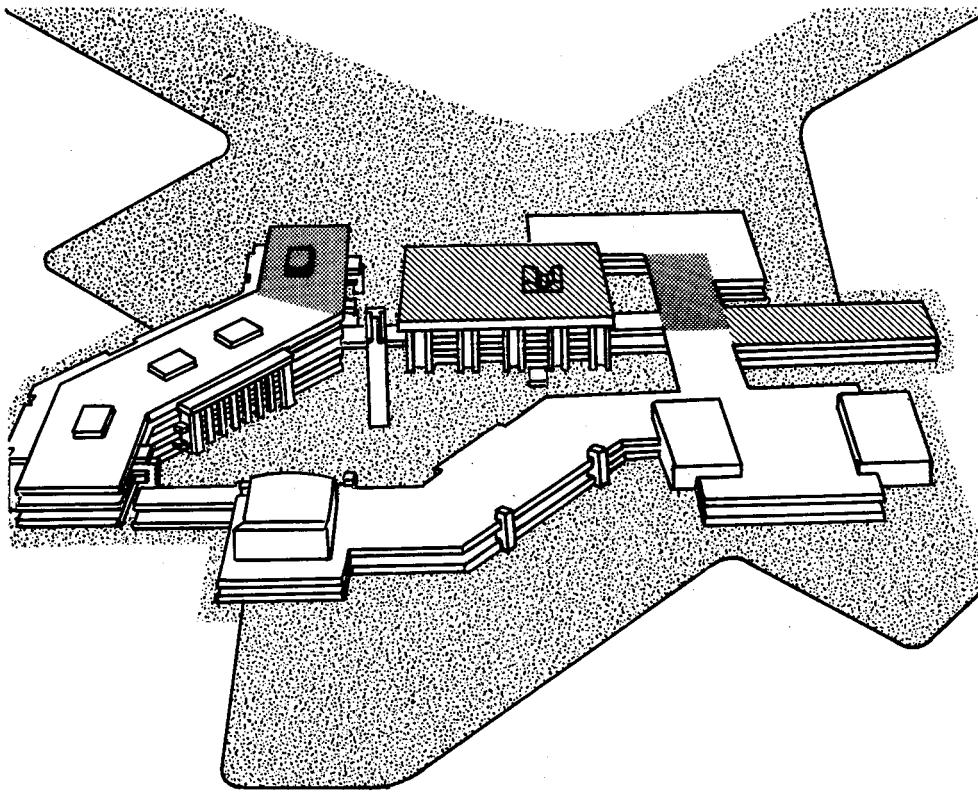
WASHTENAW
COMMUNITY COLLEGE



1969-1970



PROPOSED COLLEGE CAMPUS CONSTRUCTION

1968-1970 CONSTRUCTION

1969-1971 CONSTRUCTION

WASHTENAW COMMUNITY COLLEGE

P.O. BOX NO. 345
ANN ARBOR, MICHIGAN 48107
Telephone: 483-5152

CATALOG NUMBER FOUR
PUBLISHED FEBRUARY 1969

Approved by the
STATE DEPARTMENT OF EDUCATION
STATE OF MICHIGAN

A Recognized Candidate of
NORTH CENTRAL ASSOCIATION OF
COLLEGES AND SECONDARY SCHOOLS

An Institutional Member of
AMERICAN ASSOCIATION OF JUNIOR COLLEGES

A Member of
COUNCIL OF NORTH CENTRAL JUNIOR COLLEGES

A Member of
MICHIGAN ASSOCIATION OF JUNIOR COLLEGES

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WELDING AND FABRICATING TECHNICIAN

BOARD OF TRUSTEES

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(Term expires 12-31-72)

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(Term expires 12-31-70)

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(Term expires 12-31-74)

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(Term expires 12-31-74)

Richard C. Creal ..... Trustee
(Term expires 12-31-72)

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(Term expires 12-31-70)

HISTORY OF THE COLLEGE

On January 15, 1965 the voters of the county gave overwhelming approval to the establishment of a publicly-supported, county-wide community college. By their vote, the citizens of the county indicated a real desire to support a comprehensive institution which would offer a variety of technical, industrial, and semi-professional courses as well as a fully developed college transfer and general education curricula.

The first year of the college operation witnessed the translation of many ideas of citizens into positive action. In September 1966 the College enrolled over 1200 students in some 30 different occupational programs and equally comprehensive college transfer courses of study. Student population doubled in 1967, as 2400 students enrolled, and 3300 students participated in college activities in 1968.

In the Fall of 1965 the Board of Trustees purchased a tract of land located between Ann Arbor and Ypsilanti. Educational specifications for a new campus have been written, and construction has begun on the Exact Science and Technical/Industrial Buildings. While construction is in progress, college classes will continue in renovated quarters in Willow Run, the Automotive Center located on Carpenter Road, and the Health Science complex which is operated in connection with several hospitals in Ann Arbor. The College seeks to develop courses of study which will meet the needs of students, as well as provide the necessary skills needed by area business, industry, and governmental units.

The Students

Washtenaw Community College grants admission to students from a wide range of backgrounds. The student body is diversified in many ways. Student ages range from 17 to 55, and 40% of the enrollees are College as women. Approximately 50% of all students are enrolled in over 21 years of age. Currently, twice as many men are attending the occupational courses, while the other students have elected transfer and general education courses.

The Faculty

Members of the Community College faculty have a fierce commitment to outstanding teaching and counseling. Staff members have developed procedures to insure that each student receives ample qualified assistance, understanding, and information related to specific occupational goals. In addition to time spent in preparation and teaching, each instructor assists students with the challenges of their courses and adjustment to college.

The Board of Trustees has continued to enlist the assistance and support of citizens to plan and develop the College program. This advice has enabled Washtenaw Community College to develop a wide range of technical, industrial, and semi-professional courses as well as college transfer courses of study at an accelerated rate. The names of individuals serving in an advisory capacity are listed throughout the catalog in conjunction with course offering announcements.

Objectives of the College

It is the intention of this College to open the doors of educational opportunity to students with a seriousness of purpose and an ability sufficient to profit from selected instruction. It is the intention of the Board of Trustees and faculty that the College should be more interested in what the student is ready to do than in what he has done; that an applicant should have the oportunity to undertake those programs of instruction offered by the Community College for which he is properly prepared and for which he has aptitude and ability. Once enrolled, however, each student should demonstrate satisfactory performance; there should be no compromise with quality.

It is the objective of the College to develop:

1. One- and two-year vocational, technical, and semi-professional education programs of organized, systematic instruction, designed to prepare individuals for employment.
2. A two-year general education program for the social, cultural, and personal development of individuals desiring to continue their education beyond high school.
3. General educational and pre-professional programs, both one- and two-year, transferrable to other colleges and universities.
4. Courses or complete programs which meet the cultural and vocational needs of adults.
5. College preparatory and developmental courses for adults and for those who need to make up deficiencies for college level work.
6. Personnel services including counseling for students of all backgrounds and abilities which will assist them in selecting courses of study appropriate to their capabilities and ambitions, and guidance in their attainment of their educational goals.

ACCREDITATION

Washtenaw Community College is approved by the State Department of Education, State of Michigan. The College is a member of the Council of North Central Junior Colleges, the Michigan Association of Junior Colleges, and an institutional member of the American Association of Junior Colleges.

The College has received written statements from admissions officials of four-year colleges and universities in Michigan stating that transfer students will be accepted and that transfer credit will be granted to students who have successfully completed appropriate courses at Washtenaw Community College.

For this reason, a student who plans on transferring to a baccalaureate-degree-granting institution after completing the first two years of a four-year course can be confident that the college parallel credits earned at Washtenaw Community College will transfer without difficulty.

Immediate steps have been taken to meet nationally accepted accreditation requirements. Communication with the regional accrediting agency, North Central Association of Colleges and Secondary Schools, has led to immediate compliance with initial accreditation requirements. The College has been accepted as a recognized candidate for accreditation by the Association.

STUDENT SERVICES

The Student Services staff assists with counseling, student-initiated activities, financial aids, job placement, admissions, registration, and emergency first-aid services.

Counseling

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

In addition to the assistance provided by the faculty, full-time counselors are available at the Counseling Office in Martin Luther King Hall and College Hall. Each student entering the College is assigned to a counselor who will discuss his career goals and plan his 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 office.

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

All full-time students are required to take the American College Test (ACT) before their credentials are complete. Results of these tests are interpreted to students and used by counselors in helping students select appropriate classes. The test is not required for admission to the College.

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.

Student Orientation

Orientation is conducted by counselors, students, and faculty members to assist students in their adjustment to the College, world of work, and other aspects of contemporary living. In these small groups, opportunities are provided for discussion of current problems. Through orientation, students are encouraged to develop personal contacts with College staff members.

Full-time and part-time students are required to participate in orientation.

Job Placement

Assistance is provided students completing occupational programs to secure 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 Student Personnel Services.

For students seeking part-time employment a record of available positions is maintained in the Student Center.

Student Activities

The College encourages student activities which supplement the instructional program by providing recreational activities which will add to the student's enjoyment of life and stimulate his personal

growth and social development. Opportunities for development of constructive leadership, cooperative planning, and special interests will be fostered through participation in student activities. All student activities are coordinated through the Office of Student Activities.

Student Government

A Student Senate has been organized and officers elected. The Senate is responsible for student government at the College and promotes the ideals of intelligent self-direction and encourages the spirit of unity and cooperation in student activities.

Athletics

A vigorous varsity athletic program is under way at the College. Teams in basketball, cross country, and bowling have been in varsity competition with other community and junior colleges. During the spring of 1969, varsity competition will be extended to baseball and track. Washtenaw Community College is a member of the Michigan Community and Junior College Athletic Conference and the National Junior College Athletic Conference.

Intramural sports activities are organized in response to student interest.

Student Organizations

Responding to student interest, groups of students are organizing activity clubs with the assistance of the Office of Student Activities. Such groups include the Future Teachers Club, Ski Club, Architectons, Encore, Bowling Club, cheerleaders, Future Secretaries Club, etc.

Participation in the organizations will enable students to discover friends and identify activities compatible with their interests and aptitudes. Service clubs, hobby clubs, professional groups, and organizations related to occupational preparation, under the sponsorship of faculty members, will be available to all students.

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 Health, Life, and Accident Insurance

Washtenaw Community College does not sponsor health, life, and accident insurance coverage by any particular agency. The College

does, however, encourage students to examine their needs for such coverage while a student of the College. The Registrar's Office will provide information concerning opportunities to enroll in insurance programs at the time of registration should the student desire this information.

Health Service

The College Health Service provides first-aid services for students who may have emergency health problems. The office is located in College Hall.

Housing

Washtenaw Community 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.

Bookstore

The College will serve the student body and enhance the instructional program through the bookstore.

Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. Costs will be kept to a minimum based on the College goal of service to students.

Student Center

The student center at the College in Martin Luther King Hall is used by all members of the College family—students, faculty, administration, staff, and guests. A lounging area adjoins the food service area where light lunches and snacks are provided by vending machines.

FINANCIAL ASSISTANCE

Various financial assistance programs are available to students attending or planning to attend Washtenaw Community College. Applications or information concerning financial assistance can be secured at the Financial Aids Office, King Hall. Unless otherwise specified, the recipient of any award must be a full-time student completing a minimum of 12 credit hours as an undergraduate during each semester he receives assistance. Regardless of the type of aid re-

ceived, the student has an obligation to be making reasonable progress toward the completion of his program. Those students not making this progress may be removed from financial assistance.

SCHOLARSHIPS—Scholarships provided by individuals and organizations are awarded on the basis of academic merit, financial need, leadership qualities, and other factors when specified by the donors.

TRUSTEE AWARDS—The Board of Trustees of the College has authorized the granting of a number of Trustee Awards to students in need of financial assistance who might otherwise not be able to attend the College. Awards cover the expense of tuition.

EDUCATIONAL OPPORTUNITY GRANTS—Students with exceptional financial need and academic promise who could not otherwise finance their education may be considered for an Educational Opportunity Grant. Grants range from $200 to $1,000 and may be renewed. The total grant can be no more than one-half of the total financial assistance given to the student. Students whose parents' gross annual income is $6,000 or less are prime candidates for grants.

COLLEGE WORK-STUDY PROGRAM—Students needing a job to help pay for their college expenses are potentially eligible for employment with the College under the federally supported College Work-Study Program. These jobs may be on campus or in non-profit organizations in the community. In any event, a job is considered as another source of financial assistance and must be applied for as such.

Students may work up to 15 hours per week while they are attending classes full-time. During the summer or vacation periods when they do not have classes, students may work full-time under this program. Savings from periods of full-time employment under the College Work-Study Program would be used to defray the student's educational expenses for the following academic year. Approval for employment is based on student need.

NATIONAL DEFENSE STUDENT LOANS—A student may borrow up to $1,000 each academic year to a total of $5,000. Applicants may renew their loans provided they are in good standing and have financial need. The loans bear interest at the rate of three percent per year, and repayment of the principal may be extended over a ten-year period, except that the institution may require a repayment of no less than $15 per month. The repayment period and the interest do not begin until nine months after the student ends his full-time studies.

If a borrower becomes a full-time teacher in an elementary or secondary school or in an institution of higher education, as much as half of the loan, as well as the accrued interest, may be forgiven at the

rate of ten percent for each year of teaching service. Borrowers who elect to teach handicapped students, or in certain eligible schools located in areas of primarily low-income families, may qualify for cancellation of their obligation at the rate of 15 percent per year.

Repayment may be deferred up to a total of three years while a borrower is serving in the Armed Forces, the Peace Corps, or as a Volunteer in Service to America (VISTA). Repayment is deferred for as long as a borrower is enrolled at an institution of higher education and is carrying at least a half-time academic work load (6 credit hours).

LAW ENFORCEMENT EDUCATION PROGRAM—Students interested in this program must fill out the appropriate application and will be considered on the basis of financial need for the L.E.E.P. Loan. This loan could be for a maximum of $1,800/year. After the person completes his program and commences his employment in a law enforcement or corrections agency, his loan would be cancelled at a rate of 25 percent per year for each year that he works in the agency.

Students currently working on a full-time basis in law enforcement or with a corrections agency are eligible for tuition grants for further study to enhance their professional growth in law enforcement. The agency director or supervisor must approve the applicant's course of study.

MICHIGAN HIGHER EDUCATION ASSISTANCE AUTHORITY-FEDERAL GUARANTY LOAN PLAN—Students are eligible to apply for a MHEAA loan after they have been admitted as a full-time student to the College. Loans are made by participating Michigan banks and other eligible lenders. Under the plan, the qualified students borrow on interim notes as needed for each college year. To qualify for this loan, the student must: (1) be a U.S. citizen; (2) demonstrate the ability and desire to complete a college course or obtain a degree; (3) show financial need for such a loan and indicate a sense of responsibility toward the ultimate repayment of any loan guaranteed by MHEAA.

Under this program, a student may borrow from a bank or participating financial institution. An undergraduate may borrow as much as $1,000; part-time students up to $500. A student from a family with an adjusted income of less than $15,000 a year pays no interest while he is in an eligible college, university, or technical school. Once enrolled at the College, a student must maintain a 2.0 honor point average to be eligible for additional loans.

Repayment of principal and interest begins when the student has ceased his course of study. At that time, the federal government pays

approximately one-half of the interest and the student the remainder. A student from a family with an adjusted income higher than $15,000 a year pays the entire interest on the loan, but he may borrow under the Guaranty Loan Program at 7 percent simple interest.

Applications may be secured from the lending institution; or the Financial Aids Office; or MHEAA, Department of Education Loans, Grants, and Scholarships; Lansing, Michigan 48933.

BENEFITS FOR CHILDREN OF DECEASED VETERANS—MICHIGAN PUBLIC ACT 245—Children of a veteran who died of service-connected injuries or is totally disabled as a result of a service-connected injury, may be eligible for tuition waviers at Washtenaw Community College under Public Act 245. A student's eligibility terminates at the age of twenty-three. Any student who believes he is eligible should request an application from the Michigan Veteran's Trust Fund; Lansing, Michigan or the Financial Aids Office. These students are also eligible to apply for monthly V.A. benefits at their local Veterans Administration Office. Ninety day, interest free loans are also available to students who qualify under Public Act 245.

PERSONAL LOANS FOR TUITION—This loan is available for those students who, for some good reason, are unable to pay their total tuition at registration. All students must make a partial payment on their tuition. In-district students must pay the minimum of 25 percent of their tuition at registration. Out-of-county and out-of-state students must pay at least one-half of their tuition at registration. The balance must be paid prior to midterm examinations. This allows at least six to eight weeks for full payment. A late charge will be assessed on all delinquent accounts, the proceeds of which will be credited to the Student Emergency Loan Fund.

Any student who can ascertain that he will be unable to pay his tuition by the deadline should apply in advance for a long-term National Defense Student Loan. There shall be no carryovers of personal loans from one semester to another.

All students are encouraged to make these arrangements prior to registration. It will be impossible to process Financial Aid Applications during or shortly after registration.

STUDENT EMERGENCY LOAN FUND—This fund makes short-term, interest free, loans available to students who cannot get the money from other sources. Its purpose is to help students through unexpected emergencies. This does not include tuition loans. There is a $50 maximum on this fund and a late charge is assessed on delinquent accounts. Because of the limited funds available, priority goes to students who have been at the College at least one semester, and who are in good financial and academic standing.

SOCIAL SECURITY BENEFITS—These benefits are now available to full-time students in higher education. Check with your local social security office to determine your eligibility.

G. I. BILL—Those students eligible for the G. I. Bill should contact their local Veteran's Administration Office and coordinate that contact with our registrar's office.

The College recommends that each prospective student take advantage of the counseling service available to him at the regional office. Students needing a short-term loan until their G.I. Bill starts, should contact the Financial Aids Office for an application and recommendation to the Michigan Veteran's Trust Fund.

EXPENSES AT WASHTENAW COMMUNITY COLLEGE

In preparing a college budget, the student should consider the following sources of income: parental or spouse's support, his own savings, summer employment, scholarships, grants, part-time employment during the college year, and loans.

Students and parents should realistically assess the cost of attending the College. The following information should be helpful to you in estimating the basic costs of attending the College as a commuting student.

TUITION—The tuition charges for full-time (12 credit hours or more) district residents is $100 per semester, Part-time students pay $9 per credit hour. Tuition charges for Michigan out-of-district students is $200 per semester for full-time and $18 per credit hour for part-time students. Out-of-State Residents pay $300 and $27 per credit hour respectively. These charges are determined by the College Trustees and may be changed if circumstances warrant.

BOOKS AND SUPPLIES—Approximately $50 per semester.

MAINTENANCE ALLOWANCE—Students residing at home should budget for meals on campus. Students maintaining their own residence should budget for rent, utilities, and food.

MISCELLANEOUS ALLOWANCE—This would include such necessary expenses as clothing, laundry, recreation dues, etc.

TRANSPORTATION—This would include the cost of bus transportation, car transportation, or if necessary, automobile expenses.

RENEWAL OF FINANCIAL ASSISTANCE

All forms of financial assistance are awarded for a period of one academic year. In general, students may continue to receive aid an additional year as long as they continue to demonstrate financial need and the academic ability that qualified them for the initial award.

GENERAL INFORMATION—In the determination of financial aid, it is expected that the student, together with his parents, will contribute as much as possible to the cost of attending Washtenaw Community College. However, if the student is still in need of financial assistance, the College will assist him to the fullest extent possible.

Students receiving aid must apply annually between December 15 and March 15. Applications for financial aid may be obtained in the Office of Financial Aids. Completed applications must be returned to the Office of Financial Aids, Washtenaw Community College, Box 345, Ann Arbor, Michigan 48107.

All applicants for loans must meet the following requirements:

1. Dependent Student (Single)

   All single, dependent applicants are required to submit a completed Parent's Confidential Statement. This form may be obtained in the Financial Aids Office. The student should allow a minimum of eight weeks for the complete processing of his application.

2. Married Students

   Married students must submit a completed "Married Student Supplement C" form together with the 1040 Internal Revenue Income Tax Form for the previous calendar year (if student or spouse is employed). In addition, an interview with a financial aids counselor is required. "The Married Student Supplement C" form may be obtained from the Financial Aids Office.

3. Independent Student (Single)

   All single, independent students are required to submit a completed Student Confidential Statement and a Parents' Non-Support Affidavit. In addition, an interview with a financial aids counselor is required. The Student Confidential Statement and the Parents' Non-Support Affidavit may be obtained from the Financial Aids Office.

Veterans' Eligibility

Prospective students who are eligible for veterans' benefits should follow the procedure below:

1. Make application for veterans' benefits at the Veterans Administration Regional Office in your area.

   The College recommends that each prospective student take advantage of the counseling service available to him at the regional office.

   Immediately upon receipt of an application, the V.A. will mail to the veteran an acknowledgment of Receipt of Claim which will provide the veteran with his claim number.

   After processing the veteran's application the regional office will, if the veteran is eligible, issue a Certificate of Eligibility. The certificate is valid only at the institution named and only for the objective indicated.

2. The prospective student should bring the Certificate of Eligibility to the Registrar's office at the time of initial registration.

Financial Contributions

Community support has been a major source of financial assistance for many students since the College's beginning. Scholarships and financial assistance for in-district students have been provided by:

Washtenaw Asphalt Company
Kiwanis Western of Ann Arbor
Ypsilanti Jaycees
Junior Chamber of Commerce Auxiliary of Ann Arbor
Delta Sigma Theta Sorority, Inc., Ann Arbor Alumnae Chapter
Ann Arbor-Ypsilanti Altrusa Club
Welcome Wagon of Ann Arbor
Ann Arbor Evening Lions Club
George O. Ross Memorial Fund
The Thrift Shop Association of Ann Arbor
Delta Psi Omega Chapter of Alpha Kappa Alpha Sorority
L'Esprit Club
National Bank and Trust Company of Ann Arbor
Ann Arbor Federal Savings and Loan Association
Ypsilanti Savings Bank
Ann Arbor Bank
Kiwanis Club of Dexter
Alvin H. Bentley Award
Edward W. and Hattie L. Frederick Scholarship Fund

Huron Valley Chapter, National Secretaries Assn., International
Hoover Ball & Bearing Company
Huron Valley National Bank
Dr. Martin Luther King Scholarship Fund
Dexter Child Study Club
Michigan Tuberculosis & Respiratory Diseases Association
Zonta Club of Ypsilanti
Dobson-McOmber Insurance Agency, Ann Arbor
Ypsilanti-Ann Arbor Business and Professional League
American Association of University Women
Home Builders Association of Washtenaw County
Ann Arbor West Side Women's Club
H. Lynn Pickerill Scholarships
Rouser Scholarship
First Presbyterian Church, Ann Arbor
Ann Arbor News
Ann Arbor Community Center
In addition many individuals have made substantial contributions.

LEARNING RESOURCE CENTER

The Learning Resource Center (LRC) includes the College's library and instructional-media (I-M) facilities. The LRC provides faculty and students with educational material in many media: books, periodicals, microfilm, microfiche, 16 millimeter (mm) film, 8mm film, filmstrips, slides, tapes, records, and transparencies. All audio-visual equipment used on this campus is also the responsibility of the LRC.

The library contains a large collection of books and periodicals dealing with all subject fields. It is arranged to provide a pleasant, relaxed atmosphere for students to study, browse, and carry out research assignments. As a result of an interlibrary loan agreement, the LRC's collection is supplemented with material from the Michigan State Library. This provides an additional source of material to assist students in completing research reports.

Students are urged to acquaint themselves with the operating policies of the LRC which have been adopted with the interest of all in mind. A HANDBOOK has been published to aid students in the effective utilization of the facilities available in the LRC. Copies of the HANDBOOK are given to each new student and copies are always available at the circulation desk.

Photocopying services are provided at the circulation desk for a nominal fee. This convenient service enables students to obtain copies of book and periodical material.

For students who enjoy listening to music, the I-M department maintains a collection of tape recordings at the circulation desk. Stereophonic tape recorders are available and are equipped with stereo headsets for listening to selected tapes. Tape recordings include vocal and instrumental music, classroom lectures, plays, poetry, and other material.

A preview room is available for viewing 8mm and 16mm films that are used in lectures and assigned by instructors. Assigned filmstrips can be studied in the library with the aid of individual viewers. All non-book material in the LRC is color-coded in the card catalog for easy reference. Filmstrips are coded red, phonograph records—green, tape recordings—orange, films (8mm and 16mm)—black, and 35mm slides —brown.

The instructional-media department handles all faculty requests for educational media materials and equipment. There is a need each semester for student assistants to work in the I-M department as projectionists, recording technicians, graphic artists, production assistants, typists, and filing clerks. Other opportunities for student employment exist in the LRC.

ADMISSIONS

ADMISSIONS ELIGIBILITY AND PROCEDURES

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

First Semester—begins in September

Second Semester—begins in February

Summer Session—begins in June

Eligibility for Admission of First-Time Students

A student must have completed high school or its equivalent, as determined by the College.

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

a. He submits an equivalency diploma, or

b. He can profit from instructional programs for which he has the proper background, experience, and capability.

The prospective student should take the American College Test (ACT) sometime during the year preceding initial registration. Students still in high school should contact their counselors concerning this requirement. All other prospective students may secure information concerning the ACT program by calling the Director of Counseling. Students may be required to take other tests for admission as determined by the Counseling Office.

Admission Procedure for First-Time Students

1. A student entering for the first time should fill out the Application for Admission form supplied by the Washtenaw Community College Registrar's Office. A transcript should be obtained from the student's high school of last attendance and attached to the application form.
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. The College uses the Social Security number as the student's individual identification. This number must appear on the application.
4. The student should arrange to forward the results of the American College Test (ACT) to the College.

5. All application materials should be mailed to the Registrar's Office, Washtenaw Community College, P.O. Box 345, Ann Arbor, Michigan 48107.
6. Washtenaw Community College does not require the student to supply a statement of general health such as a physical examination. The College does, however, remind the student that the rigors associated with being actively engaged in a vigorous college program are demanding on one's health and that consultation with a doctor prior to enrolling is recognized as part of good preparation for attending college.

When the above procedure has been completed, the applicant will be notified of his admission status.

Admission Eligibility of Transfer Students

1. A student whose grades at other colleges and universities averaged a 'C' (2.0) or better will be admitted in good standing.
2. A student whose grades at other colleges and universities averaged below a 'C' (2.0) may be conditionally admitted as determined by the College Registrar.

Admission Procedure for Transfer Students

1. A transfer student should fill out the Application for Admission form supplied by the Washtenaw Community College 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. The student must obtain a Michigan Uniform Secondary School Personal and Scholastic Record form from the Registrar or from his high school of last attendance. He should request the high school to complete the form and mail it to the Registrar's Office.
4. The student must request each of the colleges he has attended to send a complete transcript of his record to date. If presently enrolled, the student should request that an additional official transcript of his record be forwarded immediately upon completion of the present semester's work. All transcripts must be sent from each college directly to the Registrar's Office.
5. The College uses the Social Security number as the student's individual identification. This number must appear on the application form.

6. A student who has taken the American College Test (ACT) should arrange to forward the results to the College Registrar's Office.

When the above procedure has been completed, the applicant will be notified of his admission status.

Counseling and Registration

Counseling—At the time the applicant is informed of his admission status he is requested to arrange an appointment with a College counselor to plan his career objectives.

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

TUITION, FEES, AND RESIDENCY POLICY

Tuition

In-District Resident:
$100 per semester
$ 9 per credit hour for part-time students

Michigan, Out-of-District Resident:
$200 per semester
$ 18 per credit hour for part-time students

Out-of-State Resident:
$300 per semester
$ 27 per credit hour for part-time students

Courses, varying in length from several clock hours up to a semester (eighteen 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.

All tuition charges are subject to change by action of the Board of Trustees.

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.

All fee charges are subject to change by action of the Board of Trustees.

Refunds

Refund of seventy-five percent of tuition will be made to a student who withdraws from the College during the first ten days of classes. A fifty percent refund will be made for students withdrawing after the first ten days of classes but before the end of the fourth week of classes. No tuition refund will be made after the fourth week of classes. The $10.00 application and records fee is not refundable.

This policy also applies to the part-time student.

No refund will be made if the student drops a partial course load at any time.

Residency Policy

Tuition costs at Washtenaw Community College are based on a sharing by the student, the taxpayer 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 Resident

A student who lives in the Washtenaw Community College District with his parents or legal guardian.

Out-of-District Resident

A student who lives outside the College district or whose parents reside outside the college district, but who is a resident of the state, is classified as an out-of-district student and will be charged the applicable tuition.

Out-of-State Resident

A student who is a resident of, or whose parents reside in, another state is classified as an out-of-state student for tuition purposes.

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

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

Course Load

The normal course load for a full-time student is fifteen credit hours or more. 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 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.

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.

Attendance

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

Adds and Drops or Withdrawals

Adds and drops are to be held to a minimum. Forms for adding and dropping can be secured from the Registrar's Office or the Counseling Office. Adds and drops are approved by the instructor and counselor, and are to be used only to improve the student's instructional program.

If a student is withdrawing from college, he must complete Drop forms for all classes on his program. Failure to complete the Drop forms will interfere with receiving any refunds that may be due, and may result in a failing grade for the course.

Adding Courses

Students are expected to complete their registration during the registration period. However, if a student must add a course during the first four contact hours of a course, an Add form must be completed and turned in to the Registrar's Office by the student.

Courses cannot be added after the fourth contact hour. (A contact hour is a period during which the class meets. A three credit course would meet three periods a week for one hour each. Each period is one contact hour.)

Dropping Courses

Students are expected to complete the courses for which they are registered. A student may formally drop a course up to and including the week following the midterm evaluations. The letter 'W' (Withdrawal) will appear on his record. Drop forms must be completed and turned in to the Registrar's Office by the student.

If a student withdraws from a course after this time (i.e., the week following midterm evaluation) without sufficient reason, the letter 'X' (withdrawal—failure) will appear on his record. If the instructor thinks there is sufficient reason for the student's withdrawal after this time, the letter 'W' (withdrawal) will appear on the student's record.

A Drop form must be completed any time a student withdraws from a class.

Withdrawal from College

If for some reason a student must withdraw from college (withdrawal meaning dropping all classes), the student may claim a seventy-five percent refund of tuition paid if the withdrawal is made during the first ten days classes meet. The student may claim refund of fifty-percent of tuition if the withdrawal is made after the tenth day of classes and before the end of the fourth week of classes. Application for refund must be made through the Registrar's Office.

If in the case of extreme hardship a student must withdraw after the fourth week of classes and wishes to be considered for a refund, he must petition the Registrar's Office, which will refer his request to the Refund Committee.

Grading

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	
X — withdrawal — failing	
W — withdrawal	
DF — deferred	
N — non-attendance	

In developmental courses (numbered 40 and below) 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.

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 the student to compute his grade-point average.

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

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. When a course is repeated, the original grade and the number of credit hours attempted are not removed from the student's permanent record. The repeated course and the second grade received in the course are entered on the student's permanent academic record, but the credit hours attempted are only entered on the permanent record for the initial enrollment.

Grades are issued at mid-semester, at the end of each semester, and each summer session. The mid-semester grade is an indication of student progress and does not become a part of his permanent record. Both mid-semester and final grades are mailed to the home address of the student.

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.

Deferred Grade 'DF'—Credit Withheld

In some developmental 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 he may assign the 'DF'. The student must re-enroll in the course and complete the required work the following semester (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 student has until the next semester (summer session excluded) to complete the requirements. If the requirements are not met during the semester following the semester the incomplete was given, the grade automatically becomes a failure 'F'.

Graduation Requirements

To receive the ASSOCIATE DEGREE a student must:

1. Complete a minimum of sixty credit hours (the last fifteen must be earned at Washtenaw Community College), including the specific subject or course requirements in the selected program. Certain programs may require more than the minimum of sixty credit hours—these must also be completed.
2. Earn a minimum cumulative grade-point average at Washtenaw Community College of 2.0.
3. Complete three credit hours of English.
4. Complete three credit hours of political science. (State of Michigan requirement)
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. Participate in the graduation exercises.

To receive 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.
2. Earn a minimum cumulative grade-point average at Washtenaw Community College of 2.0.
3. Complete three credit hours in speech or English.
4. File the Application for Graduation form at the time of registering for the final semester. This form is available from the Registrar's Office.
5. Participate in the graduation exercises.

Commencement ceremonies for all Washtenaw Community College graduates are held in the month of June. The conferring of associate degrees, the granting of certificates of achievement, and the giving of honors highlight the graduation exercises. Students receiving the associate degree or the certificate of achievement are required to participate in the commencement.

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

Graduation Honors

A student is graduated with **Honors** if he has completed his curriculum (Associate Degree and/or Certificate of Achievement) with a 3.0 cumulative grade-point average.

Seminars and Workshops

The College offers oportunities for students to enroll in short courses, conferences, workshops, and seminars. These vary in length 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. On completion of short courses a certificate is granted.

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 transcript is issued only after the student has fulfilled all financial obligations to Washtenaw Community College.

Honors

The names of all full-time students earning a grade-point average of 3.0 or better during a semester are posted on the Dean's List.

Dismissal

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

COURSE NUMBERS

1. The first digit of a course number indicates its classification according to the year it should be taken.
   a. Courses numbered 040 and below are developmental courses.
   b. Courses numbered 041 to 099 are college-level preparatory courses, occupational program courses, or self-improvement programs.
   c. Courses numbered 100 to 199 are freshman-level courses which should be taken during the first year of college, as they usually are prerequisite courses.
   d. Courses numbered 200 to 299 are sophomore-level courses which should be taken during the second year of college.
2. The second digit of the course number indicates the semester the course usually is offered: 1, first semester; 2 second semester; 0, 3, 4, 5, 6, 7, 8, or 9, either semester.
3. The third digit of the course number indicates the number of the course in a sequence: 1, 2, 3, 4, 5, or 6. For numbers 0, 7, 8, 9, there is no sequence involved.

GENERAL STUDIES PROGRAMS

Students who intend to transfer to a four-year college or university after acquiring the necessary earned credits at Washtenaw Community College should review the general requirements presented in the following programs.

The curricula as outlined are to serve as guidelines only. Each college and university has developed its specific criteria for the many programs of study. The student is advised to review the particular college catalog with his counselor in order to determine course schedules. A file of both state and out-of-state catalogs is available in the Counseling Office. Proper selection of courses is requisite to the orderly transfer of credits from Washtenaw Community College to the baccalaureate degree-granting institution.

ARTS

The following pattern of courses for students concentrating in Liberal Arts, Education, Literature, or Business Administration is one which meets the requirements of the first two years of work in most four-year colleges and universities.

FIRST YEAR

First Semester	Hours	Second Semester	Hours
English	3	English	3
Social Science Elective[2]	3	Social Science Elective[2]	3
Mathematics or Laboratory Science	4	Mathematics or Laboratory Science	4
Electives[3]	6	Electives[3]	6
	16		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Social Science Elective[2]	3	Political Science	3
Literature or Foreign Language[1]	4	Literature or Foreign Language[1]	4
Electives[3]	9	Electives[3]	9
	16		16

[1] Some liberal arts curricula require the completion or the equivalent of two years' college credit in a foreign language.
[2] Examples include: history, sociology, economics, psychology, geography, or political science.
[3] Examples include: speech, science, mathematics, art, music, literature, philosophy, and social science electives.

SCIENCE

The following pattern of courses for students concentrating in the Sciences, Forestry and Conservation, Mathematics, Education, Engineering, and the several medical fields is one which meets the requirements of the first two years of work in most four-year colleges and universities.

FIRST YEAR

First Semester	Hours	Second Semester	Hours
English	3	English	3
Mathematics or Laboratory Science	4	Mathematics or Laboratory Science	4
Political Science	3	Social Science Elective[2]	3
Electives[3]	6	Electives[3]	6
	16		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Mathematics or Laboratory Science	4	Mathematics or Laboratory Science	4
Literature or Foreign Language[1]	4	Literature or Foreign Language[1]	4
Social Science Elective[2]	3	Electives[3]	9
Electives[3]	6		
	17		17

[1] Some liberal arts curricula require the completion or the equivalent of two years' college credit in a foreign language.
[2] Examples include: history, sociology, economics, psychology, geography, or political science.
[3] Examples include: speech, science, mathematics, art, music, literature, philosophy, and social science electives.

IMPACT

(Stands for "Impelling Manpower, Practice and College Together." The program is for older black and white students who need to be employed full or nearly full time. Graduation from the program leads to a career in supervision.)

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Government and Society 108	3	Fundamentals of Speaking 100	3
English Fundamentals 091 or		Dynamics of Behavior 108	3
English Composition 111	3	Logic 150	3
Industrial Psychology 150	3	On-the-Job Training 199 and	
On-the-Job Training 199 and		Seminar	3
Seminar	3		
	12		12

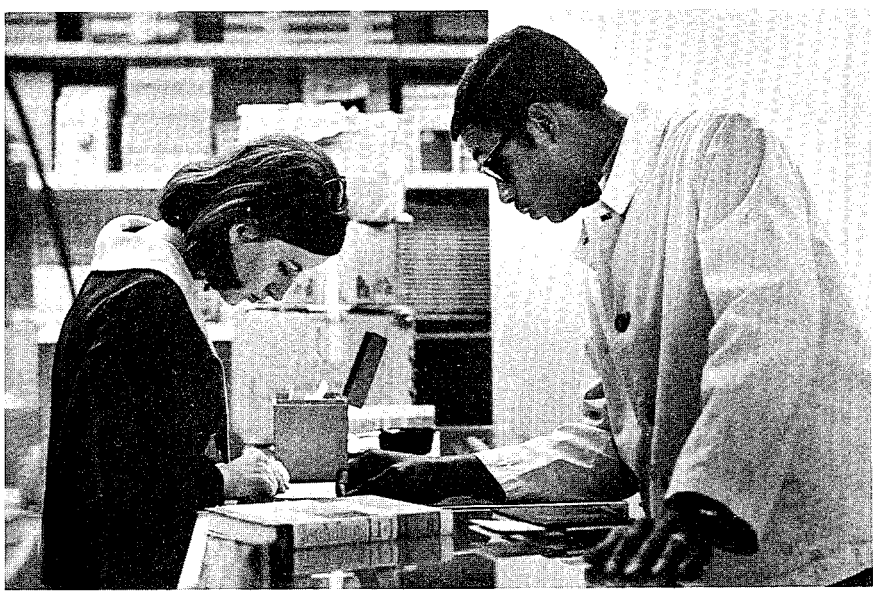
SECOND YEAR

First Semester	Hours	Second Semester	Hours
Labor Relations 150	3	Principles of Economics 211	3
Social Psychology 207	3	Marriage and the Family 150	3
Principles of Accounting 111	3	Principles of Accounting 112	3
On-the-Job Training 199 and		On-the-Job Training 199 and	
Seminar	3	Seminar	3
	12		12

5TH SEMESTER OR 2 SUMMERS

Technical Communications 100	3
Electives (tailored to needs)	9

DIVISION OF BUSINESS AND INDUSTRIAL MANAGEMENT OCCUPATIONS



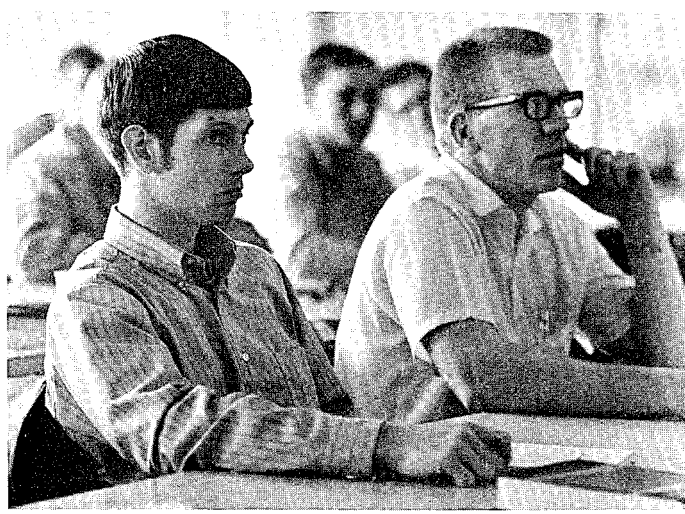
BUSINESS AND INDUSTRIAL MANAGEMENT INTERNSHIP-EXTERNSHIP PROGRAMS

The Division of Business and Industrial Management offers cooperative occupational-experience programs to interested and qualified students. These programs are known as the Business and Industrial Management Internship-Externship Programs. They are designed to implement students' academic and occupational education with on-the-job business and/or industrial experience.

The Internship-Externship Programs involve the students in real-life occupational experiences specially programmed, through the cooperative effort of the participating firms and a college program coordinator, to meet the students' particular occupational needs.

Interns and externs may be placed in all kinds of business-industrial firms and/or educational and governmental establishments. Occupational experience is available through these organizations in the diverse areas of manufacturing, wholesale and retail, office systems and procedures, data processing, and many others.

Student time schedules for the Internship-Externship Programs may be flexible to meet the students' needs. Occupational-experience assignments may be arranged on a half-day basis, alternate daily work-study combination, or alternatively—a full semester of work and/or study, or a summer occupational-experience program.



BUSINESS AND INDUSTRIAL MANAGEMENT ADVISORY COMMITTEE

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Manager
Manpower, Incorporated
Ann Arbor

Mr. Donald N. Butera, Director
Systems & Data Processing
The University of Michigan
Ann Arbor

Mr. Wilbert M. Remington
Director of Data Processing
Detroit Edison Company
Detroit

Mr. Julius W. Few
Sales Representative
IBM Corporation
Southfield

Mrs. James M. Ritchie, C.P.S.
Secretary, Dr. Irwin M. Lourie
Parke, Davis & Company
Ann Arbor

Mr. Robert F. Guise, Jr.
President
Com-Share, Incorporated
Ann Arbor

Mr. James R. Smith, Manager
Salaried Personnel Administration
Hydra-matic Division
General Motors Corporation
Ypsilanti

Mr. Henry J. Kruzel
Senior Industrial Relations Analyst
Compensation Administration Sec.
Lincoln-Mercury Division
Ford Motor Company
Dearborn

Mr. Earl W. Taylor
Alam & Taylor, C.P.A.
Ann Arbor

Faculty Coordinators: Mr. Arthur J. Lamminen
Mr. Ronald E. Zeeb
Student Representative: Mr. Billy Joe Guthrie

DATA PROCESSING ADVISORY SUBCOMMITTEE

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Mr. Donald N. Butera
Mr. Wilbert M. Remington

Faculty Coordinator: Mr. Arthur J. Lamminen
Student Representative: Mr. Aloys C. Metty, Jr.

ACCOUNTING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Business 140	3	Principles of Accounting 111	3
Principles of Data Processing 111	4	Data Processing Applications 122	4
Fundamentals of Occupational Mathematics 092	3	Business Machines 130	2
English Fundamentals 091 or English Composition 111	3	English Fundamentals 092 or English Composition 122	3
Introductory Psychology 100	3	Fundamentals of Speaking 100	3
	16		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Principles of Accounting 122	3	Intermediate Accounting 200	3
Data Processing Systems and Procedures 213	4	Office Management 230	3
Business Law 111	3	Human Relations in Business and Industry 200	3
Principles of Economics 211	3	Principles of Economics 222	3
Government and Society 108	3	Internship-Externship 200 or Business Elective	3
	16		15

Employment Opportunities: Completion of this program leads to employment opportunities as an accountant in business and industrial concerns or at various levels of governmental agencies, large and small.

Total Credit Hours for Program 62

DATA-RECORD OPERATOR

One-Year Program

First Semester	Hours	Second Semester	Hours
Principles of Data Processing 111	4	Data Processing Applications 122	4
Introduction to Business 140	3	Fundamentals of Accounting 091 or Principles of Accounting 111	3
Developmental Mathematics 031 or Foundations of Occupational Mathematics 092	3	Human Relations in Business and Industry 200	3
English Fundamentals 091 or English Composition 111	3	Internship-Externship 200 or Business Elective	3
Introductory Psychology 100	3	Fundamentals of Speaking 100	3
	16		16

Employment Opportunities: Employment by firms handling a large volume of data, reporting, record-keeping, and other paperwork. Employment by manufacturing, wholesale and retail, and utility firms as keypunch, sorting machine, or tabulating machine operator. This program may precede courses in programming or systems analysis as related to occupations in computer technology.

Total Credit Hours for Program 32

DATA PROCESSING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Business 140	3	Data Processing Applications 122	4
Principles of Data Processing 111	4	Fundamentals of Accounting 091 or Principles of Accounting 111	3
Foundations of Occupational Mathematics 092	3	Business Machines 130	2
English Fundamentals 091 or English Composition 111	3	English Fundamentals 092 or English Composition 122	3
		Fundamentals of Speaking 100	3
	13		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Data Processing Systems and Procedures 213	4	Computer Programming 224	4
Fundamentals of Accounting 092 or Principles of Accounting 122	3	Office Management 230	3
Business Law 111	3	Human Relations in Business and Industry 200	3
Principles of Economics 211	3	Principles of Economics 222	3
Government and Society 108	3	Internship-Externship 200 or Business Elective	3
	16		16

Employment Opportunities: Entry occupations include data processing applications, data systems and procedures analyses, and computer programming in private business, industrial firms, governmental agencies, and educational institutions.

Total Credit Hours for Program 60

MANAGEMENT TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Business 140	3	Principles of Management 208	3
Foundations of Occupational Mathematics 092	3	Principles of Salesmanship 160	3
Principles of Economics 211	3	Business Machines 130	2
English Fundamentals 091 or English Composition 111	3	Principles of Data Processing 111*	4
Fundamentals of Speaking 100	3	English Fundamentals 092 or English Composition 122	3
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Principles of Marketing 250	3	Human Relations in Business and Industry 200	3
Personnel Management 240	3	Fundamentals of Accounting 092 or Principles of Accounting 122	3
Fundamentals of Accounting 091 or Principles of Accounting 111	3	Business Communication 200	3
Business Law 111	2	Internship-Externship 200 or Business Elective	3
Internship-Externship 200 or Business Elective	3	Government and Society 108	3
	15		15

Employment Opportunities: Supervisory and administrative or managerial trainee opportunities in a variety of businesses or industries.

Total Credit Hours for Program 60

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

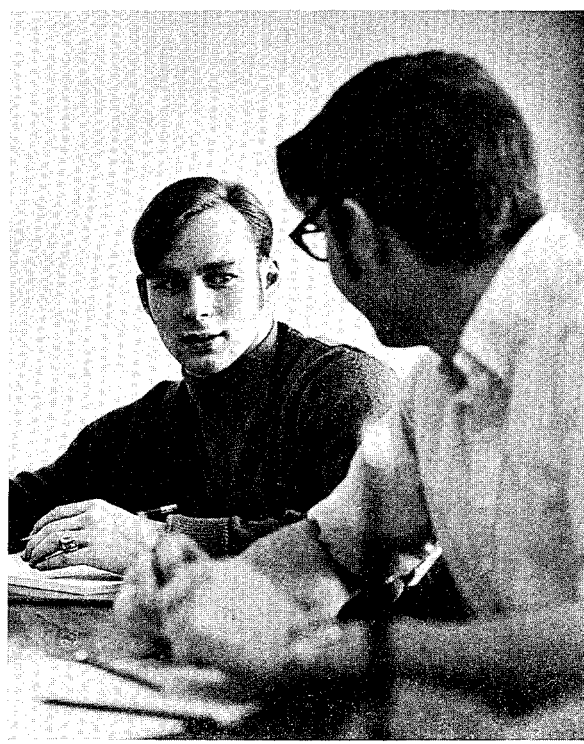
MARKETING
WHOLESALE AND RETAIL SALES PERSON

One-Year Program

First Semester	Hours	Second Semester	Hours
Introduction to Business 140	3	Principles of Marketing 250	3
Developmental Mathematics 031 or Foundations of Occupational Mathematics 092	3	Principles of Salesmanship 160	3
English Fundamentals 091 or English Composition 111	3	Human Relations in Business and Industry 200	3
Fundamentals of Speaking 100	3	Business Law 111	3
Introductory Psychology 100	3	Business Machines 130	2
		Internship-Externship 200 or Business Elective	3
	15		17

Employment Opportunities: Sales positions and related functions in wholesale or retail marketing businesses.

Total Credit Hours for Program 32



MARKETING
WHOLESALE AND RETAIL SALES TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Business 140	3	Principles of Marketing 250	3
Foundations of Occupational Mathematics 092	3	Principles of Salesmanship 160	3
English Fundamentals 091 or English Composition 111	3	Principles of Management 208	3
Fundamentals of Speaking 100	3	Business Machines 130	2
Government and Society 108	3	English Fundamentals 092 or English Composition 122	3
		Introductory Psychology 100	3
	15		17

SECOND YEAR

Second Semester	Hours	First Semester	Hours
Human Relations in Business and Industry 200	3	Sales Management 260	3
Fundamentals of Accounting 091 or Principles of Accounting 111	3	Advertising Management 270	3
Business Law 111	3	Fundamentals of Accounting 092 or Principles of Accounting 122	3
Principles of Economics 211	3	Principles of Economics 222	3
Internship-Externship 200 or Business Elective	3	Internship-Externship 200 or Business Elective	3
	15		15

Employment Opportunities: Sales, supervision, and managerial trainee opportunities in a variety of retail, wholesale, and marketing businesses.

Total Credit Hours for Program 62

CLERK-TYPIST

One-Year Program

First Semester	Hours	Second Semester	Hours
Typewriting (A,B,C) 110 and/or Elective*	2	Typewriting (A,B,C) 110 and/or Elective*	2
Shorthand (A,B,C) 100 and/or Elective**	3	Shorthand (A,B,C) 100 and/or Elective**	3
Introduction to Business 140	3	Business Machines 130	2
Developmental Mathematics 031 or Foundations of Occupational Mathematics 092	3	Office Systems and Procedures 150	3
English Fundamentals 091 or English Composition 111	3	Human Relations in Business and Industry 200	3
		Internship-Externship 200 or Business Elective	3
	14		16

Employment Opportunities: Various businesses, industries, governmental agencies, banks, institutions, and private offices employ clerk-typists to carry on many office functions.

Total Credit Hours for Program 30

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

SECRETARIAL TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Typewriting (A,B,C) 110 and/or Elective*	2	Typewriting (A,B,C) 110 and/or Elective*	2
Shorthand (A,B,C) 100 and/or Elective**	3	Shorthand (A,B,C) 100 and/or Elective**	3
Introduction to Business 140	3	Business Machines 130	2
Foundations of Occupational Mathematics 092	3	Internship-Externship 200 or Business Elective***	3
English Fundamentals 091 or English Composition 111	3	English Fundamentals 092 or English Composition 122	3
		Fundamentals of Speaking 100	3
	14		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Shorthand (A,B,C) 100 and/or Elective**	3	Business Law 122	3
Office Systems and Procedures 150	3	Fundamentals of Accounting 092 or Principles of Accounting 122	3
Business Law 111	3	Human Relations in Business and Industry 200	3
Fundamentals of Accounting 091 or Principles of Accounting 111	3	Business Communication 200	3
Internship-Externship 200 or Business Elective	3	Government and Society 108	3
	15		15

NOTE: THIS PROGRAM PROVIDES PREPARATION LEADING TO FULFILLMENT OF REQUIREMENTS FOR CERTIFIED PROFESSIONAL SECRETARY (C.P.S.)

Employment Opportunities: Business, industry, banks, institutions, private offices and governmental agencies seek highly trained secretarial people to perform the more responsible functions in operating an office.

Total Credit Hours for Program 60

* Typewriting credit and contact hours are progressive in accordance with student progress and proficiency level. (See catalog course description.)
** Shorthand credit and contact hours are progressive in accordance with student progress and proficiency level. (See catalog course description.)
*** May be continued second year.

PUBLIC ADMINISTRATION TECHNICIAN PROGRAM ADVISORY COMMITTEE

Mr. Ronald H. Hutson .....Chairman
Manager
Ypsilanti Area Chamber of Commerce
Ypsilanti

Mr. John G. Cartwright
City Manager
Ypsilanti

Mr. J. Walter Daschner
Executive Secretary
Ypsilanti Community Chest
Ypsilanti

Mr. Clarence E. McFall
Assistant Director
Office of Economic Opportunity
Ann Arbor

Mr. A. David Reid
Field Representative
Michigan Kidney Foundation
Ann Arbor

Faculty Coordinators: Mr. Arthur J. Lamminen
Mr. Ronald E. Zeeb
Student Representative: Mr. Raymond L. Seitz

PUBLIC ADMINISTRATION TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Government and Society 108	3	Principles of Management 208	3
Introductory Psychology 100	3	State and Local Government and Politics 150	3
Foundations of Occupational Mathematics 092	3	Introduction to Philosophy 101	3
English Fundamentals 091 or English Composition 111	3	English Fundamentals 092 or English Composition 122	3
Fundamentals of Speaking 100	3	Elective**	3
	15		15

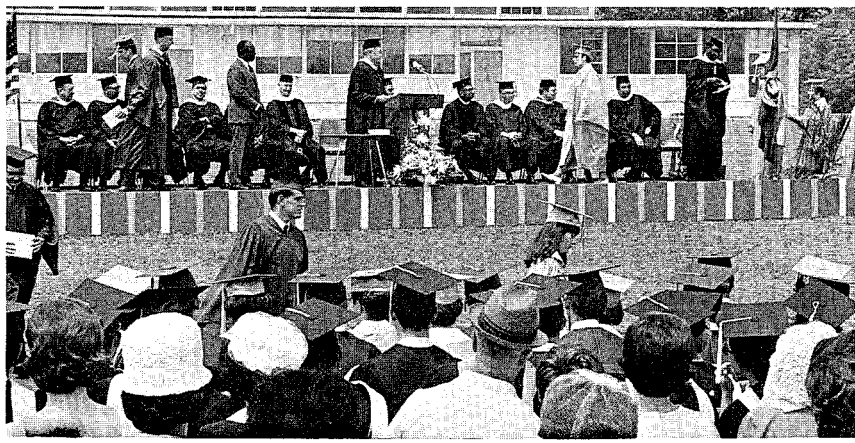
SECOND YEAR

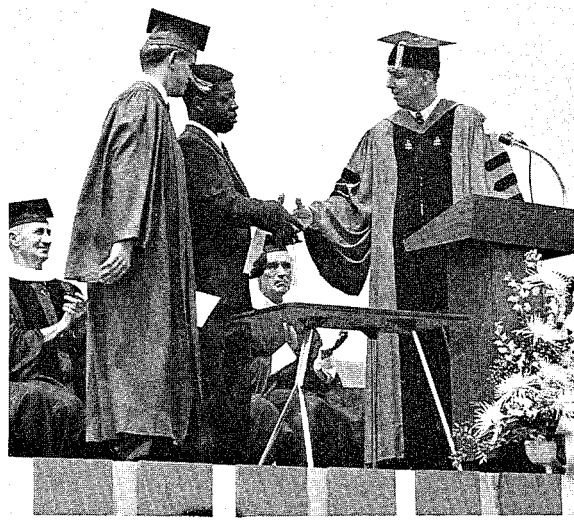
First Semester	Hours	Second Semester	Hours
Personnel Management 240	3	Basic Economic Principles 207	4
Fundamentals of Accounting 091 or Principles of Accounting 111	3	Fundamentals of Accounting 092 or Principles of Accounting 122	3
Business Law 111	3	Business Communication 200	3
Principles of Data Processing 111*	4	Principles of Sociology 100	3
Internship-Externship 200 or Elective**	3	Internship-Externship 200 or Elective**	3
	16		16

Employment Opportunities: Supervisory and administrative management trainee opportunities in a variety of public service and voluntary organizations—educational, governmental, social, health, commercial.

Total Credit Hours for Program 62

* Student may elect additional courses in data-record operations.
** Electives may be chosen from the following recommended courses:
Human Relations in Business & Industry 200
Labor Relations 150
Comparative Government 207
Psychology of Adjustment 107
Sociology of Careers 107





DIVISION OF COMMUNITY SERVICE OCCUPATIONS

AGRIBUSINESS ADVISORY COMMITTEE

Mr. Dan J. Boutell
Executive Vice President
Union Savings Bank
Manchester

Mr. John Eisenbeiser
Landscape Contractor
Chelsea

Mr. Jacob Grant
Farmer Grant's Market
Ann Arbor

Mr. Armin Haeussler
President
Washtenaw Farm Bureau
Saline

Mr. Donald R. Johnson
Cooperative Extension Service
Michigan State University
Ann Arbor

Mr. Robert Kushmaul
Washtenaw Crop Service
Chelsea

Mr. Raymond C. McCalla
Washtenaw Farm and Garden Center
Ann Arbor

Mr. Joseph Pinter
Joseph Pinter and Sons Greenhouse
Willis

Mr. Albert Ruhlig
Dairy Farmer
Dexter

Mr. Lee Talladay
Farmer
Milan

Mr. John H. Trustdorf
Soil Scientist
Ayres, Lewis, Norris & May Eng.
Ann Arbor

Mr. Kenneth Wanty
Grounds and Maintenance
The University of Michigan
Ann Arbor

Mr. David Wolfgang
Farmer
Chelsea

Mr. Donald Zeeb
Chairman
Washtenaw Co. Soil Conservation Dis.
Ann Arbor

Faculty Coordinator: Mr. Robert W. Paulson
Student Representative: Mr. Kenneth Visel

AGRIBUSINESS TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Horticulture 111	3	Insect and Disease Control 122	3
Lawn and Turf Management 115	3	Plant Breeding and Propagation 126	4
Concepts of Biology 111	4	Landscaping 120	3
English Fundamentals 091	3	Introductory Chemistry 057	3
Government and Society 108	3	Introductory Chemistry Laboratory 058	1
		Business Communication 200	3
	16		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Greenhouse Management 213	4	Maintenance of Garden and Grounds 224	3
Ornamental Plant Ecology 227	3	Nursery and Arboriculture Practices 228	4
Principles of Management 208	3	Soils and Fertilizers 230	3
On-the-Job Training 199	3	Study Problems 189	3
		On-the-Job Training 199	3
	13		16

Employment Opportunities: Interesting work is available in non-farming occupations such as landscaping, nurseries, elevator and farm supply, food processing, farm equipment and repair, soil technology, floriculture and turfgrass management.

Total Credit Hours for Program 62

EDUCATIONAL ASSISTING ADVISORY COMMITTEE

Mrs. Hanne Sonquist .....Chairman
Assistant Curriculum Director
Ypsilanti Early Education Project
Ypsilanti

Mrs. Emmalyn Anderson
Ypsilanti Public Schools
Ypsilanti

Mrs. Gayle Hadley
Board Chairman, Day Care Center
Head Teacher, Beth Israel Nursery
Ann Arbor

Mrs. Lola Jones
Counselor
Washtenaw Community College
Ann Arbor

Mr. Raymond Kingston
Director of Special Projects
Ypsilanti Public Schools
Ypsilanti

Mr. Jack L. Kirsh
Director of Instruction
Washtenaw County Intermediate School District
Ann Arbor

Miss Evelyn Moore
Director, Compensatory Programs
Public Schools
Ann Arbor

Mr. David S. Pollock
Dean, Special Projects
Washtenaw Community College
Ann Arbor

Faculty Coordinator: Mr. Paul W. Davis
Student Representatives: Ms. Jeanne Beth Cramer
Ms. Elaine Harris

EDUCATIONAL ASSISTANT

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Teacher Aide Techniques 111	3	Teacher Aide Techniques 122	3
Healthful Living 120	3	Arts and Crafts 200	3
Basic Health Science Laboratory 141	1	First Aid 109	2
Introduction to Psychology 100	3	Instructional Media and Materials 209	3
English Elective	3	Study Problems 189	3
Study Problems 189*	3		
	16		14

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Teacher Aide Techniques 213	3	Teacher Aide Techniques 224	3
Principles of Elementary Mathematics 107	3	Principles of Sociology 100	3
Child Psychology 200	3	Fundamentals of Speaking 100	3
Fundamentals of Typewriting 090	1	Technical Communication 100	3
Government and Society 108	3	On-the-Job Training 100	3
On-the-Job Training 100	3		
	16		15

Employment Opportunities: The educational assistant will find employment opportunities in public and private schools, clinics, laboratories, nurseries, and hospitals. Opportunities will also be available as laboratory assistants in such areas as vocational education and science.

Total Credit Hours for Program 61

* Students who may choose to become a counselor aide, recreational aide, social work aide, or work in areas of special education should elect Study Problems 189 with the consent of the divisional director.

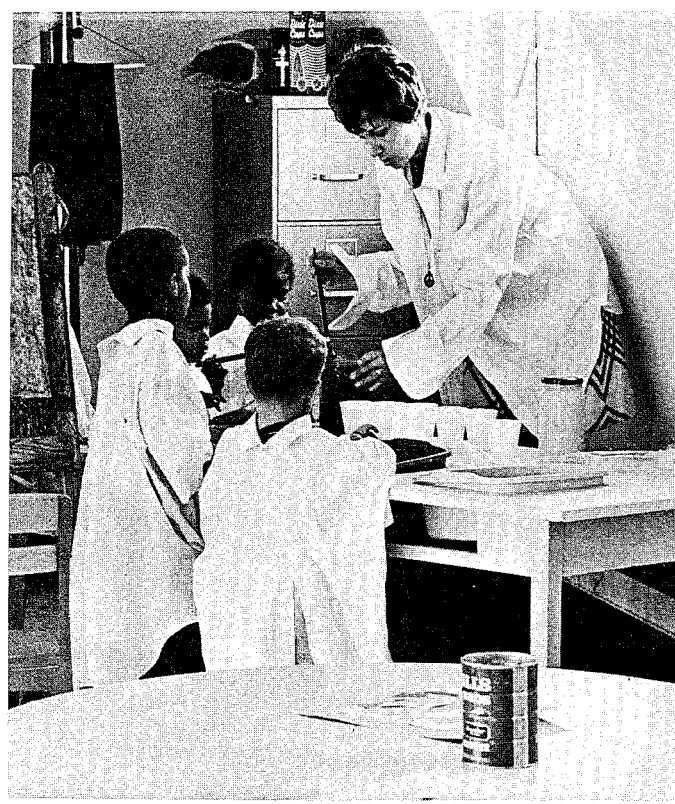
EDUCATIONAL AIDE

One-Year Program

First Semester	Hours	Second Semester	Hours
Teacher Aide Techniques 111	3	Teacher Aide Techniques 122	3
First Aid 130	2	Instructional Media and Materials 209	3
State and Local Government and Politics 150	3	Principles of Elementary Mathematics 107	3
Fundamentals of Typewriting 090	1	Introductory Psychology 100	3
English Elective	3	On-the-Job Training 199	3
On-the-Job Training 199	3		
	15		15

Employment Opportunities: The demand for trained aides is steadily increasing. Jobs are available in nursery schools, day-care centers, after-school enrichment programs, hospital nurseries, children's psychiatric clinics, and baby clinics in hospitals.

Total Credit Hours for Program 30



FIRE PROTECTION TECHNICIAN ADVISORY COMMITTEE

Lieutenant Donald Green .....Chairman
Ypsilanti Fire Department
Ypsilanti

Chief Ralph Crawford
Ypsilanti Fire Department
Ypsilanti

Chief Robert Fuller
Ypsilanti Township Fire Department
Ypsilanti

Mr. Howard Gragg
Assistant Chief
Ypsilanti Fire Department
Ypsilanti

Mr. Francis Hartman
Director
Civil Defense and Disaster Training
The University of Michigan
Ann Arbor

Chief Elmer Holtz
Adrian Fire Department
Adrian

Mr. Nolan Lee
Fire Inspector
Ann Arbor Fire Department
Ann Arbor

Chief Ralph Savina
Westland Fire Department
Westland

Mr. Frederick Schmid
Assistant Chief
Ann Arbor Fire Department
Ann Arbor

The Honorable Roy Smith
State Representative
52nd District
Ypsilanti

Chief Arthur Stauch
Ann Arbor Fire Department
Ann Arbor

Mr. Ken Warfield
Wayne Fire Department
Wayne

Program Coordinator: Mr. Paul W. Davis

FIRE PROTECTION TECHNOLOGY

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Fire Protection 100	3	Fire Operation Strategy 109	3
Foundations of Occupational Mathematics 092	4	Fire Prevention Theory and Application 122	3
Government and Society 108	3	Hydraulic Fundamentals 111	4
Introductory Psychology 100	3	Blueprint Reading for Construction Trades 100	3
English Elective	3	English Elective	3
	16		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Fire Investigation and Arson 213	3	Protection Systems in Industry 224	3
Introduction to Fire Administration 210	3	Introductory Chemistry 057	3
Human Relations in Business and Industry 200	3	Introductory Chemistry Laboratory 058	1
State and Local Government and Politics 150	3	Principles of Sociology 100	3
Speech Elective	3	Typewriting 130	2
		Labor Relations 150	3
	15		15

NOTE: CREDITS FOR THIS PROGRAM MAY BE EARNED THROUGH ON-THE-JOB TRAINING.

Employment Opportunities: Changing times have accelerated the need for more well trained firemen in industry, municipal government, civil defense, and insurance agencies. Well qualified people are increasingly needed in the areas of fire protection and arson.

Total Credit Hours for Program 62

FOOD SERVICE TECHNOLOGY ADVISORY COMMITTEE

Mr. William H. Buettner .....Chairman
Commercial Representative
Michigan Consolidated Gas Company
Ann Arbor

Mr. William F. Anhut
President-Manager
Huron Motor Inn
Ypsilanti

Mr. Joseph Bianco
Manager
Washtenaw Country Club
Ypsilanti

Mr. Richard Carlson
Frontier Beef House
Ann Arbor

Mr. Harvey Glaze
Executive Chef
Ann Arbor Town Club
Ann Arbor

Mr. Walter Orth
Manager
Michigan Union Food Service
Ann Arbor

Mrs. Karen White
Coordinator, Home Economics
Ann Arbor Public Schools
Ann Arbor

Faculty Coordinator: Mr. Emil T. Alpha
Student Representatives: Miss Renee Robinson
Miss Elaine Arbour

FOOD SERVICE TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Restaurant Management 100	3	Introduction to Volume Food Management 122	3
Elementary Food Preparation 111	3	Fundamentals of Accounting 091 or Principles of Accounting 111	3
Introductory Psychology 100	3	Fundamentals of Speaking 100	3
Government and Society 108	3	Healthful Living 120	3
Foundations of Occupational Mathematics 092	3	Basic Health Science Laboratory 141	1
		English Elective	3
	15		16

SUMMER SESSION

On-the-Job Training 199	6

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Advanced Food Preparation 213	3	Food and Beverage Management 224	3
Basic Economic Principles 207	4	Layout and Equipment 228	3
Human Relations in Business and Industry 200	3	Social Science Elective	3
On-the-Job Training 199	3	On-the-Job Training 199	3
	13		12

Employment Opportunities: The food industry is the fourth largest industry in the United States. Jobs are available as managers, supervisors, hosts, cooks, chefs, merchandising managers, purchasing agents, stewards, sous chefs, storekeepers, pastry chefs, butchers, and many others.

Total Credit Hours for Program 62

LAW ENFORCEMENT ADVISORY COMMITTEE

The Honorable James R. Breakey
Circuit Judge
Ann Arbor

Captain James Borst
Ypsilanti Police Department
Ypsilanti

Mr. William F. Delhey
Prosecuting Attorney
Washtenaw County
Ann Arbor

Sgt. Mario Formolo
Brighton State Police Post
Brighton

Staff Sgt. Carl Freeborn
Ypsilanti State Police Post
Ypsilanti

Sheriff Douglas Harvey
Washtenaw County Sheriff Department
Ann Arbor

Captain Walter Hawkins
Ann Arbor Police Department
Ann Arbor

The Reverend Fred R. Holtfreter
Associate Pastor
Zion Lutheran Church
Ann Arbor

Chief Walter Krasny
Ann Arbor Police Department
Ann Arbor

Program Coordinator: Mr. Paul W. Davis

Mr. Clarence E. McFall
Assistant Director
Office of Economic Opportunity
Ann Arbor

Mr. Jimmie L. Sumpter, Jr.
Employment Specialist
Human Relations Commission
Ann Arbor

Chief Ray Walton
Ypsilanti Police Department
Ypsilanti

LAW ENFORCEMENT TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introductory Psychology 100	3	Technical Communications 100	3
Government and Society 108	3	Typewriting 130	2
Foundations of Occupational Mathematics 092	3	Social Problems 107	3
Principles of Sociology 100	3	State and Local Government and Politics 240	3
English Composition 111	3	Fundamentals of Speaking 100	3
		Dynamics of Behavior 108	3
	15		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Photography 214	3	Criminal Investigation 224	3
Juvenile Delinquency 153	3	Criminal Law 209	3
Criminology 202	3	Study Problems 189	8
Basic Economic Principles 207	4		
Elective*	3		
	16		14

Employment Opportunities: Employment in law enforcement for those who are well qualified and educated are almost unlimited. Future opportunities for advancement to administration are dependent upon the educational background and ability of the individual. Municipal police departments, sheriff departments, industrial security, private agencies, federal agencies, institutions, and state police are all in need of personnel.

*** Elective: Permission of Divisional Director**

NOTE: CREDITS FOR THIS PROGRAM MAY BE EARNED THROUGH ON-THE-JOB TRAINING.

Total Credit Hours for Program 62

LIBRARY TECHNOLOGY ADVISORY COMMITTEE

Miss Marjorie Tompkins .....Chairman
Assistant to Director
University of Michigan Library
Ann Arbor

Mr. Homer Chance
Director
Ann Arbor Public Library
Ann Arbor

Dr. Walfred Erickson
Head Librarian
Eastern Michigan University
Ypsilanti

Mrs. Elizabeth Hyde
Elementary Librarian
Ann Arbor Public Schools
Ann Arbor

Dr. Robert Muller
Associate Director
University of Michigan Library
Ann Arbor

Mrs. Katherine Waldhorn
Head Librarian
Ypsilanti Public Library
Ypsilanti

Mr. Gene B. Wilson
Reference Library
Ann Arbor Public Library
Ann Arbor

Mr. Harold Young
Director
Learning Materials Center
Washtenaw Community College
Ann Arbor

Faculty Coordinator: Mr. Paul W. Davis
Student Representative: Miss Felecia Means

LIBRARY TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Library Practice 111	4	Library Practice 122	4
Fundamentals of Speaking 100	3	Typewriting 110	2
Typewriting 110	2	Introduction to Literature 160	3
English Composition 111	3	Introductory Psychology 100	3
Mathematics Elective	3	Instructional Media and Materials 209	3
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Government and Society 108	3	Art Appreciation 130	3
Office Systems and Procedures 150	3	World Literature 224	3
World Literature 213	3	Human Relations in Business and Industry 200	3
Principles of Economics 211	3	Principles of Data Processing 111	4
Business Machines 130	2	On-the-Job Training 199	2
On-the-Job Training 199	2		
	16		15

Employment Opportunities: Will include assisting librarians with the classifying and cataloging of books and serving clientele in public libraries, particularly in libraries maintained by public and private schools, colleges and universities, government agencies, educational and research associations, and business and industrial firms.

Total Credit Hours for Program 61

DIVISION OF HEALTH OCCUPATIONS

DENTAL ASSISTING
ADVISORY COMMITTEE

Dr. James B. Bush .....Chairman and Dental Director
Professor of Dentistry
The University of Michigan
Ann Arbor

Mrs. Carol Chaconas
Certified Dental Assistant
Ann Arbor

Dr. Frank Comstock
Professor of Dentistry
The University of Michigan
Ann Arbor

Dr. Hugh Cooper, Jr.
Dentist
Ann Arbor

Dr. John Larder
Dentist
Saline

Dr. Robert Lorey
Associate Professor of Dentistry
The University of Michigan
Ann Arbor

Dr. Robert Vandersluis
Dentist
Whitmore Lake

Dr. Norman Wilner
Dentist
Dexter

Faculty Coordinator: Mrs. Gerianne Wood

DENTAL ASSISTANT

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Basic Health Science 140	3	Physical Science 142	4
Basic Health Science Laboratory 141	1	Advanced Dental Science 122	4
Orientation to Dental Assisting 110	1	Principles of Operatory Procedures 121	4
Dental Science 111	4	Business Communication 200	3
English Fundamentals 091 or English Composition 111	3		
Office Systems and Procedures 150	3		
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Dental Office Procedures 212	4	Advanced Dental Laboratory Procedures 225	3
Principles of Dental Laboratory Procedures 214	3	State and Local Government and Politics 150	3
Dental Materials 203	3	Dynamics of Behavior 108	3
Clinical Practice 199	3	Clinical Practice 199	3
Dental Roentgenology 213	3	Principles of Sociology 100	3
	16		15

Typewriting proficiency is required for enrollment in this program or a typewriting course must be taken.

Employment Opportunities: The program is designed to prepare students to become direct assistants to dentists in general and specialized practice. In addition to the responsibilities of chair-side assisting, the dental assistant will have office responsibilities and laboratory duties.

Total Credit Hours for Program 61

INHALATION THERAPY ADVISORY COMMITTEE

Dr. Thomas J. DeKornfeld .....Chairman and Medical Director
Professor of Anesthesiology
The University of Michigan Medical Center
Ann Arbor

Dr. Jay S. Finch
Assistant Professor of Anesthesiology
The University of Michigan Medical Center
Ann Arbor

Mr. Don E. Gilbert
Chief Inhalation Therapist
The University of Michigan Medical Center
Ann Arbor

Dr. Joseph B. Mizgerd, Director
Pulmonary Function Laboratory
Veterans Administration Hospital
Ann Arbor

Dr. R. B. Nelson, Senior Association Director
University Hospital
Ann Arbor

Dr. John C. Shelton
Ypsilanti

Mr. John Shelton
Technical Director of Inhalation Therapy
St. Joseph Mercy Hospital
Ann Arbor

Mr. Robert E. Via
Assistant Hospital Director
Veterans Administration Hospital
Ann Arbor

Mr. Steven Young
Assistant Administrator
St. Joseph Mercy Hospital
Ann Arbor

Faculty Coordinator: Carl F. Hammond

INHALATION THERAPIST

FIRST YEAR

First Semester	Hours	Second Semester	Hours
English Composition 111	3	Inhalation Therapy Procedures 111	3
Inhalation Therapy Science 151	5	Nursing Arts for Inhalation Therapy 124	3
Nursing Arts for Inhalation Therapy 113	3	Introduction to Applied Inhalation Therapy 125	1
Foundations of Occupational Mathematics 092	3	Inhalation Therapy Science 152	4
		Clinical Practice 199	4
	14		15

Summer Work Experience

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Applied Inhalation Therapy 136	3	Principles of Sociology 100	3
Inhalation Therapy Procedures 122	3	State and Local Government and Politics 150	3
Technical Communications 100	3	Clinical Practice 199	4
Dynamics of Behavior 108	3	Seminar Inhalation Therapy 214	3
Clinical Practice 199	4	Inhalation Therapy Organization and Management 221	3
	16		16

High School Chemistry, 1 year Algebra are strongly recommended. ACT Test required.

Employment Opportunities: The program in Inhalation Therapy Technology is designed to prepare therapists to work under the supervision of a physician responsible for inhalation therapy departments in health service agencies. The therapist operates, maintains, and administers the equipment used in patient care. Employed in hospitals, medical and research laboratories.

The Washtenaw Community College program in Inhalation Therapy is conducted in cooperation with: St. Joseph Mercy Hospital, University Hospital, The University of Michigan Medical Center, Veterans Administration Hospital, Ann Arbor.

Total Credit Hours for Program 61

MEDICAL OFFICE SPECIALIST

(Medical Office Worker)

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Typewriting (A,B,C) 110 and/or Elective*	2	Typewriting (A,B,C) 110 and/or Elective*	2
Shorthand (A,B,C) 100 and/or Elective**	3	Shorthand (A,B,C) 100 and/or Elective**	3
Basic Health Science 140	3	Physical Science 142	4
Basic Health Science Laboratory 141	1	Study Problems 189	3
Foundations of Occupational Mathematics 092	3	Medical Terminology 120	3
English Fundamentals 091 or English Composition 111	3		
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Office Systems and Procedures 150	3	Study Problems 189	4
Business Communication 100	3	Data Processing Applications 122	4
State and Local Government and Politics 150	3	Principles of Sociology 100	3
Study Problems 189	3	Basic Statistics 128	4
Principles of Data Processing 111	4		
	16		15

Employment Opportunities: This program is designed to prepare a person in various applications of medical office work in hospitals, clinics, physician's offices, etc.

Total Credit Hours for Program 61

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

RADIOLOGIC TECHNOLOGY (X-RAY) ADVISORY COMMITTEE

Dr. LaMar J. Hankamp .....Chairman
Chief Radiologist
St. Joseph Mercy Hospital
Ann Arbor

Mr. Peter Frick
Chief Radiologic Technologist
St. Joseph Mercy Hospital
Ann Arbor

Dr. Herbert Spencer
Administrator
Veterans Administration Hospital
Ann Arbor

Mr. Robert Johnston
Chief Radiologic Technologist
Veterans Administration Hospital
Ann Arbor

Dr. Walter M. Whitehouse
Radiologist
Chairman, Department of Radiology
University Hospital
Ann Arbor

Mr. Henry Morris
Associate Administrator
St. Joseph Mercy Hospital
Ann Arbor

Dr. Roger B. Nelson
Senior Associate Director
University Hospital
Ann Arbor

Dr. Robert Rapp
Chief Radiologist
Veterans Administration Hospital
Ann Arbor

Mr. William Russell
Chief Radiologic Technologist
University Hospital
Ann Arbor

Ex officio:

Dr. Arthur C. Kittleson .....Medical Director
Radiologist
University Hospital
Ann Arbor

Faculty Coordinator: Mr. Robert Nelson

RADIOLOGIC TECHNOLOGIST

(X-Ray)

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Fundamentals of X-ray Technology 111	4	Fundamentals of X-ray Technology 122	4
X-ray Physics 091	3	X-ray Physics 092	3
Anatomy and Physiology 211	3	Anatomy and Physiology 222	3
Foundations of Occupational Mathematics 092	3	Medical Terminology 120	3
Clinical Practice 199	3	Clinical Practice 199	3
	16		16

Summer Work Experience

SECOND YEAR

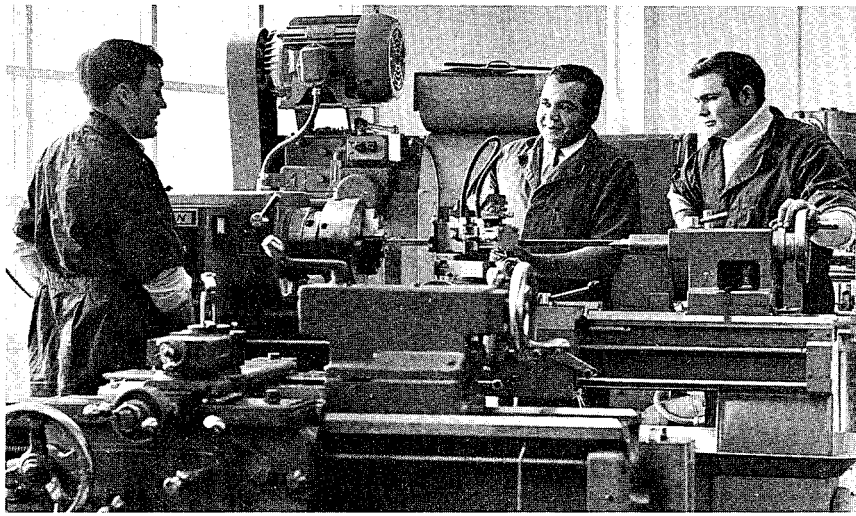
First Semester	Hours	Second Semester	Hours
Principles of X-ray Technology 213	4	Principles of X-ray Technology 224	4
English Composition 111	3	Technical Communications 100	3
State and Local Government and Politics 150	3	Clinical Practice 199	4
Clinical Practice 199	4	Dynamics of Behavior 108	3
	14		14

Summer Work Experience

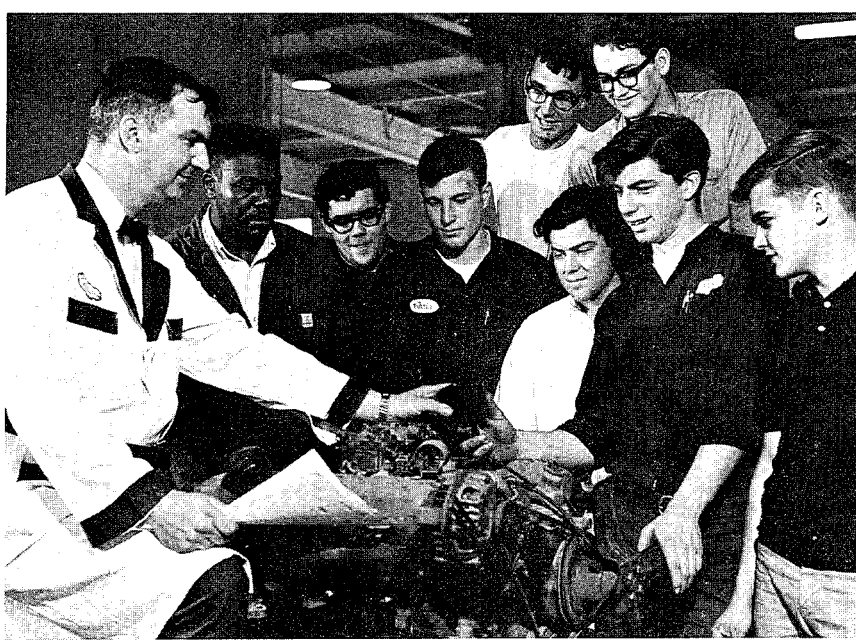
Employment Opportunities: The program is designed to prepare students to become safe practitioners in X-ray Technology, who, upon successful completion and certification, will perform diagnostic and therapeutic work with their technical skills to use X-ray equipment in both laboratory and clinical settings. Employed in hospitals, clinics, and medical and research laboratories.

Total Credit Hours for Program 60

The Washtenaw Community College program in Radiographic Technology is conducted in cooperation with: St. Joseph Mercy Hospital, University Hospital, The University of Michigan Medical Center, Veterans Administration Hospital, Ann Arbor.



DIVISION OF TECHNICAL AND INDUSTRIAL OCCUPATIONS



TECHNICAL AND COMMERCIAL ART ADVISORY COMMITTEE

Mr. Sam Fine .....Chairman
President
Sam Fine Associates, Incorporated
Ann Arbor

Mr. Thomas Lacy .....Recorder
President
Drury-Lacy, Incorporated
Ann Arbor

Mr. Ernest Calabro
Mechanical Design Engineer
Bendix Electro-Optics Division
Ann Arbor

Mr. Clifford Dickson, Manager
Art Department, Ford Engineering
Dearborn

Mr. Robert Mangus, Vice President
Society of Engineering Illustrators
Detroit

Mr. John Moore
Commercial Artist
Ann Arbor

Mr. William Nuffer, President
Litho Crafters, Incorporated
Ann Arbor

Mr. Charles Roberts
Operations Manager
Edwards Brothers
Ann Arbor

Mr. Herbert Upton, Jr., Vice President
Mallory Lithographing, Incorporated
Ann Arbor

Faculty Coordinator: Mr. John W. Martin
Student Representative: Ms. Linda Koch

TECHNICAL-COMMERCIAL ART TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Perspective and Parallel Line Projection 100	3	Basic Design 123	3
Basic Drawing 111	3	Advertising Layout 121	3
Basic Design 112	3	Architectural Rendering 122	3
Technical Drawing 100	3	Technical Illustration 101	3
English Fundamentals 091	3	Industrial Psychology 150	3
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Specialized Study 236	4	Specialized Study 236	4
Airbrush Techniques 213	3	Model Construction 225	2
Photography 214	2	Physical Science 142	4
Machine Shop Practices 111	3	Technical Communications 100	3
Government and Society 108	3	Labor Relations 150	3
	15		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Book, magazine, newspaper, and medical illustration, mailing pieces and brochures, general advertising and related art areas. Basic foundation for occupational entry in the broad field of illustration.

Total Credit Hours for Program 61

AUTO BODY REPAIR
ADVISORY COMMITTEE

Mr. Owen White .....Chairman
White's Auto Paint Shop
Ann Arbor

Mr. Clifford A. Burnham
Manager
Zahn Auto Service
Ann Arbor

Mr. Frank Carter
Carter Auto Repair
Saline

Mr. Elmer Fish
White's Auto Paint Shop
Ann Arbor

Mr. Larry Gonyer
Tom Marshall Ford
Manchester

Mr. Howard Feeman
Red and Rene's Sales
Auto Body Repair
Saline

Mr. Clair Holland
Wards Collision
Lincoln Park

Mr. Earl Nicholas
Body Shop Manager
Henderson Ford
Ann Arbor

Mr. Frank Nicholas
Body Shop Manager
Ann Arbor Buick
Ann Arbor

Mr. Neil Wagner
Dexter Body Shop
Dexter

Mr. Norman Wenk
City Body Shop
Ypsilanti

Mr. Bill Yahr
Ideal Auto Body Shop
Ann Arbor

Faculty Coordinator: Mr. Floyd E. Belkola
Student Representative: Mr. Grady Ray

AUTO BODY REPAIRMAN

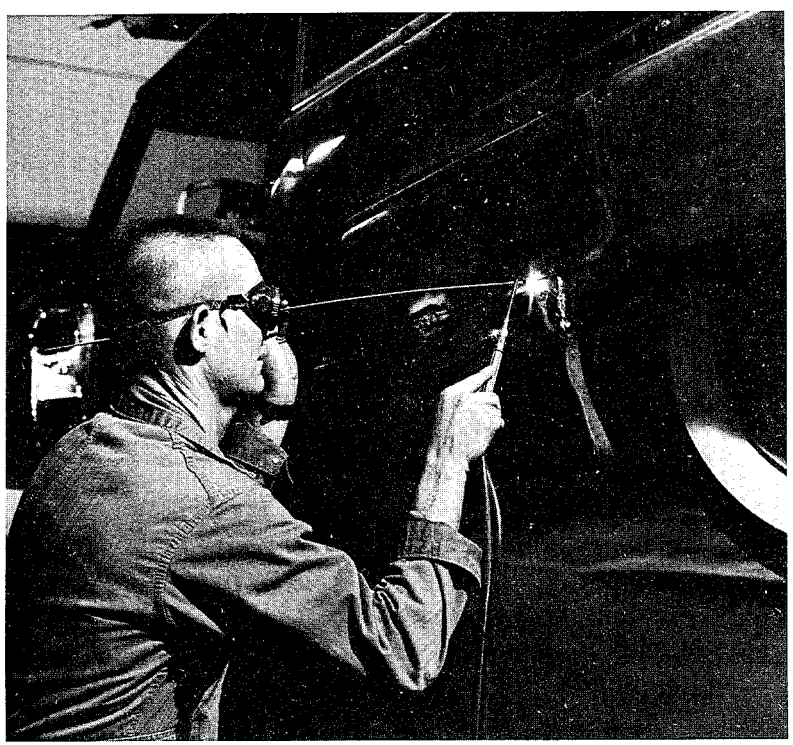
One-Year Program

First Semester	Hours	Second Semester	Hours
Auto Body Repair 111	3	Auto Body Repair 123	3
Automobile Refinishing 112	3	Automobile Refinishing 124	3
Fundamentals of Welding 100	2	Welding and Fabrication Elective	3
English Elective	3	Power Sources 100	4
Mathematics Elective	3	Labor Relations 150	3
	14		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Body repairman or helper, painter or painter's helper in automobile dealership, independent body shop, or maintenance department of business or industry.

Total Credit Hours for Program 30



AUTO BODY SERVICE TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Auto Body Repair 111	3	Auto Body Repair 123	3
Automobile Refinishing 112	3	Automobile Refinishing 124	3
Fundamentals of Welding 100	2	Power Sources 100	4
English Fundamentals 091	3	Welding and Fabrication Elective	3
Foundations of Occupational Mathematics 092 or Applied Introductory Algebra 051	3-4	Government and Society 108	3
Typewriting 110	2		
	16-17		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Frame and Unit Body Straightening 210	3	Frame and Unit Body Sectioning Methods 220	3
Major Body Repair 211	3	Body Rebuilding Methods 222	3
Collision Estimating 200	3	Wheel Balancing and Alignment 105	2
Industrial Materials 101	3	Automotive Air Conditioning 202	1
Technical Communications 100	3	Labor Relations 150	3
	15	Elective*	2
			14

*** Student will be placed in an on-the-job or classroom situation.**

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Automobile body repairman and/or painter in an automobile dealership, independent body shop or maintenance department of business and industry, insurance adjuster trainee, manager trainee, order writer in dealership, salesman in automotive supply house.

Total Credit Hours for Program 61-62

AUTOMOTIVE TECHNOLOGY ADVISORY COMMITTEE

Mr. David Deborde .....Chairman
Plant and Equipment Maintenance Supervisor
United Air Lines
Detroit Metropolitan Airport

Mr. David Bird
Naylor Motor Sales, Inc.
Ann Arbor

Mr. John Bruckner
Bruckner Oldsmobile
Milan

Mr. James Hickey
Hickey's Service Station
Whitmore Lake

Mr. Chris Mast
Mechanic
Dexter

Mr. D. James Sanderson
Service Manager
Howard Cooper Volkswagen, Incorporated
Ann Arbor

Mr. Donald Tickner
Strahley Chevrolet, Inc.
Saline

Faculty Coordinator: Mr. Kenneth E. Barron
Student Representative: Mr. Robert Webb

AUTOMOTIVE MECHANIC

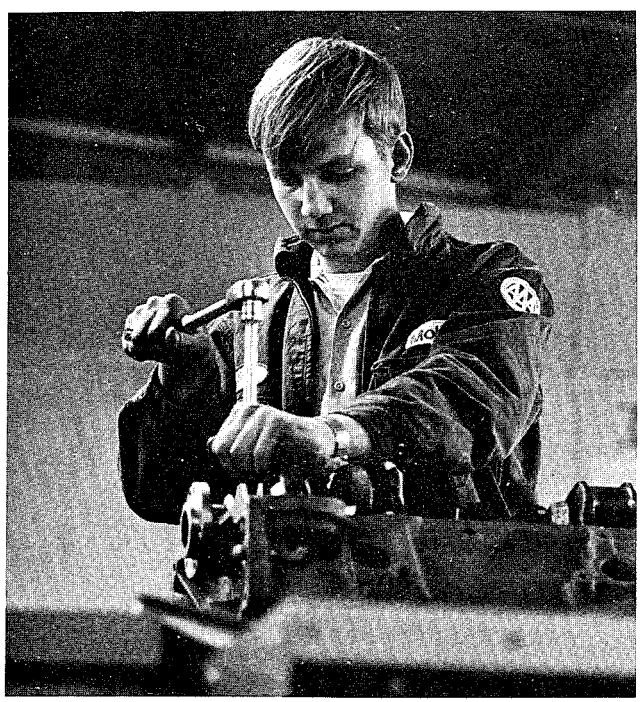
One-Year Program

First Semester	Hours	Second Semester	Hours
Automotive Electricity 101	2	Cranking and Charging Systems 106	2
Engine Operation 102	1	Fuel Systems 107	2
Basic Carburetion 103	1	Transmission and Power Trains 108	2
Brake Systems 104	2	Light Service Repair 150	2
Wheel Balancing and Alignment 105	2	Fundamentals of Welding 100	2
Power Sources 100	4	Mathematics Elective	3
English Elective	3	Social Science Elective	3
	15		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Entry mechanic in a dealership or service station. May specialize in large shops on electrical systems, engines and carburetion, or alignment and brakes.

Total Credit Hours for Program 31



AUTOMOTIVE SERVICE TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Light Service Repair 150	2	Cranking and Charging Systems 106	2
Automotive Electricity 101	2	Fuel Systems 107	2
Engine Operation 102	1	Wheel Balancing and Alignment 105	2
Basic Carburetion 103	1	Transmission and Power Trains 108	2
Brakes Systems 104	2	Welding and Fabrication 111A	3
Power Sources 100	4	Labor Relations 150	3
Fundamentals of English 091	3	Government and Society 108	3
	15		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Automotive Test Equipment 201	2	Diagnosis and Repair 205	4
Automotive Air Conditioning 202	1	Engine Performance Measurement 206	3
Suspension Systems 204	2	Automatic Transmission Hydraulic Systems 208	2
Engine Rebuilding 109	2	Power Steering 207	1
Automatic Transmissions 203	2	Disc Brakes 209	1
Industrial Materials 101	3	Technical Communication 100	3
Applied Introductory Algebra 051	4		
	16		14

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Entry into automotive service field as a line mechanic in a dealership or service station. Many opportunities also in automotive parts sales or as a manufacturer's service representative. This program is a good foundation for the potential service manager or garage foreman.

Total Credit Hours for Program 62

ARCHITECTURAL DRAFTING ADVISORY COMMITTEE

Mr. Warren E. Poole .....Chairman
Assistant University Architect
The University of Michigan
Ann Arbor

Mr. Louis Boone
President
Boone & Darr, Incorporated
Ann Arbor

Mr. J. Sterling Crandall
Lecturer, Architecture and Design
The University of Michigan
Ann Arbor

Mr. O. S. DeLancy
Lane, Riebe, Wieland Architects
Ann Arbor

Mr. Eugene Field
President
Ypsilanti Fabrication Company, Inc.
Ypsilanti

Mr. Zdravko T. Gerganoff
Z. T. Gerganoff & Associates, Inc.
Ypsilanti

Mr. John Hunter
President
Porcelain Building Products, Inc.
Ann Arbor

Mr. Herbert W. Johe
Assistant Dean, Architecture and Design
The University of Michigan
Ann Arbor

Mr. Robert D. Musolf
Musolf Construction Company
Ann Arbor

Mr. Howard F. Sims
Practicing Architect
Ann Arbor

Mr. Nelson Vanderheyden
President
Jeffress-Dyer, Incorporated
Ann Arbor

Mr. Donald F. Wright
Colvin, Robinson, Wright & Assoc.
Ann Arbor

Faculty Coordinator: Mr. David R. Byrd
Student Representative: Mr. Jon Gerrard

ARCHITECTURAL DRAFTING DETAILER

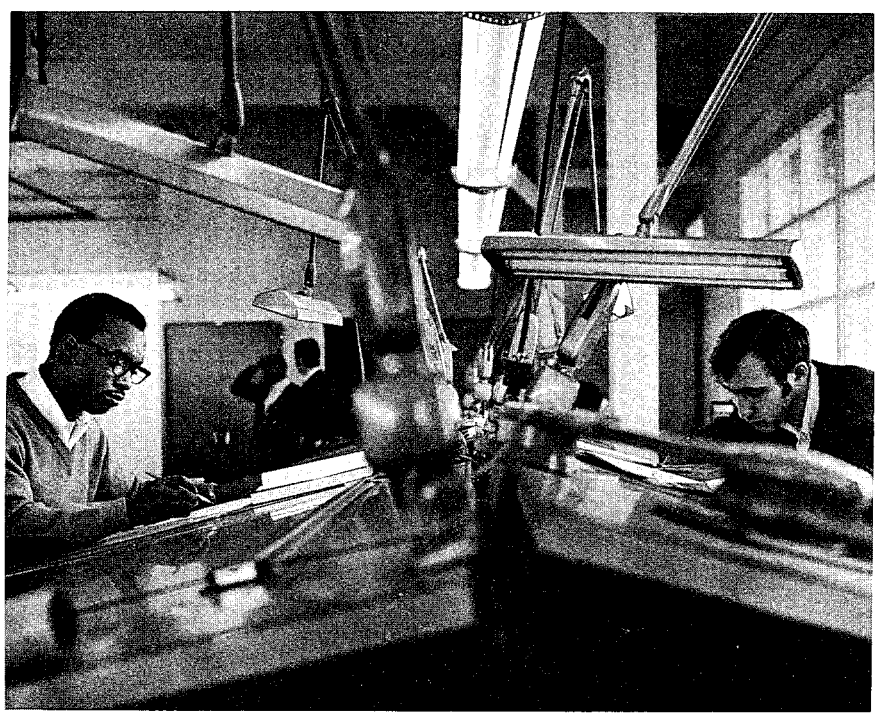
One-Year Program

First Semester	Hours	Second Semester	Hours
Architectural Drawing 111	5	Architectural Drawing 122	5
Construction Materials 117	3	Mechanical Equipment 120	2
History of Architecture 108	2	Specifications 200	1
Typewriting 110	2	Labor Relations 150	3
English Elective	3	Applied Introductory Algebra 051	4
	15		15

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Draftsman who does primarily detailing, changes, and tracings of work from architects, builders, contractors, and realtors.

Total Credit Hours for Program 30



ARCHITECTURAL DRAFTING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Architectural Drawing 111	5	Architectural Drawing 122	5
Construction Materials 117	3	Mechanical Equipment 120	2
History of Architecture 108	2	Perspective and Parallel Line Projection 100	3
English Fundamentals 091 or English Composition 111	3	Algebra and Trigonometry 109	4
Typewriting 110	2	Human Relations in Business and Industry 200	3
	15		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Architectural Drawing 213	5	Architectural Drawing 224	5
Structure in Architecture 210	2	Specifications 200	1
Estimating Construction Costs 207	3	Architectural Rendering 123	2
Surveying 209	3	Technical Communications 100	3
Introductory Physics 111	4	Government and Society 108	3
	17		14

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: A draftsman who does layout and detailing for architects, builders, contractors, realtors. The very skilled may also do design and presentation work. This program could be the foundation for eventual registration as an architect.

Total Credit Hours for Program 63

DRAFTSMAN-DETAILER

One-Year Program

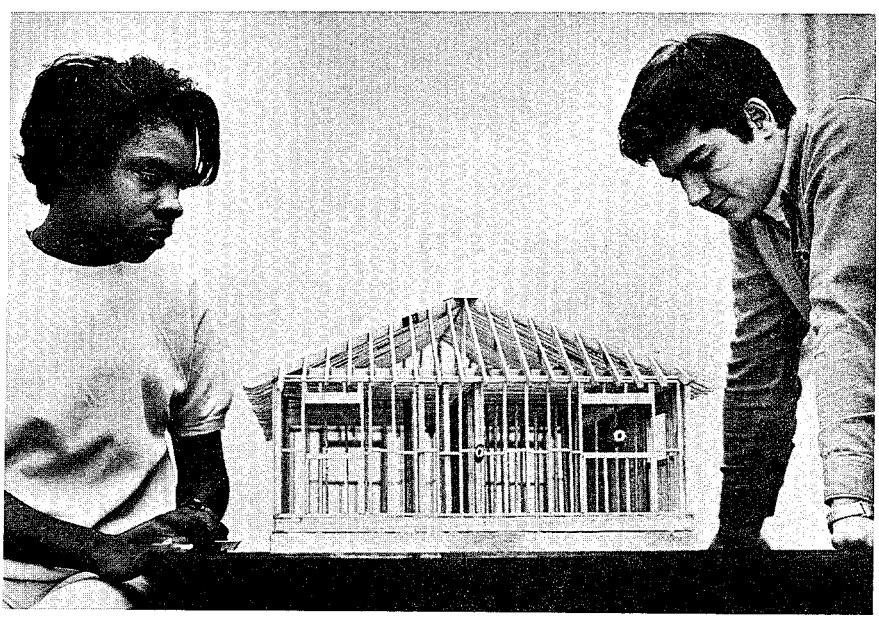
First Semester	Hours
Industrial Drafting 111	3
Descriptive Geometry 112	3
Blueprint Reading 101	3
Perspective and Parallel Line Projection 100	3
Mathematics Elective	3
	15

Second Semester	Hours
Fundamentals of Jigs and Fixtures 122	3
Fundamentals of Die Drafting 213	3
Machine Shop Practices 111	3
Fundamentals of Welding 100	2
English Elective	3
Elective*	2
	16

* Student will be placed in an on-the-job or classroom situation.

Employment Opportunities: Elementary detailing, tracing and changing drawings. Basic foundation for entry-level opportunities in the industrial drafting field.

Total Credit Hours for Program 31



INDUSTRIAL DRAFTING ADVISORY COMMITTEE

Mr. Robert Betzig .....Chairman
Vice President, Sales & Engineering
R & B Machine Tool Company
Saline

Mr. Arthur Bartlett
Supervisor of Drafting
Bendix Systems Division
Ann Arbor

Mr. George Granger
Project Engineer
Ayres, Lewis, Norris & May
Ann Arbor

Mr. John H. Holmes
Senior Project Engineer
John Hoad & Associates
Ypsilanti

Mr. Claude Johnson
Sales Office Supervisor
Industrial Metrology Division
Bendix Corporation
Ann Arbor

Mr. Harvey Lentz
Engineer
General Motors Hydra-matic Division
Willow Run

Mr. Gerald Linebaugh
Chief Engineer
Central Fibre Products
Chelsea

Mr. Theodore Milek
Senior Design Engineer
General Motors Hydra-matic Division
Willow Run

Mr. Neil Navarre
Chief Draftsman
Bendix Electro-Optics Division
Ann Arbor

Mr. Thomas Ruhe
Supervisor of Design
Ford Motor Company
Ypsilanti

Mr. Philip Teders
Chief Engineer
Sarns, Incorporated
Ann Arbor

Mr. Andy Walker
Senior Designer
R & B Machine Tool Company
Saline

Faculty Coordinator: Mr. Charles D. Koti
Student Representative: Mr. Eugene Keck

INDUSTRIAL DRAFTSMAN

Product, Agency, and Development Option

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Industrial Drafting 111	3	Descriptive Geometry 112	3
Industrial Drafting Standards 120	2	Mechanisms 107	3
Machine Shop Practices 111	3	Fundamentals of Jigs & Fixtures 122	3
Blueprint Reading 101	3	Power Sources 100	4
Applied Introductory Algebra 051	4	Applied Trigonometry 053	3
	15		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Perspective & Parallel Line Projection 100	3	Technical Illustration 101	3
Fundamentals of Plant Layout 206	3	Industrial Tooling 224	3
Industrial Measuring Processes 105	3	Mechanical Testing 123*	3
Industrial Materials 101	3	Manufacturing Processes 202	3
Technical Communications 100	3	Government and Society 108	3
	15		15

* Advisers may substitute English Fundamentals 091 if needed.

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Detailing, assembly drawing, process drawing and elementary layout drawing. Basic foundation for designers, chief draftsmen, stylists and supervisors.

Total Credit Hours for Program 61

INDUSTRIAL DRAFTSMAN

Manufacturing & Tooling Option

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Industrial Drafting 111	3	Descriptive Geometry 112	3
Industrial Drafting Standards 120	2	Mechanisms 107	3
Machine Shop Practices 111	3	Fundamentals of Jigs & Fixtures 122	3
Blueprint Reading 101	3	Power Sources 100	4
Applied Introductory Algebra 051	4	Applied Trigonometry 053	3
	15		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Perspective & Parallel Line Projection 100	3	Fundamentals of Die Drafting 213	3
Industrial Measuring Processes 105	3	Fundamentals of Industrial Tooling 224	3
Introduction to Numerical Control 100	2	Manufacturing Processes 202	3
Industrial Materials 101	3	Programming for Numerical Control 121*	3
Technical Communications 100	3	Government and Society 108	3
	14		15

* Advisers may substitute English Fundamentals 091 if needed.

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Detailing, assembly drawing, process drawing and elementary layout drawing. Basic foundation for designers, chief draftsmen, stylists and supervisors.

Total Credit Hours for Program 60

ELECTRICAL AND ELECTRONICS ADVISORY COMMITTEE

Mr. Louis J. Cutrona .....Chairman
Vice President, Research
KMS Industries, Incorporated
Ann Arbor

Dr. V. A. Basman
President
Microtron Corporation
Ann Arbor

Mr. Thomas Cell
Manager, Quality Assurance
Applied Dynamics, Incorporated
Ann Arbor

Dr. Chiao-Min Chu
Professor of Electrical Engineering
The University of Michigan
Ann Arbor

Mr. Daniel Gray
Plant Engineering Department
Saline Plant, General Parts Division
Ford Motor Company
Saline

Mr. David E. Klingler
Vice President, Engineering
Datamax Corporation
Ann Arbor

Mr. Doug Lin
Electrical Engineer
Laser Systems Center
Ann Arbor

Mr. Claybourne Mitchell, Jr.
Director, Electrical Research
Control Power Corporation
Farmington Park

Faculty Coordinator: Mr. Kenneth L. Wheeler
Student Representative: Mr. Garther Roberson

ELECTRONICS ENGINEERING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Electrical Fundamentals 111	4	Electrical Fundamentals 122	3
Electrical Applications 110	2	Electrical Applications 120	2
Technical Drawing 100	3	Industrial Electricity 127	4
Introductory Algebra 040 or Algebra and Trigonometry 109A	3-4	Algebra and Trigonometry 109 or Algebra and Trigonometry 109B	3-4
English Fundamentals 091 or English Composition 111	3	Introductory Physics 111	4
	16-17		16-17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Audio and Power Transmission 200	3	Industrial Electronic Circuits 238	4
Basic Electronics 211	4	Communication Electronics 222	4
Electronic Switching and Control 237	3	Circuit Testing, Repair, and Debugging 239**	5
Machine Shop Practices 111 or Model Construction 225	2-3	Government and Society 108	3
Non-Technical Elective*	3		
	15-16		16

* Non-technical elective is to be selected from the following courses: Technical Communications 100; Fundamentals of Speaking 100; Introduction to Business 140; or Introductory Psychology 100; in consultation with the student's advisor.
** May include on-the-job training.

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Technician in an engineering laboratory, computer, research, aircraft or missile industry; radio and television servicemen; will have the technical background necessary to meet the Federal Communication Commission elements requirements.

Total Credit Hours for Program 63-66

ELECTRO-MECHANICAL TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Electrical Fundamentals 111	3	Electrical Fundamentals 122	3
Electrical Applications 110	2	Electrical Applications 120	2
Machine Shop Practices 111	3	Blueprint Reading 101	3
Algebra and Trigonometry 109	4	Machine Tool Operation and Set Up 122	4
English Fundamentals 091 or English Composition 111	3	Labor Relations 150	3
	15		15

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Numerical Control 100	2	Machine Tool Technology 201	4
Fluid Power Fundamentals 111	4	Technical Drawing 100	3
Basic Electronics 211	4	Industrial Electricity 127	4
Machine Maintenance 200	3	Fundamentals of Welding 100	2
Government and Society 108	3	Programming for Numerical Control 121 or Machine Maintenance 200	2-3
	16		15-16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Small or large industrial firms working with problems either electrical or mechanical. The technician will work very closely with the engineers in performing tests, compiling results, and will also work very closely with the electrician, machinist, machine builder, and maintenance department. The Electro-Mechanical Technician will be called upon to assist in solving a number of industrial problems.

Total Credit Hours for Program 61-62

FLUID POWER ADVISORY COMMITTEE

Mr. Erwin Krueger .....Chairman
Krueger Hydraulic & Manufacturing Company
Ypsilanti

Mr. Robert Guy .....Recorder
Supervisor, Hydraulic Preventive Maintenance
General Motors Hydra-matic Division
Willow Run

Mr. Guy F. Dean
Fluidic Systems
Double A Products
Manchester

Mr. John L. Eppich
Manager, Fluidics Department
Double A Products
Manchester

Mr. Marvin Dimon
Hydraulic Assembly
R & B Machine Tool Company
Saline

Mr. Lee Sanford
Sales Engineer
Numatics, Incorporated
Detroit

Mr. Clifford H. Wilford
Supervisor, Hydraulic Pneumatics
General Motors Hydra-matic Division
Willow Run

Mr. Edward A. Wright
Manager
Krueger Hydraulic & Manufacturing Company
Ypsilanti

Faculty Coordinator: Mr. George C. Agin
Student Representative: Mr. Marvin Dimon

HYDRAULIC ASSEMBLER

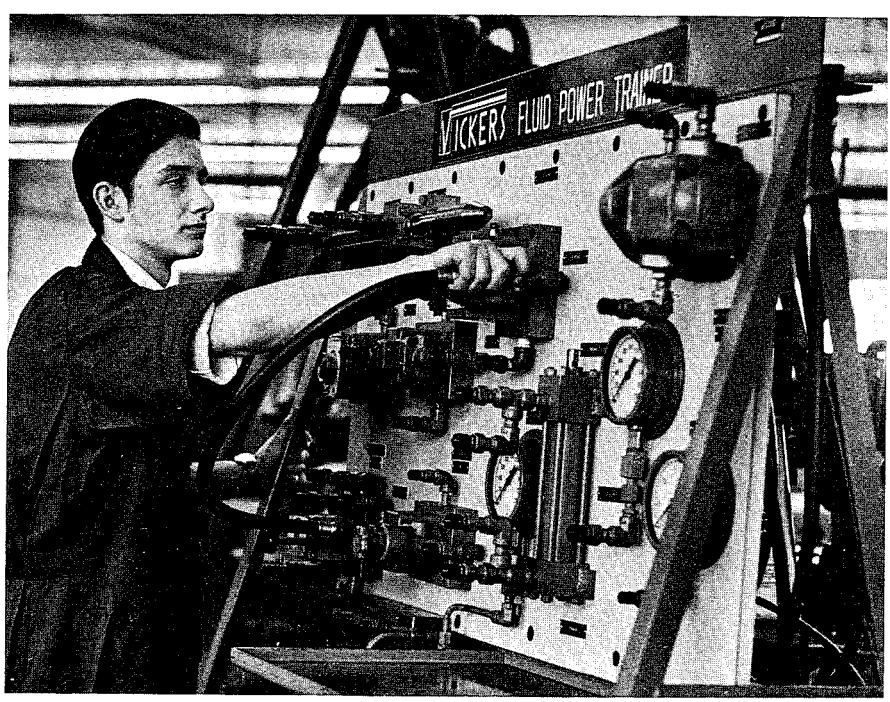
One-Year Program

First Semester	Hours	Second Semester	Hours
Fluid Power Fundamentals 111	4	Hydraulic Generators (Pumps) 122	4
Machine Shop Practices 111	3	Hydraulic Controls 213 or Basic Hydraulic Circuits 214	3
Blueprint Reading 101	3	Machine Tool Operation and Set Up 122	4
Mathematics Elective	3	Technical Drawing 100	3
Technical Communications 100	3		
	16		14

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Large and small industries dealing in industrial or mobile hydraulic equipment. The primary jobs include installation, piping, and testing of the various hydraulic components on the completed machine or vehicle.

Total Credit Hours for Program 30



FLUID POWER TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Fluid Power Fundamentals 111	4	Hydraulic Generators (Pumps) 122	4
Machine Shop Practices 111	3	Technical Drawing 100	3
Introductory Chemistry 057	3	Blueprint Reading 101	3
Introductory Chemistry Laboratory 058	1	Electrical Fundamentals 111	3
Applied Introductory Algebra 051 or Algebra and Trigonometry 109	4	Fundamentals of Speaking 100	3
	15		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Hydraulic Controls 213	3	Hydraulic Circuits 225	3
Basic Hydraulic Circuits 214	3	Pneumatics 226	3
Introduction to Numerical Control 100	2	Industrial Electricity 127	4
Machine Tool Operation and Set Up 122	4	Electronic Switching and Control 237	3
Technical Communications 100	3	Government and Society 108	3
	15		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: The fluid power technician works very closely with the engineer as well as the assembler in solving problems related to hydraulic and pneumatic controls. The technician will assist in designing circuits and components.

Total Credit Hours for Program 62

MECHANICAL TECHNOLOGY ADVISORY COMMITTEE

Mr. Clifford H. Wilford ..... Chairman
Supervisor, Hydraulic Pneumatics
General Motors Hydra-matic Division
Willow Run

Mr. William S. Zaharee ..... Recorder
G. C. Optronics, Incorporated
Ann Arbor

Mr. Ward Bennett
Chief Engineer
Moeller Manufacturing Company
Belleville

Mr. Earl Dean
Machinist
Buhr Machine Tool Company
Ann Arbor

Mr. Tasman Dowding
Exact Sciences Division
Washtenaw Community College
Ann Arbor

Mr. Richard Emanuel
Tool Maker
General Motors Hydra-matic Division
Willow Run

Mr. Virgil Goodwin
General Motors Hydra-matic Division
Willow Run

Mr. John Helms
Personnel Director
Buhr Machine Tool Company
Ann Arbor

Mr. John Toth
Supervisor of Machine Rebuild
General Motors Hydra-matic Div.
Willow Run

Mr. Richard M. Williams, Jr.
Electrical Engineer
G. C. Optronics, Incorporated
Ann Arbor

Mr. Edward A. Wright
Manager
Krueger Hydraulic & Mfg. Co.
Ypsilanti

Faculty Coordinator: Mr. Robert C. Mealing
Student Representative: Mr. Robert P. Nauman

TOOLROOM MACHINE OPERATOR

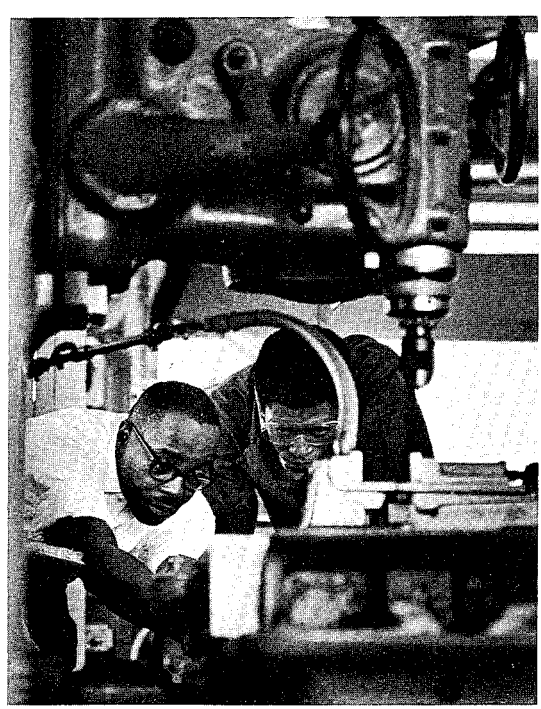
One-Year Program

First Semester	Hours	Second Semester	Hours
Machine Shop Practices 111	3	Machine Tool Operation and Set Up 122	4
Blueprint Reading 101	3	Blueprint Reading 102	3
Industrial Materials 101	3	Mechanical Testing 123	3
Mathematics Elective	3	Technical Drawing 100	3
English Elective	3	Mathematics Elective	3
	15		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Pre-Apprentice Program: For those who wish to improve their chances of gaining employment as a machinist or tool and die maker. Excellent opportunities are available for those wishing to enter the manufacturing skilled trades.

Total Credit Hours for Program 31



MECHANICAL-ENGINEERING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Blueprint Reading 101	3	Machine Shop Practices 111	3
Algebra and Trigonometry 109	4	Machine Tool Operation and Set Up 122	4
Physical Science 142	4	Technical Drawing 100	3
English Fundamentals 091 or English Composition 111	3	Descriptive Geometry 112	3
		Basic Statistics 128	4
	14		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Numerical Control 100	2	Machine Tool Technology 201	4
Industrial Materials 101	3	Mechanical Testing 123	3
Electrical Fundamentals 111	3	Basic Hydraulic Circuits 214	3
Fluid Power Fundamentals 111	4	Technical Communications 100	3
Fundamentals of Speaking 100	3	Government and Society 108	3
	15		16

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: The mechanical-engineering technician will work very closely with the manufacturing and production engineers. He will perform tests, compile results, write reports, and assist in solving mechanical problems. Present jobs are primarily connected with large industrial firms.

Total Credit Hours for Program 62

QUALITY CONTROL INSPECTOR

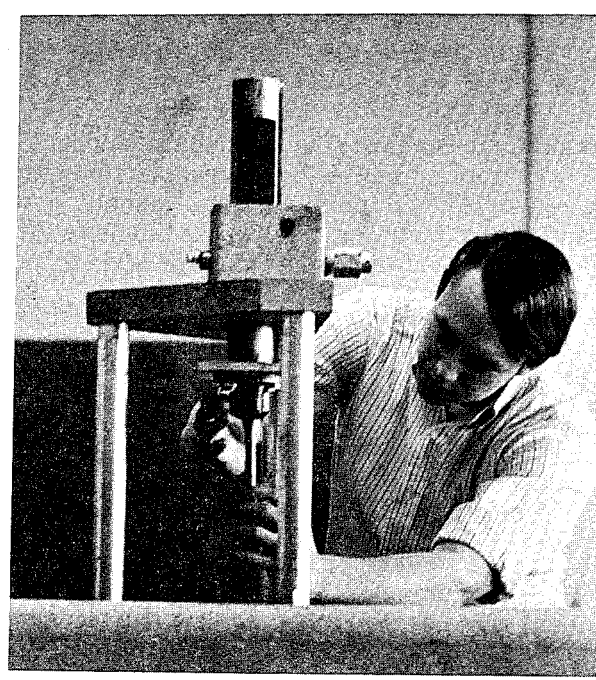
One-Year Program

First Semester	Hours	Second Semester	Hours
Industrial Materials 101	3	Industrial Measuring Processes 105	3
Machine Shop Practices 111	3	Mechanical Testing 123	3
Blueprint Reading 101	3	Blueprint Reading 102	3
Applied Introductory Algebra 051	4	Technical Communications 100	3
Labor Relations 150	3	Government and Society 108	3
	16		15

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Inspect steel, rubber, glass, wood and plastics products for conformity to manufacturer's specifications, verifies heat resistance, hardness and dimensions of products, using micrometers, heating furnaces, hardness testing machines, gages, tapes, and templates. Rejects or regrades products not meeting specification.

Total Credit Hours for Program 31



METALLURGICAL TECHNOLOGY ADVISORY COMMITTEE

Mr. Eugene Carpentier, President
Universal Die Casting Division
Hoover Ball & Bearing
Saline

Mr. Williard Hanks, Metallurgist
Double A Products
Manchester

Mr. Dan Laursen
Exact Sciences Division
Washtenaw Community College
Ann Arbor

Mr. John Maier
General Supervisor, Metallurgical Department
General Motors Hydra-matic Division
Willow Run

Mr. William Mertens
Chief Metallurgist, Metallurgical Department
General Motors Hydra-matic Division
Willow Run

Mr. N. A. Prittinen, General Manager
Chemical & Metallurgical Department
Ford Motor Company
Ypsilanti

Mr. William G. Scholz, Metallurgical Supervisor
Climax Molybdenum Company
Ann Arbor

Mr. Irvin L. Slane, Design Engineer
Engineering Department
Rockwell-Standard Corporation
Chelsea

Mr. Lauren Winquist
Supervisor, Powdered Metals Developmental Laboratory
Ford Motor Company
Ypsilanti

Faculty Coordinator: Mr. Robert A. Fatur
Student Representative: Mr. Richard Sacha

METALLURGICAL TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Industrial Materials 101	3	Physical Metallurgy 122	3
General Chemistry 111	4	Mechanical Testing 123	3
Applied Introductory Algebra 051	4	General Chemistry 122	4
English Fundamentals 091 or		Algebra and Trigonometry 109	4
English Composition 111	3	Technical Communications 100	3
	14		17

SECOND YEAR

First Semester	Hours	Second Semester	Hours
General Metallography 214	3	Advanced Metallography 225	3
Blueprint Reading 101	3	Materials Analysis 226	3
Machine Shop Practices 111	3	Basic Statistics 128	4
Fundamentals of Welding 100		General Physics 122	4
or Mechanisms 107	2-3	Government and Society 108	3
Introductory Physics 111	4		
	15-16		17

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: A technician who assists engineers, chemists, and physicists in the study of metals and other materials. Opportunities also exist in metal processing and assembly plants in the fields of quality control and failure analysis. Provides a good foundation for future employment in laboratories and plants engaged in making applications of new materials.

Total Credit Hours for Program 63-64

NUMERICAL CONTROL ADVISORY COMMITTEE

Mr. Louis Britt
President
L. R. Britt Company
Ann Arbor

Mr. David Bernhardt
Parts Programmer
Buhr Machine Tool Company
Ann Arbor

Mr. Larry Hieber
N/C Machine Tool Operator
R & B Machine Tool Company
Saline

Mr. Lyle Relitz
N/C Machine Tool Operator
Buhr Machine Tool Company
Ann Arbor

Mr. Milton Steman
Parts Programmer and Machine Designer
R & B Machine Tool Company
Saline

Faculty Coordinator: Mr. Dallas O. Garrett
Student Representative: Mr. Lyle Relitz

NUMERICAL CONTROL TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Introduction to Numerical Control 100	2	Programming for Numerical Control 121	3
Blueprint Reading 101	3	Blueprint Reading 102	3
Machine Shop Practices 111	3	Machine Tool Operation and Set Up 122	4
Industrial Drafting 111	3	Mathematics Elective*	3
Applied Introductory Algebra 051	4	Technical Communications 100	3
	15		16

SECOND YEAR

First Semester	Hours	Second Semester	Hours
Computer Assisted Programming 223	3	Numerical Control Machine Tool Operation 212	3
Fluid Power Fundamentals 111	4	Manufacturing Processes 202	3
Electrical Fundamentals 111	3	Fundamentals of Jigs and Fixtures 122	3
Principles of Data Processing 111	4	Government and Society 108	3
		Labor Relations 150	3
	14		15

* Applied Trigonometry 053; Algebra and Trigonometry 109.

NOTE: CREDITS FOR ON-THE-JOB TRAINING MAY BE EARNED FOR THIS PROGRAM.

Employment Opportunities: Numerical control machinists, numerical control programmers, numerical control drafting aides, numerical control aides, numerical control sales personnel, and numerical control computer technicians.

Total Credit Hours for Program 60

WELDING AND FABRICATION ADVISORY COMMITTEE

Mr. Walter Samonek .....Chairman
Plumbers and Steam Fitters Apprentice Trades Union
Brooklyn

Mr. Edward Brown
Brown's Welding
Chelsea

Mr. William G. Fredrick
Thoton Sources
Ann Arbor

Mr. Semyon Portnow
Thoton Sources
Ann Arbor

Mr. Edward Reichmann
Superior Tank and Welding Company
Dearborn

Mr. John McGill
Exact Sciences Division
Washtenaw Community College
Ann Arbor

Mr. Burley Trew
Quality Welding Company
Brighton

Faculty Coordinator: Mr. Daniel C. Gray
Student Representative: Mr. Richard Perry

COMBINATION WELDER MECHANIC

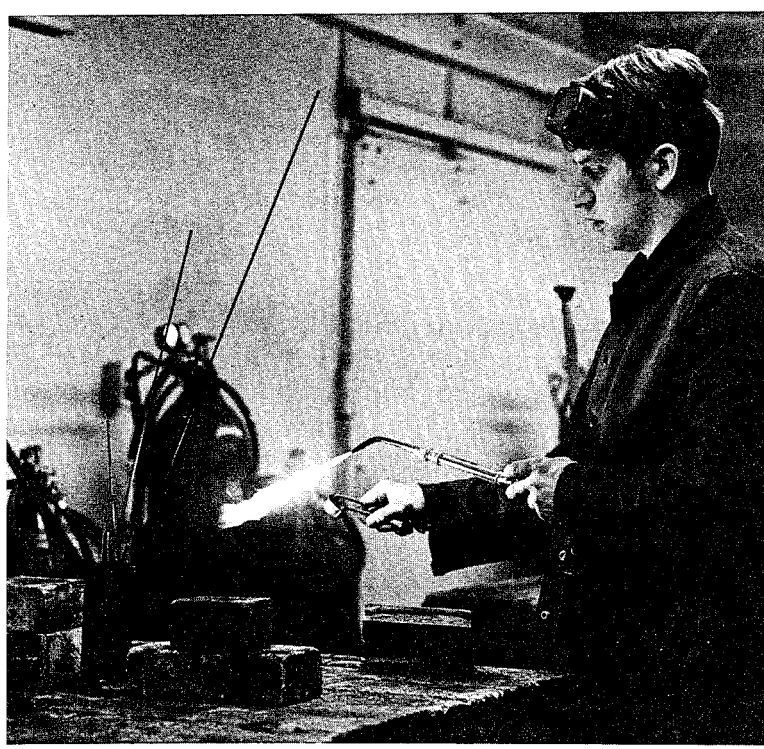
One-Year Program

First Semester	Hours	Second Semester	Hours
Welding and Fabrication 111	6	Welding and Fabrication 122	6
Machine Shop Practices 111	3	Blueprint Reading 101	3
Industrial Materials 101	3	Mathematics Elective	3
English or Speech Elective	3	Labor Relations 150	3
	15		15

NOTE: CREDITS FOR THIS PROGRAM MAY BE EARNED THROUGH ON-THE-JOB TRAINING.

Employment Opportunities: Mechanic in any facility requiring experienced or specialized welding repair or fabrication. Mechanic and maintenance person for oil companies to repair and fabricate pieces for petroleum transportation.

Total Credit Hours for Program 30



WELDING AND FABRICATING TECHNICIAN

Two-Year Program

FIRST YEAR

First Semester	Hours	Second Semester	Hours
Welding and Fabrication 111	6	Welding and Fabrication 122	6
Machine Shop Practices 111	3	Mechanical Testing 123	3
Industrial Materials 101	3	Applied Introductory Algebra 051	4
English Fundamentals 091	3	Labor Relations 150	3
	15		16

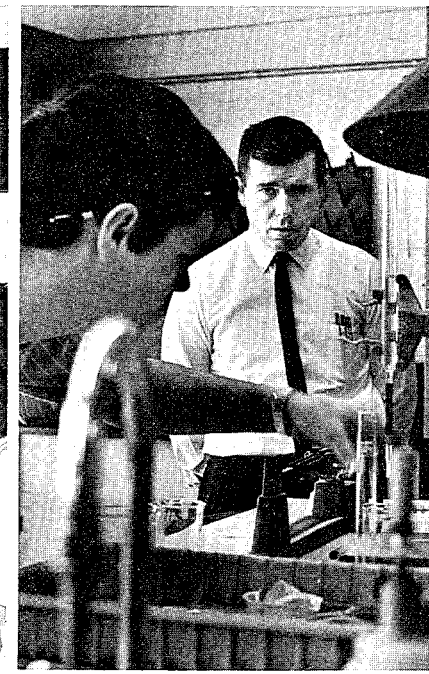
SECOND YEAR

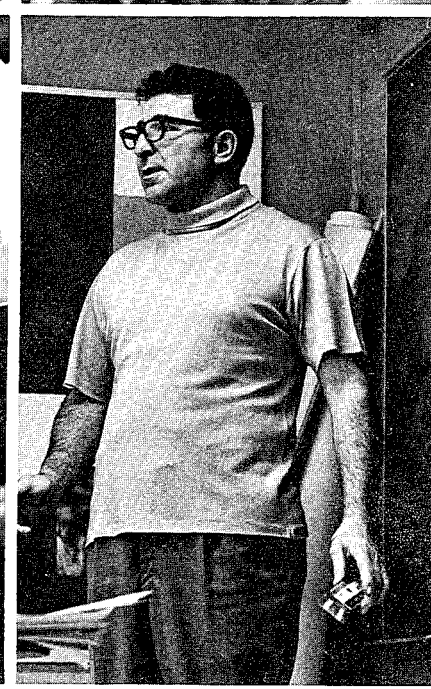
First Semester	Hours	Second Semester	Hours
Welding and Fabrication 213	3	Welding and Fabrication 224	3
Power Sources 100	4	Mechanisms 107	3
Blueprint Reading 101	3	Blueprint Reading 102	3
Technical Drawing 100	3	Technical Communications 100	3
Applied Trigonometry 053	3	Government and Society 108	3
	16		15

NOTE: CREDITS FOR THIS PROGRAM MAY BE EARNED THROUGH ON-THE-JOB TRAINING.

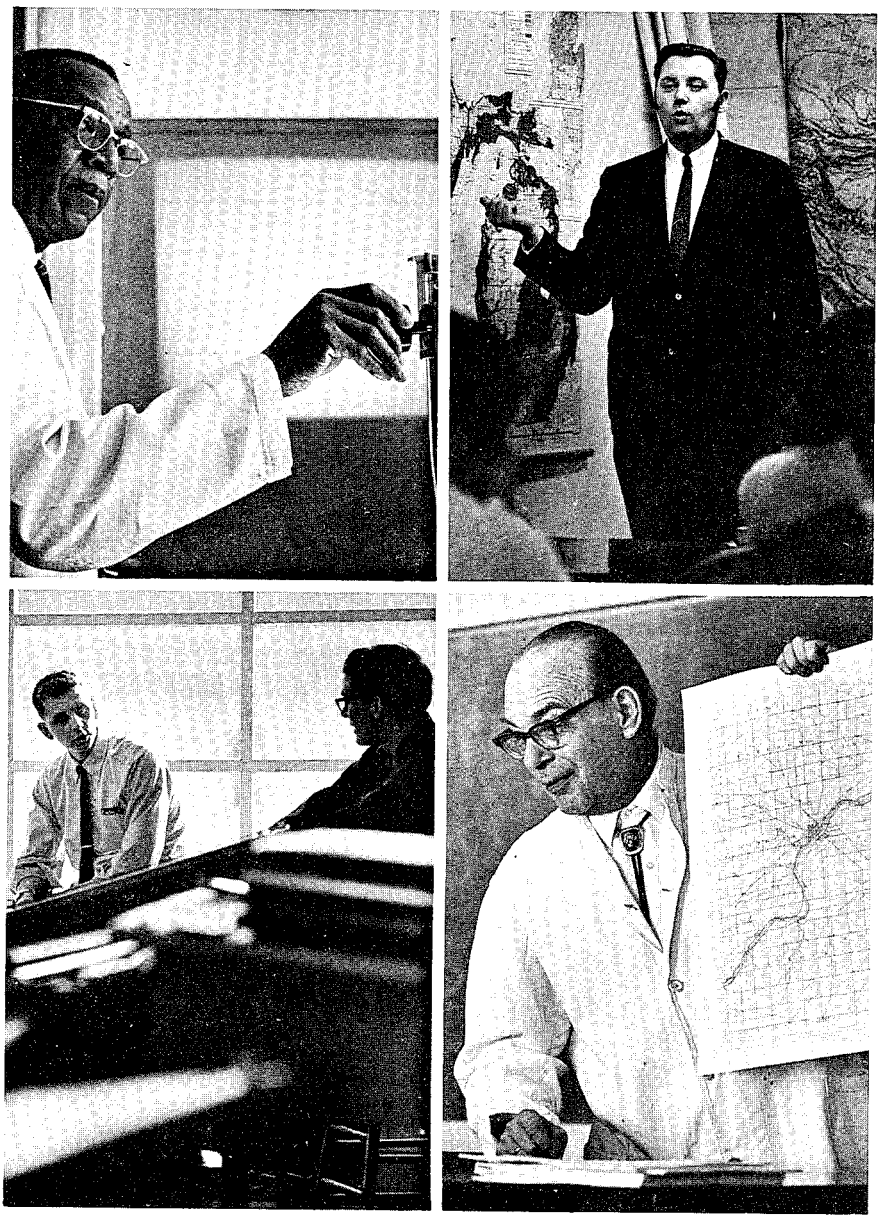
Employment Opportunities: Technician in a fabrication shop or experimental laboratory. Manager trainee or technician in an automotive maintenance center of a business or industry where extensive repair and rebuilding is done.

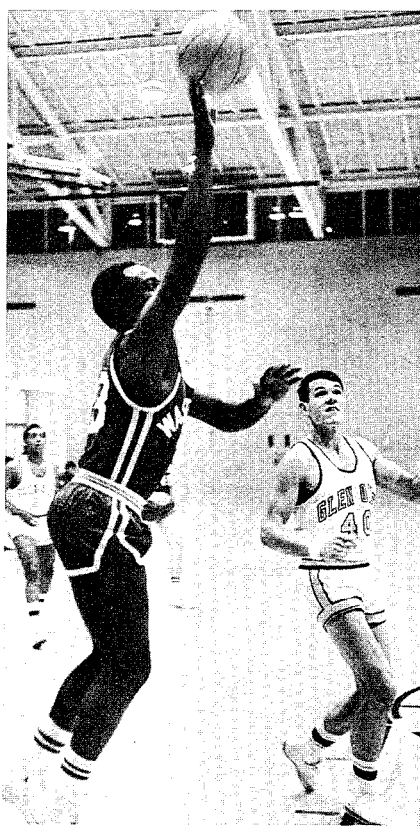
Total Credit Hours for Program 62

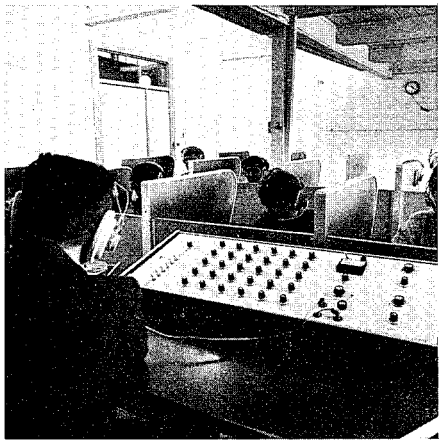




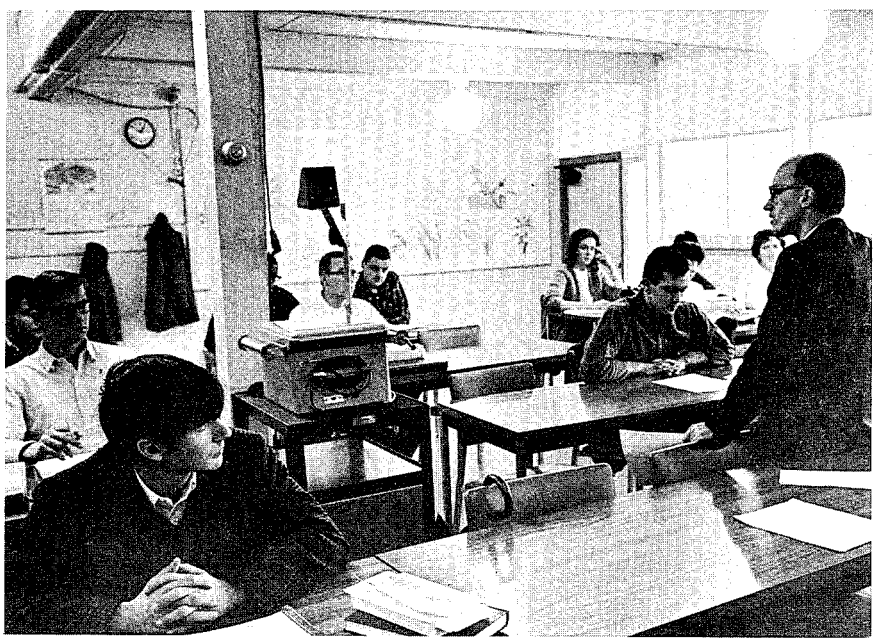
COURSE DESCRIPTIONS







DIVISION OF COMMUNICATION ARTS



199 On-the-Job Training (OJT) .....1-6 credit hours

Washtenaw Community College provides students in both General and Occupational programs an oportunity to earn credits while engaged in supervised and usually subsidized work experience directly related to the educational or occupational objective of the student. Students who plan on enrolling for OJT credit must first review their plans with their academic advisor and the appropriate divisional director and then secure the director's permission. OJT credits may be applied to the Certificate of Achievement or the Associate Degree. No more than twelve credit hours of supervised work experience may be applied to the associate degree requirements and no more than six for a certificate of achievement. Students in certain health occupations should elect Clinical Practice under the direction of the Health Occupations divisional director. Students in certain business programs should check with the Business and Industrial Management divisional director for options under the internship-externship offerings.

ART

111 Basic Drawing .....3 credit hours

This beginning course in drawing explores the basic problem of observation (training the eye to see) and articulation (training the hand to express what is seen) through pencil, charcoal, pen and ink studies. (6 hours per week)

122 Basic Drawing .....3 credit hours

A continuation of Basic Drawing 111, this course offers further exploration into the techniques of drawing. Several new media are introduced. (6 hours per week)

140 Intermediate Drawing .....3 credit hours

Prerequisite: Basic Drawing or permission of instructor.

Further exploration and experimentation with drawing as a means of expression. Emphasis is on conceptual development and graphic communication through figure drawing. (6 hours per week)

112 Basic Design .....3 credit hours

Two-dimensional problems in design and composition. Exploration of the elements of design, such as line, form, texture, and color, using a wide variety of media. (6 hours per week)

123 Basic Design .....3 credit hours

Prerequisite: Basic Design 112

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

114 Painting .....3 credit hours

Prerequisite: Basic Drawing 111 and Basic Design 112

Development of painting skills exploring a wide range of expression based on still life, landscape, and the human figure. (6 hours per week)

125 Painting .....3 credit hours

Prerequisite: Painting 114

A continuation of Painting 114, with emphasis on developing an individual painting style. (6 hours per week)

130 Art Appreciation .....3 credit hours

An inquiry into ways that art reveals experiences, works of art in various forms (painting, sculpture, and architecture) which exemplify major cultural patterns from ancient times to the present will be studied. The student will be encouraged to evolve his own critical perception of art. (3 hours per week)

ENGLISH

030 Writing Workshop .....3 credit hours

This course is for students deficient in the basic writing skills. Primary emphasis is placed on writing intelligible sentences and paragraphs. Students are given individual instruction. (3 hours per week)

Reading Laboratory .....Non-credit

The laboratory is designed to help improve the student's reading and learning skills. Students enrolled in reading classes are encouraged to use the laboratory regularly during the semester. Those not enrolled in reading classes can be referred for individual help.

040 Reading .....3 credit hours

The aim of this course is to provide the remedial reader with basic reading skills. A program of instruction is individually designed for each student based on his diagnostic reading test and a personal interview. (3 hours per week)

050 Reading .....3 credit hours

Prerequisite: Permission of instructor.

This course is designed for the competent student interested in improving his study skills, reading speed, and comprehension. Reading techniques appropriate to academic materials are stressed. (3 hours per week)

091 English Fundamentals .....3 credit hours

This course is designed to provide the occupational student with an adequate and practical background in kinds of writing necessary in his chosen field. The course is tailored to the specific needs of each student. English Fundamentals 091 is in no way remedial for English Composition 111. (3 hours per week)

137 American Studies .....3 credit hours

This course is designed to acquaint the student with a variety of literature—literature in the broadest sense—which reflects the spirit, anxieties, and aspirations of the American people. Whenever appropriate, excursions into related arts and media will be made. (3 hours per week)

100 Technical Communications .....3 credit hours

This course provides the student with the skills to communicate by means of writing, speaking, and demonstration, and is designed primarily for those studying to be technicians in industry, the health occupations, and business.

In addition to improving writing and speaking skills of a technical nature, the student will learn the methods of reporting factual information through the analysis of problems and events related to his technical specialty. The 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 are all parts of this course. (3 hours per week)

200 Business Communication .....3 credit hours

A course to develop the student's oral and written communication skills as they relate to business and/or industrial enterprise. Emphasis is placed upon the social and psychological aspects and the public relations function of business communication, along with its prime purpose of transmission of information and persuasion. The student develops an awareness of the importance of clarity, conciseness, accuracy, and apropriateness of tone in all types of business communication—oral and written. Includes business correspondence and business reports, and the gathering, preparation, organization, and presentation of data. (3 hours per week)

111 English Composition .....3 credit hours

English Composition 111 and 122 constitute a sequence designed for students who intend to transfer to senior colleges and universities. The student will write both in-class and outside themes frequently. Reading materials will serve as the basis for these themes and for classroom discussions. (3 hours per week)

122 English Composition .....3 credit hours

Prerequisite: English Composition 111.

A continuation of English Composition 111, during which a full-length research paper will be written and additional literary materials introduced. (3 hours per week)

160 Introduction to Literature: Poetry and Drama .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

An introduction to the study of poetic and dramatic literature, this course is designed to give an understanding of literature through close reading and discussion of selected works of poetry and drama. (3 hours per week)

170 Introduction to Literature: Short Story and Novel ..3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A companion course to Introduction to Literature: Poetry and Drama 160. In both, encouragement will be given to the student to evolve his own criteria for assessing the value of a literary work. (3 hours per week)

210 Children's Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A general survey of the prose, poetry and illustrated books suitable for the elementary grades. Required by most institutions of students entering elementary education. Also for those in library studies or work, or useful as a general education course for parents. (3 hours per week)

211 American Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A study of our nation's literature from the beginnings to the Civil War, stressing the major authors of the period. (3 hours per week)

222 American Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A continuation of American Literature 211, covering the period from the Civil War to the present. (3 hours per week)

212 English Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A study of English literature from the Anglo-Saxon period through the eighteenth century. Readings stress the major authors from Chaucer to Johnson. (3 hours per week)

223 English Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

English literature continued. A study of representative writers of the Romantic, Victorian, and Modern periods. (3 hours per week)

213 World Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

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. (3 hours per week)

224 World Literature .....3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111.

A continuation of World Literature 213, the second part of this sequence offers a detailed study of some of the great literary experiences since the Renaissance and attempts to show how they have contributed to our present cultural heritage. (3 hours per week)

270 Creative Writing .....3 credit hours

Prerequisite: Permission of instructor or division.

A course in the fundamentals of creative writing through the analysis of various forms of writing and frequent written exercises in fiction, poetry, and basic playwriting. While the student is encouraged to develop writing skills according to his own interests and abilities, the course is based on the assumption that an understanding of the skills involved in creative writing will also make the student a better reader of the masterpieces of poetry, fiction, and drama. This course is also designed for adults who are seeking an avocation in creative writing, and are interested in learning the fundamentals of the craft. (3 hours per week)

JOURNALISM

100 Journalism Practicum .....1 credit hour

Students interested in working on the staff of the college publications do so under the direction of the publications advisor. This course may be repeated for credit up to a maximum of four times. (2 hours per week)

111 Introduction to Mass Communications and Elementary Reporting .....3 credit hours

A survey of mass communications, this course is also an introduction to news reporting and writing techniques. Members of the class serve on the college newspaper (THE VOICE) staff. (3 hours per week)

222 Advance News Writing and Editing .....3 credit hours

Prerequisite: Introduction to Mass Communications 111 or equivalent or permission of instructor.

This course includes advanced news writing and reporting techniques—depth reporting, and editing—copyreading, headline writing, and page make-up. Members of the class serve on the college newspaper (THE VOICE) staff for reporting and editing practice. (3 hours per week)

FOREIGN LANGUAGES

111 First Year French .....4 credit hours

This course is designed for those who are beginning, or who wish to review their foreign language study. Emphasis is on the oral-aural approach. (5 hours per week)

122 First Year French .....4 credit hours

Prerequisite: French 111.

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. (5 hours per week)

111 First Year Spanish .....4 credit hours

This is a beginning course in Spanish and stresses the spoken language through practice in the language laboratory. (5 hours per week)

122 First Year Spanish .....4 credit hours

Prerequisite: Spanish 111.

The work begun in Spanish 111 is continued, with additional stress on readings and class conversations. (5 hours per week)

213 Second Year French .....4 credit hours

Prerequisite: French 122 or permission of instructor.

Advanced conversations and readings emphasize several cultural aspects of the language and continue the work done in French 111 and 122. Students with good high school backgrounds in French may be eligible for admission to this course without having taken French 111 and 122. (5 hours per week)

224 Second Year French .....4 credit hours

Prerequisite: French 213 or permission of instructor.

This is a continuation of French 213. Short-wave broadcasts and language laboratory practice augment the oral-aural method. (5 hours per week)

213 Second Year Spanish .....4 credit hours

Prerequisite: Spanish 122 or permission of instructor.

This course is designed for those who have good backgrounds in Spanish, and who wish to continue their study of the language. (5 hours per week)

224 Second Year Spanish .....4 credit hours

Prerequisite: Spanish 213 or permission of instructor.

A continuation of Spanish 213, with advanced readings and conversations, and more attention to Spanish culture. (5 hours per week)

MUSIC

130 Band .....1 credit hour

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

140 Chorus .....1 credit hour

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

150 Basic Musicianship .....2 credit hours

This course is designed to give the prospective school teacher singing, music reading, and theory experience in the elements of music. It acquaints the student with concepts of rhythm and tonality, with the aim of developing musical skills and understanding. (2 hours per week)

160 Music Appreciation .....3 credit hours

An introduction to music, the aim of this course is to acquaint the student with the major works of music through recordings. Presentations will deal with the rudiments of music, their function in a variety of works, different styles, and the growth and development of musical forms. (3 hours per week)

SPEECH

030 Developmental Speech .....2 credit hours

Improvement of vocabulary, spoken grammar, pronunciation, and articulation. Critical treatment of individual speaking problems. Prerecorded practice tapes for student use with a tape recorder. The language laboratory will be used when needed. If a student elects Writing Workshop 030 or Reading 040, and intends to take Fundamentals of Speaking 100, he must take Writing Workshop 030 as a prerequisite. (4 hours per week)

100 Fundamentals of Speaking .....3 credit hours

Instruction in essential speech processes and skills is offered. Organization of speeches and effective delivery will be studied through the use of practical problems. (3 hours per week)

139 Oral Interpretation of Contemporary Literature ...3 credit hours

This is a companion course to American Studies 137 (English). The literature discovered and discussed in American Studies 137 will be used as the principal text for this course, but no limitations will be placed on the preparation of reading programs by the student. Original works will be encouraged. No previous speech experience is expected or required. The course will help the student to discover and develop the natural expressive powers of his voice. The sound laboratory will be used for rehearsal and individual coaching. (3 hours per week)

185 An Introduction to Public Speaking and Debate ..3 credit hours

Prerequisite: Fundamentals of Speaking 100.

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. (3 hours per week)

186 Forensics—Debate .....1 credit hour

Prerequisite: Fundamentals of Speaking 100.

Students interested in competition debate will be given the opportunity to debate other collegiate novice debate teams in the immediate area. There will also be opportunities for tournament debating. May be repeated for credit. (2 hours per week)

187 Oral Interpretation of Literature .....3 credit hours

Prerequisite. Fundamentals of Speaking 100.

Extensive practice in reading aloud for contemporary communication situations. The course concentrates on effective oral communication of the written word in such forms as news stories, reports, advertising, poetry, and other forms of literature in various speaking situations including use of the public address system and tape recording. This course, formerly known as Modern Communication Skills, should not be confused with Oral Interpretation of Contemporary Literature 139. (3 hours per week)

191 Basic Acting and Directing .....3 credit hours

Prerequisite: Fundamentals of Speaking 100.

Acting as a speech experience, developing confidence, emotional perception, and an objective appraisal by the average student of his own special speech talents. Through the performance of dramatic roles the second-semester speech student achieves a greater freedom of movement and vocal variety in any public situation. It also provides the fundamentals of theatre work for the student who would like to continue his experience through local community theatre. (3 hours per week)

192 Basic Staging .....3 credit hours

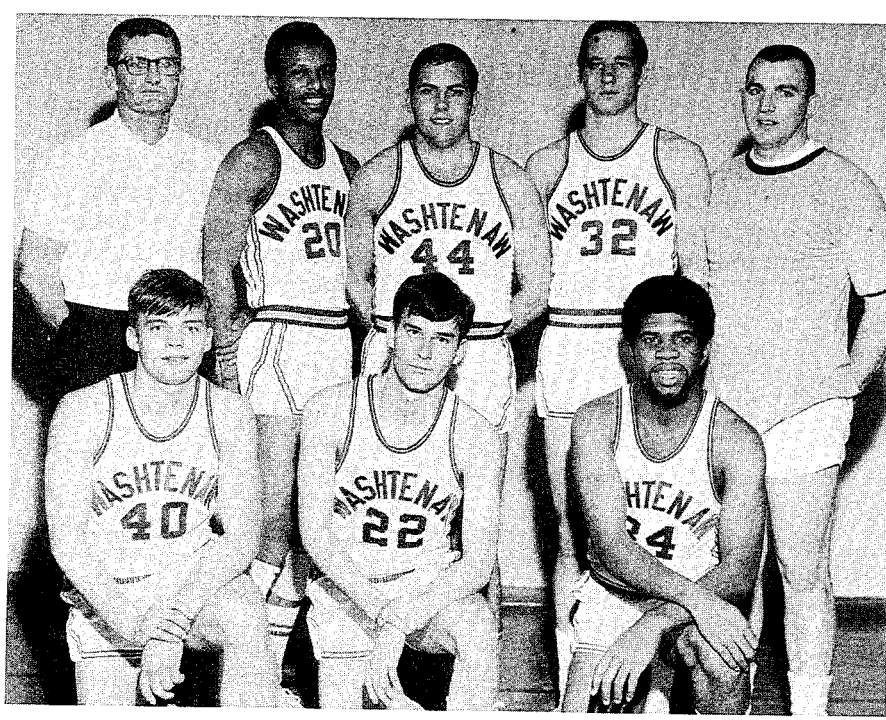
Prerequisite: Fundamentals of Speaking 100.

Make-up; lighting, costuming; set design; the history of the theatre building from the Greeks to the present. (3 hours per week)

195 An Introduction to Broadcasting .....3 credit hours

Prerequisite: Fundamentals of Speaking 100.

The history of broadcasting in the United States with emphasis on the formation of the FCC and the development of public regulation of broadcasting. Broadcasting organization from the local station to the network. Radio and television studios, their equipment and operation. (3 hours per week)



HEALTH, PHYSICAL EDUCATION, AND RECREATION

110 Principles of Safety .....2 credit hours

Stress is 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. (2 hours per week)

120 Healthful Living .....3 credit hours

Should develop in each student the responsibility for guiding and evaluating his own health. Promotes the acquisition of attitudes, habits, skills, and ideas favorable to efficient and healthful living. Includes material and information concerning mental, physical, social well-being. (3 hours per week)

130 Standard American Red Cross First Aid .....2 credit hours

Outlined by the American Red Cross, this course consists of lectures, textbooks, and practice work in first aid. A certificate is awarded to each student completing the course. (2 hours per week)

137 Techniques of Officiating—(men) .....2 credit hours

The course consists of a study of the rules and techniques involved in officiating various interscholastic sports. The official's duties, personal characteristics, relationship with coaches and school administrators will be emphasized. The course will consist of classroom and laboratory experiences. Practical experience will be gained by officiating in intramural games, intercollegiate meets and scrimmages. (2 hours per week)

147 American Red Cross Swimming and Life Saving ..2 credit hours

The course will consist of instruction and practice in swimming the front crawl, sidestroke, elementary backstroke and breaststroke. Rescue procedures and various methods of resuscitation will be stressed. An American Red Cross Senior Life Saving Certificate will be awarded after successfully completing the course. (2 hours per week)

PHYSICAL EDUCATION ACTIVITY COURSES

The importance of physical education activity classes lies in their contribution to such educational objectives as organic development, neuromuscular coordination, and social efficiency. For students intending to transfer to a four-year institution, twelve activity hours will be required during the four-year college career.

111 Physical Education .....3 activity hours

Participation and instruction in such activities as basketball, soccer, and touch football.

122 Physical Education .....3 activity hours

Participation and instruction in such activities as gymnastics, softball, volleyball, and track.

100 Conditioning Activities .....2 activity hours

106 Wrestling and Judo .....2 activity hours

107 Archery and Golf .....2 activity hours

108 Badminton and Tennis .....2 activity hours

109 Bowling .....1 activity hour

140 Swimming .....2 activity hours

141 Cross Country .....2 activity hours

150 Varsity Tennis
(Prerequisite: Permission of Coach) .....3 activity hours

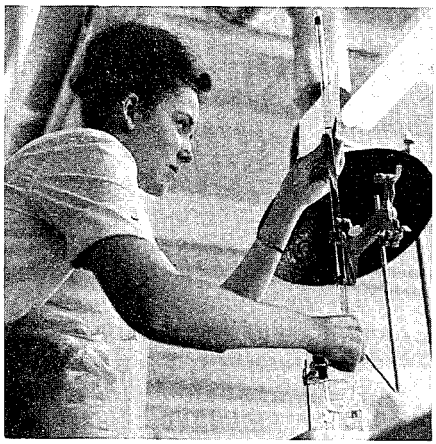
151 Varsity Basketball
(Prerequisite: Permission of Coach) .....3 activity hours

160 Varsity Track and Field
(Prerequisite: Permission of Coach) .....3 activity hours

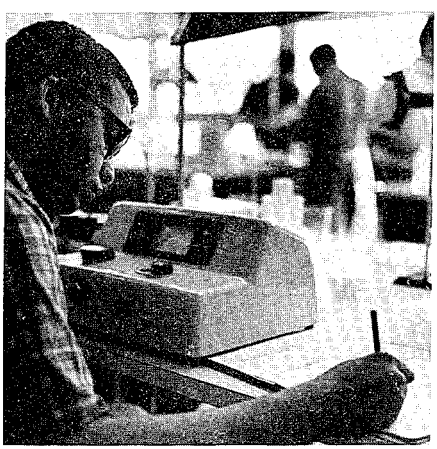
172 Varsity Wrestling
(Prerequisite: Permission of Coach) .....3 activity hours

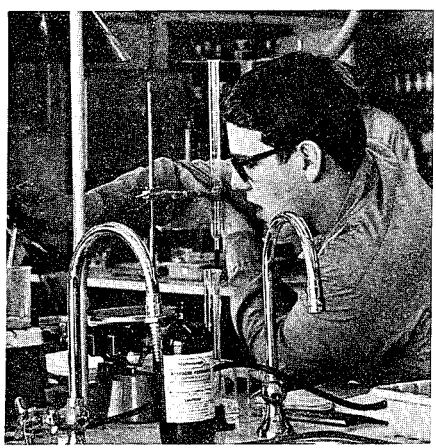
182 Varsity Baseball
(Prerequisite: Permission of Coach) .....3 activity hours

192 Varsity Golf
(Prerequisite: Permission of Coach) .....3 activity hours



DIVISION OF EXACT SCIENCES





199 On-the-Job Training (OJT) .....1-6 credit hours

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BIOLOGY

Prior to or concurrent with his first science course, the student is urged to elect Mathematics, Notational Systems 10.

111 Concepts of Biology .....4 credit hours

Prerequisite: One high school science course or Introductory Chemistry 057.

Intended for non-science students but essential for biology majors. A survey of the principles coupled with a detailed study of the major concepts of biology with emphasis on intermediate metabolism, DNA, RNA, population interactions, embryology, and genetics. Involved are three hours of lecture and four of laboratory. (7 hours per week)

122 General Biology .....4 credit hours

Prerequisite: Concepts of Biology 111.

Intended as a second science course for non-biological majors. Biological principles are applied to higher life forms including man. Modern biology is included in both the three lecture hours and the four laboratory hours. (7 hours per week)

127 Botany .....4 credit hours

Prerequisite: Concepts of Biology 111

A field and laboratory investigation of plants is carried on during the two lecture hours and four laboratory hours per week providing a detailed study of structure and function. (6 hours per week)

128 Zoology .....4 credit hours

Prerequisite: Concepts of Biology 111.

A field and laboratory investigation of the animal kingdom is carried on during the two lecture and four laboratory hours per week providing a detailed study of classification, evolutionary relationships, structure, and functions. (6 hours per week)

140 Basic Health Science .....3 credit hours

A core science course for health science students. Subject matter drawn from anatomy, physiology, bacteriology, microbiology, and pathology. Basic Health Science Laboratory 141 must be elected concurrently. (3 hours per week)

141 Basic Health Science Laboratory .....1 credit hour

A laboratory designed to accompany Basic Health Science 140 or other health area lecture courses. (2 hours per week)

151 Inhalation Therapy Science .....5 credit hours

Intended for Inhalation Therapy students only. An in-depth survey of the anatomy of the respiratory system, scientific units, chemistry, physics, and the physiology of the excretory and respiratory system with major stress on the practical applications of pure academic theory to the field of Clinical Inhalation Therapy. Involved are four hours of lecture and two hours of laboratory. (6 hours per week)

152 Inhalation Therapy Science .....4 credit hours

Prerequisite: Inhalation Therapy Science 151

A direct continuation of Inhalation Therapy Science 151 intended for Inhalation Therapy students only. Lecture will center on fluid and electrocytic balance, acid-base balance, and a brief survey of the anatomical systems which remain from the Inhalation Therapy Science 151 course. Allied laboratory sessions will investigate the fields of pharmacology, microbiology, and pathology. Involved are three hours of lecture and two hours of laboratory. (5 hours per week)

211 Anatomy and Physiology .....3 credit hours

Designed primarily for students on Health Science programs. A detailed study of the gross and microscopic structures of the skeletal, muscular, digestive, and respiratory systems stressing function to structure relations. (3 hours per week)

217 Microbiology .....5 credit hours

Prerequisite: Concepts of Biology 111.

An introduction to the study of micro-organisms in which the morphology, physiology, and immunology of these organisms are studied. (9 hours per week)

222 Anatomy and Physiology .....3 credit hours

Prerequisite: Anatomy and Physiology 211.

A continuation of Anatomy and Physiology 211 with stress on the anatomical and physiological relationships of the circulatory, excretory, reproductive, endocrine, and nervous systems. (3 hours per week)

CHEMISTRY

Prior to or concurrent with his first science course, the student is urged to elect Mathematics, Notational Systems 10.

057 Introductory Chemistry .....3 credit hours

A preparatory course for the student who has no background in high school science or algebra. This course 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 either Introductory Chemistry Laboratory 058 or General Chemistry 111. (3 hours per week)

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

Prerequisite: Introductory Chemistry 057 (May be taken concurrently).

A laboratory experience in basic chemical laboratory practices and procedures. Introductory Chemistry Laboratory 058 should be elected to accompany Introductory Chemistry 057 except for those students intending to elect General Chemistry 111. (3 hours per week)

111 General Chemistry .....4 credit hours

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

A beginning general college chemistry course which includes the laws of chemical combination, states of matter, atomic and molecular structure, bonding, and other basic principles. General Chemistry 111 has three 1-hour lectures and one 3-hour laboratory per week. (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. The accompanying laboratory will include the qualitative identification of unknown substances, and the quantitative determination of unknown substances using elementary instrumental techniques. General Chemistry 122 has two 1-hour lectures, and two 3-hour laboratory sessions per week. (8 hours per week)

211 Organic Chemistry .....3 credit hours

Prerequisite: General Chemistry 122.

A lecture course dealing with nomenclature, stereo-chemistry, and reactions of aliphatic and aromatic compounds. (3 hours per week)

218 Analytical Chemistry .....4 credit hours

Prerequisite: General Chemistry 122.

The study of quantitative separation and determination of chemical substances through the use of gravimetric, volumetric, optical, and electrometric methods. Analytical Chemistry 218 has two 1-hour lectures, and two 3-hour laboratory sessions per week. (8 hours per week)

222 Organic Chemistry .....5 credit hours

Prerequisite: Organic Chemistry 211.

A continuation of Organic Chemistry 211 involving the study of the derivatives of aliphatic and aromatic compounds. The accompanying laboratory will stress techniques used in the preparation and handling of organic compounds. Organic Chemistry 222 has three 1-hour lectures and two 3-hour laboratory sessions per week. (9 hours per week)

224 Biochemistry .....4 credit hours

Prerequisite: Organic Chemistry 211

The study of the structure, occurance, synthesis, function and metabolism of proteins, amino acids, peptides, carbohydrates, fats, nucleaic acids and enzymes from a laboratory analysis point of view. (4 hours per week)

225 Biochemical Laboratory Techniques .....4 credit hours

Co-requisite: Biochemistry 224

A study of biochemical laboratory techniques related to the isolation, purification, analysis and activity of biochemically important compounds. (6 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 use of chemical literature. (Audio-tutorial)

238 Instrumental Analysis .....6 credit hours

Prerequisite: Organic Chemistry 211 and Analytical Chemistry 218.

A course in instrumental methods of chemical analysis intended primarily for the chemical technician. Instrument design and repair will be emphasized. The accompanying laboratory will stress the operation of all of the common instrumentation of a modern chemical laboratory. Instrumental Analysis 238 has three one-hour lectures and two 4-hour laboratories per week. (11 hours per week)

EARTH SCIENCE

100 Introductory Geology .....4 credit hours

A course designed primarily 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 field trips to points of geologic interest are included in the three weekly laboratory hours. (5 hours per week)

109 Common Rocks and Minerals .....3 credit hours

Involved is the identification of rocks and minerals; the study of an area as revealed in rocks and minerals. Especially useful for prospective elementary school teachers. (3 hours per week)

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. Field trips are involved in the two hours of lecture and three hours of laboratory. (5 hours per week)

125 Historical Geology .....4 credit hours

Prerequisite: Physical Geology 114.

A study of the 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)

MATHEMATICS

010 Notational Systems .....1 credit hour

A directed study program designed for all science students, covering exponential numbers, basic operations of the slide rule, the metric system, units and dimensions, significant figures, and temperature. Intended to be taken prior to or concurrent with a first science course. Taught with programmed materials in the Mathematics Laboratory.

020 Mathematics Laboratory .....Non-credit

An opportunity for students to work on any mathematical difficulty or project under the direction and supervision of the mathematics laboratory staff. Students may avail themselves of this opportunity voluntarily or may be referred to the lab by an instructor. Each student receives an individually structured program employing programmed text material. Only students not otherwise enrolled at the College need register for this assistance. (Meeting time to be arranged.)

025 Mathematics for Parents .....2 credit hours

This course is designed to introduce the interested parent to some of the mathematical concepts now found in elementary school. The aim is to familiarize the parent with sets, number bases, properties of numbers, and measurement. (2 hours per week)

031 Developmental Mathematics .....3 credit hours

A review of mathematics involving whole numbers, fractions, decimals, percentage, sets, directed numbers, and simple equations. Diagnostic tests are utilized to determine appropriate areas of concentration for each student. When finished with above topics, students may study supplementary units preparatory to introductory algebra or continue immediately to Foundations of Occupational Mathematics 092. Taught with programmed text material in the Mathematics Laboratory. (4 hours per week until completed)

032 Developmental Mathematics .....3 credit hours

Prerequisite: Developmental Mathematics 031—open only on recommendation of instructor.

A continuation of Developmental Mathematics 031 for any student requiring additional time to complete the course requirements. A student in this case receives deferred credit for Developmental Mathematics 031 until completion of Developmental Mathematics 032.

040 Introductory Algebra .....4 credit hours

Prerequisite: Developmental Mathematics 031 or proficiency examination.

Intended for the student who has not had beginning (first year) algebra or who needs review. An introduction to the basic concepts including sets, properties of the real number system, operations on algebraic expressions, relations and functions, solution and graphing of linear and quadratic equations and inequalities, and systems of equations. (5 hours per week)

051 Applied Introductory Algebra .....4 credit hours

Prerequisite: Developmental Mathematics 031 or arithmetic proficiency examination

A treatment of algebra designed to meet the mathematical needs

of technical and vocational students. Includes a study of basic properties of real numbers, measurement, linear and quadratic equations, areas, volumes, graphs, strength of materials, work and power, tapers, gears, and screw threads. Emphasis is placed on justifying rules and procedures. Machine and building trade applications are utilized. (5 hours per week)

052 Applied Geometry .....3 credit hours

Prerequisite: Applied Introductory Algebra 051 or Introductory Algebra 040 or proficiency examination (equivalent to one year of high school algebra).

This course, presented as a logical structure incorporating undefined and defined terms, axioms and theorems, emphasizes the analysis of plane and solid geometric figures. The use of constructions, as a means of their Euclidean implications, is stressed. (3 hours per week)

053 Applied Trigonometry .....3 credit hours

Prerequisite: Applied Introductory Algebra 051 or Introductory Algebra 040 or proficiency examination

This course emphasizes the application of the principles of right and oblique triangulation to the solution of tool and machine problems. In addition, five basic types of polyhedrons are treated in terms of the trigonometric analysis of the face angles. (3 hours per week)

092 Foundations of Occupational Mathematics .....3 credit hours

Prerequisite: Developmental Mathematics 031 or proficiency examination.

Intended for the business, technical and vocational, or health science student to provide concepts and practical computational skills that are commonly encountered in occupational usage. The course is comprised of programmed units in practical algebra, percent application, ratio and proportion, graphing, statistics, metric system, geometry, and numeration. An attempt is made to individualize the course depending on the student's course of study. Course is conducted in the Mathematics Laboratory. (4 hours per week until completed)

101 Integrated Mathematics .....3 credit hours

Prerequisite: Introductory Algebra 040 or equivalent (one year of high school algebra).

Intended for the non-mathematics-science transfer student desiring an insight into the development of mathematics and its role in the evolution of our culture. Content is drawn from: arithmetic, algebra, geometry, probability and statistics. (3 hours per week)

102 Integrated Mathematics .....3 credit hours

Prerequisite: Integrated Mathematics 101 or permission of instructor.

A continuation of the study begun in Integrated Mathematics 101. (3 hours per week)

107 Principles of Elementary Mathematics .....3 credit hours

Designed to familiarize the teacher aide with the content and methodology of mathematics as currently taught in the elementary school. Primary emphasis will be on understanding the mathematics with appropriate attention to methodology through demonstration and discussion. (3 hours per week)

109 Algebra and Trigonometry .....4 credit hours

Prerequisite: Either Introductory Algebra 040, or Applied Introductory Algebra 051, or proficiency examination. (Equivalent to one year high school algebra.)

The course is designed both to develop necessary skills for the engineering, scientific or vocational student and to provide the background for further work in mathematics. Major content areas are: real numbers, relations and functions, lines and planes, quadratic equations, complex numbers, trigonometric functions, trigonometric sentences, polynomial functions, exponents and logarithms, sequences and series, probability, and applications. (4 hours per week)

109-A Algebra and Trigonometry .....3 credit hours

Prerequisite: Either Introductory Algebra 040, or Applied Introductory Algebra 051, or proficiency examination. (Equivalent to one year high school algebra)

The first half of Algebra and Trigonometry 109 covered at a slower

pace and with additional material on directional numbers and quadratic equations. (3 hours per week)

109-B Algebra and Trigonometry .....3 credit hours

Prerequisite: Algebra and Trigonometry 109-A or proficiency examination (equivalent to 1½ years of high school algebra).

The second half of Algebra and Trigonometry 109 covered at a slower pace and with additional material on trigonometry. (3 hours per week)

111 Mathematical Analysis .....4 credit hours

Prerequisite: Algebra and Trigonometry 109 or proficiency examination (equivalent to two years of high school algebra).

This course serves as a college level algebra course and is designed to provide the background for a solid study of calculus and analytic geometry. A study of the abstract nature of mathematics including sets, implications, methods of proof, number systems, mathematical induction, binomial theorem, vectors, matrices, determinants, inequalities, relations, algebraic and transcendental functions, trigonometric functions of a real variable, and graphing. (4 hours per week).

122 Calculus with Analytic Geometry .....5 credit hours

Prerequisite: Mathematical Analysis 111 or consent based on a good record in three years of high school mathematics including algebra, geometry, and trigonometry.

Intended for the transfer student who plans to major in mathematics, science, or engineering. Includes limits, continuity, differentiation and integration of algebraic functions, and applications. (5 hours per week)

127 Trigonometry .....3 credit hours

Prerequisite: Algebra and Trigonometry 109, or proficiency examination (equivalent to two years of high school algebra.)

Designed for the student who needs further study of trigonometry for physics, engineering, or technical courses, or for the student with a strong mathematical background from high school but who has not had any trigonometry. Major content areas include sets, relations,

functions, trigonometric functions of angles, solutions of triangles, graphs of circular functions, and trigonometric identities and equations. Taught in the Mathematics Laboratory using programmed text material. (4 hours per week until completed)

128 Basic Statistics .....4 credit hours

Prerequisite: Introductory Algebra 040 or proficiency examination (equivalent to one year of high school algebra).

A basic course for students in Business Administration, Education, Psychology, Social Science, Engineering, and in all other fields in which measurements and predictions are made. Includes an elementary study of the tabulation of data, graphic representation, measures of central tendency and dispersion, probability, types of distributions, sampling, hypothesis testing, and elementary aspects of correlation. (4 hours per week).

130 Scientific and Technical Programming .....4 credit hours

A course in Fortran programming and basic mathematical techniques suitable for use with computers. Other computer languages are touched upon and some attention is given to numerical control. Selected programs will be written, compiled, and executed by the student. Suitable for both vocational and science students who will need to use mathematics and computers as tools of their professions. Both lecture and laboratory time are involved. (5 hours per week)

213 Calculus with Analytic Geometry .....5 credit hours

Prerequisite: Calculus with Analytic Geometry 122 or equivalent.

A continuation of Calculus with Analytic Geometry 122. The major topic areas are functions, hyperbolic functions, exponential functions, vector functions, parametric equations, polar coordinates, arc length, curvature and techniques of integration. (5 hours per week)

224 Calculus with Analytic Geometry .....5 credit hours

Prerequisite: Calculus with Analytic Geometry 213 or equivalent.

A continuation of Calculus with Analytic Geometry 213. Includes extensive applications of differentiation and integration, differential equations, volumes of solids of revolution, areas of surfaces of revolution, partial differentiation, multiple integrals and series. (5 hours per week)

229 Introduction to Numerical Anaylsis .....3 credit hours

Prerequisite: Calculus with Analytic Geometry 213 and Scientific and Technical Programming 130.

An introduction to mathematical methods applicable to the digital computer including finite differences, numerical integration and differentiation, solution of linear and non-linear equations, and solution of ordinary differential equations with initial conditions. This course will also include the writing and executing of programs involving these methods. (3 hours per week)

237 Finite Mathematics for Business .....3 credit hours

Prerequisite: Introductory Algebra 040 or proficiency examination (equivalent to one year of high school algebra).

Especially suited to student intending to continue with further training in the business area. Topics covered include sets, logic, probability, matrices, linear programming, and theory of games. (3 hours per week)

PHYSICS

Prior to or concurrent with his first science course, the student is urged to elect Mathematics, Notational Systems 010.

091 X-Ray Physics .....3 credit hours

Provides the student with both specialized information on X-ray equipment and the theoretical background to make it meaningful. Covered are: fundamentals of electrical and radiation physics and the basic principles underlying the operation of X-ray equipment and auxiliary devices. This is a lecture course with no laboratory. (3 hours per week)

092 X-Ray Physics .....3 credit hours

Prerequisite: X-ray Physics 091

A continuation of X-ray Physics 091, with emphasis on construction and operation of X-ray equipment. (3 hours per week)

111 Introductory Physics .....4 credit hours

Prerequisite: Introductory Algebra 040 or Applied Introductory Algebra 051.

Designed for both liberal arts and vocational students who have had no previous physics course. The course surveys the major topics of physics: mechanics, heat, wave motion, electricity, light and atomic theory. A three-hour laboratory each week enables students to learn first-hand the use of basic scientific instruments and the skills of the research scientist. If transfer credit in college physics is desired, this course must be followed by General Physics 122. (6 hours per week)

122 General Physics .....4 credit hours

Prerequisite: Algebra and Trigonometry 109 and either Introductory Physics 111, Physical Science 145, or a year of high school physics.

Building on the basic concepts covered in Introductory Physics 111, this course extends the methods of physics to more advanced problems, such as the complex motions of projectile and satellites, the operation of optical devices such as telescopes, spectrometers and lasers, and the application of electrical theory to the design of meters, motors and atomic accelerators. The evidence for the various models of the atom is examined both in the laboratory and by lectures and demonstrations. This course and the following ones are designed to minimize duplication with the preceding course so that a student may elect from one to four semesters of physics, each course presenting a balanced study of the major topics of physics at successively higher levels. Three hours of laboratory and three hours of lecture and recitation. (6 hours per week)

142 Physical Science .....4 credit hours

A survey course designed for students in the health sciences. Topics drawn from physics, chemistry, and biochemistry will illustrate the methods scientists use to solve problems. A two-hour laboratory each week emphasizes the development of skills such as accurate observation, evaluation, experimentation, and reporting. The

laboratory groups are sectioned by program while the three lecture hours are common to all programs. (5 hours per week)

145 Physical Science .....4 credit hours

Prerequisite: Introductory Algebra 040 or Applied Introductory Algebra 051

This course shows science as a human activity, influencing and being influenced by society. With case studies drawn from the history of physics and astronomy, students will learn how men such as Copernicus, Galileo, Newton, and Maxwell have helped shape modern thought. In a two-hour laboratory section each week students will learn to evaluate the evidence these men used to develop their theories. Three hours of lecture and recitation. (5 hours per week)

211 Analytical Physics .....5 credit hours

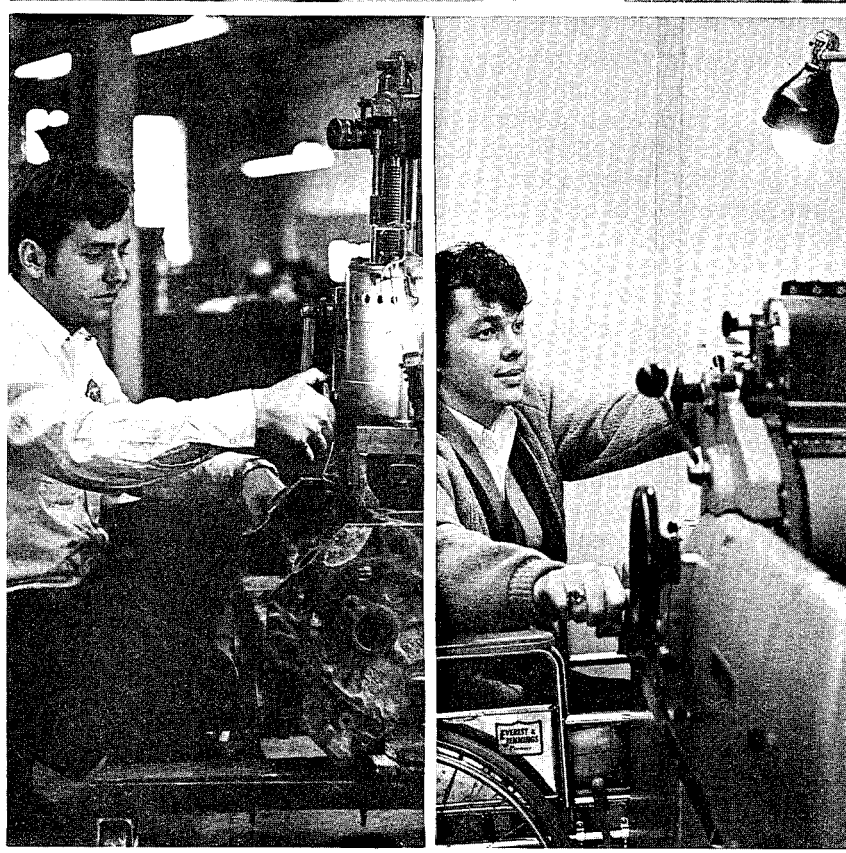
Prerequisites: Calculus with Analytic Geometry 122 and General Physics 122 or equivalent.

For students with a background in general physics who wish to major in science or engineering, analytical physics uses the tools of the calculus to develop a mathematical description of the universe. This course and the following one are designed to minimize duplication with the preceding course so that a student may elect from one to four semesters of physics, each course presenting a balanced study of the major topics of physics at successively higher levels. Special topics include angular and periodic motion, gyroscopes, thermodynamics, AC circuits, and relativity. Three-hour laboratory plus four lecture-recitation hours. (7 hours per week)

222 Analytical Physics .....5 credit hours

Prerequisite: Analytical Physics 211.

For students planning to major in engineering or physics, this course continues to develop mathematical models of physical phenomena. Maxwell's theory of electromagnetism and the wave-particle nature of matter are examples of topics to be discussed. Three-hour laboratory plus four hours of lecture and recitation. (7 hours per week)



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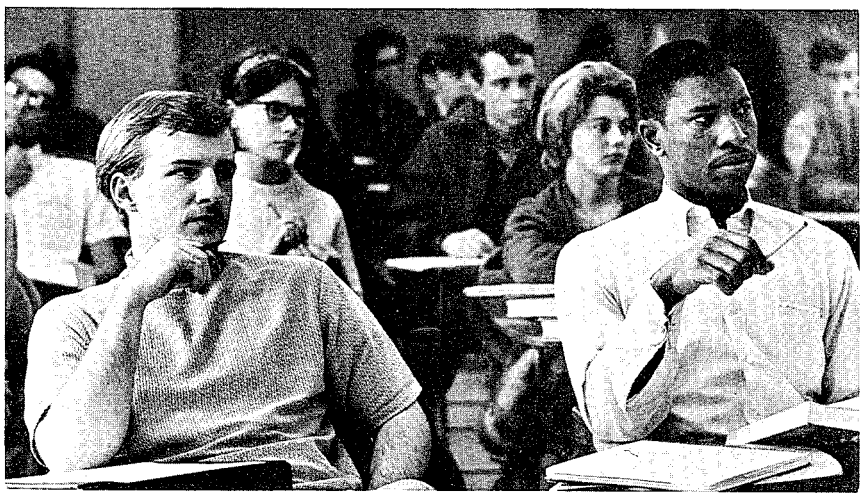
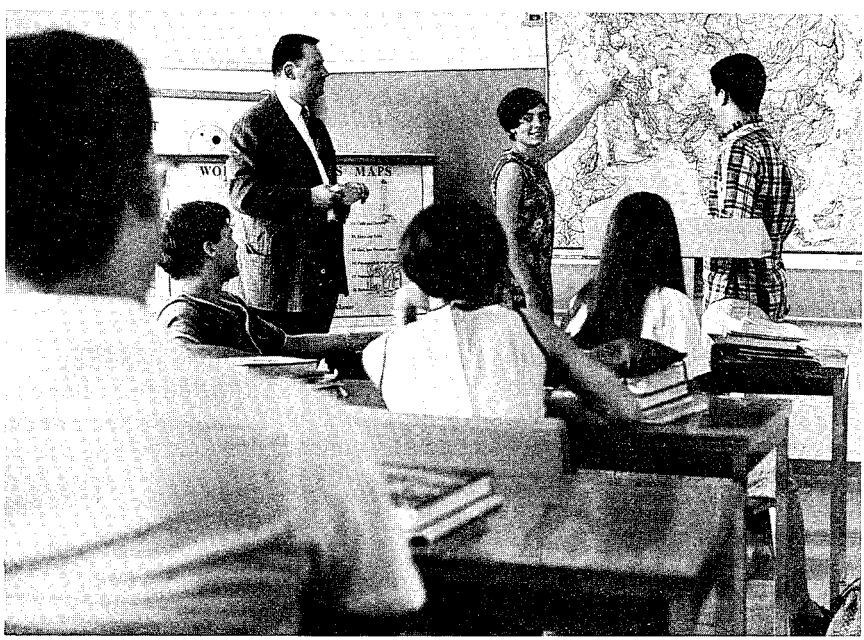




199 On-the-Job Training (OJT) .....1-6 credit hours

Washtenaw Community College provides students in both General and Occupational programs an opportunity to earn credits while engaged in supervised and usually subsidized work experience directly related to the educational or occupational objective of the student. Students who plan on enrolling for OJT credit must first review their plans with their academic advisor and the appropriate divisional director and then secure the director's permission. OJT credits may be applied to the Certificate of Achievement or the Associate Degree. No more than twelve credit hours of supervised work experience may be applied to the associate degree requirements and no more than six for a certificate of achievement. Students in certain health occupations should elect Clinical Practice under the direction of the Health Occupations divisional director. Students in certain business programs should check with the Business and Industrial Management divisional director for options under the internship-externship offerings.

ANTHROPOLOGY

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 each religion plays in a specific culture. (3 hours per week)

200 Introduction to Anthropology .....3 credit hours

Introduction to the principal fields of anthropological study and fundamental concepts in terms of their concern with the nature of man as it is revealed in his development of culture. (3 hours per week)

ECONOMICS

050 Personal Finance .....3 credit hours

A basic economics course covering cost of establishing and maintaining a household, problems of consumer credit; installment buying; taxes; major costs of families; basic economic principles, insurance, stocks and bonds, mortgages; social security, Medicare, and other topics. (3 hours per week)

150 Labor Relations .....3 credit hours

Our changing labor force, development, structure, and philosophy of U.S. unionism. Collective bargaining; bargaining power and the role

of the strike; union-management issues, public labor policies. The economics of labor market; comparison with foreign labor movements; operation of labor market; productivity and wages; economic development and the role of the labor force. (3 hours per week)

207 Basic Economics Principles .....4 credit hours

A one-semester college-transfer course intended for liberal arts and pre-professional students who will take only one course in economics. It is not intended for economics or business majors. Will provide the student with a framework for more systematic thought about economic matters. Areas studied include: nature and scope of economics, essentials of income data, prices, income, employment, distribution of income, role of the banking system, business fluctuations, economic growth, the functioning of the American economic system and alternate economic systems. (4 hours per week)

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. (3 hours per week)

222 Principles of Economics .....3 credit hours

Prerequisite: Successful completion of 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. (3 hours per week)

GEOGRAPHY

101 Introduction to Geography .....3 credit hours

Geographic principles underlying the patterns of man's activities on the earth's surface. Systematic geography. (3 hours per week)

150 Urban Geography .....3 credit hours

Deals with the spatial aspects of urban development. Primarily the focus is upon cities. This focus is broadened to include all areas that are sufficiently city-like in housing density and land use charac-

teristics to be referred to as urban. Includes analysis of comprehensive city and regional planning as related to land use. (3 hours per week)

200 Michigan: Geography and History .....3 credit hours

A comprehensive survey of the various types of natural resources and regions within the state and of the cultural adjustment man has made to natural conditions. Special emphasis will be placed on points of history with geographic interest. The economic, social, and political development of the territory is shown as a part of the history of the Great Lakes area. (3 hours per week)

208 Conservation .....3 credit hours

Analysis of the problems facing man in the conservation of water, mineral, timber, oil, gas, and the flora and fauna resources native to the United States. Implication for the future. Some emphasis to Michigan and the depletion of resources within the state as well as to methods of control. (3 hours per week)

HISTORY

101 Western Civilization to 1700 .....3 credit hours

Cultural and institutional development of the early Orient and Classical and Medieval Europe will be stressed. Students planning to transfer to a senior college are expected to take History 101 and History 102 in the freshman year. (3 hours per week)

102 Western Civilization Since 1700 .....3 credit hours

A study of cultural developments and growth of institutions from 1700 to the present. Emphasis upon the expansion of European civilization. A foundation for the understanding of contemporary world problems. (3 hours per week)

150 History of the American Black .....3 credit hours

Survey and analysis of the literature and some of the problems and interpretations of the history of the American Black from the Revolutionary War to the present. (3 hours per week)

201 United States, 1500-1865 .....3 credit hours

Introductory American history from pre-Columbian Europe to the close of the Civil War. Broad survey with emphasis on the growth of institutions and ideals as they were brought from Europe and modified and developed here. (3 hours per week)

202 United States, 1865-Present .....3 credit hours

General survey of American society and politics since the Civil War. Special emphasis on social and cultural factors as well as politics. A continuation of United States, 1500-1865 201, but no prerequisite necessary. (3 hours per week)

207 Development of American Culture
1865 to the Present .....3 credit hours

Development of American culture from the Civil War period to the present. Especially recommended for students contemplating a career in teaching, or in the social sciences. (3 hours per week)

PHILOSOPHY

101 Introduction to Philosophy .....3 credit hours

Introduction to basic philosophical principles, methods, and problems by a close study of representative philosophers. Emphasis on analytical and speculative functions. (3 hours per week)

150 Logic .....3 credit hours

Emphasis on modern methods of deductive proof and the theory of communications with applications for industry, business, and government trainees. (3 hours per week)

POLITICAL SCIENCE

108 Government and Society .....3 credit hours

Particular emphasis is placed on the nature and operation of American national and state governments. Techniques, processes, and machinery of popular control (public opinion, interest groups, parties and elections); executive, legislative, and judicial functions. Includes emphasis on social process and group patterns in society. MEETS THE MINIMUM REQUIREMENTS OF MICHIGAN LAW FOR THE ASSOCIATE DEGREE. (3 hours per week)

150 State and Local Government and Politics .....3 credit hours

Forms and functions of state and local governments in the United States; the growth of the urban community in America and consequent development of its social and political problems. The organization and process of government in the urban complex with interactions of city, town, state, and metropolitan-wide governments analyzed. Methods of studying community decision-making will be evaluated. Michigan, Washtenaw County communities, and metropolitan Detroit will be drawn upon frequently for resource material and for purposes of illustration. MEETS THE MINIMUM REQUIREMENTS OF MICHIGAN LAW FOR THE ASSOCIATE DEGREE. (3 hours per week)

200 International Relations .....3 credit hours

An introduction to the nature and problems of international politics. An examination of the development of the modern state system, nationalism and imperialism. The techniques and instruments that govern international relations, power politics, and international organization in the nuclear age are analyzed. (3 hours per week)

207 Comparative Government .....3 credit hours

An introductory comparative functional analysis of the governmental structures, institutions, and politics of modern government. Emphasis will be given to authoritarian states including: the USSR, People's China, Fascist Italy, and Nazi Germany and to Democratic states including: Great Britain, France, West Germany, and The Republic of Italy. Introductory analysis of the dynamics of political behavior in the developing societies will be included in the course. (3 hours per week)

209 Contemporary Political Ideologies—The Isms ....3 credit hours

A systematic analysis of basic contemporary political ideologies. Origins and evolution of the major political theories of the modern age with particular emphasis on democracy, socialism, communism, fascism, and nationalism. (3 hours per week)

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. (3 hours per week)

PSYCHOLOGY

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 are discussed. (3 hours per week)

107 Psychology of Adjustment .....2 credit hours

Co-requisite: Sociology of Careers 107

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. Three hours of lecture and two hours of laboratory for eight weeks. (5 hours per week)

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. (3 hours per week)

150 Industrial Psychology .....3 credit hours

Includes human efficiency, workers' satisfactions, group relations. Conditions and methods of work, performance rating, attitude studies, safety training, supervision, motivation, personal adjustment, labor-management problems. (3 hours per week)

157 Counseling and Therapy Process .....3 credit hours

The techniques of counseling and therapy. Training in applications to be used under the supervision of a professional. (3 hours per week)

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 re-conditioning of behavior patterns, and the individuality and similarity of responses are developed. (3 hours per week)

200A Child Psychology Seminar .....1 credit hour

Prerequisite: Child Psychology 200.

A continuation of Child Psychology 200 for students to explore individual topics. (2 hours per week)

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 is stressed. Includes emphasis on group dynamics and sensitivity training. (3 hours per week)

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. (3 hours per week)

SOCIOLOGY

100 Principles of Sociology .....3 credit hours

Emphasis is placed on basic concepts used in an analysis of social behavior and the processes by which new members of group are oriented to prevailing patterns of behavior. A study of the process of cultural change basic to all program in social work, or advanced work in the social sciences. (3 hours per week)

107 Sociology of Careers .....2 credit hours

Co-requisite: Psychology of Adjustment 107

An examination of careers and forces changing contemporary occupational structure. Factors associated with typical career patterns

of occupations and professions. Social organization of occupational groups with emphasis on their ideology and politics. Three hours of lecture and two hours of laboratory for eight weeks. (5 hours per week)

150 Marriage and the Family .....3 credit hours

Designed for all students, the aim of the course is to promote 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. (3 hours per week)

153 Juvenile Delinquency .....3 credit hours

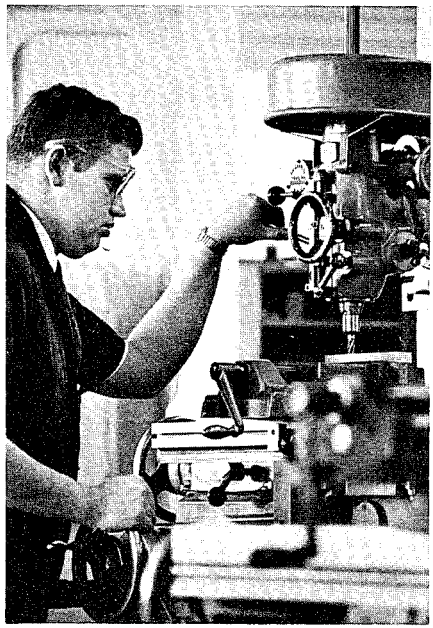
Growing up process of late childhood and adolescence from sociological and cultural viewpoint. Problems of the individual in his social environment and group forces which lead to his maladjustment and sociological principles for working with youth from the viewpoint of parent, teacher, police, and youth organization leader. (3 hours per week)

202 Criminology .....3 credit hours

An examination of the theories which attempt to explain criminal behavior. The punishment vs. rehabilitation schools of thought will be dealt with as will capital punishment. Attention will also be given to the functioning of police and court systems. (3 hours per week)

207 Social Problems .....3 credit hours

Problems of satisfying human needs and wants are considered. These include socio-psychological (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. Emphasizes cross-cultural and historical perspectives. The significance of change through time, of continuing transition to industrialism with the major theme being the disruptive disparity between the rates of technological and societary change and consequent need to cultivate sciences concerned with human behavior. (3 hours per week)




THE VOICE

DIVISION OF BUSINESS AND INDUSTRIAL MANAGEMENT OCCUPATIONS

200 Internship-Externship .....3 credit hours

Prerequisites: (Internship) Student in a two-year program must have completed minimum of one year of college, or equivalent. Student in a one-year program must have completed one semester of college, or equivalent. Students 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 and Industrial Management Programs. **Internships** are programs of study designed to enable full-time students to gain simultaneous occupational experience, which is integrated with their academic studies. **Externships** are programs of study designed for full-time employees for occupational upgrading purposes and are integrated with their job activities. Students planning to enroll for Internship-Externship credit should first review their plans with their academic adviser and the Internship-Externship Program Coordinator to ensure proper program planning and to secure the appropriate divisional director's permission. No more than 12 credit hours of supervised, integrative occupational experience through the Internship-Externship Programs may be applied toward the Associate Degree, and no more than 6 credit hours toward a one-year Certificate of Achievement.
(1-hour weekly seminar **plus** directed field projects.)

ACCOUNTING

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

Prerequisite or co-requisite: Introduction to Business 140 or divisional permission.

A beginning course in accounting which introduces the student to the theory and practice of modern double-entry accounting systems and procedures. Emphasis is placed on the development of an understanding of basic financial records and forms and on ability to apply elementary accounting concepts to business and/or industrial situations. Designed for the non-Accounting student. (3 hours per week)

092 Fundamentals of Accounting .....3 credit hours

Prerequisite: Fundamentals of Accounting 091 or equivalent.

Continuation of Accounting 091. Fundamentals of accounting

covering financial statements, controlling accounts, types of ownership interest, and income and expense. Designed for the non-Accounting student. (3 hours per week)

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

Prerequisite or co-requisite: Introduction to Business 140 or divisional permission.

An introductory study of accounting principles to acquaint the student with the theory and logic that underlie accounting practices and procedures. Emphasis is placed upon the role of accounting in developing essential information about business and/or industrial organizations and their operations. Course coverage includes the accounting cycle, financial statements, controlling accounts, special columnar journals, and the voucher system. This is the first of two accounting courses required of all Business Administration transfer students. (3 hours per week)

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

Prerequisite: Principles of Accounting 111 or equivalent.

An introduction to the accounting function as it applies to the ownership, income and expense, and cost aspects of business and/or industrial enterprise. Accounting is perceived as an essential function in the achievement of enterprise goals. Special emphasis is placed upon interpretation of accounting data. Course materials relate to the business partnership, corporation, and industrial manufacturing. This is the second of two accounting courses required of all Business Administration transfer students. (3 hours per week)

200 Intermediate Accounting .....3 credit hours

Prerequisite: Principles of Accounting 111 and Principles of Accounting 122 or equivalent.

A detailed study of specialized phases of accounting such as the treatment of cash and temporary investments, receivables, inventories, investments, plants and equipment, intangibles, deferred charges, liabilities, capital stock and surplus, and financial statements. (3 hours per week)

DATA PROCESSING

111 Principles of Data Processing .....4 credit hours

Prerequisite: First year standing or divisional permission.

An introduction to the principles and concepts in the field of data processing and its application to the management decision-making process in business and industry. The course develops an understanding of problem definition and organization, and covers the role of data processing in business as well as an acquaintance with elementary computer programming techniques. Included is a survey of unit record equipment and the study of various types of electro-mechanical and electronic data processing equipment and their utilization in making business decisions. Laboratory exercises are combined with classroom instruction to realistically relate the various units of data processing equipment to the electronic computer. Emphasis throughout the course is on the analysis of systems and procedures for processing business data. (4 hours per week PLUS minimum 4-6 practice hours)

122 Data Processing Applications .....4 credit hours

Prerequisite: Principles of Data Processing 111 or equivalent.

Course designed to acquaint the student with data processing applications in business and/or industrial operations. Emphasis is given to the development of an understanding of machine-systems for processing data and the advantages inherent in mechanization. Includes a study of data processing applications in the areas of inventory control, payroll accounting, accounts receivable, and accounts payable. (4 hours per week PLUS minimum 4-6 practice hours)

213 Data Processing Systems and Procedures .....4 credit hours

Prerequisite: Data Processing Applications 122 or equivalent.

An introduction to the principles and concepts of programming systems and procedures thereby enabling the student to develop the essential groundwork for more advanced study of the programming systems. Major emphasis is on the purposes and functions of the various types of programming systems and procedures and their relevance to business-industrial enterprise. (4 hours per week PLUS minimum 4-6 practice hours)

224 Computer Programming .....4 credit hours

Prerequisite: Data Processing Systems and Procedures 213 or equivalent.

An applied study of the functions and capabilities of specific data processing machinery and equipment, to acquaint the student with some of the tools and raw materials essential to programming. Included is a complete exposition of the COBOL (common business-oriented language) system, and an introduction to the FORTRAN (formula translation) language system of computer programming. Actual programming exercises are combined with the study of the factors involved in electronic data processing systems design relative to hardware, accounting control, systems controls, and purpose. Course coverage is designed to provide the student with sufficient knowledge of programming systems concepts to enable him to readily adapt to any specific system. (4 hours per week PLUS minimum 4-6 practice hours)

GENERAL BUSINESS

111 Business Law .....3 credit hours

Text and case study of the general laws applicable to business covering the nature of law, courts and court procedures, crimes and taxes, contracts, agency, labor relations, and partnerships. (3 hours per week)

122 Business Law .....3 credit hours

Prerequisite: Business Law 111

The study of corporations, property, sales negotiable instruments, insurance, and bankruptcy. (3 hours per week)

140 Introduction to Business .....3 credit hours

Prerequisite: First year standing.

An introductory study of the functions, objectives, problems, organization, and management of modern business and/or industrial enterprise. Designed to acquaint the student with the free-enterprise system of business-economic activity and the impact of the consumer and governmental forces upon the system. The student develops an insight into the vital role of the administrative (management) function in our economy as a whole and in the operation of a single business

unit. The student is provided with a practical orientation, exploration, and background of information in business and industry. (3 hours per week)

200 Independent Directed Study .....2-6 credit hours

Prerequisite: Divisional permission.

A planned program of study in selected business-industrial subject matter under the guidance and direction of a regular staff member. Designed to supplement classroom study in a way that will enhance the student's total educational experience. Includes readings, analyses, conferences, reports. Variable credit.

NOTE: Meeting time is on an "arranged" basis.

MANAGEMENT AND MARKETING

160 Principles of Salesmanship .....3 credit hours

Prerequisite: Introduction to Business 140 or divisional permission.

A study of the basic principles and concepts of the sales function in modern business-industrial enterprise in the marketing of goods and services. Included is an analysis of sales techniques, the sales "cycle," sales demonstrations, as well as personal career salesmanship. Emphasis is given to 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. (3 hours per week)

200 Human Relations in Business and Industry .....3 credit hours

Prerequisite: Second year standing or divisional permission.

A practical study of the modern concepts of administrative principles and practices with special emphasis on the human relations aspects of management responsibility as it affects employee attitudes, morale, and productivity. Development of insights into relationships among people in business and industrial organizations, and the role of the administrator in achieving coordination and cooperation of individuals and groups in the pursuit of established organizational goals. Major emphasis is on relationships among individuals and/or small groups. Classroom instruction consists of lectures, recitation-discussion, and problem-oriented sessions to enable the student to realistically relate the course materials to the human relations aspect of modern business and/or industrial enterprise. (3 hours per week)

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

Prerequisite or co-requisite: Principles of Economics 211 and second year standing or equivalent.

A study of the basic principles of management at the administrative, staff, and operational (line) levels of modern business and/or industrial enterprise. The student 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. Consideration is also given to the nature and structure of organizations and to recent developments in management decision-making and leadership styles in an organizational context. Classroom instruction consists of lectures, recitation-discussions, and problem-oriented sessions thus enabling the student to develop a practical philosophy of management and to acquire realistic insights into administrative principles and techniques as they relate to all fields of business and/or industrial activity. (3 hours per week)

240 Personnel Management .....3 credit hours

Prerequisite: Introduction to Business 140 and Principles of Management 208 or equivalent.

An exposition of the fields of activity covered in modern personnel work. Topics covered are employment techniques, wages and hours, job evaluation, training, employer ratings, collective bargaining, employment counseling, and collateral benefits such as pensions and fringe benefits. (3 hours per week)

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

Prerequisite or co-requisite: Principles of Economics 211 and second year standing or equivalent.

A study of the institutions and functions developed for carrying on 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. (3 hours per week)

260 Sales Management .....3 credit hours

Prerequisite: Introduction to Business 140 and Principles of Salesmanship 160 or equivalent.

A study of the managerial functions of planning, organization, and direction of sales effort; the management of sales and services. Personnel and control of sales operations are emphasized. (3 hours per week)

270 Advertising Management .....3 credit hours

Prerequisite or co-requisite: Principles of Marketing 250 or equivalent or divisional permission.

A practical 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. Course coverage includes the role of advertising in the individual firm (micro-analysis) and the total economy (macro-analysis); also advertising objectives, methods, techniques, preparation, research, surveys, copywriting, layout, media selection, and testing advertising effectiveness, as well as advertising rates and budgetary factors. (3 hours per week)

SECRETARIAL AND OFFICE

130 Business Machines .....2 credit hours

Prerequisite: Developmental Mathematics 031 or Foundations of Occupational Mathematics 092 or equivalent.

Instruction in the basic mathematical processes—addition, subtraction, multiplication, division—on modern calculating machines of both listing and non-listing types. Instruction in operation and use of duplicating and transcribing machinery and equipment. Emphasis throughout the course is on machine applications to mathematical problem-solving in business and industry. (5 hours per week PLUS minimum 5-6 practice hours)

100 Shorthand .....3 credit hours

An integrative program of study in Gregg shorthand designed to meet the vocational standards of the modern business office. Emphasis is placed on shorthand principles and practices, development of transcription techniques and skills, and the ability to transcribe

office-style dictation found in business and other specialized fields such as insurance, law, and medicine. Credit and contact hours are progressive and are contingent on student progress as determined by proficiency tests undertaken upon completion of predetermined phases (100A, B, C) of the course work. (4 hours per week PLUS minimum 8-10 practice hours)

200 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. Initial emphasis is given to developing the student's awareness of the mechanics and operational aspects of the shorthand machine. Skill development and speed building in recording and transcribing notes are then pursued in normal sequence. Course credit and contact hours are progressive and are contingent on student progress as determined by proficiency tests undertaken upon completion of predetermined phases (200A, B) of the course work. (2 hours per week PLUS minimum 6-8 practice hours)

090 Fundamentals of Typewriting .....1 credit hour

A basic typewriting course designed to meet the needs of the non-secretarial student in developing reasonable typing skills. (2 hours per week PLUS 4-6 practice hours)

110 Typewriting .....2 credit hours

An integrative, programmed approach to the development of the secretarial student's 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 (business communications, tabulation problems, manuscripts, office forms, etc.). Credit and contact hours are progressive and are contingent on student progress as determined by proficiency tests undertaken upon completion of predetermined phases (110A, B, C) of the course work. (3 hours per week PLUS minimum 6-8 practice hours)

150 Office Systems and Procedures .....3 credit hours

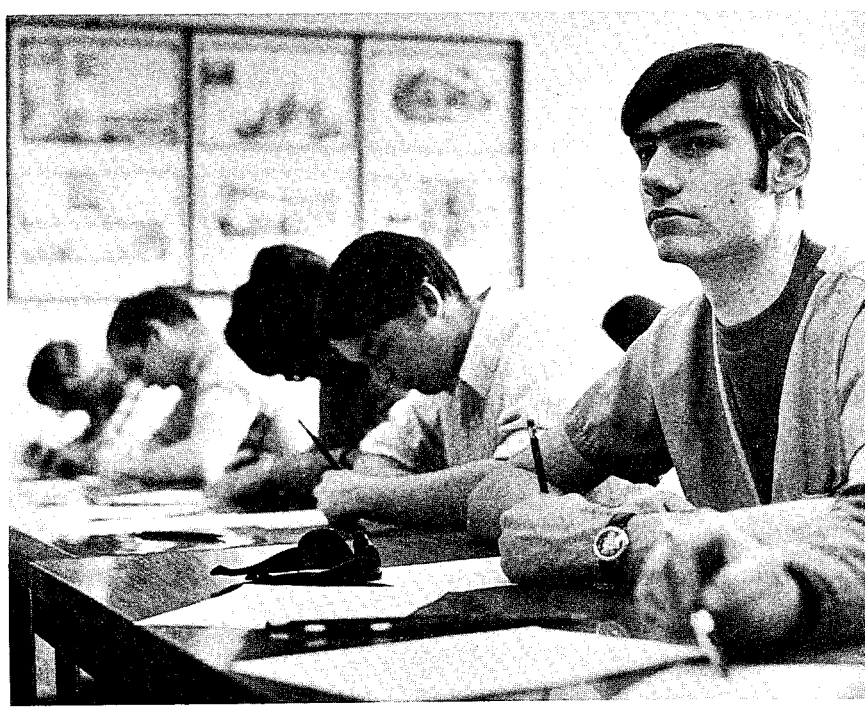
Prerequisite or co-requisite: High school typewriting proficiency or concurrent enrollment in typewriting or equivalent.

A practical study of the fundamental systems and procedures comprising the modern business-industrial and/or professional office.

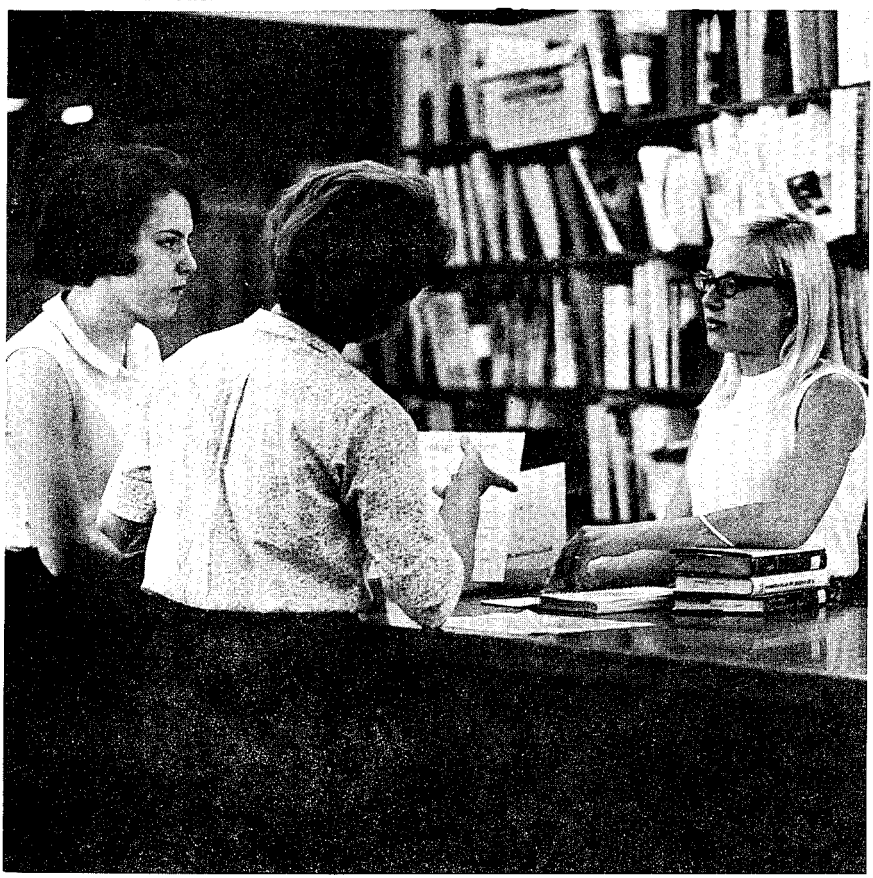
Emphasis is upon developing the student's insights into the responsibilities of the office staff, personal qualifications, human relations factors, and their essential relationship to the effective integration of all office systems and procedures. Includes the study of filing and records systems, telephone and telegraph communications, written reports, transcribing and duplicating machinery and equipment. Problem-oriented sessions and projects enable the student to develop a practical view of the office system and its vital role in the administration of the total business-industrial and/or professional organization. (3 hours per week)

230 Office Management .....3 credit hours

The application of the principles of management to the planning, organization, and control of office work. The 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 are also included. (3 hours per week)



DIVISION OF COMMUNITY SERVICE OCCUPATIONS



189 Study Problems .....2-8 credit hours

Prerequisite: Consent of Division.

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

199 On-the-Job Training (OJT) .....1-6 credit hours

Washtenaw Community College provides students in both General and Occupational programs an opportunity to earn credits while engaged in supervised and usually subsidized work experience directly related to the educational or occupational objective of the student. Students who plan on enrolling for OJT credit must first review their plans with their academic advisor and the appropriate divisional director and then secure the director's permission. OJT credits may be applied to the Certificate of Achievement or the Associate Degree. No more than twelve credit hours of supervised work experience may be applied to the associate degree requirements and no more than six for a certificate of achievement. Students in certain health occupations should elect Clinical Practice under the direction of the Health Occupations divisional director. Students in certain business programs should check with the Business and Industrial Management divisional director for options under the internship-externship offerings.

AGRIBUSINESS

111 Introduction to Horticulture .....3 credit hours

Principles of horticultural science related to fruits, flowers, vegetables, and landscape plants. (5 hours per week)

115 Lawn and Turf Management .....3 credit hours

Identification, adaptability, and evaluation of deciduous and narrow-leafed evergreen shrubs, trees, and vines as landscape plants. Turf care and analysis. (5 hours per week)

122 Insect and Disease Control .....3 credit hours

Spray and dust equipment and application: pesticide and growth regulating chemicals, their use in the growing of horticulture crops, and influence on the physiology of the plant. (5 hours per week)

126 Plant Breeding and Propagation .....4 credit hours

Principles of plant progagation by seed, cuttage, layerage, and graftage; scion and stock relationship; stocks for fruit and ornamental plants; and practices employed by nurseries in propagation of plants. (6 hours per week)

120 Landscaping .....3 credit hours

Additional emphasis on the flowering characteristics of both deciduous and broad-leaf evergreen shrubs, trees, and vines. Turf management is included. (5 hours per week)

213 Greenhouse Management .....4 credit hours

Control of greenhouse environment and its effect on growth and production of horticultural crops. (6 hours per week)

227 Ornamental Plant Ecology .....3 credit hours

Principles of floriculture crop physiology: includes control of environmental conditions, and management. Emphasis on cut flowers in even numbered years; on container-grown plants in odd-numbered years. (4 hours per week)

224 Maintenance of Garden and Grounds .....3 credit hours

General principles of gardening, and maintenance of institutional grounds. Greenskeeping and further study of turf management. (5 hours per week)

228 Nursery and Arboriculture Practices .....4 credit hours

Management practices employed by wholesale, retail, and landscape nurseries. Field trips to nurseries required. (6 hours per week)

230 Soils and Fertilizers .....3 credit hours

More advanced study of soils and fertilizers. Reference to plant ecology. (7 hours per week)

EDUCATIONAL AIDE/ASSISTANT

111 Teacher Aide Techniques .....3 credit hours

Techniques of showing and explaining interesting and constructive art work, songs, games, music, dances, sand and water play for nursery and elementary school children. (3 hours per week)

122 Teacher Aide Techniques .....3 credit hours

Relationship of the teacher aide to the professional teacher and administrator. Limitations of the teacher aide; further development of the techniques approached in 111. (3 hours per week)

213 Teacher Aide Techniques .....3 credit hours

Problems concerning the student. More specific treatment of methods for assisting the teacher, such as, grading papers, bulletin boards, observation of student behavior patterns, and classroom supervision. (3 hours per week)

224 Teacher Aide Techniques .....3 credit hours

A comprehensive approach to becoming specialized in an area of choice, such as, science, math, or industrial education. Orientation toward the laboratory assistant and supplemental counseling toward choice of proper electives. (3 hours per week)

200 Arts and Crafts .....3 credit hours

An elementary approach to drawing, cutting, pasting, painting, making play dough, paper-mache, potato printing, paper construction and art work with non-ferrous metals. (3 hours per week)

209 Instructional Media and Materials .....3 credit hours

A practical and comprehensive approach to the applications of visual materials and auditory aids. (3 hours per week)

FIRE PROTECTION TECHNOLOGY

100 Introduction to Fire Protection .....3 credit hours

A course in the history and development of fire protection; the role of the fire service in the development of civilzation; personnel in fire protection; introduction to general fire hazards; and a discussion of the problems and possible solutions for current and future fire protection. (3 hours per week)

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. (3 hours per week)

109 Fire Operations Strategy .....3 credit hours

The aspects of tactics and strategy in extinguishing fires; prefire plans; organization of the fireground, including techniques of using available equipment and manpower; a study of conflagrations and the techniques of predicting fire severity. Emphasis will be placed on the development of thinking skills in relation to crisis. (3 hours per week)

210 Introduction to Fire Administration .....3 credit hours

A course in 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; the budget and purchasing practices; a study of rating systems and their application to the fire service; and discussion of the proper ways to handle personnel problems, grievances, and employee suggestions. (3 hours per week)

213 Fire Investigation and Arson .....3 credit hours

The fireman's role in arson investigations; the 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; recognizing and preserving evidence; Michigan arson laws; alibis, motives, and proving the corpus delicti; preparation of the case, court testimony, and reports and records; 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; industrial obligations to communities in regard to fire and safety; current trends, deficiencies, and possible solutions for fire protection problems facing industry today. (3 hours per week)

FOOD SERVICE TECHNOLOGY

100 Introduction to Restaurant Management .....3 credit hours

A course of orientation designed to give the history, organization, problems, and opportunities in the restaurant industry. A study of restaurant functions; promotional and personnel functions of management; trends and developments in the industry today and a study of techniques and procedures of modern management. (6 hours per week)

111 Elementary Food Preparation .....3 credit hours

Production and use of food and materials, development of standards of food preparations; the effect of these factors upon economic, nutritive value and aesthetic appeal of food materials. (6 hours per week)

122 Introductory Volume Food Management .....3 credit hours

An introduction to the various types of large volume food service institutions, with emphasis on operational differences, varied menu construction, raw material estimates, large volume preparation techniques, and the use of institutional food service equipment. (6 hours per week)

213 Advanced Food Preparation .....3 credit hours

Prerequisite: Elementary Food Preparation 111.

The major emphasis will be upon estimates of raw materials needed, preparation of foods in volume and the use of institutional food service equipment. A study of work organization of food preparation processes. (6 hours per week)

228 Layout and Equipment .....3 credit hours

This course is designed to provide the student with knowledges and skills needed in these areas for more efficient production, service and controls in a food and beverage operation. Planning is stressed; time and motion principles employed and layout and design analysis methods utilized. (6 hours per week)

214 Food and Beverage Management .....3 credit hours

A course in basic principles of volume food services and the analysis of food management problems, including a consideration of the following topics: job analysis methods; selection, control, supervision, and training of personnel; work plans and schedules; labor and food cost control; purchasing; equipment use and care; menu planning; sanitation and safety. (6 hours per week)

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 is placed upon the more important law enforcement functions from arrest to executive pardon. (3 hours per week)

224 Criminal Investigation .....3 credit hours

Investigative techniques; criminalistics; case studies; including discussion on quantum of proof in criminal investigations and probative value of physical evidence. (3 hours per week)

LIBRARY

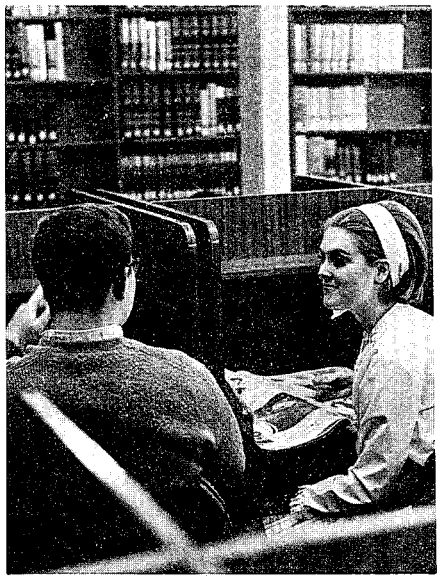
111 Library Practice .....4 credit hours

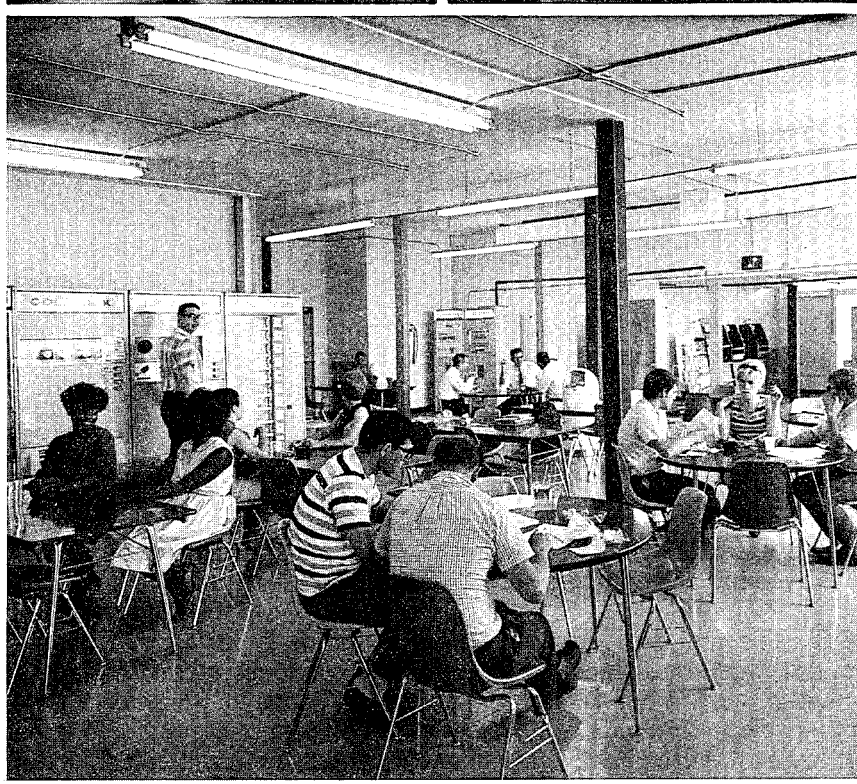
An introduction to techniques and information needed by supportive staff in libraries; widely used classification schemes, quick reference tools, and major bibliographies; use of the card catalog and the typing of catalog cards. (6 hours per week)

122 Library Practice .....4 credit hours

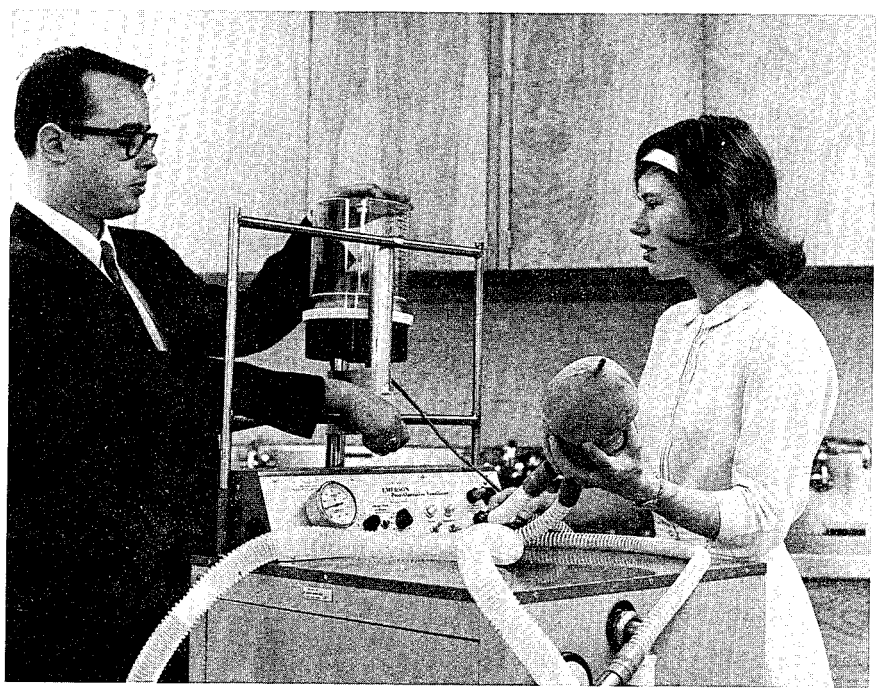
Emphasis on circulation, preparation, and maintenance of library materials. Order of books, bindery preparation, financial records, and other type records. (6 hours per week)

NOTE: The first professional degree in librarianship is the Master's Degree, requiring five years of schooling beyond high school graduation. The present two year course for library technician is meant only to prepare persons who will assist the professional librarian, and does not substitute for the librarian's education provided by graduate library schools.





DIVISION OF HEALTH OCCUPATIONS



189 Study Problems .....2-8 credit hours

Prerequisite: Consent of Division.

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

199 Clinical Practice for
Health Occupations Division .....1-6 credit hours

Prerequisite: Consent of Division.

Most students who are enrolled in health occupations are required to meet certain registry requirements through clinical practice and work experience related to their health occupation specialty. Health occupation coordinators will inform students of the number of credit hours they will need to carry each semester. Additionally, students will be informed of the number of clock hours and content of the clinical or work experience through their health occupation coordinator.

DENTAL ASSISTING

110 Orientation to Dental Assisting .....1 credit hour

Prerequisite: Admission to dental assisting curriculum.

General orientation to college and the history of dentistry. The role of the Dental Assistant Association, code of ethics, certification of dental assistants, and observation in dental offices. Dental jurisprudence and malpractice prevention are included in this course. (1 hour per week)

111 Dental Science .....4 credit hours

Prerequisite: Orientation to Dental Assisting 110 (may be taken concurrently).

This course deals with dental terminology, histology; tooth growth, eruption and anatomy; physiology and anatomy of the head. (4 hours per week)

121 Principles of Operatory Procedures .....4 credit hours

This is a study of the names and uses of dental instruments, preparation and care of patients, proper chairside assistance and operation of equipment, bacteriology and sterilization. (4 hours per week)

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

Prerequisite: Dental Science 111.

Continuation of Dental Science 111. This is a study of the relation of oral health to general health, oral pathology, diet and nutrition, occlusions, drawing and wax carving of selected teeth to millimeter measurements. (4 hours per week)

203 Dental Materials .....3 credit hours

Prerequisite: Advanced Dental Science 122.

Chemical properties and uses of dental materials and solutions; manipulative techniques, dental pharmacology and anesthesia are included in this course. (4 hours per week)

213 Dental Roentgenology .....3 credit hours

Prerequisite: Dental Science 111 and Advanced Dental Science 122.

Principles, practices, and precautions in the operation of dental X-ray units are studied. This course also involves instruction and practice in making intra-oral and extra-oral X-ray exposures; processing and mounting X-ray films are included. (4 hours per week)

212 Dental Office Procedures .....4 credit hours

Prerequisite: Principles of Operatory Procedures 121.

Office practices as related to operating procedures, case history records, treatment planning, and estimates are involved in this course. (4 hours per week)

214 Principles of Dental Laboratory Procedures .....3 credit hours

Prerequisite: Dental Materials 203; Dental Office Procedures 212 (may be taken concurrently).

This is a study of the practice of manipulation of cold cure acrylic

material in making custom impression trays, retainers, and minor denture repairs; preparation of impression materials, use of dental laboratory equipment and storage of laboratory supplies. (4 hours per week)

225 Advanced Dental Laboratory Procedures .....3 credit hours

Prerequisite: Principles of Dental Laboratory Procedures 214.

This course involves carving inlay patterns, investing and casting inlay restorations; pouring of plaster and stone cases; making stone, amalgam, and copper electroplated dies. (4 hours per week)

INHALATION THERAPY

111 Inhalation Therapy Procedures .....3 credit hours

This is a comprehensive course dealing with the equipment used by the inhalation therapist technician. The course involves principles of operation, makes and models, advantages, maintenance and repair, methods and the demonstration and practice of the various analyzers and tests, chambers and hoods, humidifiers and inhalators, humidity rooms, masks and catheters, nebulizers and aerosols, resuscitators, respirators, regulators and manifold, tents, and incubators. (4 hours per week)

113 Nursing Arts for Inhalation Therapy .....3 credit hours

The nursing problems relative to patients receiving inhalation therapy will be presented, analyzed, and discussed. The organization of the hospitals and public health nursing services will be discussed. The relationship of the nursing service, inhalation therapy, and physical therapy will be presented. Practical demonstrations in nursing and physical therapy procedures will be given. (3 hours per week)

122 Inhalation Therapy Procedures .....3 credit hours

Prerequisite: Inhalation Therapy Procedures 111.

This course is a continuation of Inhalation Therapy Procedures 111. (4 hours per week)

124 Nursing Arts for Inhalation Therapy .....3 credit hours

Prerequisite: Nursing Arts for Inhalation Therapy 113.

This course is a continuation of Nursing Arts for Inhalation Therapy 113. (3 hours per week)

125 Introduction to Applied Inhalation Therapy .....1 credit hour

This course of study is designed as an introduction to the major unit in inhalation therapy. The trainees will receive classroom instruction concerning the use of inhalation therapy as related to the various medical and surgical specialties. (1 hour per week)

136 Applied Inhalation Therapy .....3 credit hours

This course is a continuation of Introduction to Applied Inhalation Therapy 125. Major emphasis in this class will be placed on: (1) emergency and accident room (2) internal medicine (3) obstetrics (4) pediatrics (5) surgery, general (6) surgery, thoracic and (7) neurosurgery. (3 hours per week)

219 Seminar—Inhalation Therapy .....3 credit hours

In this course, four hours every week will be scheduled for seminar discussions of current problems, therapeutic complications, review of current literature, reports of scientific meetings, and round table discussions. (3 hours per week)

221 Inhalation Therapy Organization
and Management .....3 credit hours

A survey course covering practical supervisory problems arising in the management of an inhalation therapy department. Topics covered include: personnel management, budgeting, the need for an use of procedure manuals, the relation of the inhalation therapy department head to his medical director and hospital administrator, management and structure of in-service training programs, the use of job descriptions, purchasing policies, and techniques of evaluating new equipment. (3 hours per week)

RADIOLOGIC TECHNOLOGY (X-RAY)

111 Fundamentals of X-Ray Technology .....4 credit hours

This course includes the practical and theoretical aspects of medical radiology technology. The production and control of X-radiation and its ionizing effect on matter will be emphasized. Instruction will also be given in X-ray films, film holders, grids, the photographic effect of X-rays and X-ray protection. (5 hours per week)

122 Fundamentals of X-Ray Technology .....4 credit hours

Prerequisite: Fundamentals of X-Ray Technology 111.

This course is a continuation of the fundamental concepts of radiologic techniques. (5 hours per week)

213 Principles of X-Ray Technology .....4 credit hours

Prerequisite: Fundamentals of X-Ray Technology 122.

This course is designed to give the student instruction in nursing procedures pertinent to X-ray technology, special procedures, introduction to radiation therapy, and topographic anatomy. (5 hours per week)

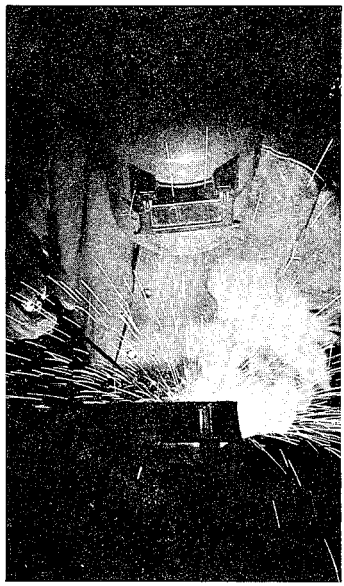
224 Principles of X-Ray Technology .....4 credit hours

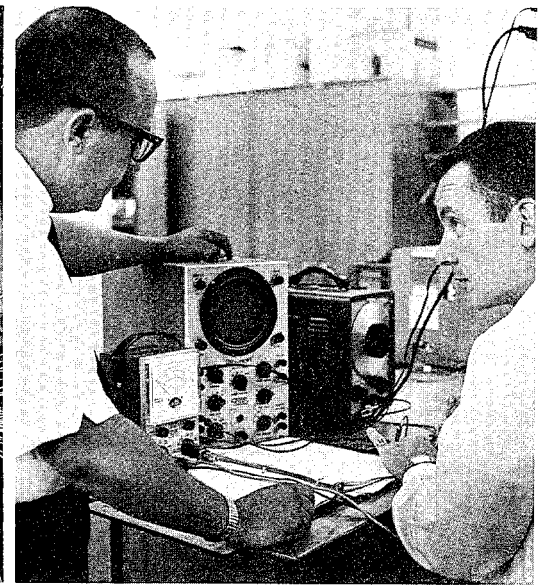
Prerequisite: Principles of X-Ray Technology 213.

This course is outlined for a general review. Included in the course is automatic processing maintenance, oral radiography, research for the radiologic technologist, radioisotopes, and civil defense and disaster planning. (5 hours per week)

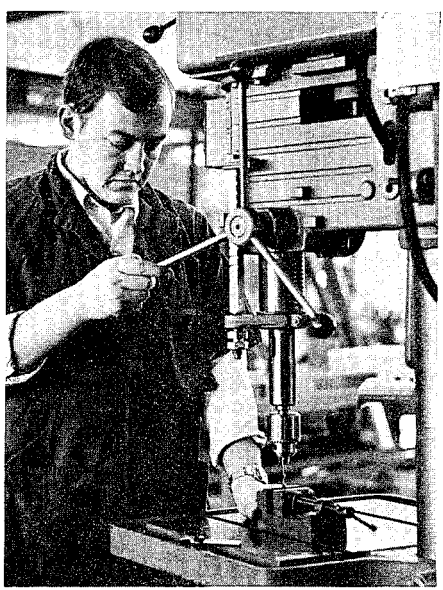
120 Medical Terminology .....3 credit hours

A study designed to acquaint the student with the origin and structure of medical terms. The intent of this course is to help the student interpret and understand requests for radiographic examinations and to read and understand medical articles and reports. (3 hours per week)





DIVISION OF TECHNICAL AND INDUSTRIAL OCCUPATIONS



TRADE RELATED INSTRUCTION (TRI)

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.

TRADE RELATED INSTRUCTION

ASSOCIATE DEGREE

Program Code 590

An Associate Degree can be awarded to skilled tradesmen upon earning sixty 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 also be evaluated.

	Hours
Credits earned in the Trade Related Instruction Program and at other institutions	1 to 31

Exact Sciences (selected from Mathematics, Physics, or Chemistry)	3 to 12
English	3 to 6
Social Sciences (to include Basic Economic Principles 207 and State and Local Government 150)	6
Business & Industrial Management (elective)	3
Work Experience*	6
	60 Minimum

* Six credit hours for time spent as an indentured apprentice may be awarded if the employer's apprentice program is approved and/or meets the College's requirements.

The distribution of courses outlined above may vary in order to meet individual needs.

Additional technical subjects may be suggested for those who have not earned at least 31 credit hours in the Trade Related Instruction Program.

(Admission through TRI Program Only)

101 Acetylene Welding .....2 credit hours

A basic course designed for students who need a knowledge of oxy-acetylene welding and a degree of skill required by industry. This course is primarily for students whose occupations are associated with welding. (3 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 are taught. Both AC and DC welding is covered. Electrode identification, classification, and their proper applications to typical operations are applied. (3 hours per week)

103 Heli-Arc Welding .....2 credit hours

Instruction is given in tungsten, inert gas, shielded arc welding, with manually operated torch, on such metals as aluminum, stainless and mild steels. The instruction includes theory directly related to the composition and properties of these metals. (3 hours per week)

101 Millwright Theory .....2 credit hours

A comprehensive study of 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. The maintenance of bearings, belts, chain drives and conveyors is included. (2 hours per week)

200 Diecast Die and Mold Design Fundamentals .....3 credit hours

This course presents to the mold maker the basic fundamentals of mold construction. 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 are discussed. (3 hours per week)

201 Plumbing and Pipefitting .....3 credit hours

A practical study of plumbing and pipefitting fundamentals as well as the classifications and functions of boilers, steam and hot water heating systems. Heating Code is also included. (3 hours per week)

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. (4 hours per week)

AIRCRAFT MECHANICS

(Admission Through TRI Program Only)

101 Basic Aircraft Science .....6 credit hours

A course in basic science of aerospace vehicles. The content covers: elements of aerodynamics, airfoils, theory of flight, stability, weight and balance, hydraulics and pneumatics, and blueprint interpretations, appropriate Federal Aviation Regulations (F.A.R.'s) are included. (6 hours per week)

102 Airframe Maintenance & Repair .....6 credit hours

A theory course in standard practices of airframe maintenance and repair, including flight instruments, structures, aircraft metal and fabric coverings, repair tools and equipment, assembly and rigging, repair station requirements and practices as well as appropriate F.A.R.'s (6 hours per week)

103 Aircraft Electricity & Electronics .....3 credit hours

This course is offered for the technician or mechanic who will be concerned with the repair, maintenance, and assembling of aircraft or space vehicles and their many components. The course presents a detailed explanation of electrical and electronic theory and shows how these principles are applied to systems in modern aircraft. (Summer Term—32 hours) (4 hours per week)

103A Aircraft Welding .....2 credit hours

A skill development course in the use of gas and arc-welding equipment and the applications as practiced by the aircraft mechanic. (Summer term—32 hours) (4 hours per week)

104 Powerplants .....6 credit hours

This course and Powerplants 105 presents a thorough coverage of the theory, operation and maintenance of aircraft engines, including accessories and systems. Appropriate F.A.R.'s are covered. (6 hours per week)

105 Powerplants .....6 credit hours

A continuation of Powerplants 104. Including: aircraft engine fuel systems, propellers and tubo-jet engines. (6 hours per week)

189 Study Problems .....2-8 credit hours

Prerequisite: Consent of Division.

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

199 On-the-Job Training (OJT) .....1-6 credit hours

Washtenaw Community College provides students in both General and Occupational programs an opportunity to earn credits while engaged in supervised and usually subsidized work experience directly related to the educational or occupational objective of the student. Students who plan on enrolling for OJT credit must first review their plans with their academic advisor and the appropriate divisional director and then secure the director's permission. OJT credits may be applied to the Certificate of Achievement or the Associate Degree. No more than twelve credit hours of supervised work experience may be applied to the associate degree requirements and no more than six for a certificate of achievement. Students in certain health occupations should elect Clinical Practice under the direction of the Health Occupations divisional director. Students in certain business programs should check with the Business and Industrial Management divisional director for options under the internship-externship offerings.

TECHNICAL-COMMERCIAL ART

100 Perspective and Parallel Line Projection .....3 credit hours

Introduction to one, two, and three vanishing points, and oblique, isometric, dimetric, and trimetric methods of projecting lines and planes. (6 hours per week)

101 Technical Illustration .....3 credit hours

Prerequisite: Perspective and Parallel Line Projection 100

Projection problems using orthographic, written and other information sources, presentation techniques and media used in industry, aircraft, automotive, boat, product, electrical and electronics; exploded views, sections and phantom drawings. (6 hours per week)

111 Basic Drawing .....3 credit hours

See Art (Division of Communication Arts) for course description.

112 Basic Design .....3 credit hours

See Art (Division of Communication Arts) for course description.

121 Advertising Layout .....3 credit hours

Prerequisites: Perspective and Parallel Line Projection 100 and Basic Drawing 111 and Basic Design 112. (Prerequisite waived for Business and Industrial Management or equivalent experience)

Introduction to layout and lettering techniques and methods used in commercial advertising forms; brochures, posters, advertisements, key line and final art. (6 hours per week)

122 Architectural Rendering .....3 credit hours

Prerequisite: Perspective and Parallel Line Projection 100 or consent of Division.

Interior and exterior rendering problems using ink, pencil, pastel, colored pencil, wash techniques, and other methods for various reproduction requirements. (6 hours per week)

123 Basic Design .....3 credit hours

See Art (Division of Communication Arts) for course description.

213 Airbrush Techniques .....3 credit hours

Prerequisite: Architectural Rendering 122

Introduction to airbrush rendering using various compatible media forms, and the rendering of assigned problems in art work and photographic retouching. (6 hours per week)

214 Photography .....2 credit hours

Introduction to photography, composing the picture, lighting, use of the light meter and exposure study, the use of photography as a communication form; assigned problems using the still camera. (4 hours per week)

225 Model Construction .....2 credit hours

Model construction using information from blueprints, schematics, sketched and other communication form, the use of wood, clay, cardboard, and other media for construction; assigned problems. (4 hours per week)

236 Specialized Study .....2-8 credit hours

Prerequisite: Consent of Division.

Directed work in major study area; a period of concentrated effort to an assigned problem; the demonstration of the individual's development of understanding and skill development. Areas of specialization may include: medical, dental, television, fashion, and advertising illustration; publications; industrial and commercial photography.

ARCHITECTONICS

108 History of Architecture .....2 credit hours

A study of the historical development of architectural styles and their relation to the culture of the period. Typical design, structure, and construction features are emphasized. (2 hours per week)

111 Architectural Drawing .....5 credit hours

An introduction to the construction and requirements including the preparation of working drawings for the construction of structures classified "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. (3 hours per week)

120 Mechanical Equipment .....2 credit hours

A survey of heating, ventilating, plumbing, and electrical equipment used in building construction. Special emphasis is given to standard methods of cataloging such technical data. Students prepare mechanical specifications for the structures studied in Architectural Drawing 111. (2 hours per week)

122 Architectural Drawing .....5 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)

123 Architectural Rendering .....2 credit hours

Prerequisite: Perspective and Parallel Line Projection 110 or consent of instructor.

Interior and exterior rendering problems using ink, pencil, pastel, colored pencil, wash techniques, and other methods for various reproduction requirements. (4 hours per week)

200 Specifications .....1 credit hour

An introduction to the uniform system for filing material specifications and the organization and preparation of building specifications. (1 hour per week)

207 Estimating Construction Costs .....3 credit hours

Prerequisite: Construction Materials 117 and Mechanical Equipment 120

An introduction to the methods of estimating construction costs for building construction projects involving the use of quantitative survey methods of estimating materials, labor, equipment. Methods of computing overhead and profit are included. (3 hours per week)

209 Surveying .....3 credit hours

Prerequisite: Algebra and Trigonometry 109 or equivalent

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 (i.e., steel, timber, and reinforced concrete, etc.) (2 hours per week)

213 Architectural Drawing .....5 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 .....5 credit hours

Prerequisite: Architectural Drawing 213

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

AUTO BODY REPAIR AND PAINTING

111 Auto Body Repair .....3 credit hours

Co-requisite: Fundamentals of Welding 100

An introductory course in auto body repair fundamentals. Repairs are 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 an important part of this course. (9 hours per week)

112 Automobile Refinishing .....3 credit hours

An introductory course in the methods and procedures used with automobile refinishing materials. Acrylic lacquers and enamels are used to spray paint automobile body panels and complete automobiles. Proper use of refinishing materials and the development of basic skills and knowledge of the trade are stressed. (9 hours per week)

123 Auto Body Repair .....3 credit hours

Prerequisite: Auto Body Repair 111 and Welding and Fabrication 111 (or consent of Division)

A detailed study of the automobile body that includes the use of hydraulic jacks and accessories to make typical repairs to the front, side, and rear sections of automobiles damaged by collision.

Typical repair jobs are selected to provide the student diversified experience on body trim and hardware, panel replacement, and aligning various body components. (9 hours per week)

124 Automobile Refinishing .....3 credit hours

Prerequisite: Automobile Refinishing 112

A continuation of the units begun in Automobile Refinishing 112 including the improvement of skills, mixing and matching of high metallic colors, spot repair and complete refinishing using acrylic lacquers and enamels. Special color effects including the use of "candy" and metal flake are studied. Proper use of materials and quality workmanship are stressed. (9 hours per week)

200 Collision Estimating .....3 credit hours

An introductory course designed to expose the student to the use of manuals to establish parts and labor prices in estimating damaged automobiles. Modern methods of repair are demonstrated and emphasis is placed on the economics of repairing as opposed to replacing damaged body sections. Procedures used to obtain complete estimates are included. (5 hours per week)

210 Frame and Unit Body Straightening .....3 credit hours

Prerequisite: Consent of Division

The problems involved in repairing various frame designs. The laboratory work includes advanced instruction in using portable frame straightening equipment to diagnose and straighten common damage conditions. (9 hours per week)

211 Major Body Repair .....3 credit hours

Prerequisite: Auto Body Repair 123
Co-requisite: Frame and Unit Body Straightening 210

Advanced instruction in the use of portable frame and body straighteners to repair major body damage. Three common types of damage are selected for study as being representative of front end, rear end, and side collision damage. (9 hours per week)

220 Frame and Unit Body Sectioning Methods .....3 credit hours

Prerequisite: Frame and Unit Body Straightening 210

Advanced instruction in reinforcing methods and sectioning of the unitized body. The problems involved in sectioning and replacing structural members of conventional type frames are also covered. (9 hours per week)

222 Body Rebuilding Methods .....3 credit hours

Prerequisite: Major Body Repair 211
Co-requisite: Frame and Body Sectioning 220

The procedures and problems involved in sectioning automobile bodies. Three repair jobs are selected in conjunction with Frame and Unit Body Sectioning Methods 220 as being representative of front end, unit body, and rear end collisions. (9 hours per week)

AUTOMOTIVE SERVICE

101 Automotive Electricity .....2 credit hours

An introduction to fundamentals of electricity, storage batteries, and battery ignition. The operation of storage batteries and battery ignition systems are covered both in theory and practical application on live cars. (4 hours per week)

102 Engine Operation .....1 credit hour

The principles, design, construction, and operation of modern automotive engines are studied both in theory and practical application on live cars. (4 hours per week) 9 weeks

103 Basic Carburetion .....1 credit hour

Theory of operation and service procedures for one and two barrel carburetors are studied. Classroom instruction is coordinated with servicing live units. (4 hours per week) 9 weeks

104 Brake Systems .....2 credit hours

Specialized instruction in hydraulic principles as applied to automotive hydraulic brake systems, including the operation and service of these systems on live vehicles. (4 hours per week)

105 Wheel Balancing and Alignment .....2 credit hours

A detailed study of wheel alignment and balancing. Students perform wheel and steering diagnosis and repairs on live units. (4 hours per week)

106 Cranking and Charging Systems .....2 credit hours

Prerequisite: Automotive Electricity 101

A continuation of Automotive Electricity 101 including the operation and service of cranking systems and both A.C. and D.C. charging systems. Tests and adjustments are made on live vehicles whenever possible. (4 hours per week)

107 Fuel Systems .....2 credit hours

Prerequisite: Automotive Electricity 101 and Basic Carburetion 103

A study of the fuel systems including the operation and service of emission controls. The use of test equipment and tune up procedures are stressed as necessary for the efficient operation of emission equipped automobiles. (4 hours per week)

108 Transmission and Power Trains .....2 credit hours

A detailed study of construction, operation, and service techniques for conventional driveline units. Students receive practical experience on passenger cars and light trucks. (4 hours per week)

109 Engine Rebuilding .....2 credit hours

Prerequisite: Engine Operation 102

Specialized instruction in procedures to completely rebuild an engine. Mechanical operations such as cylinder boring, piston service, rod and cap reconditioning are stressed. Completed engine is tested for performance on dynamometer. (4 hours per week)

150 Light Service Repair .....2 credit hours

Service procedures used on new car inspection and adjustment. Students also repair, replace, and adjust door latches, locks, windows, and window regulators. (4 hours per week)

201 Automotive Test Equipment .....2 credit hours

Prerequisite: Consent of Division

The testing of automotive engines and components, using the latest test equipment and procedures. The engine, cranking systems, fuel systems, ignition and charging systems are covered, along with the equipment necessary to make the tests. (4 hours per week)

202 Automotive Air Conditioning .....1 credit hour

Specialized instruction in the operation and service of automotive air conditioning, including diagnosing and charging of units on live vehicles. (4 hours per week) 9 weeks

203 Automatic Transmissions .....2 credit hours

Prerequisite: Consent of Division

A detailed study of automatic transmissions including principles of operation and repair procedures. Classroom instruction is coordinated with experience in servicing live units. (4 hours per week)

204 Suspension Systems .....2 credit hours

Prerequisite: Wheel Balancing and Alignment 105

Nomenclature, theory, and service of the passenger cars and light trucks is covered. Emphasis is placed on servicing live vehicles. (4 hours per week)

205 Diagnosis and Repair .....4 credit hours

Prerequisite: Consent of Division

A detailed study in diagnosis procedures that are used in dealerships and garages. Shop work is based upon diagnosis and follows the pattern of most commercial garages. (8 hours per week)

206 Engine Performance Measurement .....3 credit hours

Prerequisite: Consent of Division

A detailed study in engine performance factors and operating characteristics. Engine and chassis dynamometers are used to measure torque and horsepower both at engine and rear wheels. (4 hours per week)

207 Power Steering .....1 credit hour

Prerequisite: Consent of Division

A study of power steering stressing overhaul, testing, and diagnosis. "Impact Absorbing" steering columns are included. (4 hours per week) 9 weeks

208 Automatic Transmission Hydraulic Systems .....2 credit hours

Prerequisite: Automatic Transmissions 203

A detailed study of automatic transmission hydraulic systems. Special emphasis is given to testing and diagnosis; classroom instruction is closely coordinated with servicing live units.

209 Disc Brakes .....1 credit hour

A study of hydraulic principles as applied to automotive disc brakes systems. Specialized instruction in disc brake service procedures, including rotor refinishing, are stressed. (4 hours per week) 9 weeks

BLUEPRINT READING

100 Blueprint Reading for Construction Trades .....3 credit hours

Elementary blueprint reading for persons in the construction trades. Architectural construction prints and drawings are used as the basis of instruction. (3 hours per week)

101 Blueprint Reading .....3 credit hours

Fundamentals of blueprint reading as applied to the manufacturing industry. Basic drafting principles are studied as applied to specific problems. This course is designed for: pre-engineers, draftsmen, machine operators, machine repairmen, electronic technicians, inspectors, and supervisors. (3 hours per week)

102 Blueprint Reading .....3 credit hours

Prerequisite: Blueprint Reading 101

Advanced blueprint reading principles. Included are tool, jig and fixture, die and body prints. Special emphasis is given to inspection and measurement. (3 hours per week)

ELECTRICITY — ELECTRONICS

110 Electrical Applications .....2 credit hours

Co-requisite: Student must be simultaneously enrolled in Electrical Fundamentals 111

Laboratory experiments applying electrical theory and calculations to electrical circuits. (Required of those students in the Electronic Engineering Technician Program.) (3 hours per week)

111 Electrical Fundamentals .....3 credit hours

Prerequisite: Mathematics qualification test.
Co-requisite: Electrical Applications 110 (For Electronics Engineering Technician only)

Fundamentals of electric current generation, measurement, and application. Magnetic phenomena, AC wave generation and measurement, alternating current transformers, capacitive and inductive reactance. The use of oscilloscopes; AC current, volt, and watt meters; signal generator; V.C.M.; and impedance bridge. (6 hours per week)

120 Electrical Applications .....2 credit hours

Prerequisite: Electrical Fundamentals 111 and Electrical Applications 110. Student must be simultaneously enrolled in Electrical Fundamentals 122.

A continuation of Electrical Applications 110. The course work will parallel that of Electrical Fundamentals 122. Required of those studdents in the Electronic-Engineering Technician program. (3 hours per week)

122 Electrical Fundamentals .....3 credit hours

Prerequisite: Electrical Fundamentals 111, preceded or accompanied by Algebra and Trigonometry 109 or 109B.

Exercises solving parallel and complex circuit problems, alternating current generation, commutation, and rectification. Fundamental D.C. and A.C. motors and generators and their equivalent circuits. Common motor starting and speed controls. An introduction to Delta, Wye, and three phase transformation. Solid and vacuum tube diodes are introduced. (6 hours per week)

127 Industrial Electricity .....4 credit hours

Prerequisite: Electrical Fundamentals 111, preceded or accompanied by Electrical Fundamentals 122.

Electrical conductors, wiring diagrams, series, shunt, and compound direct-current generator and motor principles including: commutation winding, torque and speed calculations. Single and three phase transformers and their equivalent circuits. Impedance and voltage transformation. A.C. motors (shaded pole, synchronous, capacitor start, squirrel cage, induction-repulsion), motor controls, segments of the National Electric Code are presented. (6 hours per week)

200 Audio and Power Transmission .....3 credit hours

Prerequisite: Electrical Fundamentals 122.

Electro-magnetism and magnetic circuits, network theorems; series and parallel resonant circuits; impedance transformation and matching; AC and DC coupling methods. The "j" operator is used extensively.

211 Basic Electronics .....4 credit hours

Prerequisite: Electrical Fundamentals 111 and 122.

Transistor and vacuum tube theory and equivalent circuits; amplifier circuits and applications; familiarization with various electronic components and instruments. (6 hours per week)

222 Communication Electronics .....4 credit hours

Prerequisite: Electronics 211 and Audio and Power Transmission 200.

The theory and use of "feed back" circuits; oscillators; detectors; and pulse circuits. (6 hours per week)

237 Electronic Switching and Control (Logic) .....3 credit hours

Preceded or accompanied by: Electrical Fundamentals 111, or consent of the division.

A presentation of the theory of electronic fluidic logic accompanied by problems using "AND" gates, "OR" gates, shift registers, time delays and counters, M. I. L. and machine printed logic symbols. The binary number system and Boolean Algebra are applied. Magnetic storage theory is included. (4 hours per week)

238 Industrial Electronic Circuits .....4 credit hours

Prerequisite: Electronics 211 and Audio and Power Transmission 200.

The study and use of silicon controlled rectifiers; special solid state devices, and gas filled tubes. Industrial applications of electronics to such problems as light regulation, motor speed and direction control. A study is made of printed circuitry, micro-module, and other packaged circuits as well as JEDEC, ASA, and EIA standards. (6 hours per week)

239 Circuit Testing, Repair, and Debugging .....5 credit hours

Prerequisite: Preceded or accompanied by Communication Electronics 22 and Industrial Electronic Circuits 238.

Maintenance and trouble shooting of circuits—including those used in radio and television. Electrical equipment is deliberately made inoperative and then assigned to a student to "debug". Wiring schematics and service manuals are used. Each student is to design, lay out, fabricate, and wire an appropriate project. (11 hours per week)

FLUID POWER

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, ASA, JIC, VSAST 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 of Division

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

213 Hydraulic Controls .....3 credit hours

Components used in the control of hydraulic fluids are studied.

Emphasis is placed on pressure, direction, and volume control assemblies. Manual, electrical, pneumatic, mechanical, and hydraulically operated valves are studied and demonstrated in typical circuits. (4 hours per week)

214 Basic Hydraulic Circuits .....3 credit hours

Prerequisite: Fluid Power Fundamentals 111 or consent of Division

The fundamentals, review of components, and necessary computations for basic hydraulic circuits. Trouble shooting techniques in the hydraulic circuit, including the importance of oil viscosity and line component malfunctions are stressed. (4 hours per week)

225 Hydraulic Circuits .....3 credit hours

Prerequisite: Basic Hydraulic Circuits 214 or consent of Division

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 is stressed. Modern implications for fluidics are introduced. (4 hours per week)

226 Pneumatics .....3 credit hours

Prerequisite: Basic Hydraulic Circuits 214 or consent of Division

Basic air systems as a control medium as well as a source of fluid power. Control circuitry, design and construction are studied. Valves, actuactors, filters, regulators, lubricators, electrical controls, fluidic controls, and other components are included. (4 hours per week)

INDUSTRIAL DRAFTING

100 Perspective and Parallel Line Projection .....3 credit hours

See Technical-Commercial Art for course description

100 Technical Drawing .....3 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)

107 Mechanisms .....3 credit hours

The principles of linkage, cams, centros, displacements, motions, velocities, mechanisms, and vectors are studied and their applications presented graphically. (6 hours per week)

111 Industrial Drafting .....3 credit hours

Prerequisite: Technical Drawing 100 or consent of industrial drafting faculty

Standard practice and procedures, materials, tool design standards, commercial standards, cutting tools, and production tooling are included in this basic course. (6 hours per week)

112 Descriptive Geometry .....3 credit hours

Prerequisite: Technical Drawing 100 or consent of Divisional Director.

The study of points, lines, and planes and their relationships in space. Emphasis is given to the practical application of principles to actual problems as they occur in industry. (6 hours per week)

120 Industrial Drafting Standards .....2 credit hours

Prerequisite: Industrial Drafting 111

An introductory course in the use of industrial, government, and military specifications and standards as they apply to the field of industrial drafting. (2 hours per week)

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

Prerequisite: Industrial Drafting 111 and Descriptive Geometry 112

The various basic types of jigs, fixtures, and their combinations are studied. The use of standard parts catalogues and the development of skills applicable to detailing and assembly drawing are stressed. (6 hours per week)

206 Fundamentals of Plant Layout .....3 credit hours

Prerequisite: Consent of Division

An introductory course in the approaches used for factory layout, product flow, equipment utilization and setup. (6 hours per week)

213 Fundamentals of Die Drafting .....3 credit hours

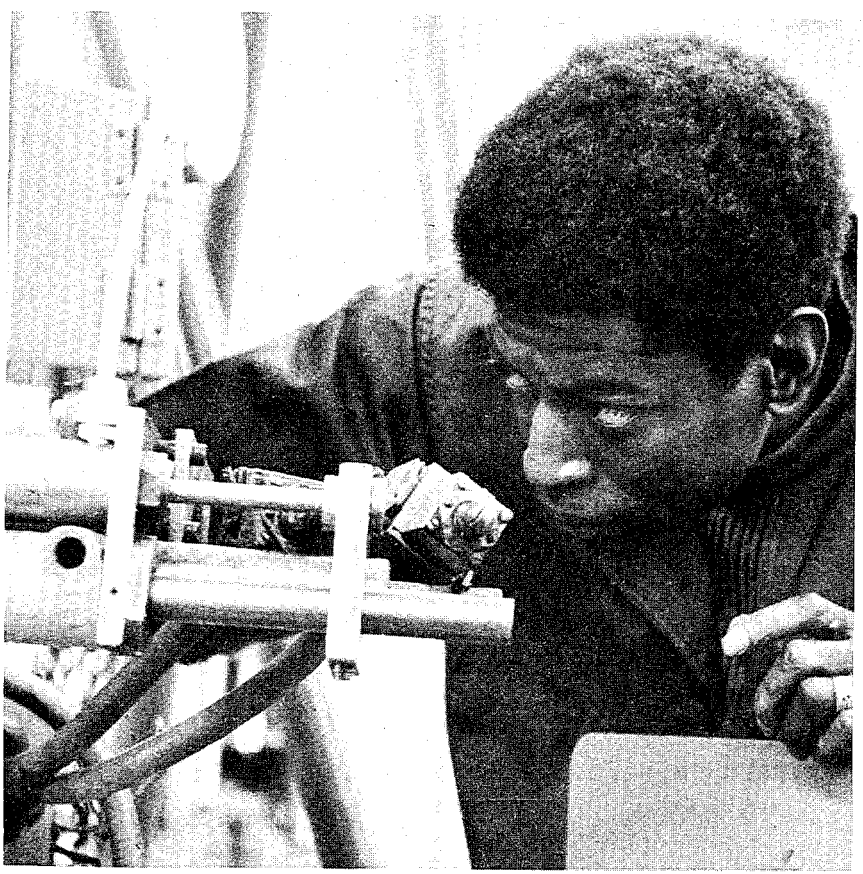
Prerequisite: Fundamentals of Jigs and Fixtures 122 or concurrent enrollment in Fundamentals of Jigs & Fixtures 122

An introduction to the principles, types, nomenclature, and standards of dies. Special attention is given to the use of manuals and catalogs as well as standard detailing and assembly drawing practices. (6 hours per week)

224 Fundamentals of Industrial Tooling .....3 credit hours

Prerequisite: Fundamentals of Jigs & Fixtures 122

An introductory course in the principles of industrial tool design. The course material also provides for practice in production scheduling, cost analysis, specification preparation, and drafting for numerical controlled machining. (6 hours per week)



MECHANICAL TECHNOLOGY

101 Industrial Materials .....3 credit hours

See Metallurgy for course description.

111 Machine Shop Practices .....3 credit hours

Precision and semi-precision measuring instruments and their applications are studied and used. Included also are the basic principles of machine tool operations. Selected films and field trips are used to supplement the laboratory experiences. (3 hours per week)

122 Machine Tool Operation and Set Up .....4 credit hours

Prerequisite: Machine Shop Practices 111 or consent of Division

Designed to provide familiarity with common machine tools. The set up and operation of the lathe, mill, shaper, drill press, I.D., O.D., and surface grinder, screw machines and presses and given special emphasis. Experience with machining a variety of materials is included. (6 hours per week)

200 Machine Maintenance .....2-6 credit hours

(Students may elect up to 4 credit hours/semester)

Basic industrial machines are disassembled, inspected, and tested for part replacement or repair. Manufacturing specifications and tolerances are used as the basis for determining machine condition. (4 to 8 hours per week)

201 Machine Tool Technology .....4 credit hours

Prerequisite: Machine Tool Operation and Set Up 122

Advanced methods of adjusting and using common machine tools. Typical industrial applications to demonstrate measuring instruments, gauges, thread cutting, gear cutting, speeds and feeds, tolerances, tool grinding, indexing and gearing. (6 hours per week)

202 Manufacturing Processes .....3 credit hours

Prerequisite: Machine Shop Practices 111 or consent of Division

Advanced principles of machining including: hot and cold forming, casting, stamping, powdered metal forming, automation techniques, and chemical and electrical forming. (4 hours per week)

METALLURGY

101 Industrial Materials .....3 credit hours

A survey of the source, manufacture, and specific properties of modern industrial materials, including metals, alloys, cements, clay products, plastics, rubber, wood, fuels, coatings, and lubricants. Demonstrations of their properties provide the laboratory experiences. (5 hours per week)

102 Survey of Industrial Materials .....2 credit hours

Prerequisite: Indentured Apprentices and E.I.T. students only

A survey of the source, manufacture, and specific properties of modern industrial materials, including metals, alloys, cements, clay products, plastics, rubber, wood, fuels, coatings, and lubricants. Demonstrations of their properties are provided. (2 hours per week)

122 Physical Metallurgy .....2-3 credit hours

Co-requisite: High school algebra or equivalent.

The physical and mechanical characteristics of metals, alloys, crystal structure, constitutional diagrams, binary alloy systems, heat treatment of steel, temperature control and measurement, and the effects of various processes will be studied in the classroom and evaluated in the laboratory.

123 Mechanical Testing .....3 credit hours

Prerequisite: Consent of Division

A combination lecture and laboratory course on the mechanical testing of materials (with specific emphasis on metallic specimens) when subjected to the following tests: hardness, tension, compression, torsion, shear, bending, impact, and fatigue. (6 hours per week)

214 General Metallography .....3 credit hours

Prerequisite: Physical Metallurgy 122

A study of the constitutional diagrams of metals and alloys of the binary and ternary systems. Advanced heat treatment of steel, cast irons, surface treatments, special processes, and their effect on properties and microstructure are studied by use of microscopic and photographic techniques. (6 hours per week)

225 Advanced Metallography .....3 credit hours

Prerequisite: General Metallography 214

The microstructure of steel and its alteration are studied through treatment, precipitation, hardening of alloys, heat transfer, hardenability, and steel selection in the classroom and laboratory. (6 hours per week)

226 Materials Analysis .....3 credit hours

Prerequisite: General Chemistry 122 and General Metallography 214

A study and investigation of the advanced techniques for mechanical and chemical testing. The methods of identifying and separating alloying elements and impurities in steel are studied. In-depth techniques of mechanical testing, reporting and analysis of data are studied with emphasis on proficiency development. (6 hours per week)

METROLOGY

105 Industrial Measuring Processes .....3 credit hours

Theory and practice in the use and care of measuring devices including ring gauges, plug gauges, snap gauges, air gauges, optical flats, profilometers, optical comparators, and many types of electronic measuring gauges. Application of these devices is made to typical problems. (5 hours per week)

NUMERICAL CONTROL

100 Introduction to Numerical Control .....2 credit hours

The principles, history, and applications of Numerical Control with special emphasis on tape language, formats, codes, and their industrial applications. Point-to-point and continuous path programs are written, studied, and demonstrated. (3 hours per week)

121 Programming for Numerical Control .....3 credit hours

Prerequisites: Introduction to Numerical Control 100 or consent of Division

The job of the Numerical Control Programmer is analyzed and

discussed. Special emphasis is placed on the development of programs for point-to-point operation. Tab sequential, word address, and fixed sequential formats are studied. Fixture design and special tooling for Numerical Control are studied. (4 hours per week)

212 Numerical Control Machine Tool Operation .....3 credit hours

Prerequisites: Introduction to Numerical Control 100 or consent of Division

The history of Numerical Control machine tools, precision set up for numerically controlled machine parts, and numerical control machine tool operation procedures. Special emphasis is placed on profitable Numerical Control machine tool operation. (4 hours per week)

223 Computer Assisted Programming .....3 credit hours

Prerequisites: Programming for Numerical Control 121 or consent of Division

Computer programming fundamentals are studied and practiced. Apt and Adapt Numerical Control languages are emphasized and special problems are studied, solved, and demonstrated. (4 hours per week)

POWER SOURCES

100 Power Sources .....4 credit hours

Introduction to the fundamental principles of pneumatics, hydraulics, and electricity. Advisors may substitute appropriate specialty courses when student's background and experience have been evaluated. (6 hours per week)

WELDING AND FABRICATION

100 Fundamentals of Welding .....2 credit hours

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

111 Welding and Fabrication .....6 credit hours

The use of oxy-acetylene and arc welding equipment to perform such operations as butt, lap, and fillet welds using bare and shielded, straight polarity and reverse polarity electrodes on mild steel plate, also using filler rods for oxy-acetylene operation. Cast iron welding and brazing and silver soldering are included. (18 hours per week)

122 Welding and Fabrication .....6 credit hours

Prerequisite: Welding and Fabrication 111

Advanced instruction in oxy-acetylene and arc welding with emphasis on "out of position" welded joints in both mild steel plate and pipe. Procedures are covered for cutting, beveling, fabricating and welding various joints on steel plate and pipe. Related theory, codes, and standards are included. (18 hours per week)

213 Welding and Fabrication .....3 credit hours

Prerequisite: Welding and Fabrication 122

Tungsten-inert-gas shield arc welding with manually operated torch on such metals as aluminum, mild steel, and stainless steel. Technical theory directly related to tig welding including the composition and properties of metals is included. (6 hours per week)

224 Welding and Fabrication .....3 credit hours

Prerequisite: Welding and Fabrication 213

Specialized oxy-acetylene welding, inert-gas-shielded arc, and consumable carbon dioxide welding. Emphasis is given the welding of various metals such as aluminum, stainless steel, high alloy steels, and cast iron. Procedures for welding of the exotic metals such as titanium, tantalum, columbium, zirconium, and molybdenum are included. (6 hours per week)

NOTE: Special scheduling techniques permit students to enroll for specific portions of the welding and fabrication courses described. See current time schedule of classes for details.

ADMINISTRATIVE STAFF

Albert, Rudolph A. .....Coordinator, Audio Visual
B.S.—Bradley University
M.A.—The University of Michigan

Anthony, Melvin .....Financial Aids Officer
B.A.—The University of Michigan
M.A.—The University of Michigan

Davis, Paul W. .....Director, Community Service Occupations
B.S.—Ball State University
Ed.M.—Ball State University
Ed.S.—Wayne State University

Dypold, Frank J. .....Personnel Manager
A.B.—Northern Illinois University
M.A.—The University of Michigan

Ford, Andrew F. .....Director, Technical and Industrial
B.S.—Wayne State University
M.Ed.—Wayne State University

Hower, Guy W. .....Coordinator, Counseling Division
B.B.A.—The University of Michigan
M.A.—The University of Michigan

Hunt, Paul R. .....Dean, Occupational Studies
B.S.—Wayne State University
M.A.—Wayne State University
Ed.D.—Wayne State University

Jackson, Robert L. .....Coordinator, Trade Related Instruction
Journeyman—Tool and Die and Diecast Die Maker
Henry Ford Community College
Tool and Processing Engineer

Jelneck, William E. .....Business Manager
B.S.—Detroit Institute of Technology

Jones, James A. .....Dean, Student Personnel Services
B.A.—Southern Illinois University
M.S.—Southern Illinois University

Kleinhenn, Alton L. .....Registrar
General Motors Institute

Lamminen, Arthur J. . .Director, Business and Industrial Management
B.S.—Tri-State College
M.A.—Michigan State University

Mallory, Richard H. .....Director, Auxiliary Services
B.S.—University of Detroit

Niehaus, Paul J. .....Director, Health Occupations
B.A.—Eastern Michigan University
M.S.—The University of Michigan

Pittman, William .....Director, Buildings and Grounds
University of Wisconsin
Michigan State University

Plummer, Robert H. .....Director, Social Sciences
B.A.—Wabash College
M.S.—Indiana University
Ed.D.—Indiana University

Pollock, David S. .....Dean, Special Projects
A.B.—The University of Michigan

Ponitz, David H. .....President
A.B.—The University of Michigan
M.A.—The University of Michigan
Ed.D.—Harvard University

Saunders, Brenda S. .....Assistant Librarian
B.S.—West Virginia University

Thomson, Mehran, Jr. .....Director, Exact Sciences
B.A.—Eastern Michigan University
M.B.S.—University of Colorado

Wolven, Frederick F. .....Director, Communication Arts
A.B.—Central Michigan University
M.A.—Central Michigan University

Wooden, John P. .....Dean, General Studies
B.S.—Winona State College
M.A.—New Mexico State University

Young, Harold C. .....Director, Learning Resource Center
A.B.—Boston University
A.M.L.S.—The University of Michigan
M.B.A.—The University of Michigan

FACULTY

Agin, George C. ..... Fluid Power
B.S.—Wayne State University
M.A.—Eastern Michigan University
General Motors Training Center

Albright, Vernon L. ..... Urban Technology
B.A.—The American University
M.A.—University of Maryland

Alexander, W. E. ..... Biology
B.S.—Hampton Institute
M.S.—University of Wisconsin
M.A.—The University of Michigan

Alpha, Emil T. ..... Food Service Technology
Cooks-Bakers School, Salsberg Eiseler Hotel, Stuttgart, Germany
Dietitian's License, State of New York

Amaru, Augustine ..... Political Science
B.A.—Boston University
M.A.—Michigan State University

Banks, Ruthmary ..... English
B.A.—The University of Michigan

Barron, Kenneth E. ..... Automotive Service
B.S.—Central Michigan University

Belknap, Charles L. ..... Mathematics
B.S.E.—The University of Michigan
M.S.—The University of Michigan

Belkola, Floyd E. ..... Auto Body Repair and Painting
G.M. Training Center
DuPont Refinishing School

Bellers, Robert ..... Electronics
Electronics Engineering Technician Trade School
Electronics Communication, Grantham Electronics Trade School
F.C.C. License

Bertoia, Roger R. ..... Industrial Drafting
B.S.—The University of Michigan
M.S.—The University of Michigan

Biederman, Rosalyn ..... Spanish
B.A.—Ohio State University
M.A.—Ohio State University

Bollweg, John J. ..... Philosophy
Ph.B.—Northwestern University
M.A.—Roosevelt University

Bottorff, Ralph S. ..... Mathematics
B.A.—University of Northern Iowa
M.A.—University of Illinois

Boyd, Cleo Y. ..... English
B.A.—Eastern Michigan University
M.A.—New York University
B.D.—Colgate Rochester Divinity School

Buchanan, Alma D. ..... Secretarial Science and General Business
B.S.—Alabama State College

Bylsma, Donald, Jr. ..... Sociology
B.S.—Wayne State University
M.A.—Wayne State University

Byrd, David R. ..... Architectural Drafting
Graduate, Hampton Institute Trade School
Registered Architect, District of Columbia

Campbell, Benjamin I. ..... Psychology
B.M.—Peabody Institute
M.A.—The University of Michigan

Cherniak, William ..... English
B.A.—University of Western Ontario
A.M.—The University of Michigan

Clark, William G. ..... Counselor
B.R.E.—Grand Rapids Baptist College
M.A.—Western Michigan University

Croake, Edith M. ..... English
B.A.—The University of Michigan
M.A.T.—Northwestern University
M.A.—Northwestern University

Daehler, Arden A. ..... Mathematics
B.S.—University of Colorado
M.A.—Eastern Michigan University

Daisher, Nollie M. ..... English
B.S.—Wayne State University
M.S.—Syracuse University
Ed.D.—Wayne State University

Dowding, Tasman A. ..... Mathematics
B.S.—Kent State University
Ed.M.—Kent State University

Eaglin, Marguerite ..... Counselor
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University
Sp.A.—Eastern Michigan University

Eggertsen, Nita W. ..... Speech
A.B.—Brigham Young University
M.A.—The University of Michigan

Fatur, Robert A. ..... Metallurgical Technology
Wayne State University
Detroit Institute of Technology

Garrett, Dallas O. ..... Mechanical Technology
B.S.—Wayne State University
M.A.—Eastern Michigan University

Gaughan, John T. ..... English
B.A.—St. Mary's College
B.D.—St. Mary's College
M.A.—Eastern Michigan University

Glusac, Ivan C. ..... Geography
B.S.—Wayne State University
M.A.—The University of Michigan

Gray, Daniel C. ..... Welding and Fabrication
Journeyman Pipe Fitter and Boilermaker
Air Force Technical School
Certified Welder—Navy, Air Force, Army

Griswold, George H. ..... Chemistry
B.A.—College of Wooster
M.S.—Eastern Michigan University

Hakeem, Ivan P. ..... Sociology
I.D.D.—Agricultural Institute
A.B.—Clark College
M.A.—Atlanta University

Hammond, Carl F. ..... Inhalation Therapy
B.S.—Eastern Michigan University
A.R.I.T. (American Registry of Inhalation Therapists)

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

Hastings, Janet G. ..... Mathematics
B.A.—The University of Michigan
M.A.—Cornell University

Heine, Clarence J. ..... American Literature and Speech
B.S.—Minnesota University
M.A.—Minnesota University

Hentz, Gary R. ..... Counselor
B.S.—Eastern Michigan University
M.A.—Eastern Michigan University

Hinds, Dwight D. ..... Physics
B.S.—Eastern Michigan University
M.S.—Michigan State University

Holmes, George H., III ..... History
B.A.—University of North Carolina
M.A.—Xavier University

Hopper, Thomas W. ..... Laboratory Coach
Certificate—Army Mechanic School
Ford Motor Institute

Horowitz, Frederick A. ..... Art
B.A.—Yale University
B.F.A.—Yale University
M.F.A.—The University of Michigan

Hunt, Barbara ..... English
B.A.—University of Toledo
M.A.—The University of Michigan

Jordan, Virginia ..... Psychology
Ph.B.—University of Chicago
M.A.—University of Chicago

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

Koti, Charles D. ..... Industrial Drafting
Lawrence Institute of Technology
Wayne State University

Laursen, Dan ..... Geology
M.Sc.—University of Copenhagen
M.Ed.—University of Copenhagen
Ph.D.—University of Copenhagen

Laywell, H. Robert ..... Counselor
B.A.—Bethany Nazarene College
M.A.—Michigan State University

Lewis, William A. ..... Mathematics
B.S.—North Carolina College at Durham
M.A.—The University of Michigan

Lowe, Burton C. ..... Mechanical Technology
Journeyman—Industrial Machinist, Machine Repairman
Ford Motor Company Apprenticeship School

MacPherson, Douglas W. ..... Counselor
B.A.—The University of Michigan
M.A.—Eastern Michigan University

Martin, Herbert L. ..... Psychology
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M.A.—Eastern Michigan University

Martin, John W. .....Technical-Commercial Art
Certificate—Miensinger Art School
Certificate—Arts and Crafts Art School
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McClatchey, Merrill W. .....Speech
B.A.—Wayne State University
M.A.—Columbia University

McClellan, Elwood .....Speech
B.A.—Michigan State University
M.A.—The University of Michigan

McGill, John B. .....Physics
B.S.—Eastern Michigan University

McNally, Robert C. .....Counselor
Diploma—General Motors Institute
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M.A.—University of Detroit

Mealing, Percy .....Mathematics and Physics
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Alexian Brothers Hospital School of Radiologic Technology
R.T.—The American Registry of Radiologic Technologists
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Patt, Jerry .....Secretarial Science and General Business
B.S.—Eastern Michigan University

Paulson, Robert W. .....Agribusiness
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M.S.—The University of Michigan

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B.S.Ed.—Black Hills State College
M.A.—The University of Michigan

Weidner, Hal R. ..... English
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M.A.—The University of Michigan

Welch, Bruce H. ..... Automotive Services
B.S.—Central Michigan University
M.A.—The University of Michigan

Wheeler, Kenneth L. ..... Electricity-Electronics
F.C.C. Commercial License
B.S.E.E.—Detroit Institute of Technology
Member Institute of Electrical and Electronic Engineers

Williams, Johnny L. ..... Electronics
U.S. Navy Retired (1942-1967)—Radio Electronics

Wilson, Evelyn Y. ..... Secretarial Science
B.S.S.S.—Ohio University
M.S.—Ohio University

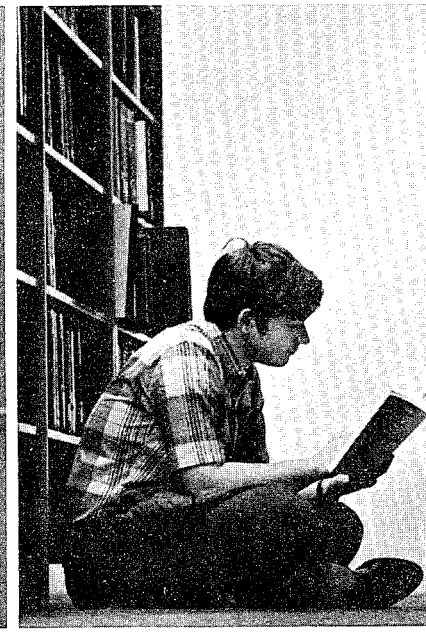
Wirbel, Johanna V. ..... Counselor
B.A.—Kent State University
M.A.—The University of Michigan

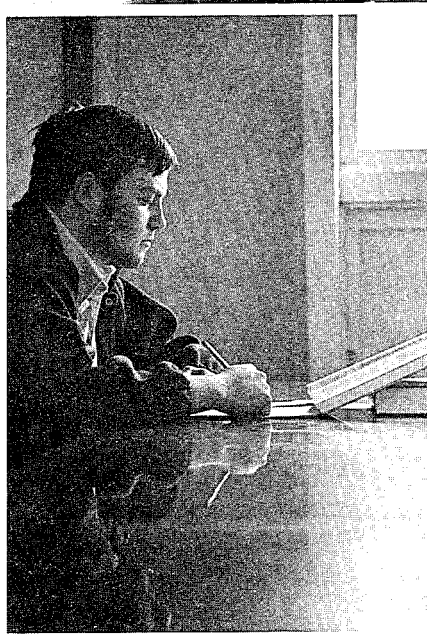
Wood, Gerianne K. ..... Dental Assisting
Certified Dental Assistant

Wotring, J. Robert ..... Data Processing
B.A.—University of Philippines

Zeeb, Ronald E. ..... Business Administration, Marketing
B.S.—Eastern Michigan University

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





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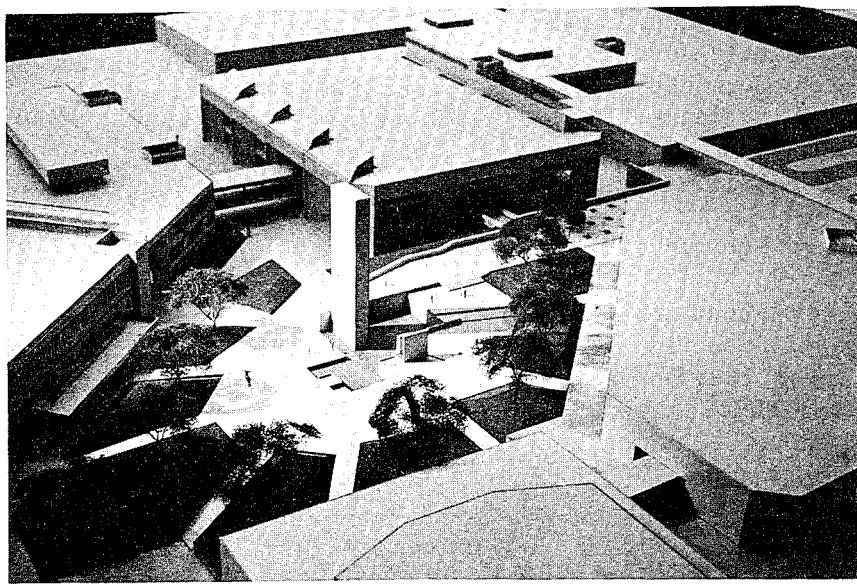

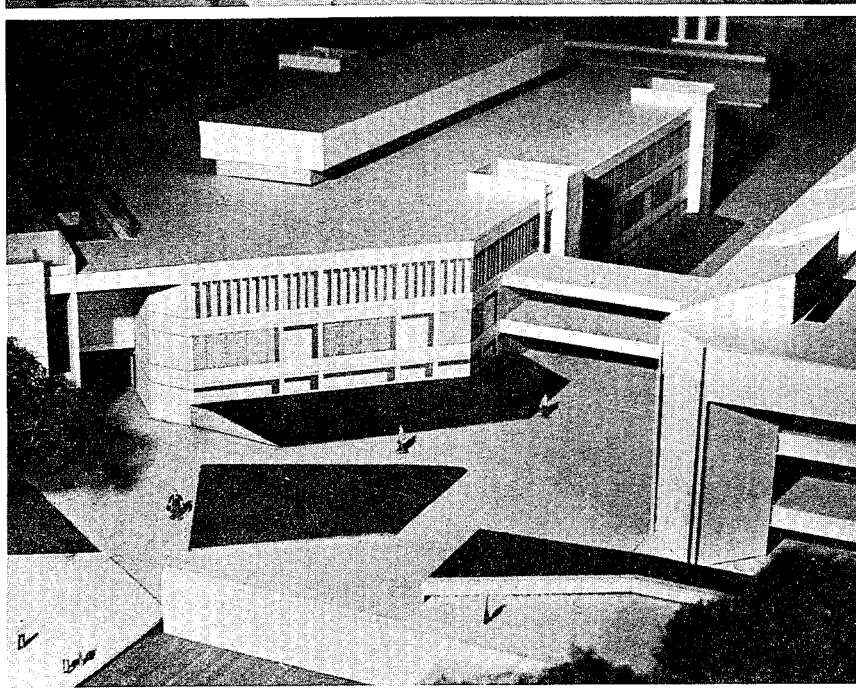

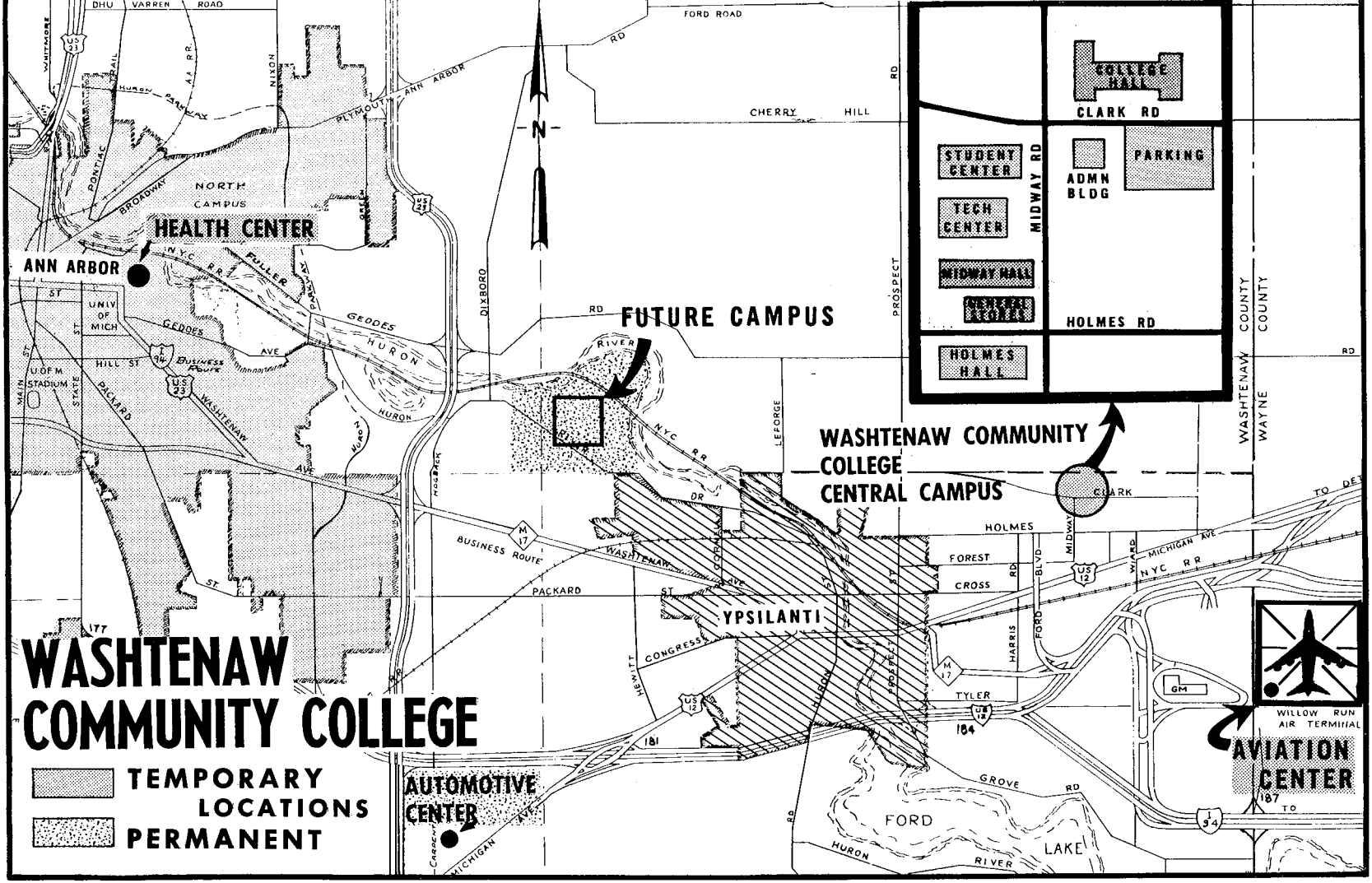
WASHTENAW
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PARKING
HOLMES HALL
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HOLMES RD
AUTOMOTIVE CENTER
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WILLOW RUN AIR TERMINAL
YPSILANTI
NORTH CAMPUS
FORD LAKE
CHERRY HILL
FORD ROAD
PLYMOUTH
ANN ARBOR
BROADWAY
GEDDES
HILL ST
PACKARD
WASHTENAW
DIXBORO
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TO DETROIT

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