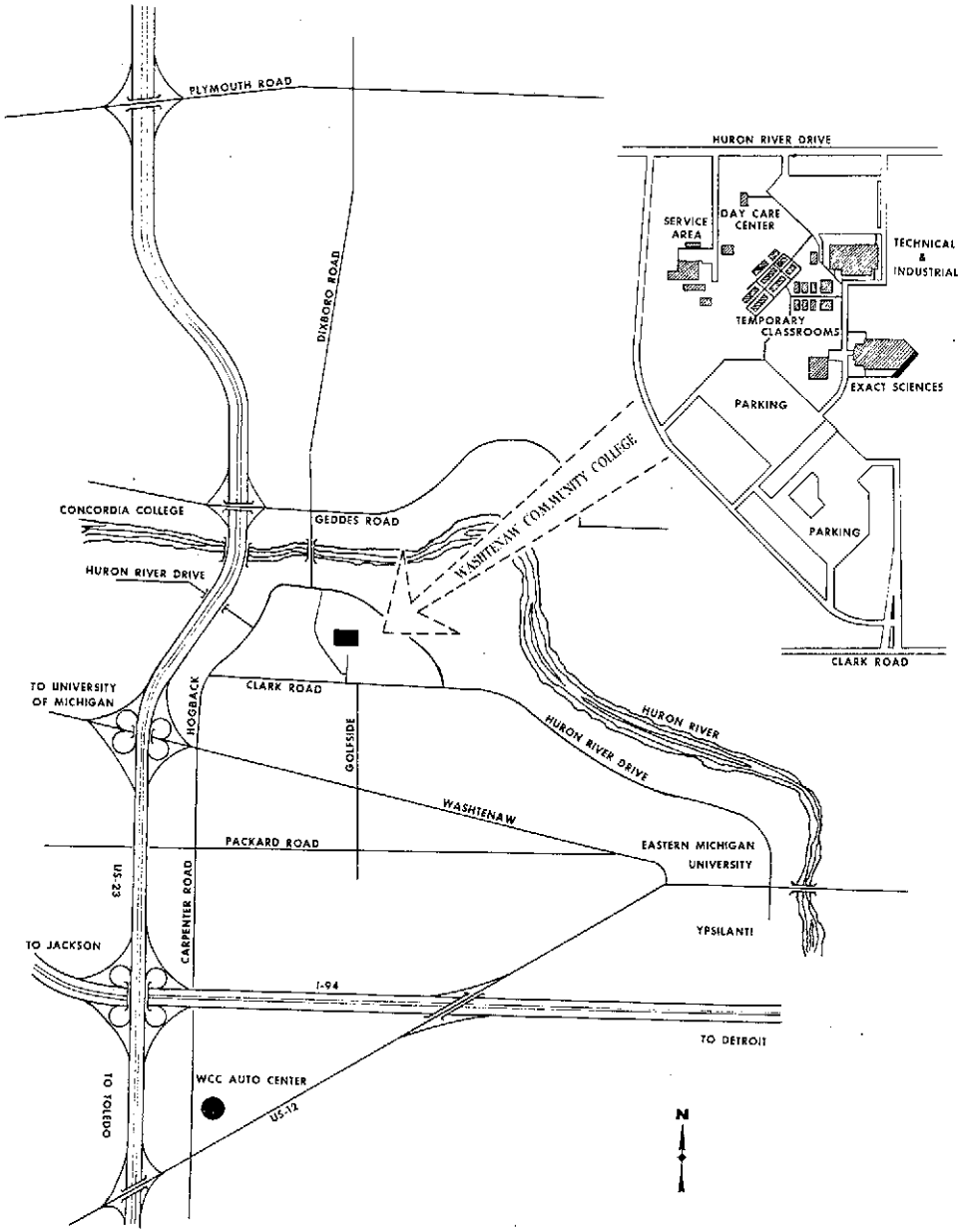
WASHTENAW COMMUNITY COLLEGE

BULLETIN

1973–74



COVER BY KEN VANCE
ARCHITECTON STUDENT

WASHTENAW

COMMUNITY

COLLEGE

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TELEPHONE: (Area Code 313) 971-6300

Approved by the
STATE DEPARTMENT OF EDUCATION
STATE OF MICHIGAN

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

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WASHTENAW COMMUNITY COLLEGE

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An Institutional Member of
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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 semiprofessional 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.

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 were written, and construction of the Technical/Industrial building was completed in the fall of 1969 and is now in use; construction of the Exact Science building is now completed and in use. While construction of these buildings was in progress, college classes continued 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 over 21 years of age. Currently, twice as many men are attending the College as women. Approximately 50% of all students are enrolled in 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 further 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 in conjunction with program offerings.

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 opportunity 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 the attainment of their educational goals.

ADMISSIONS

Admissions Eligibility and Procedure

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

Fall Semester
Winter Semester
Spring Session
Summer Session

Eligibility for Admission

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

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

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

Admission Procedure

1. The student must fill out the Application for Admission form supplied by the Registrar's Office.

2. A non-refundable application fee of $10 is required of all students who wish to enroll. A check or money order for this amount made payable to Washtenaw Community College must accompany the application.

3. The student must request his high school to send a transcript of his record to the Registrar's Office.

4. All first-time students enrolling for seven (7) or more semester credit hours are required to take the American College Test (ACT) and have the results forwarded to the College Counseling Office.

5. The student intending to earn a Certificate of Achievement or an Associate Degree, 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. Transcripts must be sent from each college directly to the Registrar's Office.

The student will be notified of his admission status when the above procedure has been completed.

Readmission

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

Counseling

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

Registration

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

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

Veterans' Eligibility

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

Full Time	12 or more credits
3/4 Time	9 through 11 credits
1/2 Time	6 through 8 credits
Less than 1/2 Time	Less than 6 credits

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

TUITION, FEES, AND RESIDENCY POLICY

*Tuition

In-District Resident:
$12.50 per credit hour

Michigan, Out-of-District Resident:
$25.00 per credit hour

Out-of-State Resident:
$37.50 per credit hour

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

*Fees

Application and records fee $10

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

Late registration fee . . . . . $ 5

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

*Refunds

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

If in the case of extreme hardship a student must withdraw after the fourth week of classes and wishes to be considered for a refund, he must

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

petition the Registrar, in writing, stating the reasons why such a refund should be granted.

Residency Policy

Tuition costs at the 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 is a resident of the Washtenaw Community College District, as determined by the College.

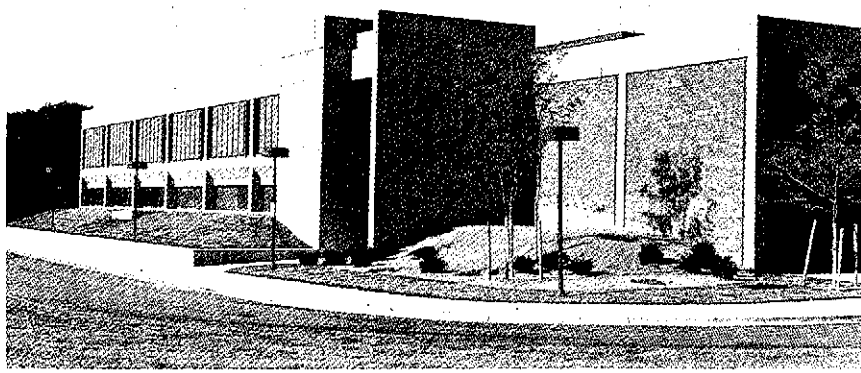
Out-Of-District Resident

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

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.

Questions arising from the administration of this policy will be resolved by the College Registrar.

A student shall not be entitled to a refund of any portion of his tuition or fees by virtue of any change of residency which may have occurred after the date of his registration.



GENERAL REGULATIONS

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

Credit Hours

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

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

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

Credit Load

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

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

1. be qualified to hold student office.
2. qualify for the Dean's Honor List for the semester.
3. be reported as a full-time student to the Selective Service System.

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

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

Classification of Students

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

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

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

Second-year (Sophomore): A student who has completed twenty-eight or more credit hours, but has not received an associate degree or has not qualified for upper division classification in a four-year college or university.

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

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	
W—withdrawal	
DF—deferred	
N—non-attendance	
V—visitor	

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

Deferred Grade 'DF'—Credit Withheld: In certain designated courses a student may be unable to complete the required work until the following semester. If in the opinion of the instructor the student is making normal

progress, he may assign the 'DF'. The student must re-enroll in the course and complete the required work the following semester (Spring and Summer Session excluded) or the grade automatically becomes a 'W'.

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

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

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

Grade-Point Average

Honor points or grade points measure the achievement of the student for the number of credit hours he 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 (3x3)= 9
History	3	F	0 grade points (0x3)= 0
Mathematics	3	C	2 grade points (2x3)= 6
Electronics	2	A	4 grade points (4x2)= 8
Physics	5	C	2 grade points (2x5)=10
Physical Education	1	D	1 grade point (1x1)= 1
	17		34

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

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

Grades are issued at mid-semester, at the end of each semester, and each spring and 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.

Repeating a Course

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

Whenever a course is repeated on a credit basis, the last grade and credits earned replace the previous grade in computing grade-point averages. However, all entries remain a part of the student's permanent academic record.

Student Evaluation (Examinations)

Washtenaw Community College believes that scheduled evaluations are a very important part of the instructional program. As such, the student should be prepared not only for mid-semester and final examinations, but for periodic tests covering various phases of instruction. The instructor will inform the student as to the time, place, and other examination requirements.

Attendance

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

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

Credit for Formal Service School Experience: Credit will be granted for formal service school training as recommended by The American Council on Education, through its Commission on Accreditation of Service School Experiences. For complete information, contact the VA representative in the Registrar's Office.

Change of Enrollment

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

To Add a Course: During the first five (5) days of classes, an Add must be approved by the student's academic advisor or counselor. Following approval the student must take his Add cards to the Registrar's Office and complete the payment of tuition. A student is not officially registered in a class until the Add card is accepted by the Registrar's Office. Consult the semester calendar to determine the dates of the Add period.

To Drop a Course: A student may drop a course prior to the final examination period and the letter 'W' will be assigned. All Drops must be authorized by a counselor or advisor. A student is not officially dropped from the class until the Drop card is accepted by the Registrar's Office.

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

Withdrawal from the College

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

Upon official voluntary withdrawal from the College, grades are assigned according to the effective date of the withdrawal under the Change of Enrollment, To Drop a Course, section of this catalog.

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

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

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

A student who is called into the Armed Forces during the semester should present his orders for induction at the Counseling Office for appropriate action.

Graduation Requirements

To be eligible for the ASSOCIATE DEGREE a student must:

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

2. Complete three credit hours of English.

3. Complete three credit hours of political science. (State of Michigan requirement)

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

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

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

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

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

2. Complete three credit hours in speech or English.

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

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

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

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

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

Scholastic Honors

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

Dean's Honor List: The Dean's Honor List honors all full-time students in the College who earn a 3.00 or better average for a semester. The list is prepared each semester, and posted in prominent places on the campus.

Graduation Honors: High scholastic achievement is recognized at graduation for students earning a 3.00 or better average for all work completed prior to the semester of graduation. Graduation with honors is indicated on the student's permanent record, the commencement program, and lists released to the press.

Students earning a 3.75 or better are designated as "High Honors".

Seminars and Workshops

The College offers opportunities for students to enroll in short courses, conferences, workshops, and seminars. These vary in 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.

Request for Transcript

A student requesting that a transcript of his grades be sent to an educational institution or to a prospective employer must complete the appropriate form in the Registrar's Office. There is no charge for the first copy; there is, however, a service charge of $1.00 for each additional copy.

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

Dismissal

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

STUDENT SERVICES

The Student Services staff assists with counseling, student-initated 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. 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 in the community for specialized assistance.

All full-time students are required to take the American College Test (ACT) after they are admitted to complete their credentials. 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.

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

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.

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 the Job Placement Office.

For students seeking part-time employment a record of available positions is maintained in the Job Placement Office.

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, co-operative planning, and special interests will be fostered through participation in student activities. All student activities are coordinated through the Office of Student Services.

Student Government

A Student Senate has been organized. 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

The College offers the student opportunity to compete in a variety of intercollegiate sports. Cross country, basketball, track, baseball, and golf are currently offered. Other sports will be added in the future.

Washtenaw Community College is a member of the Eastern Collegiate Conference, Michigan Community College Athletic Association, and Region XII of the National Junior College Athletic Association. Several College teams have won conference titles and individuals have won conference state recognition. Teams and individuals qualifying for national tournaments have been accorded this privilege.

Intramural and extramural sports activities are organized in response to student interest and facility availability.

Student Organizations

Responding to student interest, groups of students are organizing activity clubs with the assistance of the Office of Student Services. Such groups include the Future Teachers Club, Ski Club, Architectons, Bowling Club, 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 Sickness and Accident Insurance

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

Health Service

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

Housing

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

Bookstore

The College serves the student body and enhances the instructional program through the bookstore. Books, instructional aids, equipment, materials, and supplies are readily accessible for students and staff. Costs are kept to a minimum based on the College goal of service to students.

Student Center

A lounging area equipped with vending machines for snacks, light lunches, and beverages is provided for students. Additionally, grill service is available during the day. Throughout most of the school year, students in the Food Service Program prepare hot, nutritious, noon-time meals at the nearby County Service Center.

FINANCIAL AID

The Financial Aid Office attempts to help people who may be having financial difficulties while they are students at Washtenaw Community College. Financial counseling is offered, as well as various methods of helping students to meet expenses through grants, loans, and scholarships. Students are invited to stop in whenever they have any questions related to budgeting, meeting college costs, or applying for financial assistance.

Most types of financial aid are given on an academic year basis to students who have financial need. Need is determined by calculating a student's expected family contribution and subtracting this from the appropriate budget for that student. Students are expected to live modestly while they are attending college. Budgets are determined yearly in an attempt to define realistic figures relating to student expenses in the Washtenaw County area.

FINANCIAL AID PROGRAMS

Educational Opportunity Grants

The Educational Opportunity Grant is available to students with great need who come from families which have traditionally been unable to assist their children in obtaining a college education. Students may apply for a grant if they are eligible and if funds are available. The grant can meet up to one-half the student's financial need (up to $1000) and must be matched by some other fund which is controlled by the College. The grant need not be repaid.

National Direct Student Loans

The National Direct Student Loan (formerly the National Defense Student Loan) is given to students with financial need in the amount of up to $1000 per year, if funds are available. Loans are interest-free while the student is at least half-time in a college, while he is a member of the armed services, or while he is a volunteer in VISTA or the Peace Corps. Repayments are made at 3% annual interest, beginning one year after the student leaves school. Students who become teachers in low-income schools or teachers of the handicapped may receive cancellation of part of their loan, as well as students who serve in combat areas in the armed services.

College Work-Study Program

Students who show financial need may be eligible for financial assistance through the College Work-Study Program. If students are approved for the program, they may work up to 15 hours a week on campus or in an off-campus, non-profit agency until they earn up to the dollar amount of their financial need for that academic year.

Trustee Awards

Trustee Awards are grants made available by the Board of Trustees of Washtenaw Community College to assist needy students who may not be eligible for other types of financial aid or to students who need assistance when other funds are depleted. These do not have to be repaid.

Scholarships

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

Michigan Veteran's Trust Fund Tuition Program

Students who are children of a veteran who died of service-connected injuries or totally disabled as a result of a service-connected injury, may be eligible for tuition waivers at Washtenaw Community College under Michigan Public Act 245. A student who believes he is eligible should request an application from the Michigan Veteran's Trust Fund in Lansing, Michigan. A student's eligibility terminates at the age of twenty-three.

Michigan Higher Education Assistance Authority Federal Guaranteed Loans

Students are eligible to apply for a MHEAA loan if they are carrying at least a half-time load. Applications are made to lending institutions (banks, credit unions, savings and loan associations, etc.) in the State as early as possible before the period in which the loan is needed as funds are often depleted early in the year for particular lending institutions. The student must complete an application for the loan, an application for guarantee of the loan, and an affidavit of purpose regarding use of the funds. Loans may be made to undergraduate students up to a maximum of $2,500 a year with a total of $7,500 for undergraduate study. Maximum subsidized interest rate is limited to 7%.

HOW TO APPLY FOR FINANCIAL AID

The bulk of financial aid awards are given to students just prior to the start of Fall semester classes. Students who wish maximum consideration for financial aid for an academic year should apply between March 1 and July 1 of that year. Applications will be accepted after that date, however, and throughout the academic year. Consideration will be given to applicants as funds are available after September.

The financial aid application consists of a Parents' Confidential Statement filed with College Scholarship Service for students dependent on their parents. Self-supporting students must complete a Students' Confidential Statement with College Scholarship Service and a form verifying self-supporting status with the Financial Aid Office.

Because of the uncertainty in federal grants and student assistance programs, students are encouraged to discuss their financial need with the Financial Aid Office.

LEARNING RESOURCE CENTER

The Learning Resource Center (LRC) includes the College's library and instructional-media facilities. The LRC provides students and faculty with educational material in many media: books, periodicals, newspapers, pamphlets, microforms, 8 and 16mm. film, filmstrips, slides, tapes, records, and transparencies.

The library 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.

For students who enjoy listening to music, a collection of tape recordings is maintained at the circulation desk. Tape recorders and record players are available and are equipped with headsets for listening to selected records and tapes. Recordings include vocal and instrumental music, classroom lectures, plays, poetry, and other material.

A preview room and carrels are 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 (8 and 16mm.)—black, and 35 mm. slides—brown. All media is available for student use through the circulation desk.

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

Students are urged to acquaint themselves with the operating policies of the LRC which have been adopted with the interest of all in mind.

GENERAL STUDIES PROGRAM

One of the objectives of Washtenaw Community College is to develop "general educational and pre-professional programs, both one- and two-year, transferrable to other colleges and universities" and another is to develop "a two-year general education program for the social, cultural, and personal development of individuals desiring to continue their education beyond high school." These objectives, together with the aim of better preparing an individual to work at his desired occupation in conjunction with his vocational education, help form the basis of the General Studies programs at Washtenaw Community College.

The General Studies programs are specifically designed to prepare students for the responsibilities as citizens in a free society; to prepare them to communicate on the job; to assist them in social, cultural, and personal development. Also offered as part of the General Studies curriculum are college preparatory and remedial courses for those who need to make up deficiencies for college-level work.

These courses and programs are carefully designed to meet the requirements of four-year universities and colleges to which the students of Washtenaw Community College transfer.

Courses and programs in General Studies cover the following areas:

Communication Arts
Exact Sciences
Social Sciences

The General Studies offerings are designed to prepare the Washtenaw Community College student to assume his role as an individual, member of a family, and as a citizen. They contribute to his choice of occupation and success therein. The intent is to assist the student to feel intellectually and psychologically at home in a world which daily makes new demands on him: social, economic, psychological, spiritual, and intellectual demands. The General Studies courses and programs are so constructed to help a student meet, and adjust to, the problems of everyday living, to cope with these problems, and to understand them. It is the basic intent of General Studies to develop approaches to help the more average student.

STATE ARTICULATION AGREEMENT (MACRAO Agreement)

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

Basic Requirements of Agreement

The basic requirements are designed to provide students with a broad intellectual experience in the major fields of knowledge. Basic two-year requirements include English Composition and the broad categories of Social Science, Natural Science, and Humanities. Specific courses in each category are determined by the institution offering the courses. Courses which may not be transferrable (i.e., developmental courses, and some technical or occupational courses) are not included in the basic requirements.

Value of Agreement

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

Category Requirements

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

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

DIVISION OF COMMUNICATION ARTS

The Communication Arts Division offers a variety of courses in the visual arts and music; English studies in writing, literature, and language; modern language courses in French and Spanish; journalism and mass media; reading improvement and study skills, and communication courses in speech.

Studies in this division are based on the principle that good communications is basic and that each individual must have the ability to read competently; to listen, observe, and evaluate; and then to be able to effectively transmit his ideas, impressions, and attitudes to others.

Specific instruction in Communication Arts areas is designed to provide a wide range of services to assist students to:

- Improve basic skills in reading, writing, and speaking.
- Develop communicative support skills required in studies leading to specific career occupations.
- Complete the first two years of college studies acceptable for transfer to four-year institutions.
- Pursue studies of general enrichment and of general community interest.
- Study in the basic areas of the liberal arts and humanities.

Practical assistance is available to students, on the basis of need and interest, in the Writing Workshop (a writing skills laboratory), the Reading Laboratory, and in the Language Laboratory (a sound lab for foreign language and speech students).

Outlets for development and publication of students' creative writing and reporting skills are available in opportunities to work on student publications—THE VOICE (newspaper), WASHTENAW (news magazine), and MARGINS (arts magazine).

DIVISION OF EXACT SCIENCES

In this division the College provides studies which supply a basic knowledge of the world, the environment, and the means used to understand and alter man's environment. The Exact Sciences include biology, chemistry, geology, mathematics, and physics.

Courses in the Exact Sciences enable man to grasp the significance of modern life with its technological foundation. A study of the science of man and machines promotes an appreciation of the limitations and potential of the technology on which people depend for food, clothing, entertainment, transportation, housing, and life support.

Biology deals with living things, plants, animals, and human beings. Physics and chemistry are more concerned with the why of drugs, stars, fire, rockets, electricity, and nuclear energy. Laboratories where students actually use the research equipment are important to the teaching of all science, and are readily available at Washtenaw Community College.

Mathematics is essential to everyone. Washtenaw offers a unique service through the Mathematics Laboratory; there it is possible to start where you are and learn at an individual pace with the help of a specially trained instructor acting as a tutor.

DIVISION OF SOCIAL SCIENCES

The Social Sciences curriculum is set up specifically:

1. To meet the requirements of Michigan law with respect to government and political sciences courses.

2. To meet the requirements of most four-year institutions to which the students of the College transfer.

3. To make life more meaningful and rewarding in general for those enrolled in social science courses.

It is the function of the Social Sciences division to enable people to interact meaningfully with their fellowmen and thus make life more rewarding. The Social Sciences curriculum is constructed in such fashion as to give the student vocational adjustment, insights into himself, society, his fellowmen, his family relationships and responsibilities, and his obligations as well as his rights as a citizen. Training the student for responsible citizenship is one of the most important objectives of the Social Sciences curriculum. Courses are arranged and set up in accord with the requirements of Michigan law. Students planning to transfer to four-year institutions will find the requirements of those schools met by the course offerings in history, psychology, humanities, economics, and political science.

The Social Science offerings are designed with these specific aims in mind:

1. To help the student develop a set of sound moral values.

2. To help him in his role as citizen.

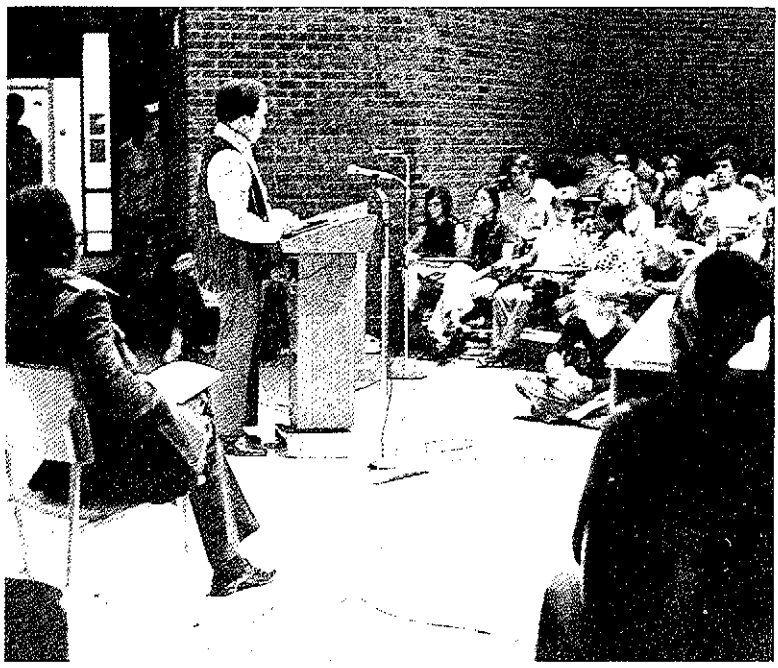
3. To teach him to think discriminately where problems and values are concerned.

4. To help him understand his cultural heritage so he may gain a perspective of his time and place in the world.

5. To help him understand his biological and physical environment so that he may better adjust to it and work to improve it.

6. To assist him in personal and social adjustment, in the development of satisfactory home and family life.

7. To help him achieve a good vocational adjustment.



BLACK STUDIES

The Black Studies Division of the College was born as the result of student protest led by the Black Student Union. The students insisted that relevant Black content be included in the College curriculum. On May 6, 1969, the Board of Trustees appointed a Black Studies committee composed of students, faculty, and administrators invested with the power to implement a unique Black Studies Division.

In the Fall of 1969 the Black Studies program was under way.

Mission

The overall goal of the Black Studies Division is to free the minds of people by exposing them to the truth of the Black experience. We are pledged to work with the Black community toward goals consistent with their needs and aspirations. The program is to be service-minded, constantly seeking solutions to the multiplicity of problems Black people are enduring. The division considers relevant community service, academic excellence, and future-oriented plans as serious responsibilities and a noble mission. It explores new dimensions and seeks unique solutions to concerns of the Black community; develops and evaluates innovative programs keyed to rapidly changing social, economic, and political conditions of our society.

There is no degree offered in Black Studies as a major field. A variety of courses in art, music, history, economics, politics, psychology, and literature are offered as an integral part of existing programs and as elective courses. Timely workshops, speaker-lecturers, and consultation are basic parts of the Black Studies curriculum.

OCCUPATIONAL PROGRAMS

Washtenaw Community College offers a wide range of fully developed vocational, technical, and semi-professional career programs. The following listing encompasses programs designed to meet individual educational and training requirements for job-entry, upgrading, and other employment opportunities. Both one- and two-year programs are offered, as well as special certificate programs.

For details and course listings for a specific program or area of interest, the student should write or telephone the Registrar's Office requesting the program listing desired.

BUSINESS AND INDUSTRIAL MANAGEMENT OCCUPATIONS

Accounting Technician	Two-Year Program
Data Record Operator	One-Year Program
Data Processing Technician	Two-Year Program
Public Administration Technician	Two-Year Program
Assessment Administration	Special Certificate Program
Management Technician	Two-Year Program
Marketing Aide	One-Year Program
Marketing Technician	Two-Year Program
Clerk-Typist	One-Year Program
Secretarial Technician	Two-Year Program

COMMUNITY SERVICE OCCUPATIONS

Food Service Specialist	One-Year Program
Institutional Foods Technician	Two-Year Program
Dietetic Technician	Two-Year Program
Law Enforcement Technician	Two-Year Program

HEALTH OCCUPATIONS

Dental Assistant	Two-Year Program
Radiologic Technician	Two-Year Program
Respiratory Therapist	Two-Year Program
Medical Office Specialist	Two-Year Program
Medical Emergency Specialist	Special Certificate Program

TECHNICAL AND INDUSTRIAL OCCUPATIONS

Automotive Service

Auto Body Repairman . . . . . One-Year Program
Auto Body Specialist . . . . . Special Certificate
Auto Body Service Technician . . . . . Two-Year Program
Automobile Spray Painter . . . . . One-Year Program
Automotive Service Technician . . . . . Two-Year Program
Automotive Safety and Emissions Technician . . . . . Two-Year Program
Transmission and Drive Line Specialist . . . . . One-Year Program
Front End and Brake Specialist . . . . . One-Year Program
Engine Overhaul and Rebuilding Specialist . . . . . One-Year Program
Emissions Control and Air Conditioning Specialist . . . One-Year Program
Automotive Safety Specialist . . . . . One-Year Program

Construction Technology

Construction Technician (Wood, Plastics, Metal) . . . . Two-Year Program
Construction Technician (Lighting) . . . . . Two-Year Program

Drafting and Visual Communications

Architectural Drafting Detailer . . . . . One-Year Program
Architectural Drafting Technician . . . . . Two-Year Program
Construction Specialist . . . . . One-Year Program
Draftsman-Detailer . . . . . One-Year Program
Industrial Drafting Technician (Tooling Option) . . . . . Two-Year Program
Industrial Drafting Technician (Product Option) . . . . Two-Year Program
Photographic Assistant . . . . . One-Year Program
Photographic Technician . . . . . Two-Year Program
Technical Illustrator . . . . . Two-Year Program
Commercial Artist . . . . . Two-Year Program

Electricity-Electronics

Electrical Equipment Repairman . . . . . One-Year Program
Electrical Engineering Technician . . . . . Two-Year Program
Electronics Engineering Technician . . . . . Two-Year Program
Electronic Service Technician . . . . . Two-Year Program

Mechanical Technology

Hydraulic Assembler . . . . . One-Year Program
Fluid Power Assembler . . . . . Two-Year Program
Toolroom Machine Operator . . . . . One-Year Program
Mechanical-Engineering Technician . . . . . Two-Year Program
Electro-Mechanical Technician . . . . . Two-Year Program
Metallurgical Technician . . . . . Two-Year Program
Numerical Control Technician . . . . . Two-Year Program
Numerical Control Machine Operator . . . . . One-Year Program

Radio and Television Communications

Radio Communications Specialist . . . . . One-Year Program
Television Communications Specialist . . . . . One-Year Program
Television Communications Technician . . . . . Two-Year Program

Refrigeration

Refrigeration-Air Conditioning Serviceman . . . . . Special Certificate
Refrigeration-Air Conditioning Service Technician . . . Two-Year Program

Trade Related Instruction

Two-Year Program for Skilled Tradesmen
Sales and Manufacturing Representative . . . . . Two-Year Program
Manufacturing Apprentice Related Instruction

Welding and Fabrication

Combination Welder-Mechanic . . . . . One-Year Program
Welding and Fabrication Technician . . . . . Two-Year Program

COMMUNITY OUTREACH PROJECT

The college has initiated a special, innovative community college instructional program to serve the educational and training needs of institutionalized persons in the Michigan State Correctional System. The program, known as the "COMMUNITY OUTREACH PROJECT", enables residents of the correctional institutions to work toward achievement of short-, intermediate-, and long-range educational goals. Program offerings are developmental as well as regular college programs leading to certificates and two-year associate degrees.

The "COMMUNITY OUTREACH PROJECT" embodies educational and training elements aimed at providing the institutionalized persons with the opportunity to enhance their knowledge and skills for greater vocational employability and improved general societal adaptation. Timing of course/program offerings is dovetailed with students' variable correctional institution residency periods to provide compatible program attendance and completion relationships.

The "COMMUNITY OUTREACH PROJECT" provides institutionalized students with the opportunity for involvement in the diverse areas of learning which include classes in the oral and written communicative skills, psychology, social psychology, biology, ecology, food service occupations, automotive services, and other occupational career programs, as well as personal and consumer finance insights. Additionally, learning opportunities in the areas of political science, art, and music are offered as a means of contributing to the students' political awareness and cultural enhancement.

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 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 the 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, marketing, 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.

Special Programs and Courses

In addition to its regularly scheduled occupational courses and programs, the Division of Business and Industrial Management has developed specialized short course and program offerings (seminars, workshops, series of sessions, etc.) which are available on a regular basis throughout the college year. These short-course offerings are designed to meet the particular needs of the business and industrial firms and their employees in the immediate service area of the College.

Included in these short-course offerings are the following:

Basic Personal Income Tax
Key-Punch Operations
Data Processing/Unit Record Operations
Basic Personal/Career Salesmanship
Office-Type Offset Duplicating Machinery Operations
Data Processing Fundamentals Seminar
Data Processing/Computer Operation and Programming

COURSE NUMBERS

1. The first digit of a course number indicates its classification according to the year it should be taken.

   a. Courses numbered below 040 are developmental courses and the credits do not count toward graduation.

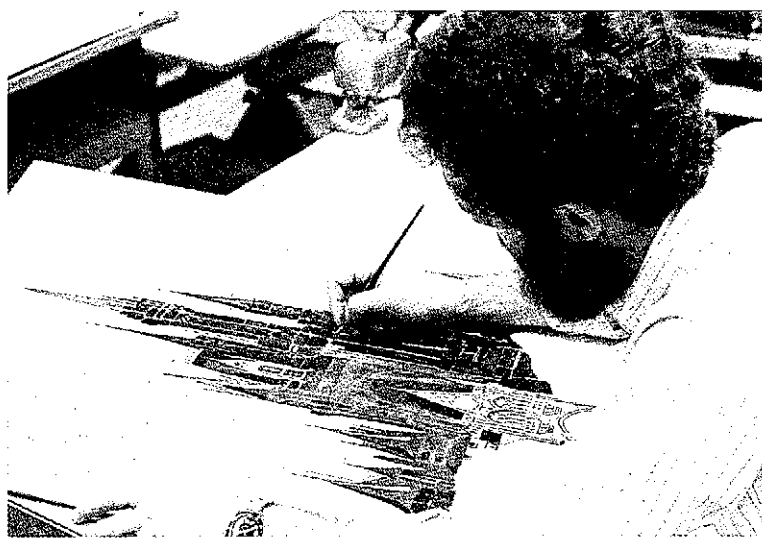
   b. Courses numbered 040 to 099 are college-level preparatory courses, occupational program courses, or self-improvement programs.

   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.

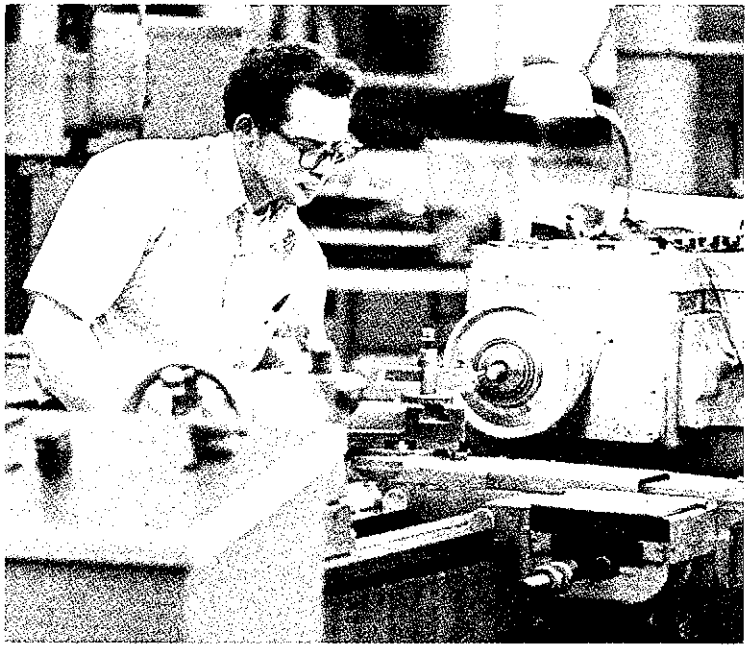
2. The second digit of the course number indicates the semester the course usually is offered: 1, first semester; 2, second semester; 0,3,4,5,6,7,8, or 9, either semester.

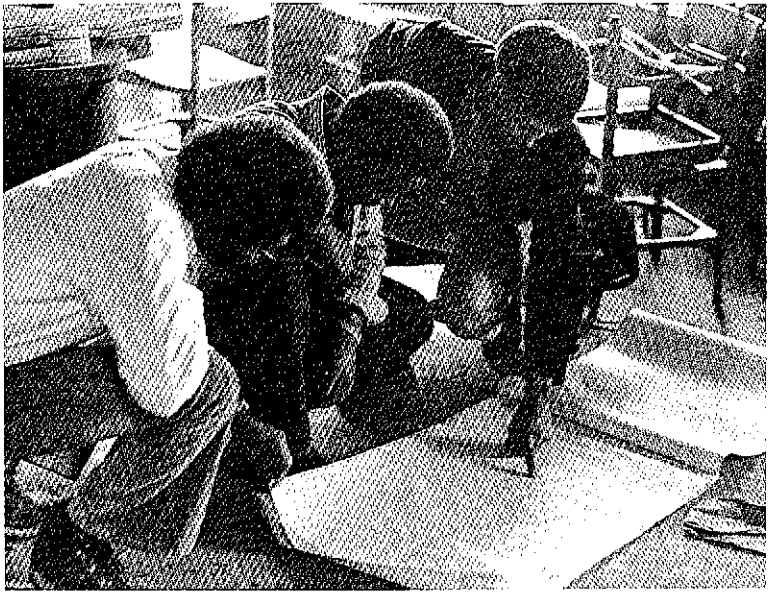
3. The third digit of the course number indicates the number of the course in a sequence: 1,2,3,4,5, or 6. For numbers 0,7,8,9, there is no sequence involved.



COURSE OFFERINGS

(ACC) ACCOUNTING
(ANT) ANTHROPOLOGY
(ARC) ARCHITECTONICS
(ART) ART
(ABR) AUTO BODY REPAIR
(A-S) AUTOMOTIVE SERVICE
(BIO) BIOLOGY
(BLS) BLACK STUDIES
(BPR) BLUEPRINT READING
(CEM) CHEMISTRY
(C-T) CONSTRUCTION TECHNOLOGY
(D-P) DATA PROCESSING
(D-A) DENTAL ASSISTING
(E-C) ECONOMICS
(E-E) ELECTRICITY/ELECTRONICS
(ENG) ENGLISH
(FIN) FINANCE
(FLP) FLUID POWER
(FRN) FRENCH
(G-B) GENERAL BUSINESS
(GEO) GEOGRAPHY
(GLG) GEOLOGY
(HST) HISTORY
(HUM) HUMANITIES
(I-D) INDUSTRIAL DRAFTING
(IFM) INSTITUTIONAL FOODS AND MANAGEMENT
(I-E) INTERNSHIP - EXTERNSHIP
(JRN) JOURNALISM
(L-E) LAW ENFORCEMENT
(MGT) MANAGEMENT AND MARKETING
(MTH) MATHEMATICS
(M-T) MECHANICAL TECHNOLOGY
(MLG) METALLURGY
(MUS) MUSIC
(N-C) NUMERICAL CONTROL
(PHL) PHILOSOPHY
(PHO) PHOTOGRAPHY
(P-E) PHYSICAL EDUCATION, HEALTH, AND RECREATION
(PEA) PHYSICAL EDUCATION ACTIVITY COURSES
(PHS) PHYSICAL SCIENCE
(PHY) PHYSICS
(PLS) POLITICAL SCIENCE
(P-S) POWER SOURCES
(PSY) PSYCHOLOGY
(Q-C) QUALITY CONTROL
(R-T) RADIOLOGIC TECHNOLOGY
(RDG) READING
(RAC) REFRIGERATION/AIR CONDITIONING
(RTH) RESPIRATORY THERAPY
(SCI) SCIENCE
(S-O) SECRETARIAL AND OFFICE
(S-S) SOCIAL SCIENCE
(SOC) SOCIOLOGY
(SPN) SPANISH
(SPH) SPEECH
(TCA) TECHNICAL-COMMERCIAL ART
(W-F) WELDING AND FABRICATION





COURSE DESCRIPTIONS

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 . . . . . .1-6 credit hours

The College offers cooperative occupational-experience programs to interested and qualified students in both the Occupational and General Studies areas. These programs are designed to produce a learning situation (training station) which would be impossible or undesirable to reproduce in a campus environment.

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

Students planning to enroll for credit must first review their plans with their advisor and the Coordinator of Cooperative Occupational Education to obtain their approval.

No more than six credits may be applied to a certificate of achievement and no more than twelve credits may be applied to Associate Degree requirements.

(ACC) ACCOUNTING

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

Prerequisite or co-requisite: Business Occupational Foundations 140 and Foundations of Occupational Mathematics 090 or divisional consent.

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 on ability to apply elementary accounting concepts to business 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: Business Occupational Foundations 140 and Foundations of Occupational Mathematics 090 or divisional consent.

An introductory study of accounting principles with emphasis placed on the role of accounting in developing essential information about business operations. Course coverage includes the accounting cycle, financial statements, controlling accounts, special columnar journals, and the voucher system. 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 enterprises. Accounting is perceived as an essential function in the achievement of enterprise goals. 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 Personal Tax Accounting . . . . . 3 credit hours

Prerequisite: Principles of Accounting 111 or equivalent.

An introductory course in federal and state personal income taxes, federal and state payroll taxes, and other general taxes. (3 hours per week)

213 Intermediate Accounting . . . . . 3 credit hours

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

A detailed study of the application of accounting theory to specialized phases of the accounting process such as the treatment of cash and temporary investments, receivables, inventories, investments, plant and equipment, and financial statements in general. (3 hours per week)

224 Intermediate Accounting . . . . . 3 credit hours

Prerequisite: Intermediate Accounting 213 or equivalent.

Continuation of Intermediate Accounting 213—including study of techniques for review and analysis of financial statements, intangibles, deferred charges, assets and liabilities, capital stock and surplus, income and earnings, funds-flow and cash-flow, and financial ratios. (3 hours per week)

225 Principles of Cost Accounting . . . . . 3 credit hours

Prerequisite: Principles of Accounting 122 or equivalent.

A course of study designed for students of Accounting, Business, and Management who wish to learn the principles, procedures, and managerial uses of Cost Accounting. Job order cost accounting is explored first, followed by process costing, budgeting, standard costing, non-manufacturing costs, direct costing, and the application of data processing techniques to costing procedures. (3 hours per week)

(ANT) 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)

201 Introduction to Cultural Anthropology . . . . . 3 credit hours

A study of the stages of man's cultural development beginning with hunting and gathering and ending with the development of the state. Contemporary peasant societies which have lost their traditional way of life will also be studied. (3 hours per week)

202 Introduction to Physical Anthropology . . . . . 3 credit hours

A study of primate behavior and evolution, with an emphasis on man's ecological adaptation in the past, present, and future. Particular attention will be given to recent discoveries in Africa by Jane Goodall and LSB Leakey. (3 hours per week)

207 Hindu and Buddhist Traditions . . . . . 3 credit hours

An introduction to Hindu and Buddhist traditions with particular emphasis on the role each plays in the cultures of India and Japan. The student will be introduced to various techniques of meditation. (3 hours per week)

(ARC) ARCHITECTONICS

100 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)

109 Site Layout . . . . . 3 credit hours

A lecture and field course dealing with the principles of site layout of construction projects. Approved site plans, builders level transit, tape chain, and preferred equipment are demonstrated and used. (3 hours per week)

111 Architectural Drawing . . . . . 6 credit hours

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

117 Construction Materials . . . . . 3 credit hours

A survey of typical types of materials used in basic construction. Emphasis is placed on the properties, selection, and building techniques appropriate for a wide range of materials. Included are woods, metals, plastics, glass, and aggregate materials. (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 . . . . . 6 credit hours

Prerequisite: Architectural Drawing 111.

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

200 Specification Preparation . . . . . 1 credit hour

Prerequisite: Specifications 100.

An in-depth study of the uniform system of communication used throughout the building industry, as required by the specification writer. Documentation of specification data related to building construction projects is researched and organized into contract specifications. (1 hour per week)

207 Estimating Construction Costs . . . . . 2 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. (2 hours per week)

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

An advanced course in estimating construction cost. For larger scale construction projects including more detailed type of building construction. (2 hours per week)

209 Surveying . . . . . 3 credit hours

Prerequisite: Applied Algebra 151.

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

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

An introduction to the use of structural members (steel, timber, and reinforced concrete, etc.) (2 hours per week)

213 Architectural Drawing . . . . . 6 credit hours

Prerequisite: Architectural Drawing 122.

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

224 Architectural Drawing . . . . . 6 credit hours

Prerequisite: Architectural Drawing 213.

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

(ART) ART

100 Creative Problems in Art . . . . . 3 credit hours

By means of seminars and craft activities this course focuses on seeing as a means of knowing. These activities and discussions aim to sharpen student's vision—both sight and mind. This course is designed for students who may be uncertain of their skills in art and yet still enjoy working with their hands and eyes. Emphasizes perception and imagination rather than skill in drawing and design. (3 hours per week)

101 Drawing and Painting . . . . . 3 credit hours

A general introductory art composition course intended to develop individual creative expression. Instruction in the fundamentals of composition including observation with training in seeing and articulation with training in expression involving the basic use of media such as pencil, charcoal, pen and ink, and painting. This course is designed for students with little or no experience in studio art work. Not intended to replace Basic Drawing 111 or Painting 114. (3 hours per week)

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)

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)

113 Black Drawing and Painting . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

114 Painting . . . . . 3 credit hours

Prerequisite: Basic Design 112 or permission.

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

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

See (BLS) BLACK STUDIES for course description.

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)

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)

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 the ways in which art reflects, extends, and shapes experience. Architecture as environment and its effect on us; contemporary art as a statement of our present condition; film as an art form; art of the past as expressing attitudes of its time. Class discussion, short papers, and projects. (3 hours per week)

140 Life Drawing . . . . . 3 credit hours

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

141 Black Art Appreciation . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

(ABR) AUTO BODY REPAIR

STUDENT TOOL SETS

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

111 Auto Body Repair Fundamentals . . . . . 4 credit hours

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. (8 hours per week)

112 Automobile Refinishing Fundamentals . . . . . 4 credit hours

An introductory course in 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 procedures used in the trade are stressed. (8 hours per week)

113 Light Body Service . . . . . 2 credit hours

An introduction to the principles of alignment and servicing of body components. Students are exposed to the adjustments of various designs of hinges, latches, window regulators, and the problems involved in servicing body trim, hardware, and the sealing of water and dust leaks. Correct fit and the function of body parts are stressed. (4 hours per week)

123 Body Repair Methods . . . . . 4 credit hours

Prerequisite: Auto Body Repair Fundamentals 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 repairs common to the front, side, and rear sections of automobiles damaged by collision. Repair jobs are selected to provide the student diversified experience on body trim and hardware, panel replacement, and aligning various body components. (8 hours per week)

124 Automobile Refinishing . . . . . 4 credit hours

Prerequisite: Automobile Refinishing Fundamentals 112.

A continuation of the units begun in Automobile Refinishing Fundamentals 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. (8 hours per week)

125 Flat Rate Estimating . . . . . 2 credit hours

Prerequisite: Consent of division.

An introductory course designed to expose the student to the use of flat-rate manuals to determine parts and labor prices in estimating damaged automobiles. Emphasis is placed on the procedures used to establish complete and accurate prices in preparing the estimate. (3 hours per week)

126 Fundamentals of Frame and Body Alignment . .3 credit hours

Co-requisite: Body Repair Methods 123 or Major Repair Procedures 219.

A study of the common types of body frame damage and the equipment used to make repairs. Laboratory assignments include instruction in the use of frame gauges, diagrams, and portable body-frame straightening equipment to make a diagnosis and set up corrective hook ups. (6 hours per week)

219 Major Repair Procedures . . . . . 8 credit hours

Prerequisite: Consent of division.

A demonstration-lab course which stresses the methods and procedures involved in straightening and aligning the automobile body-frame and replacing various body panels. Lab work includes advanced instruction in using portable body-frame equipment to diagnose and repair common body-frame damage. Repair jobs are selected as being representative of front end, side, and rear end collision. Emphasis is placed on making complete and accurate estimates, repair planning, and completing the repair within the limits of established flat-rate times. (20 contact hours)

220 Collision Estimating . . . . . 2 credit hours

Prerequisite: Consent of division.

Extensive practice in preparing estimates of automobile collision damage. Emphasis is placed on the economics of repairing as opposed to replacing damaged body panels as well as customer and employee relations. Field trips to area dealers and collision shops provide diversified experience in estimating typical damage and developing individual style in preparing complete and accurate estimates. (4 hours per week)

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

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

(A-S) AUTOMOTIVE SERVICE

STUDENT TOOL SETS

Students enrolling in the Automotive Service Technician Program will be required to furnish basic tool sets. They will also be required to add to the tool sets during their period of training so they will be equipped for employment upon completion of their programs.

101 Automotive Electricity . . . . . 2 credit hours

Prerequisite: Service Orientation 110 concurrently.

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 . . . . . .2 credit hours

Prerequisite: Service Orientation 110 concurrently.

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)

103 Basic Carburetion . . . . . 1 credit hour

Prerequisite: Service Orientation 110 concurrently.

Theory of operation and service procedures for one and two barrel carburetors are studied both in theory and practical application on live cars. (4 hours per week) 7-1/2 weeks

104 Brake Systems . . . . . 2 credit hours

Prerequisite: Service Orientation 110 concurrently.

A study of hydraulic and mechanical principles applied to automotive drum and disc systems. Students perform repairs on live vehicles. (4 hours per week)

105 Wheel Balancing and Alignment . . . . . 2 credit hours

Prerequisite: Service Orientation 110.

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. (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 for the efficient operation of emission-equipped automobiles. (4 hours per week)

108 Transmission and Power Trains . . . . . 2 credit hours

Prerequisite: Service Orientation 110.

A detailed study of the 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. Complete engine is tested for performance on dynamometer. (4 hours per week)

110 Service Orientation . . . . . .1 credit hour

An introductory course designed to acquaint students with the tools and equipment used in automobile service industry. Specialized instruction in use and care of tools and measuring devices is included. (3 hours per week)

150 Light Service Repair . . . . . 2 credit hours

Course includes principles and practical application in: cooling systems, exhaust systems, tire servicing, lubrication, used car reconditioning and new car preparation. (4 hours per week)

201 Automotive Tune Up and 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 system, fuel system, ignition and charging systems are covered, along with the necessary equipment to make the test. The course includes instruction and actual shop experience in tune-up procedures and equipment. (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) 7-1/2 weeks

203 Automatic Transmissions . . . . . 2 credit hours

Prerequisite: Transmission and Power Trains 108.

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 passenger cars and light trucks is covered. Emphasis is placed on servicing live vehicles. (4 hours per week)

205 Practical Field Experience . . . . . 4 credit hours

Prerequisite: Consent of division.

Student to be assigned duties in several dealerships to perform as line mechanics for eight hours per day with a total of 120 contact hours. Course to include a series of seminars for the purpose of comparing and analyzing field experiences.

206 Measurement of Vehicle Performance . . . . . 2 credit hours

Prerequisite: Consent of division.

A comprehensive study of engine and vehicle performance factors and operating characteristics. Engine and chassis dynamometers are used to measure torque and horsepower in relation to exhaust emissions and fuel consumption. (4 hours per week)

207 Steering Systems . . . . . .1 credit hour

A detailed study of manual and power steering systems. Operating principles, overhaul procedures, testing, and diagnosis are stressed. (4 hours per week) 7-1/2 weeks

208 Automatic Transmissions 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. (4 hours per week)

209 Disc Brakes . . . . . .1 credit hour

Prerequisite: Brake Systems 104.

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) 8 weeks.

210 Noise, Vibration, and Harshness . . . . . .1 credit hour

This course defines the various types of noise, vibration, and harshness conditions associated with tires and drive trains. Procedures needed to diagnose and correct problems are included. (4 hours per week) 7-1/2 weeks.

211 Emissions . . . . . 2 credit hours

Prerequisite: Fuel Systems 107 or consent of division.

The major emphasis of this class is the cause of emission problems and their control. Federal regulations will be discussed and individual automobile manufacturers systems of control will be covered in detail. (4 hours per week)

212 Electrical Circuits . . . . . .1 credit hour

Prerequisite: Automotive Electricity 101.

A study of the various electrical circuits of the automobile including lights, horn, windshield wiper, power windows, and seats, including trouble-shooting procedures. (4 hours per week) 7-1/2 weeks.

214 Heating and Air Conditioning . . . . . .1 credit hour

Prerequisite: Automotive Air Conditioning 202 or consent of division.

The study of current automatic air conditioning systems. The fundamentals of mixing and control will be covered as well as applications to individual systems. (4 hours per week) 7-1/2 weeks.

215 Customer Relations . . . . . 2 credit hours

Prerequisite: Consent of division.

This class is designed to provide the student with basic knowledge and skills to understand and deal with customers. Emphasis is placed on developing attitudes and habits necessary to fulfill these needs. (2 hours per week)

216 Test Lane Procedures . . . . . 2 credit hours

Prerequisite: Consent of division.

A detailed study involving development of multiple personnel work procedures and testing techniques to answer field service problems. Students

will apply these procedures and techniques to identify the exact cause of existing and potential vehicle problems. (4 hours per week)

217 Federal Safety Standards . . . . . .1 credit hour

Prerequisite: Consent of division.

This class is designed to give an analysis of the current regulations and what they mean to the motorist and the service technician. (1 hour per week) 7-1/2 weeks.

218 Federal Emission Standards . . . . . .1 credit hour

Prerequisite: Consent of division.

An analysis of current regulations and what they mean to the motorist and the service technician.

219 Tire Problem Analysis . . . . . .1 credit hour

Prerequsitie: Consent of division.

Course acquaints the student with the function and compositions of modern tires, and how they operate under normal and abnormal conditions. The analysis and evaluation of the appearance of tires is studied in detail. Emphasis is placed on detecting a problem, identifying its cause, and proceeding to its correction. (4 hours per week) 7-1/2 weeks.

220 Safety Features . . . . . .1 credit hour

Prerequisite: Consent of division.

A detailed study of construction, operation, and service techniques for safety-related components. Special emphasis is placed on the accurate diagnosis of these units under load and actual road conditions. Safety performance testing is applied to braking system, suspension system, wheel alignment, lighting, and various warning systems. (4 hours per week) 7-1/2 weeks.

221 Applied Automotive Welding . . . . . .1 credit hour

See WELDING AND FABRICATION for course description.

(BIO) BIOLOGY

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

The basic principles and concepts of biology are studied in lecture and laboratory. Emphasis will be on their practical application and their effects on man and his environment. Intended for the non-science student but a basic introduction for advanced biology courses. Involved are three hours of lecture and three hours of laboratory. (6 hours per week)

102 Human Biology . . . . . 4 credit hours

The structure, function, and place of man in the biological world are studied in lecture and laboratory. Emphasis will be placed on practical application and the effect on man and his environment. Laboratory work will include microscope, dissection, observation, and measuring techniques. Intended for the beginning student who wants an introduction to human biology. Involved are three hours of lecture and three hours of laboratory. (6 hours per week)

107 Field Ecology . . . . . 3 credit hours

A field study of plants and animals and their interaction and relationship to environment. Emphasis will be put on ecological concepts and their effects on man and society. The outdoor activities will stress the wooded areas, ponds, fields, and Huron River system found on the campus, supplemented by laboratory work and investigation of off-campus environmental problems.

108 Human Ecology . . . . . 3 credit hours

An introduction to the problems of population, pollution, energy, and environmental control for the non-science student. Basic background in evolution of environmental problems, ecological concepts, current ecological problems, and the outlook for the future will be investigated. Recent writings by researchers in these areas will be an important part of the course. (3 hours per week)

123 Physiology . . . . . .1 credit hour

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

Intended for those who require a five credit course in human biology. (1 hour per week)

127 Botany . . . . . 4 credit hours

Prerequisite: Concepts of Biology 101 or permission.

Field and laboratory investigations providing a detailed study of plant structure and function are considered in lecture and laboratory. Intended for the student with a general interest in plants and to provide a basis for further work in botany. Involved are two hours of lecture and four hours of laboratory. (6 hours per week)

128 Zoology . . . . . 4 credit hours

Prerequisite: Concepts of Biology 101 or permission.

Field and laboratory investigations providing a detailed study of classification, evolutionary relationships, structure, and function of the animal kingdom are considered in lecture and laboratory. Intended for the student with a general interest in animals and to provide a basis for further work in zoology. Involved are two hours of lecture and four hours of laboratory. (6 hours per week)

137 Applied Plant Science . . . . . 3 credit hours

A comprehensive study of the basic principles of plants of economic importance to man. Designed for the interested non-specialist, this course includes practical experience in the College's gardens and greenhouse. (3 hours per week)

138 Applied Human Biology . . . . . 3 credit hours

A study of human physiological functions and the maintenance of normal body systems in both stressed and relaxed situations. The course is designed for any student interested in a better understanding of how his body works. Extensive use is made of the biology laboratory equipment. (3 hours per week)

160 Aviation Physiology . . . . . 3 credit hours

A physiology course intended for students who contemplate the use of aircraft in their vocations. The course consists of background physiology of the nervous, endocrine, respiratory, and circulatory systems with application to the use of aircraft. Question and answer sessions, flight and safety films, and spatial disorientation devices will supplement the normal curriculum. (3 hours per week)

189 Study Problems in Biology . . . . . .1 to 3 credit hours

Prerequisite: Consent of biology instructor.

Directed activities in the biological sciences. These activities might be laboratory centered, field studies, or small groups using seminars to investigate special problems. (Hours to be arranged)

208 Genetics . . . . . 3 credit hours

Prerequisite: Concepts of Biology 101 or permission.

The course is designed to acquaint beginning students with the basic principles of heredity and their application to plants and animals, including humans. Some programmed materials are included. (3 hours per week)

209 Genetics Laboratory . . . . . .1 credit hour

Prerequisite or co-requisite: Genetics 208.

Principles of heredity are studied in the laboratory using living and prepared materials.

237 Microbiology . . . . . 4 credit hours

Prerequisite: Concepts of Biology 101 or permission of instructor.

Micro-organisms and their activities conducted in lecture and laboratory. Involved are three hours of lecture and six hours of laboratory. (9 hours per week)

(BLS) BLACK STUDIES

107 Black Psychology . . . . . 3 credit hours

A study of the psychological dynamics of the Black experience. An assessment of sociocultural factors that determines the Black psyche. (3 hours per week)

113 Black Drawing and Painting . . . . . 3 credit hours

The purpose of this class is to bring the drawing and painting talents of students into the arena of the Black experience. Students work with layout, composition, mural painting, water color, oil, pastel, and ink drawings. Our attempt is to correlate their art work into a Black concept. This way, we hope to help breach some of the gaps between the various communities, through this visual means. (6 hours per week)

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

An opportunity for the student to work from live models, study anatomy, techniques in drawing and painting, and visual expression. Multi-media. Clay modeling. Preferably with some art background, although not required. (6 hours per week)

141 Black Art Appreciation . . . . . 3 credit hours

The general goal of this course is to use the visual concept of art to aid in the emergence of Black people in America. We hope to teach the necessity to think, to develop, and to manifest intelligence and manhood, using art as the medium. (3 hours per week)

149 African History and the Western World . . . . . 3 credit hours

This course is designed to study the history of the people of Africa; their various cultures and their common human bonds; the impact of the slave trade on the African people and cultural factors that were exploited to facilitate the slave trade. Included also is the reciprocal influences of African and the Western World (mainly Europe, North and South America). (3 hours per week)

150 Afro-American History . . . . . 3 credit hours

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

151 Black Politics . . . . . 3 credit hours

This course is designed to study the formal and informal political structure of Washtenaw County as well as the city government of Ann Arbor and Ypsilanti, and Ypsilanti Township. An analysis of the impact of the national and international political scene on local conditions is included. Within this context the political potentials and realities of the Afro-American are studied. (3 hours per week)

157 Afro-American Music . . . . . 3 credit hours

The aim of this course is to acquaint the student with the development of musical events, institutions, and techniques derived from African musical heritage, and its influence on music in the Americas. (3 hours per week)

158 Black Music Creative Improvisation . . . . . 3 credit hours

The aim of this course is to help the student create music through improvisation which is an integral part of Black music. Vital study skills in basic musicianship will be used depending on the student's musical proficiency. This course focuses on the development of Black music from Africa to the Americas. (3 hours per week)

181 Black Literature . . . . . 3 credit hours

A critical analysis of Black emotions expressed in the world of literature with the goal of raising the level of Black consciousness. This course is an introduction to contemporary Black literature, letters, and thought. (3 hours per week)

192 Black Drama . . . . . 3 credit hours

This course offers the student an introduction to the techniques of acting, while giving him an overview of the history of Black involvement in the American dramatic scene. Materials for the acting workshop will be drawn from the writings of Black playwrights in order to give the student a functional experience with a sampling of the Black theatre literature. (3 hours per week)

200 Black Economics . . . . . 4 credit hours

An introductory course to the basic principles of economics and their implications for the Black community. Designed to acquaint students with the

free-enterprise system of business economic activity and the impact of the consumer and government forces upon the system. Included are essentials of income data, prices, employment, distribution of wealth, role of banking system, business fluctuations, and functioning of the American economic system and alternate economic systems. (4 hours per week)

(BPR) BLUEPRINT READING

100 Blueprint Reading for Construction Trades . . . . 2 credit hours

Elementary blueprint reading for persons in the construction trades. Architectural construction prints and drawings are used as the basis of instruction. (2 hours per week)

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

An advanced blueprint reading course for persons in the construction trades with emphasis on larger scale building construction projects. (2 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~~ WELDERS, inspectors, and supervisors. (3 hours per week)

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

Fundamentals of blueprint reading as applied to the fabrication of sheet material. Special emphasis is given to sheet metal fabrication and fastening methods. (4 hours per week)

(CEM) CHEMISTRY

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) Normally offered each semester.

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

Co-requisite or prerequisite: Introductory Chemistry 057.

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

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) Normally offered Fall and Winter semesters only.

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. (8 hours per week)

211 Organic Chemistry . . . . . 3 credit hours

Prerequisite: General Chemistry 111.

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

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 and General Chemistry 122.

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) Normally offered Winter semester only.

224 Biochemistry . . . . . 4 credit hours

Prerequisite: Organic Chemistry 211.

The study of the structure, occurrence, synthesis, function and metabolism of proteins, amino acids, peptides, carbohydrates, fats, nucleic 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. Three one-hour lectures and two 4-hour laboratories per week. (11 hours per week)

(C-T) CONSTRUCTION TECHNOLOGY

121 Carpentry . . . . . 4 credit hours

A practical course in the use of woodworking hand tools. The process of wood-working necessary in construction and building. (6 hours per week)

131 Electric Power Supplying . . . . . 4 credit hours

A practical course in the use of tools and materials for power supply installation, lighting, and electrically operated domestic equipment. (6 hours per week)

221 Carpentry . . . . . 4 credit hours

Prerequisite: Carpentry 121.

A practical course in the use of machines and hand tools in the process of work necessary in light wood frame construction, alterations, and maintenance. (6 hours per week)

231 Lighting Systems . . . . . 4 credit hours

Prerequisite: Electric Power Supplying 131.

A practical course in wiring and installing components used in building construction to provide light and power including creative effects with lights. (6 hours per week)

242 Crafts in Wood, Plastics, and Non-Ferrous Metals . . 4 credit hours

Prerequisite: Carpentry 221.

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

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

Prerequisite: Crafts in Wood 242.

A practical course in the fabrication of cabinets and building components using wood, plastics, and non-ferrous metals. Furniture making and design. (6 hours per week)

263 Lighting Calculations and Design . . . . . 4 credit hours

Prerequisite: Lighting Systems 231.

A practical course in designing and installing illumination for various situations: residential, commercial, ecclesiastical, etc. (6 hours per week)

(D-P) DATA PROCESSING

111 Principles of Data Processing . . . . . 5 credit hours

Prerequisite or co-requisite: Foundations of Occupational Mathematics 090 and first year standing or divisional consent.

An introduction to the principles and concepts of data processing including elementary computer programming techniques. Machine practice exercises are combined with classroom instruction to relate the various units of data processing equipment to the electronic computer. (4 hours per week PLUS minimum 4-6 practice hours)

122 Data Processing Applications . . . . . 5 credit hours

Prerequisite: Principles of Data Processing 111 or equivalent.

Course designed to acquaint the student with data processing applications in business operations. Emphasis is given to the development of an understanding of machine-systems for processing data. 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 Computer Programming . . . . . 5 credit hours

Prerequisite: Data Processing Applications 122 or equivalent.

An applied study of the functions of specific data processing equipment including a complete exposition of the Cobol system and an introduction to

the Fortran and other pertinent language systems of computer programming. Course coverage provides the student with insights into the universally adaptable programming systems concepts. (4 hours per week PLUS minimum 4-6 practice hours)

224 Data Processing Systems and Procedures . . . . . 5 credit hours

Prerequisite: Data Processing Applications 122 and/or Computer Programming 213 or equivalent.

An introduction to the principles and concepts of programming systems and procedures 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 various types of programming systems and procedures and their relevance to business enterprise. (4 hours per week PLUS minimum 4-6 practice hours)

Special Data Processing Modular Course Offerings

In addition to its regularly scheduled data processing courses, special modular course segments are available to students on an interim basis throughout the College year. These modular course segments are designed to meet the particular needs of students. They are directly applicable to the regular Data Processing Technician program.

Included in the Data Processing modular course configuration are:

111A Principles of Data Processing-Concepts & Functions . . . . 3 credit hours
111B Principles of Data Processing-RPG . . . . . 3 credit hours
111C Principles of Data Processing-Business Fortran IV . . . . . 3 credit hours
111D Principles of Data Processing-B.A.S.I.C. . . . . 3 credit hours
122A Data Processing Applications-Disc Techniques . . . . . 3 credit hours
122B Data Processing Applications-Flowcharting Techniques . . 3 credit hours

(D-A) DENTAL ASSISTING

110 Introduction to Dental Assisting . . . . . 3 credit hours

Prerequisite: Admission to the Dental Assisting Program.

An orientation to dentistry. This is a study of the history of dentistry, its professional organizations, ethics, and the role of the modern dental health team. The student will be introduced to the dental operatory, equipment, and

instruments as they relate to his role as a chairside assistant. (3 hours per week)

111 Dental Science . . . . . 4 credit hours

This course deals with the anatomy and physiology of the head, oral cavity, and the teeth. Emphasis is placed on dental terminology and development of the human dentitions. (4 hours per week)

120 Oral Diagnosis Technique . . . . . .1 credit hour

A clinical course designed to actively involve the student in applying his knowledge of collecting diagnostic data and the formulation of treatment plans for dental patients. Case summaries and presentations will be written on actual clinical cases being treated in the College Dental Clinic. (1 hour per week)

121 Introduction to Clinical Procedures . . . . . 5 credit hours

As a pre-clinical course the student will be exposed to the dental assistant's role in assisting the doctor in operating techniques. The student will gain experience in manipulation of dental materials, their chemical and physical properties, and instrumentation in each operative procedure in the dental operatory. (6 hours per week)

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

Prerequisite: Dental Science 111.

Continuation of Dental Science 111. A study of the relationship of systemic health to oral health, oral pathology, diet and nutrition. The principles of oral hygiene, operative dentistry, oral surgery, anesthesia, and dental prosthetics are emphasized. Detailed presentations are given in medical emergencies and the use of therapeutics in dentistry. (4 hours per week)

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

The student is required to matriculate through a sequence of clinical experience. This sequence utilizes the facilities of the College Dental Clinic and the University of Michigan School of Dentistry. The student will be assigned the required hours by the instructor. (20 hours per week)

210 Principles of Dental Laboratory Procedures . . . 4 credit hours

A demonstration and laboratory course in which the student constructs various dental devices used in diagnoses and treatment of dental conditions. Fabrication of diagnostic models, temporary restorations, custom impression trays, and gold castings are emphasized. (5 hours per week)

212 Dental Office Systems and Practice Management . . 5 credit hours

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

Emphasis is placed on filing, dental record systems, oral and written communication, and utilization of office equipment. Problem-oriented sessions and projects enable the student to develop practical knowledge of the dental assistant's role in business office management. This course is team taught by instructors from Business and Industrial Management and Dental Assisting. (5 hours per week)

213 Dental Roentgenology . . . . . 2 credit hours

Principles, techniques, and precautions in the operation of dental X-ray equipment are studied. Film processing methods are covered in detail. Credit will be given only after satisfactory completion of Dental Roentgenology 214. (2 hours per week)

214 Dental Roentgenology . . . . . 2 credit hours

Prerequisite: Dental Roentgenology 213.

A clinical course in making X-ray exposures on patients participating in the College Dental Clinic. Emphasis is placed on safety and X-ray techniques. Credit for Dental Roentgenology 213 and 214 will be given when this course has been satisfactorily completed. (2 hours per week)

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

Advanced techniques in clinical procedures are offered through continued experience at the College Dental Clinic and the University of Michigan School of Dentistry. The student will progress through a sequence of private dental offices within the community and actively participate in both general and specialty practices. (20 hours per week)

(E-C) ECONOMICS

111 Introduction to Economics . . . . . 3 credit hours

A general education course in economics relating to the consumer, production, national income and growth, banking and credit, markets and prices. For those not majoring in business administration or social sciences. (3 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)

(E-E) ELECTRICITY/ELECTRONICS

090 Introductory Electricity . . . . . 3 credit hours

Introductory course for the student who has had no previous instruction in electricity-electronics. An introduction to electron theory, magnetism, electromagnetism, sources of electricity, electrical units, alternating current generation, inductance, and reactance. (3 hours per week)

100 Electrical Analysis . . . . . 4 credit hours

Prerequisite: Introductory Algebra 097, Applied Algebra 151, or one year high school algebra.

Theory and applications of algebra, including real numbers, relations and functions, lines and planes, quadratic equations, complex numbers, polynomial functions, exponents and logarithms, and determinants. (4 hours per week)

101 Servicing Techniques . . . . . 4 credit hours

Prerequisite or co-requisite: Electrical Fundamentals 111.

Instruction and development in those techniques necessary for service and maintenance of electrical/electronic systems. Use and care of tools and measuring instruments. Instruction in splicing, soldering, simple printed circuit layout and fabrication along with maintenance and repair procedures for small electric motors is emphasized. The study of and working with the materials and circuits found in the residential wiring system is included. (6 hours per week)

102 Appliance Repair . . . . . 4 credit hours

Prerequisite or co-requisite: Electrical Fundamentals 122.

Specialized study of the electrical circuits and basic mechanisms of household electrical appliances. Application of Ohm's Law, electrical measurements and interpretation of circuits and diagrams are emphasized. Skills are developed in the use of hand tools, electrical instruments, and in special servicing techniques which are employed in the servicing of large and small electrical and electro-mechanical appliances. (6 hours per week)

110 Electrical Applications . . . . . 2 credit hours

Co-requisite: Electrical Fundamentals 111.

The subject matter in this class closely parallels that taught in Electrical

Fundamentals 111 but from a more mathematical standpoint. Considerable time is spent learning to use the slide rule for electrical calculations. Required of those students in the Electronic and Electrical Engineering Technician Programs. (3 hours per week)

111 Electrical Fundamentals . . . . . 4 credit hours

Prerequisite: Applied Algebra 151. Co-requisite: Intermediate Algebra 169 or 169A or Electrical Analysis 100. Electronic and Electrical Engineering Technicians must be simultaneously enrolled in Electrical Applications 110.

A first course in basic electrical theory designed to serve as a foundation course for the beginning technician who needs an electrical background for further study. Resistive, inductive, and capacitive components are studied along with the effects of constant and varying voltages applied to series, parallel, and compound circuits. (6 hours per week)

120 Electrical Applications . . . . . 2 credit hours

Prerequisite: Electrical Fundamentals 111 and Electrical Applications 110. Co-requisite: Electrical Fundamentals 122.

A continuation of Electrical Applications 110. The course work will parallel that of Electrical Fundamentals 122. Required of those students in the Electronic and Electrical Engineering Technician programs. (3 hours per week)

122 Electrical Fundamentals . . . . . 4 credit hours

Prerequisite: Electrical Fundamentals 111, preceded or accompanied by Intermediate Algebra 169 or 169B or Electrical Analysis 100.

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 and Electrical Applications 120.

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. (3 hours per week)

210 Measurements and Instrumentation . . . . . 4 credit hours

Prerequisite: Intermediate Algebra 169 or Electrical Analysis 100 and Electrical Fundamentals 111.

This course presents the theoretical and practical aspects of precision electrical and mechanical measurements. Included are: measuring standards, mathematical evaluation of errors, systems and units of measurement, basic standards, mechanical-electrical and magnetic test equipment. Laboratory exercises provide a first hand knowledge of the principles involved in the calibration and certification of laboratory instruments. (6 hours per week)

211 Basic Electronics . . . . . 4 credit hours

Prerequisite: Electrical Fundamentals 111, preceded or accompanied by Electrical Fundamentals 122.

Transistor and vacuum tube theory and equivalent circuits; amplifier circuits and applications; familiarization with various electronic components and instruments. (6 hours per week)

212 Radio and Television Circuitry . . . . . 5 credit hours

Prerequisite: Basic Electronics 211.

The emphasis of this course is the circuitry involved in home entertainment equipment. Circuit tracing, trouble analysis, repair and alignment are covered. Specialized transmitter circuitry is also covered. (9 hours per week)

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

Prerequisite or co-requisite: Audio and Power Transmission 200.

A detailed study of residential, industrial, and commercial electrical systems; wiring diagrams and techniques; substations and distribution panels. Typical electrical blueprints are used by the students. Field trips are scheduled to inspect area power stations, industrial complexes, and construction sites. (3 hours per week)

220 Electrical Installation and Maintenance Practices. .4 credit hours

Prerequisite: Electrical Fundamentals 122.

A comprehensive study of typical electrical equipment, tools, and hardware. The course includes remote controls, industrial and commercial lighting, principles of illumination, electrical conductors, materials, installation and maintenance of equipment, power factor correction, trouble-shooting procedures, and other subjects appropriate for the electrical maintenance technician. Hands-on application is emphasized to develop skills in these areas. (6 hours per week)

222 Pulse Circuits and Operational Amplifiers . . . . . 4 credit hours

Prerequisite: Basic Electronics 211 and Audio and Power Transmission 200.

The theory and applications of micrologic circuit elements and operational amplifiers. (6 hours per week)

223 Color Television . . . . . 4 credit hours

Prerequisite: Radio and Television Circuitry 212.

This course is designed to train the student in the principles of color television. Aspects covered include wave form analysis, alignment, and trouble-shooting of color circuitry. The NTSC Color television signal is analyzed in detail. (6 hours per week)

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

Prerequisite or co-requisite: Color Television 223.

Circuit analysis of radio and television receivers. Troubles that occur most frequently in circuits and components are discussed together with recommended diagnostic and repair techniques. Students are given practical training on "bugged" sets and on inoperable equipment supplied by

instructors and other students. Students are also instructed in the importance of customer relations in describing receiver failures and servicing. (6 hours per week)

230 Communications Electronics . . . . . 4 credit hours

Prerequisite: Basic Electronics 211 and Audio and Power Transmission 200.

Analysis and construction of communications special circuits associated with AM, FM and SSB communications equipment. (This course will be offered only when sufficient requests warrant. It may, with the prior approval of the program advisor, be substituted for another electronics course.) (6 hours per week)

237 Electronic Switching and Control (Logic) . . . . . 3 credit hours

Prerequisite or co-requisite: Electrical Fundamentals 111, or consent of division.

A presentation of the theory of electronic and 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: Basic 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 precision timing, light regulation, and electronic control of industrial machinery. 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 Electrical Design . . . . . 3 credit hours

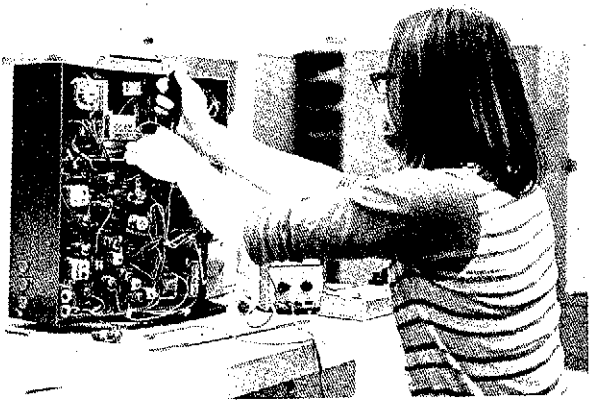
Prerequisite: For graduation candidates only.

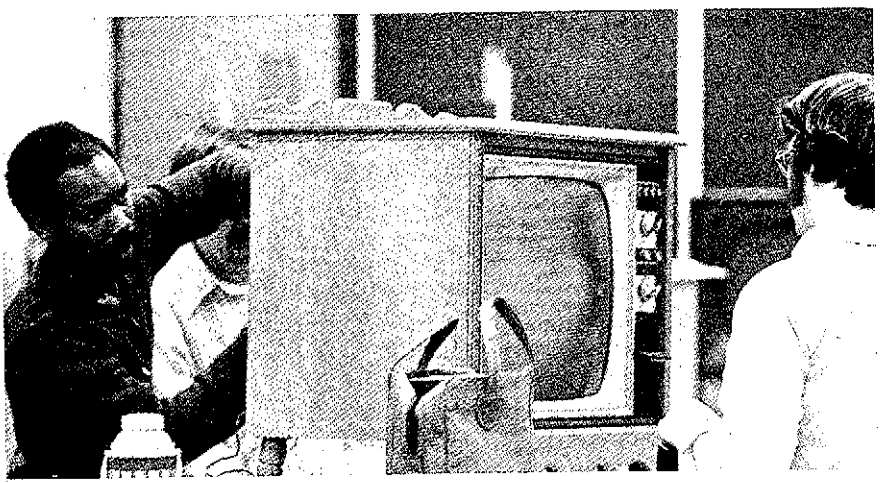
Directed activity in electricity or electronics. In consultation with the instructor, the student will select and construct a project. He will design the circuit, draft the layout, select and acquire the components, construct, test, and debug the finished product. (3 hours per week)

240 Practices and Standards Seminar . . . . . 2 credit hours

Prerequisite: For graduation candidates only.

Group study of current electrical practices and standards. The course will include: ASA standards; segments of FCC and NEC rules and regulations; manufacturing techniques; familiarization with catalogs, products, and vendors; specification writing; professional ethics and hiring practices. Attendance at professional electrical exhibitions is encouraged. (2 hours per week)





(ENG) ENGLISH

030 Writing Workshop . . . . . 3 credit hours

A laboratory course for those students who feel they are not prepared for the regular English composition classes. Students work at their own speed on materials appropriate to their writing capabilities. Primary emphasis is placed on the basic writing skills. Students are given individual instruction in the workshop. They may advance during the semester and receive appropriate credit for either English 091, 111, or 122. Students can be referred for help from any course or program throughout the College. (3 hours per week)

040 Reading . . . . . 3 credit hours

104 Study Skills . . . . . .1 credit hour

106 Speed Reading . . . . . .1 credit hour

See (RDG) READING for course descriptions and Reading Laboratory information.

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. This course is in no way remedial for English Composition 111. (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. 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 and the creating of graphic presentations are included. (3 hours per week)

107 Communication Skills . . . . . 3 credit hours

Spelling, vocabulary, sentence structure, organization of oral communications, business correspondence and forms, writing of technical reports. Analysis of written material for tone, style, and clarity with individual speech analysis, business and social conversations, information talks, explanations and demonstrations. Supplementary reading assignments include suitable models for the student in his writing. (3 hours per week)

101 Writing for Mass Media . . . . . 3 credit hours

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

103 Applied Journalism . . . . . 3 credit hours

115 Introduction to Mass Media . . . . . 3 credit hours

215 Media and the Community . . . . . 3 credit hours

See (JRN) JOURNALISM for course descriptions.

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)

270 Creative Writing . . . . . 3 credit hours

A course in the fundamentals of creative writing through the analysis of various forms of writing and frequent written exercises in fiction, poetry, and basic playwriting. While the student is encouraged to develop writing skills, 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. 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)

Literature

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. Encouragement will be given students to evolve criteria for assessing the value of literary works. (3 hours per week)

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

Prerequisite: English Fundamentals 091 or English Composition 111.

By means of readings and discussion of short stories and novels, students explore literature as it provides blueprints for living, self-discovery, escape, and recreation. Each student is helped in strengthening his reading and writing skills. Specially designated sections of the course may emphasize popular literature: science fiction, biography, mystery, westerns. Will consider the cultural relevance of popular literature, its structural design, and its psychological effects upon the reader. (3 hours per week)

181 Black Literature . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

207 The Literature of the Bible . . . . . 3 credit hours

Prerequisite: English Fundamentals 091 or English Composition 111 or permission of instructor.

A study of the content and literary forms of the Old and New Testaments, and their influence on the literatures of the world to the present day. (3 hours per week)

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

A general survey of the prose, poetry, and illustrated books suitable for the elementary grades and for children through the early adolescent years. Required by most institutions of students entering elementary education. Also for those in library work, teacher aide programs, nursery and day care work, and as general education 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. There will be an effort to relate the trends of the period to contemporary problems and readings. (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. There will be an effort to relate the trends of the period to problems and readings occurring before the Civil War. (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.

A continuation of English Literature 212. 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. This first course deals primarily with literature prior to and including the Renaissance. (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)

(FIN) FINANCE

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

A basic finance course concerning the role of the individual as consumer; cost of establishing and maintaining a household; problems of personal-consumer credit, installment buying; taxes; basic finance concepts; insurance; investments; health services; governmental influence and protection; personal-consumer savings; banking. (3 hours per week)

220 Principles of Finance . . . . . 3 credit hours

Prerequisite: Principles of Accounting 122 or equivalent.

This course is a survey of the whole field of finance, both private and public. Emphasis is placed on the nature and role of finance in our economy, monetary system of the United States, commercial banking, Federal Reserve System, savings, nature of business financing, international finance, nature of consumer credit, interest rates and money markets, and financing state and federal governments. (3 hours per week)

(FLP) 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 values, actuators, ASA, JIC, ANSI symbols are used for circuit construction and print reading. Laboratory experiences include assembly and disassembly of components and construction of hydraulic circuits. (5 hours per week)

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

Prerequisite: Fluid Power Fundamentals 111 or consent 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)

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)

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 Advanced 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. Model implications for fluidics are introduced. (4 hours per week)

226 Pneumatics . . . . . 3 credit hours

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

227 Air Control Circuitry . . . . . 3 credit hours

Testing, design, and construction of various air circuits used to *control* industrial machines. Emphasis is placed on numatrol air circuitry and fluidic controls. (4 hours per week)

(FRN) FRENCH

111 First Year French . . . . . 3 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. (4 hours per week)

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

Prerequisite: French 111 or permission of instructor.

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

213 Second Year French . . . . . 3 credit hours

Prerequisite: French 122 or 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. (4 hours per week)

224 Second Year French . . . . . 3 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. (4 hours per week)

(G-B) 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 Business Occupational Foundations . . . . . 3 credit hours

Prerequisite: First year standing.

An introductory study of the functions, objectives, problems, organization, and management of modern business. 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. Develops an insight into the vital role of the administrative function in our economy as a whole and in the operation of a single business unit. Provides a practical orientation in the career opportunities available in business and industry. (3 hours per week)

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

Prerequisite: Divisional consent.

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. (Hours to be arranged)

207 Business Communication . . . . . 3 credit hours

Prerequisite: Second year standing or divisional consent.

A course to develop the student's oral and written communication skills as they relate to business enterprise. Emphasis is placed upon the social and psychological aspects and the public relations function of business communication. Develops an awareness of the importance of clarity, conciseness, accuracy and appropriateness of tone in all types of business communication. Includes business correspondence and reports, and the gathering, preparation, organization, and presentation of data. (3 hours per week)

(GEO) GEOGRAPHY

100 Geography and the Environment . . . . . 3 credit hours

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

(GLG) GEOLOGY

100 Introduction to the Earth Sciences . . . . . 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 a field trip to points of geologic interest is included in the three weekly laboratory hours. (5 hours per week)

103 Field Geology . . . . . 3 credit hours

The course is an introduction to geology taught in the field. The study of the processes and material that have formed or are forming the landscape in the Ann Arbor area will be carried out on two weekly afternoon field trips for a six-week period. Instruction, laboratory work, and special field work technique are all given outdoors.

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. A field trip is 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)

(HST) HISTORY

101 Western Civilization to 1600 . . . . . 3 credit hours

A survey of the development of the cultures and institutions of the ancient Near East and Classical, Medieval, and Renaissance civilizations. (3 hours per week)

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

A study of cultural developments and the growth of institutions from the late Renaissance to the present. Emphasis is placed on the expansion of European civilization. No prerequisite is necessary. (3 hours per week)

103 The History of Eastern Civilizations . . . . . 3 credit hours

Study of the civilizations of the non-Western world, focusing on the Middle East, India, China, Japan, and Southeast Asia. Special emphasis is given to the cultural, political, and economic changes experienced by these regions since 1500. (3 hours per week)

149 African History and the Western World. . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

150 Afro-American History . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

160 History of American Film . . . . . 3 credit hours

A survey of the development of American cinema. The films, viewed in class, will be discussed both in terms of content and in terms of the development of cinematic technique. Efforts will be made to relate American cinema to trends in American culture.

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

A study of the American peoples and their growth from early colonization to the close of the Civil War. Emphasis on reexamining both the dominant themes in American life as well as the conflicts oppressed minorities faced in seeking their needs and ambitions in America. (3 hours per week)

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

A survey of American society and politics since the Civil War. Special examination given to the social and cultural unrest of growing America in order to better understand and to deal with the stresses of the present. A continuation of U.S. 1500-1865 201 but no prerequisite needed. (3 hours per week)

(HUM) HUMANITIES

101 Humanities . . . . . 3 credit hours

An introductory exploration of the humanities considering the creative nature of man with its focus on art, literature, music, philosophy, human thought, and man's relationship to his culture. A workshop approach with discussions, guest speakers, and individualized projects. Issues in such areas as technology, mass media, ecology, religion, politics, and education are examined. (3 hours per week)

(I-D) INDUSTRIAL DRAFTING

100 Perspective and Parallel Line Projection . . . . . 4 credit hours

See (TCA) TECHNICAL-COMMERCIAL ART for course description.

100 Technical Drawing . . . . . 4 credit hours

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

107 Mechanisms . . . . . 4 credit hours

The principles of linkage, cams, centros, displacements, motions, velocities, mechanisms, and vectors are studied and their applications presented graphically. (4 hours per week)

111 Industrial Drafting . . . . . 4 credit hours

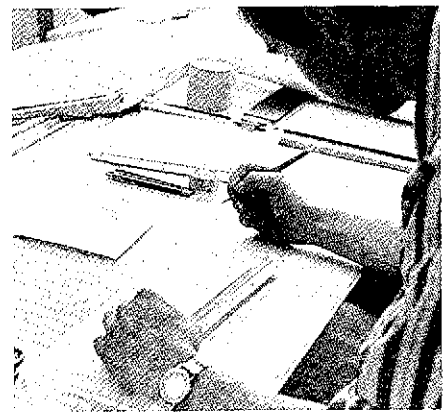
Prerequisite: Technical Drawing 100 or consent of industrial drafting instructor.

Standard drafting practices and procedures are studied in the areas of auxiliary views, sectioning, screw threads and fasteners, hydraulic and electrical symbols, advanced dimensioning and tolerancing and the use of drafting materials in the preparation of drawings, charts, and graphs. (6 hours per week)

112 Descriptive Geometry . . . . . 4 credit hours

Prerequisite: Technical Drawing 100 or consent of division.

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)



114 Industrial Drafting . . . . . 4 credit hours

Prerequisite: Industrial Drafting 111.

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

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

Prerequisite: For apprentices in Tool & Die Making.

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

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

Prerequisite: Industrial Drafting 111 and Descriptive Geometry 112.

The basic types of jigs and fixtures and their combined use are studied. Development of skills in the proper location of a part, in detailing and preparation of assembly drawings are stressed. The use of standard parts catalogs in researching is continually emphasized. (6 hours per week)

206 Fundamentals of Plant Layout . . . . . 3 credit hours

Prerequisite: Industrial Drafting 111 or consent of division.

The nomenclature and basic approaches to power distribution, environmental and mechanical services, product flow, equipment utilization and building layout are studied. The basic principles of material handling and the various types of material-handling equipment are investigated. (3 hours per week)

212 Theory of Dies . . . . . 2 credit hours

Prerequisite: For apprentices in Tool & Die Making.

The nomenclature and the basic types, principles, and standards used in the design of dies is studied. Special attention is given to the use of standard parts catalogs and the standard die detailing and assembly drawing practices. (3 hours per week)

213 Fundamentals of Die Drafting . . . . . 4 credit hours

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

The nomenclature and the basic types, principles, and standards used in the design of dies is studied. Special attention is given to the use of standard parts catalogs and the standard die detailing and assembly drawing practices. (6 hours per week)

224 Fundamentals of Industrial Tooling . . . . . 3 credit hours

Prerequisite: Fundamentals of Jigs and Fixtures 122.

The nomenclature and the basic principles of industrial tool design, including preparing tooling specifications, cost analysis, practice production scheduling, and basic drafting standards for numerical controlled machining. (6 hours per week)

240 Fundamentals of Product Layout . . . . . 4 credit hours

Prerequisite: Industrial Drafting 111 or consent of division.

The study of the development of a product from the layout stage to the preparation of working drawings. Emphasis will be placed on the preparation of a layout drawing with maximum use of standard components, fastening techniques, product serviceability, and the proper material and finish specifications. (4 hours per week)

251 Fundamentals of Electrical Drafting . . . . . 4 credit hours

Prerequisite: Technical Drawing 100 or consent of division.

Principles and practices of basic electronic drafting including the use of block diagrams, electronic symbols, schematic drawings, logic diagrams, electronic component and hardware identification. Basic materials, finishes, and component board layouts and assemblies are studied. (4 hours per week)

252 Fundamentals of Electrical Drafting . . . . . 4 credit hours

Prerequisite: Fundamentals of Electrical Drafting 251 or consent of division.

Principles of laying out and preparing tape masters for single and double sided printed circuit boards, preparing printed circuit assemblies, preparation of wire lists and cable harness drawings for electronic unit interfacing and studying the basic principles and techniques for laying out control panels. (4 hours per week)

(IFM) INSTITUTIONAL FOODS AND MANAGEMENT

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. (3 hours per week)

101 Introduction to Allied Health . . . . . 3 credit hours

An orientation into the allied health field including agencies involved, community structure, health care delivery systems. (Lecture 1 hour, field experience 3 hours per week)

109 Food Service Management Seminar . . . . . .1 credit hour

Course to acquaint the students with trends and job opportunities in food service. A series of lectures by resource persons represented by all areas of food service industry. (1 hour per week)

110 Sanitation and Hygiene . . . . . 2 credit hours

Importance of sanitation to the food service; layman's bacteriology, communicable diseases; food poisoning; pest control; cleaning and sanitizing; personal hygiene. (2 hours per week)

111 Elementary Food Preparation . . . . . 6 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. (2 hours lecture, 8 hours lab per week)

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

General principles of nutrition as it pertains to selection of foods; nutritional needs of all age groups; the meaning of food to people; the relation of food and nutrition to health-menu planning. (3 hours per week)

120 Organization and Management of Food Systems. . 3 credit hours

Types of organization, functions of management; tools of management;

recruitment, selection, training and evaluation; labor policies and collective bargaining; human relation techniques in personnel management. (3 hours per week)

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

Application of principles of food preparation and planning to quantity production and service use of institutional equipment. Students in the laboratory will assume various positions of responsibility on a rotation basis. (2 hours lecture and 8 hours lab per week)

127 Nutritional Chemistry . . . . . 3 credit hours

Principles and concepts of the structure, synthesis, functions and metabolism of proteins, aminoacids, carbohydrates, fats and other nutrients with emphasis on those nutrients pertinent to the human physiology. (3 hours per week)

128 Food Merchandizing . . . . . 2 credit hours

Principles of food merchandizing; importance of merchandizing; and practical applications. (2 hours per week)

129 Nutrition and Life Cycle . . . . . 3 credit hours

Application of nutrition to critical periods throughout the life cycle: pregnancy and lactation, infancy and early childhood; children, youth, and geriatric nutrition. Diet histories. Surveys. (3 hours per week)

189 Independent Directed Study . . . . . 3 credit hours

Students pursue specific problems in nutrition care of food service systems. Weekly seminar with instructor and a written term paper describing the students' experiences and proposed solutions to problems.

209 Food Systems Seminar . . . . . .1 credit hour

Group discussions of topics in the dietetic field. Use of resource and illustrative materials. (1 hour per week)

219 Clinical Nutrition . . . . . 6 credit hours

Nutrition care of individuals on diabetic, bland, sodium-restricted, fat-regulated, and calorie-controlled diets. (Lecture 3 hours, field experience 6 hours per week)

222 Advanced Quantity Food Production . . . . . 6 credit hours

Importance of quality in the development of systematic relationships between food, time, labor, equipment and costs in quantity food production. Quality procurement policies for food and other items of expense. Evaluation of new product information. (2 hours lecture, 8 hours lab per week)

223 Practicum in Organization and Management . . . 3 credit hours

A practical approach to personnel management. Particular emphasis is placed on leadership effectiveness, human relation aspects of management responsibility as it affects attitudes, morale, and productivity. Major emphasis is placed on problem-oriented sessions as it relates to the course materials. (3 hours per week)

224 Economics of Volume Feeding . . . . . 4 credit hours

Selection and purchasing of foods and materials used in food institutions. Quality and cost control of foods and other expenses involved in the production and service of food. (2 hours lecture, 6 hours lab per week) Field trips.

228 Layout and Equipment . . . . . 6 credit hours

This course is designed to provide the student with knowledge and skills needed 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. (2 hours lecture, 8 hours lab per week)

229 Quality Control of Food Systems . . . . . 2 credit hours

Emphasis is placed on quality, eye appeal, service standards, and techniques in the presentation of foods. (Lecture and lab 2 hours per week) Field trips.

(I-E) INTERNSHIP - EXTERNSHIP

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

Prerequisites: (Internship) Student in a two-year program must have completed a minimum of one year of college, or equivalent. Student in a

one-year program must have completed one semester of college, or equivalent. 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.)

(JRN) JOURNALISM

101 Writing for Mass Media . . . . . 3 credit hours

Emphasis on developing newsgathering and news-writing skills. Ethics and responsibilities of the reporter are discussed. Students become staff writers on the College news publication. (3 hours per week)

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

A continuation of the first semester news-writing course. After a review of newsgathering and news-writing fundamentals, students are given individual help in developing their writing of interpretative stories. A unit in writing for broadcast media is included in the course. Students become staff writers on the College news publications. (3 hours per week)

103 Applied Journalism . . . . . 3 credit hours

Students edit the College news publications. Instruction in rewriting, editing, headline writing, layout, makeup, and design. May be repeated for credit once. (3 hours per week)

115 Introduction to Mass Media . . . . . 3 credit hours

Designed to give students opportunity to produce communication in various media. Students will tape radio broadcasts, work with film and video tape, design billboards, write and edit a newspaper and magazine. (3 hours per week)

215 Media and the Community . . . . . 3 credit hours

Designed to familiarize students with current trends and issues within the media. Topics of study and discussion will include: current commentary and criticism of the media, the courts and press freedom, an analysis of cablevision, the use of video tape. (3 hours per week)

(L-E) 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)

(MGT) MANAGEMENT AND MARKETING

150 Labor-Management Relations . . . . . 3 credit hours

A study of the fundamental forces affecting the labor-management relationship. Development of insights into the growth, objectives, and methods of organized labor; and the significant managerial problems involved in dealing with labor. Analysis of the legal and institutional framework for collective bargaining; and the nature, content, and problem areas of the collective bargaining process. (3 hours per week)

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

Prerequisite: Business Occupational Foundations 140 or divisional consent.

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 consent.

A practical study of the modern concepts of administrative principles and practices with special emphasis on the human relations aspect of management responsibility as it affects employee attitudes, morale, and productivity. Major emphasis is on relationships among individuals and/or small groups, with problem-oriented sessions used to realistically relate the course materials to the human relations aspect of modern business-industrial enterprise. (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 levels of modern business 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. (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)

240 Personnel Management . . . . . 3 credit hours

Prerequisite: Business Occupational Foundations 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 commercial trade operations, retail and wholesale agencies, elements of marketing efficiency, the cost of marketing, price maintenance, unfair competition, and the relationship of government to marketing. (3 hours per week)

260 Sales Management . . . . . 3 credit hours

Prerequisite: Business Occupational Foundations 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 Principles . . . . . 3 credit hours

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

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. Includes the role of advertising in the individual firm and the total economy; also advertising objectives, methods, techniques, preparation, research, surveys, copywriting, layout, media selection, and testing advertising effectiveness, as well as advertising rates and budgetary factors. (3 hours per week)

(MTH) MATHEMATICS

037 Independent Study . . . . . 1, 2, or 3 credit hours

Prerequisite: Approval of instructor.

Provides an opportunity to work on a specific mathematical project or weakness under the direction of a member of the mathematics staff. Each student receives an individual program designed to lead to the attainment of his particular goal. (1-3 hours per week until completed)

039 Basic Mathematics . . . . . 3 credit hours

A review of basic arithmetic comprising whole numbers, fractions, decimals, and percents. Diagnostic tests are utilized to determine appropriate areas of concentration for each student. If completed before the end of the term, student may study additional materials preparatory to the study of Introductory Algebra 097 or commence the study of Foundations of Occupational Mathematics 090. Taught with programmed text materials in the Mathematics Laboratory. (3 hours per week)

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

Prerequisite: Basic Mathematics 039 or proficiency examination.

Intended for the business, vocational, or health science student. Primarily concerned with concepts and practical computational skills that are commonly encountered in the occupational world. Includes units in directed numbers, practical algebra, percent application, ratio and proportion, graphing, statistics, metric system, geometry, and numeration. Each student receives an individualized program depending on his occupational interest. Conducted in the Mathematics Laboratory using programmed text materials. (3 hours per week until completed)

097 Introductory Algebra . . . . . 4 credit hours

Prerequisite: Basic Mathematics 039 or proficiency examination.

Intended for the student who has not had algebra or for one who desires a review. Includes properties of real numbers, polynomials, first-degree sentences, rational algebraic expressions, graphing, relations and functions, radicals, second-degree sentences, and solution of systems of equations. (5 hours per week)

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

Prerequisite: Basic Mathematics 039 or proficiency examination.

The first half of Introductory Algebra 097. Intended for the student who requires a course in beginning algebra that progresses at a slow pace. Includes properties of real numbers, polynomials, first-degree sentences, rational algebraic expressions, and graphing. (3 hours per week)

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

Prerequisite: Introductory Algebra 097A or permission of instructor.

The second half of Introductory Algebra 097. Includes relations and functions, radicals, second-degree sentences, and solution of systems of equations. (3 hours per week)

100 Desk Computers . . . . . .1 credit hour

Designed to enable a student to perform basic arithmetic operations utilizing desk computers, and to write simple programs for programmable computers. Serves as a useful bridge between hand calculators and full sized computers. (1-4 hours per week until completed)

101 How to Use a Computer Terminal . . . . . .1 credit hour

This course will teach a student who has never used a teletype, a graphics terminal, or a keypunch what he needs to know to operate these devices. Topics covered include the use of drum cards, MTS codes, and access to college computer facilities. (1-4 hours per week until completed)

106 Solving Equations . . . . . .1 credit hour

Prerequisite: Introductory Algebra 097 or 097A or two terms of high school algebra.

Intended for the student who wishes to review various methods of solving equations and systems of equations. Includes first-degree equations, formulas, second-degree equations, linear systems, and applications. (1-4 hours per week until completed)

108 Slide Rule . . . . . .1 credit hour

Intended for the student in an area (technical, physics, chemistry, etc.) where calculating by slide rule is advantageous. Use of the Mannheim slide rule is emphasized. Includes scientific notation, multiplication and division, squares and square roots, cubes and cube roots, common and natural logarithms, and trigonometric functions. (1-4 hours per week until completed)

136 Triangle Trigonometry . . . . . .1 credit hour

Designed to quickly enable the student to use trigonometry functions to solve practical problems of triangulation. Includes the pythagorean theorem, basic trigonometric functions and identities, law of sines and law of cosines, solution of right and oblique triangles, and applications. Calculating by slide rule is encouraged. (1-4 hours per week until completed)

137 Boolean Algebra . . . . . .1 credit hour

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

Planned to develop the structure of Boolean algebra in terms of definitions, assumptions and theorems. Includes simplification of Boolean expressions, verification of equivalence by truth tables and Veitch diagrams, and circuitry applications. (1-4 hours per week until completed)

139 Matrices . . . . . .1 credit hour

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

Intended for students specializing in mathematics, science, or engineering. Includes basic properties of matrices, operations with matrices, solving linear systems, determinants, solving homogeneous systems, and applications. (1-4 hours per week until completed)

147 Creative Mathematics . . . . . .1 credit hour

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

This course allows students to perform individual or group experiments in the areas of elementary computer programming, game theory, and probability. The student may choose from a number of prepared experiments or he may pursue other experiments of his interest. (1-4 hours per week until completed)

151 Applied Algebra . . . . . 4 credit hours

Prerequisite: Basic Mathematics 039 or equivalent.

The first course of a two-course sequence designed to meet the mathematical needs of the technical student. Major topics included are basic arithmetic, percents, ratio and proportion, operations with algebraic expressions, solution of simple equations, logarithms, solving quadratic equations, graphing, and trigonometric functions. (5 hours per week)

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

Prerequisite: Applied Algebra 151 or permission of instructor.

The second course of a two-course sequence in technical mathematics. The first part of the course deals with development of basic geometry necessary for solving practical problems while the second part is devoted to applications of trigonometry to the solution of technical problems of triangulation. Includes basic theorems of geometry, formulas for areas and volumes, trigonometric functions, solution of right triangles, law of sines and law of cosines, and solution of oblique triangles. (5 hours per week)

158 Mathematics for Elementary School Teachers . . 3 credit hours

An introductory course designed for the student in education and the elementary school teacher. Topics include sets, whole numbers, integers and rational numbers, number systems, plane geometry, and functions. The approach is intuitive. Laboratory applications are used to develop concepts and understanding. (2 hours lecture, 2 hours laboratory per week)

160 Basic Statistics . . . . . 4 credit hours

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

An introduction to statistics for the student in business administration, education, psychology, social science, engineering or any other field in which measurements and predictions are used. Includes tabulation of data, graphic representation, measures of central tendency and dispersion, probability, distribution, sampling, hypothesis testing, and correlation. (4 hours per week)

167 Finite Mathematics . . . . . 3 credit hours

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

A basic mathematics course for the business student. Topics include sets,

logic, probability, matrix algebra, and linear programming. Business applications are emphasized. (3 hours per week)

169 Intermediate Algebra . . . . . 4 credit hours

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

Designed to satisfy the background mathematical needs for science courses and some technical fields. Also serves as a lead to more advanced work in mathematics. Includes properties of real numbers, relations and functions, solution and graphing of first-degree equations and inequalities, first-degree systems, sequences and series, polynomials, radicals, complex numbers, quadratic equations and functions, logarithms, and determinants. (4 hours per week)

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

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

The first half of Introductory Algebra 169. Intended for the student who requires an intermediate algebra course that progresses at a slow pace. Includes properties of real numbers, relations and functions, solution and graphing of first-degree equations and inequalities, first-degree systems, sequences and series, and polynomials (3 hours per week)

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

Prerequisite: Intermediate Algebra 169A or permission of instructor.

The second half of Intermediate Algebra 169. Includes radicals, complex numbers, quadratic equations and functions, logarithms, and determinants. (3 hours per week)

177 Trigonometry . . . . . 3 credit hours

Prerequisite: Introductory Algebra 097 or two terms of high school algebra.

Intended for the student whose need for general trigonometry does not include all of Precalculus 179 which contains general trigonometry as one of its topics. Also may serve as a review. Major topics are trigonometric functions of angles, law of sines and law of cosines, circular functions, inverse trigonometric functions, graphs of trigonometric functions, trigonometric identities, and trigonometric equations. (3 hours per week)

179 Precalculus . . . . . 4 credit hours

Prerequisite: Intermediate Algebra 169 or four terms of high school school algebra.

A college-level algebra and trigonometry course designed to provide the background for a solid study of calculus and analytic geometry. Includes relations and functions, polynomial functions and equations, exponential and logarithmic functions, circular and trigonometric functions, vectors, and complex numbers. (4 hours per week)

179A Precalculus . . . . . 3 credit hours

Prerequisite: Intermediate Algebra 169 or four terms of high school algebra.

The first half of Precalculus 179. Intended for the student who requires a precalculus course that progresses at a slow pace. Includes relations and functions, polynomial functions and equations, exponential functions, and logarithmic functions. (3 hours per week)

179B Precalculus . . . . . 3 credit hours

Prerequisite: Precalculus 179A or permission of instructor.

The second half of Precalculus 179. Includes circular and trigonometric functions, vectors, and complex numbers. (3 hours per week)

187 Scientific and Technical Programming . . . . . 3 credit hours

Prerequisite: Intermediate Algebra 169 or four terms of high school algebra.

A course in Fortran programming intended for the science or vocational student who will need to use mathematics and computers as tools of his profession. Student is afforded an opportunity to develop algorithms, and write and execute selected programs. Both lecture and laboratory time are involved. (3 hours per week)

191 Calculus-First Course . . . . . 5 credit hours

Prerequisite: Precalculus 179 or permission of instructor.

The first course of a four-course sequence in elementary calculus. Intended for the transfer student who plans to major in mathematics, science or engineering. Also suitable as a terminal calculus course fulfilling the general education needs of certain students. Includes limits, continuity, the derivative, the definite integral, and applications. (5 hours per week)

191A Calculus-First Course . . . . . 3 credit hours

Prerequisite: Precalculus 179 or permission of instructor.

The first half of Calculus-First Course 191. Intended for the student who requires a course in elementary calculus that progresses at a slow pace. Includes limits, continuity, the derivative, and applications. (3 hours per week)

191B Calculus-First Course . . . . . 3 credit hours

Prerequisite: Calculus-First Course 191A or permission of instructor.

The second half of Calculus-First Course 191. Includes the definite integral and applications. (3 hours per week)

192 Calculus-Second Course . . . . . 4 credit hours

Prerequisite: Calculus-First Course 191 or permission of instructor.

The second course of the four-course sequence in elementary calculus. Major topics are: applications of the definite integral; differentiation and integration of exponential, trigonometric and hyperbolic functions; and techniques of integration. (4 hours per week)

197 Linear Algebra . . . . . 3 credit hours

Prerequisite: Calculus-First Course 191 or permission of instructor.

An introductory course planned for students who have had at least one course in elementary calculus. Includes vector spaces, linear transformations, matrices, determinants, orthogonality, characteristics and minimum polynomials, eigenvalues, and applications. May be taken concurrently with Calculus-Second Course 192 or Calculus-Third Course 293. (3 hours per week)

243 Introductory Numerical Analysis . . . . . 3 credit hours

Prerequisite: Calculus-Second Course 192 and Scientific and Technical Programming 187 or permission of instructor.

An introduction to various mathematical methods of numerical approximation that are applicable to the digital computer. Includes finite differences, numerical integration and differentiation, solution of linear and non-linear equations, and solution of ordinary differential equations with initial conditions. Student is required to write and execute programs. (3 hours per week)

293 Calculus-Third Course . . . . . 4 credit hours

Prerequisite: Calculus-Second Course 192 or permission of instructor.

The third course of the four-course sequence in elementary calculus. Includes polar coordinates, conic sections, indeterminate forms, improper integrals, Taylor's formula, and vector calculus. (4 hours per week)

294 Calculus-Fourth Course . . . . . 4 credit hours

Prerequisite: Calculus-Third Course 293 or permission of instructor.

The fourth course of the four-course sequence in elementary calculus. Major topics are infinite series, differential calculus of several variables, multiple integration, and applications. (4 hours per week)

(M-T) MECHANICAL TECHNOLOGY

100 Machine Shop Theory . . . . . 3 credit hours

Precision and semi-precision instruments and their applications are studied and used. Included also are basic principles of machine tool operations. Selected films are used to supplement the laboratory experiences. (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)

111 Machine Shop Theory and Practice . . . . . 4 credit hours

Precision and semi-precision instruments and their applications are studied and used. Included also are basic principles of machine tool operations. Selected films are used to supplement the laboratory experiences. Practical experience is provided on the lathe, mill, O.D. and I.D. grinders. (6 hours per week)

122 Machine Tool Operation and Set-Up . . . . . 4 credit hours

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

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

123 Machine Tool Operations and Set-Up . . . . . 4 credit hours

(A continuation of 122) Emphasis is placed on the student's ability to complete an assigned project. The student will have to do all the planning, scheduling, machining, and fabricating that is necessary to complete his assigned project. (6 hours per week)

200 Machine Maintenance . . . . . .2-6 credit hours

Basic industrial machines are disassembled, inspected, and tested for part replacement of repair. Manufacturing specifications and tolerances are used as the basis for determining machine condition. (4 to 8 hours per week) (Students may elect up to 4 credit hours per semester)

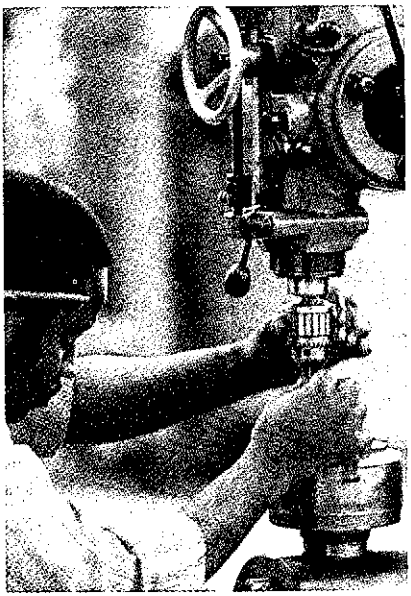
201 Machine Tool Technology . . . . . 4 credit hours

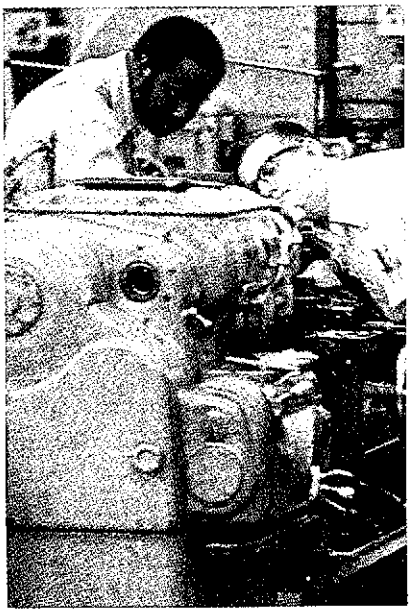
Prerequisite: Machine Tool Operation and Set Up 122.

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)

205 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)





(MLG) METALLURGY

100 Introduction to Metallurgy . . . . . .1 credit hour

Introduction to basic terms and processes used in the study of metals. The structure of metals and how they behave with respect to standard testing techniques and heat treatment are included. Demonstrations serve to aid the student in learning terms associated with testing, heat treatment, alloy systems, and general metallurgical equipment. (4 hours per week – 7-1/2 weeks)

101 Industrial Materials . . . . . .2 credit hours

Study of modern materials and processes of industry, including metals, alloys, plastics, wood, concrete, lubricants, and adhesives. Standard systems of labeling and classifying materials as well as comparisons and usage are covered. (3 hours per week)

102 Mechanics of Metals . . . . . .2 credit hours

Physical properties of metals and alloys in practical situations. Expansion, contraction, torque-tension relationships, effects of high and low temperature, seizure, galling, fatigue are covered. Demonstrations of properties will provide the exposure necessary and the understanding of the behaviors involved. (4 hours per week – 7-1/2 weeks)

122 General Metallurgy . . . . . .3 credit hours

Prerequisite: Introduction to Metallurgy 100.

A survey of the field including laboratory testing, general heat treatment, alloys and alloy systems, effects of welding, weld testing, classification systems for metals and alloys. The laboratory experience will consist of testing metals and welds, preparation of samples for microscopic examination, as well as demonstrations to supplement classroom lectures. (4 hours per week)

124 Machinability . . . . . .1 credit hour

A study of the relationship between composition of metals, their structure, and the machining characteristics they produce. Common metals and alloys will be discussed and specific machining problems analyzed. (1 hour per week)

202 Manufacturing Processes . . . . . 3 credit hours

An introduction to modern industrial processes. Weekly tours to local manufacturing concerns will correlate with classroom discussion on basic manufacturing techniques. Forging, casting, rolling, machining, welding, powder metallurgy, plating, testing, and heat treating are some of the areas covered. (3 hours per week)

207 Testing Laboratory . . . . . 2 credit hours

Co-requisite: Mechanical Testing 217.

For majors, additional lab meetings provide the skill development in testing and design of tests as directed in Mechanical Testing 217. Included are torsion, tension, fatigue, impact, hardness, non-destructive test and specialized testing. (3 hours per week)

215 Heat Treatment Processes . . . . . 2 credit hours

Prerequisite or Co-requisite: Introduction to Metallurgy 100 or consent of division.

An application of the principles of heat treatment of steel and certain non-ferrous alloys. Includes hardening, tempering, annealing, normalizing, sphereoidizing, surface hardening processes, hardenability, and age hardening. Demonstration and lecture serve to relate theory and practice. (2 hours per week)

217 Mechanical Testing . . . . . 2 credit hours

Co-requisite: Testing Laboratory 207 for majors.

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

228 Metallography . . . . . 4 credit hours

Prerequisite: General Metallurgy 122.

Units of study include sample preparation for microscopic examination and photo microsgraphy. Wet and dry photographic techniques used to record structures and to relate them to properties observed in the lab. Further units-micro-hardness testing, microscopic measurements and instrument calibration. (4 hours per week)

229 Specialized Study . . . . . 3 credit hours

Prerequisite: Metallography 228 or division consent.

This final class in Metallurgical Technology will serve to give the student exposure to the advanced techniques in his chosen area of employment. He will independently work on an advanced project showing his proficiency in the field while developing some aspect of his particular career choice. (4 hours per week)

230 Heat Treatment Laboratory . . . . . .1 credit hour

Co-requisite: Heat Treatment Processes 215.

Applications of the principles of heat treatment including the set-up and operation of furnaces and equipment. Material preparation, analysis of hardening, tempering, carburizing, and hardness testing. (3 hours per week)

(MUS) 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 . . . . . 3 credit hours

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 maximum of four times. (3 hours per week)

150 Basic Musicianship . . . . . 3 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. (3 hours per week)

157 Afro-American Music . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

158 Black Music Creative Improvisation . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

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)

(N-C) NUMERICAL CONTROL

100 Introduction to Numerical Control . . . . . 3 credit hours

The principles, history, and applications of Numerical Control with special emphasis on tape formats and programming techniques. Point to point and continuous path programs are written, studied, and demonstrated. (3 hours per week)

111 Manufacturing Processes For Numerical Control . .3 credit hours

N/C part hold techniques, feed and speeds for N/C Machining, cutting tools used for N/C, stock removal techniques and comparisons of manual vs. computer programming. (4 hours per week)

121 Programming for Numerical Control . . . . . 3 credit hours

Manual programming for N/C machines including tab sequential, word address and fixed sequential formats. An introduction to computer programming including Adapt, Remapt, Compact, and APT. Special emphasis is placed on part holding for N/C machining. (4 hours per week)

122 Numerical Control Machine Tool Operations . . 3 credit hours

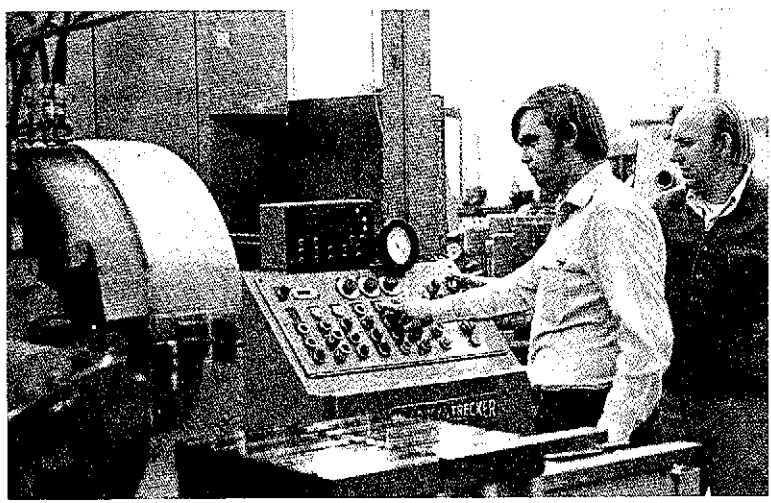
Precision set-up and operation of N/C machine tools. Special emphasis is placed on the time-saving techniques used in profitable N/C machine tool operation. (4 hours per week)

213 Compact II Computer Programming . . . . . 4 credit hours

The Compact II language is studied and demonstrated. Special emphasis is placed on the use of the terminal and plotter to solve N/C problems with the aid of Compact II. Computer tape preparation and verification techniques are practiced. (4 hours per week)

224 APT III Computer Programming . . . . . 4 credit hours

Advanced computer programming techniques. The APT language is studied and each student writes computer programs using each of the various APT language capabilities. Communications are made with the aid of a terminal and plotter. The students will use various computers to solve N/C problems verified on the plotter, terminal and N/C machine tools. (4 hours per week)



(PHL) 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)

250 Logic . . . . . 3 credit hours

Prerequisite: English Composition 111.

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

(PHO) PHOTOGRAPHY

214 Photography . . . . . 4 credit hours

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

215 Darkroom Techniques . . . . . 6 credit hours

Prerequisite: Photography 214.

Development of skills needed by technicians in commercial X-ray, dental, and other types of darkrooms used in business and industry. All major phases of darkroom work including film processing, print making, photographic supplies handling, and equipment maintenance are practiced. (12 hours per week)

216 Basic Color Photography . . . . . 3 credit hours

Prerequisite: Photography 214.

An introduction to the various color photography processes in common use today. Emphasis is placed on the production of color transparencies, color negatives, and color prints. Color correction for basic problem situations is included. (4 hours per week)

217 Studio Techniques . . . . . 2 credit hours

Prerequisite: Darkroom Techniques 215.

Specialized instruction in photography under controlled lighting situations. The use of various types of light is emphasized along with lighting for various situations. (3 hours per week)

218 Photo Retouching . . . . . 2 credit hours

Prerequisite: Darkroom Techniques 215.

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

220 Camera Selection and Use . . . . . 4 credit hours

Prerequisite: Studio Techniques 217.

A detailed study of the various types of cameras and their uses. Roll and sheet film cameras will be emphasized as well as the more unusual applications of the 35 mm camera. (6 hours per week)

221 Advanced Darkroom Techniques . . . . . 2 credit hours

Prerequisite: Darkroom Techniques 215.

Specialized instruction in the problems faced by the darkroom technician. How to produce acceptable results under difficult situations is the major emphasis. (4 credit hours per week)

222 Advanced Color Photography . . . . . 3 credit hours

Prerequisite: Basic Color Photography 216.

A continuation of the studies begun in Basic Color Photography 216. Emphasis is placed on color correction from unusual situations and color distortion to achieve special effects. (6 hours per week)

223 Photographic Occupations . . . . . 3 credit hours

Prerequisite: Studio Techniques 217.

A survey of photographic occupations. The unique problems encountered in photo journalism, retail sales of photographic materials and supplies, and the development of audio-visual materials will be examined. (4 hours per week)

224 Darkroom Operation . . . . . 3 credit hours

Prerequisite: Advanced Darkroom Techniques 221.

An analysis of the physical requirements and activities necessary to make a functional darkroom. Layout supply control, and work flow are some of the items that are examined. (4 hours per week)

229 Freelance Operations . . . . . 3 credit hours

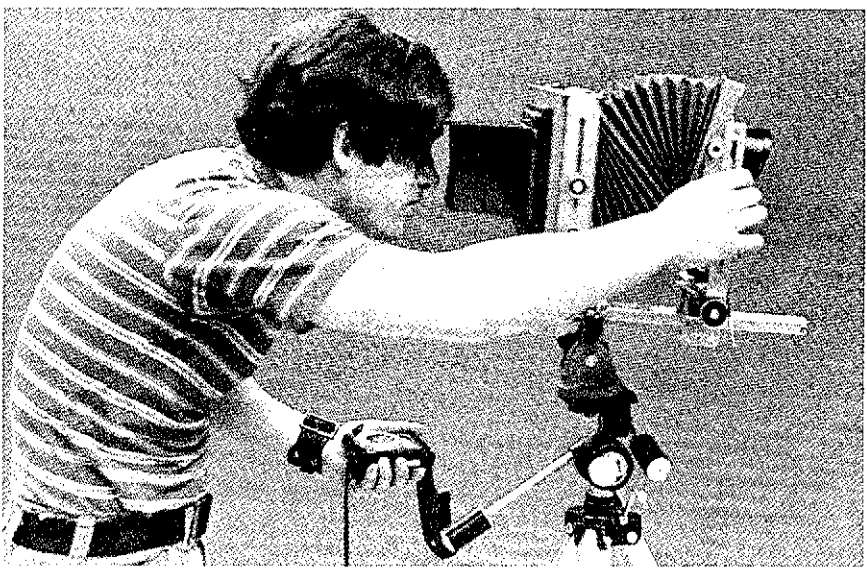
Prerequisite: Camera Selection and Use 220.

A survey of the types of photography that the freelance photographer could become involved in as a one-man operation. Outside speakers and visits to various types of freelance studios will be included as well as an in-depth study of the problems involved in operating a free-lance photographic business. (4 hours per week)

230 Specialized Studies in Photography . . . . . .4-8 credit hours

Prerequisite: Advanced Darkroom Techniques 221.

An opportunity for students to work independently with faculty consultation in major areas of photography. Major study areas may include: studio, commercial, architectural, or industrial photography. (4-8 hours per week)



(P-E) PHYSICAL EDUCATION, HEALTH, 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

A look at man in relation to his environment: a view of how the body functions and what can be done to keep it functioning toward an effective life. Provides information to help the student make intelligent decisions regarding his health and the health of those affected by him. The course is designed to provide the student with an awareness and understanding of the functions of his own body and to direct him toward an intelligent concern for the health and welfare of those around him. (3 hours per week)

121 Seminar in the Smoking Controversy . . . . . .1 credit hour

The course will be geared to give the student understanding and knowledge of the many aspects that contribute to the smoking controversy. Through active participation in the weekly meetings and projects, it is hoped that this class will not only affect those who attend, but others who may be indirectly affected by the seminar participants. (1 hour per week)

122 Seminar in Weight Control . . . . . .1 credit hour

Objectives are to make available information about weight control and to explain practical application of this information to an individual's life. Informal discussion and projects are essential in meeting these objectives. (1 hour 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, relationships 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)

(PEA) PHYSICAL EDUCATION ACTIVITY COURSES

The importance of these courses lies in their contribution to such educational objectives as organic development, neuromuscular coordination, and social efficiency. The basic skills, stategy, and rules will be stressed. A substantial portion of the class meetings will be given to individual problems. Time is allotted for actual game play.

111 Physical Education . . . . . 2 hours

Activities include calisthenics, basketball, soccer, and touch football.

122 Physical Education . . . . . 2 hours

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

140 Intermediate Swimming . . . . . 2 hours

100 Conditioning Activities . . . . . 2 hours

105 Individual Sports . . . . . 2 hours

Archery, Bowling, Golf, and Weightlifting.

106 Dual Sports . . . . . 2 hours

Badminton, Fencing, Tennis, and Table Tennis.

107 Team Sports . . . . . 2 hours

Basketball, Softball, Volley ball, and Flag football.

Participation in the following varsity sports requires permission of the coach.

141 Varsity Cross Country . . . . . 2 hours

150 Varsity Tennis . . . . . 2 hours

151 Varsity Basketball . . . . . 2 hours

160 Varsity Track and Field . . . . . 2 hours

172 Varsity Wrestling . . . . . 2 hours

182 Varsity Baseball . . . . . 2 hours

192 Varsity Golf . . . . . 2 hours

(PHS) PHYSICAL SCIENCE

142 Environmental Science . . . . . 4 credit hours

A one-semester introductory course which surveys the sciences dealing with the origin and physical nature of the earth. Designed for students with little or no science background. The basic principles of astronomy, geology, chemistry, and physics are related to applications in earth science. Problems of man's use and misuse of his physical environment are discussed. A two-hour laboratory is designed to give students first-hand experience with the tools and methods used by scientists. (5 hours per week)

150 Astronomy . . . . . .1 credit hour

A course based on direct observation of the stars, moon, and planets both by telescope and through planetarium visits. It is intended for any interested person and no prior knowledge is needed. (Hours to be arranged)

(PHY) PHYSICS

090 Automotive Physics . . . . . 3 credit hours

A specialized study of certain basic principles of physics selected for their usefulness in automotive technology. Included among the topics covered are fluids, heat, properties of matter, work, power, and energy. Instruction takes place in the laboratory through the solution of practical problems. (4 hours per week)

111 Introductory Physics . . . . . 4 credit hours

Prerequisite: Introductory Algebra 097 or Applied Algebra 151.

Designed for both liberal arts and vocational students who have had no physics. 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 the use of basic scientific instruments and the techniques used in the science laboratory. Transfers as college physics only if followed by General Physics 122. Will transfer by itself as a general science or vocational credit. (6 hours per week)

122 General Physics . . . . . 4 credit hours

Prerequisite: Intermediate Algebra 169 and either Introductory Physics 111 or a year of high school physics. Desk Computers 100 is recommended.

Expands on the basic concepts covered in Introductory Physics 111 in both the lecture and laboratory experiences. This course together with Physics 111 completes the requirement for a year of general college physics. Three hours of laboratory and three hours of lecture and recitation. (6 hours per week)

211 Analytical Physics . . . . . 5 credit hours

Prerequisite: General Physics 122 or equivalent. Calculus 191 co-requisite with instructor's permission.

For students intending to major in science or engineering. This course uses calculus to develop concepts in mechanics, heat, and wave motion. Scientific and Technical Programming 187 is recommended. Three-hour laboratory plus four hours of lecture and recitation. (7 hours per week)

222 Analytical Physics . . . . . 5 credit hours

Prerequisite: Analytical Physics 211.

Continues to develop mathematical methods for understanding physical phenomena in the areas of electromagnetism, light, and modern physics. Three-hour laboratory plus four hours of lecture and recitation. (7 hours per week)

(PLS) 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)

112 Introduction to American Government . . . . . 3 credit hours

The forms and functions of American government with emphasis on national government. Decision-making process in the Congress, the presidency,

and the federal court system studied. Relationship of political parties and public opinion to the electoral process. 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. Relationship of development of the urban community to the politics of metropolitan areas analyzed. Theories of studying community decision-making evaluated. 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 of international relations, and international organization in the nuclear age are analyzed. (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)

(P-S) POWER SOURCES

100 Power Sources . . . . . 4 credit hours

Prerequisite: Introductory Algebra 097 or Applied Algebra 151.

The course surveys the major topics of physics: mechanics, electricity, heat, light, and a lay presentation of atomic theory. Designed for the vocationally oriented student. The important ideas of physics are presented through practical laboratory experimentation supplemented by lectures and films. Specialized technical vocabulary is translated into understandable English through discussions of the everyday work applications of physics. (6 hours per week)

(PSY) 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 Black Psychology . . . . . 3 credit hours

See (BLS) BLACK STUDIES for course description.

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)

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)

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)

209 Psychology of Adjustment . . . . . 3 credit hours

A study of the processes involved in the adjustment of the individual to the problems of everyday living. Emphasis given to the study of the development of techniques or adjustment to meet conflict situations in the social environment. Includes applications of psychology in human relations and in careers. (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)

(Q-C) QUALITY CONTROL

101 Process Quality Control . . . . . 3 credit hours

The concepts of variation and methods of measuring, evaluating, and interpreting industrial data. An in-depth working knowledge of process control is imparted through the use of capability analysis and statistical control charts. Industrial applications are presented and class participation is used extensively in workshops. (3 hours per week)

122 Sampling Quality Control . . . . . 3 credit hours

Prerequisite: Intermediate Algebra 169.

The theory of probability and basic concepts of statistical sampling. The development of sampling plans, effect of sample size and acceptance number on the probability of acceptance, and the use of interpretation of sampling acceptance plans are discussed. Military 105D, sequential, and variable sampling are introduced and their effectiveness and industrial applications are analyzed. (3 hours per week)

213 Quality Control by Statistical Methods . . . . . 3 credit hours

Prerequisite: Process Quality Control 101 and Sampling Quality Control 122.

An introduction to statistical testing for differences in sample means, variability, and fraction defectives. The concepts of linear correlation and regression analysis are introduced. Practical problems encountered in industrial quality control are solved in the classroom to illustrate the techniques presented. (3 hours per week)

224 Quality Control Problem Solving . . . . . 3 credit hours

Prerequisite: Quality Control by Statistical Methods 213.

The essential techniques required in industrial problem-solving. A thorough review of advanced control and statistical methods is directed toward solutions of practical problems in the automotive, metal working, chemical processing, and electronic fields. (3 hours per week)

225 Quality Control Management . . . . . 3 credit hours

The total quality control concept in planning, organizing, and implementing an effective system. Details of how to plan a quality system, set up the organizational structure, integrate the support activities, install controls, and measure the results are discussed. The work of quality information equipment engineering is outlined. The main jobs of quality control are defined in terms of design control, material control, product control, and special studies. (3 hours per week)

226 Introduction to Nondestructive Testing . . . . . 3 credit hours

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

(R-T) RADIOLOGIC TECHNOLOGY

(X-RAY)

111 Fundamentals of Radiologic Technology . . . . . 3 credit hours

Introduction to radiography; history and professional ethics. Emphasis on radiation protection, function of the X-ray unit, darkroom technique and film processing. (3 hours per week)

112 Radiologic Technology Laboratory . . . . . 1 credit hour

Radiographic terminology pertinent to patient positioning. Proper positions for radiography of the osseous system. Critiques on positioning and anatomical appearance on the radiograph. (3 hours per week)

122 Fundamentals of Radiologic Technology . . . . . 3 credit hours

Prerequisite: Fundamentals of Radiologic Technology 111.

Nursing care pertinent to radiography, pediatric radiography, and principles of radiographic exposure are emphasized. (3 hours per week)

123 Radiologic Technology Laboratory . . . . . 1 credit hour

Prerequisite: Radiologic Technology Laboratory 112.

Proper positions for radiography of the skull. Evaluation and critiques on positioning and anatomical appearance on the radiograph. (3 hours per week)

125 Anatomy and Physiology for R. T. . . . . 2 credit hours

Prerequisite: Anatomy and Physiology 111. Second Semester Classification in RT Program.

Topographic anatomy of major muscles, bones, and joints. Anatomy and physiology of the systems of the body, how they are demonstrated radiographically with and without the use of a contrast medium. (2 hours per week)

213 Principles of Radiologic Technology . . . . . 3 credit hours

Prerequisite: Fundamentals of Radiologic Technology 122.

Theory of X-ray exposure. Evaluation of geometric factors and the influence of radiation interaction with matter in image formation. (3 hours per week)

215 Radiologic Technology Laboratory. . . . . .1 credit hour

Co-requisite: Principles of Radiologic Technology 213.

Application of X-ray exposure. Emphasis is on evaluation of X-ray exposure technique for obtaining diagnostic information on X-ray film. (3 hours per week)

224 Principles of Radiologic Technology . . . . . 3 credit hours

A survey of trauma and diseases. Analysis and discussion of the effects of diseases. The role of radiography in the detection of deficiencies in the function and structure of organs within the body. (3 hours per week)

227 Radiologic Technology Laboratory . . . . . .1 credit hour

Advanced radiographic positioning emphasis on film evaluation. Seminars in special radiographic procedures, equipment maintenance, intraoral radiography, radiation therapy and radio isotopes. (2 hours per week)

228 Supervisory Management . . . . . 2 credit hours

An analysis of the role and responsibilities of the radiologic technology supervisor in the hospital and related facilities. Major concerns will involve managerial functions of planning, organizing, staffing, directing, and controlling the department of radiology. (2 hours per week)

Clinical Practice for Radiologic Technology

SPRING-SUMMER WORK EXPERIENCE

Spring and summer work experience is designed for completing requirements for graduation and being eligible to write the certification examination in radiologic technology.

110 Clinical Practicum . . . . . 3 credit hours

Prerequisite: Acceptance into the Radiologic Technology Program.

Experience in an affiliated hospital radiology department. Emphasis is on being familiar with the X-ray department, its personnel, and the hospital routine. Requires working with patients, using X-ray equipment under supervision. (20 hours per week)

120 Clinical Practicum . . . . . 3 credit hours

Prerequisite: Clinical Practicum 110.

Working with patients, using X-ray equipment in the affiliated hospital. Application of principles learned in patient positioning and radiographic exposure technique. (20 hours per week)

199 Clinical Practicum . . . . . .2-6 credit hours

Students needing additional credits in clinical practicum must have the approval of the program advisor.

217 Clinical Practicum . . . . . 3 credit hours

Prerequisite: Second year standing in Radiologic Technology Program.

Advanced clinical experience working with patients in affiliated hospital. Application of principles in patient positioning and radiographic exposure technique. (24 hours per week)

225 Clinical Practicum . . . . . 3 credit hours

Prerequisite: Clinical Practicum 217.

Advanced clinical experience working in all areas of the radiology department. (24 hours per week)

(RDG) READING

READING LABORATORY

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

040 Reading . . . . . 3 credit hours

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)

104 Study Skills . . . . . .1 credit hour

Prerequisite: Permission of instructor.

This course is designed for the competent student interested in improving his study and note-taking skills. Reading and note-taking techniques appropriate to academic materials are stressed. Class meets for half a regular semester. (3 hours per week)

106 Speed Reading . . . . . .1 credit hour

Prerequisite: Permission of instructor.

This course is designed for the competent student interested in becoming a more flexible reader. The student will learn to vary reading speeds and techniques appropriate to his material and purposes. Class meets for half a regular semester. (3 hours per week)

108 Study Skills/Speed Reading . . . . . .1 credit hour

Prerequisite: Recommendation of instructor.

This course is to be elected by students desiring to complete the reading course sequence (Study Skills 104 and Speed Reading 106) and thereby earn a full three credits upon successful completion.

(RAC) REFRIGERATION/AIR CONDITIONING

Membership in Refrigeration Service Engineers Society is required. Contact advisor for registration and additional information.

111 Refrigeration . . . . . 5 credit hours

Prerequisites or Co-requisites: Electrical Fundamentals 111 and Applied Algebra 151 or equivalent.

The foundation course in a series of courses presented with a practical approach to servicing refrigeration air conditioning systems. Major units covered include: mathematics, principles of refrigeration, refrigerants and refrigerant tables, refrigerant oils, contaminants and dryers, moisture in the air, food preservation, basic electric wiring and insulation. RSES I (5 hours per week)

122 Refrigeration . . . . . 5 credit hours

Prerequisite: Refrigeration 111 or divisional consent.

Emphasis is on the functional principles and servicing of the following units: compressors, condensers (air and water-cooled), cooling towers,

evaporator selection, metering devices (expansion valves, capillary tubes), motors and accessories, defrost systems, supermarket refrigeration, fresh meats, soda fountains and ice cream dispensers, ice making machines, beer cooling, milk cooling, and estimating heat loads (commercial refrigeration). RSES II (5 hours per week)

123 Refrigeration and Air Conditioning Systems . . . 5 credit hours

Prerequisite: Refrigeration 122 or concurrently.

This course offers the student the opportunity to sketch and construct refrigeration systems. Calibrating and efficiency balance of these units are stressed. Troubleshooting electrical controls and additional study in thermodynamics is included. (6 hours per week)

124 Basic Controls . . . . . 3 credit hours

Prerequisite: Electrical Fundamentals 111 and Refrigeration 111.

The first in a series of courses designed to provide a sound understanding of the principles and applications of electricity in refrigeration and air conditioning service, providing the essentials of the major objectives; reading and understanding complex electrical drawings, wiring diagrams and schematics associated with R/AC controls. Safety is included and seriously emphasized. RSES E-1 (5 hours per week)

213 Air Conditioning . . . . . 5 credit hours

Prerequisite: Refrigeration 122 or divisional consent.

Air conditioning covers the operating principles of modern mechanical equipment and troubleshooting approaches to these systems. Units covered are: air conditioning (general), psychrometric charts, insulation in air conditioning, thermostatic and pneumatic controls, heat pumps, room air conditioning units, heating and cooling systems and equipment, ducts and grilles, blowers and fans, air filters, safety, first aid and codes. RSES III (5 hours per week)

214 Control Systems . . . . . 5 credit hours

Prerequisite: Basic Controls 124 and Air Conditioning 213.

Presenting further study and practice in reading electronical wiring diagrams and schematics as applied to the electrical controlling systems of refrigeration and air conditioning, including alternating current, motors, starters, capacitors, transformers, motor protectors, standard service techniques and troubleshooting industrial controls. RSES E-II (5 hours per week)

215 Troubleshooting Controls . . . . . 5 credit hours

Prerequisite: Control Systems 214.

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

216 Systems Laboratory . . . . . 5 credit hours

Prerequisite: Refrigeration and Air Conditioning Systems 123.

The second laboratory course building upon the first one for advanced troubleshooting experiences in refrigeration/air conditioning remote control systems. Calibrating and efficiency-balancing of commercial systems continues as the major thrust. (6 hours per week)

(RTH) RESPIRATORY THERAPY

WORK EXPERIENCE

During Spring-Summer break students are required to obtain employment (paid) at a hospital in order to gain respiratory therapy experience. The employing hospital must be approved by the medical director of the respiratory therapy program. (Eleven weeks—40 hours per week or 440 clock hours)

097 Respiratory Therapy Review . . . . . .1 credit hour

This course is designed to assist graduates of Respiratory Therapy Programs studying for their certification or registry exams. Offered the five Saturday mornings preceding the exam. Emphasis is placed on sample examinations. (5 three-hour sessions)

121 Basic Equipment and Procedures . . . . . 4 credit hours

Prerequisite: Admission to the Respiratory Therapy Program.

An introductory course dealing with the instruments and techniques used by the respiratory therapist. The course involves principles of operation and

maintenance repair of various analyzers, humidifiers, masks, catheters, respirators, tents, and regulators. Involved are three hours of laboratory and one hour of lecture. (4 hours per week)

122 Respiratory Physiology . . . . . 5 credit hours

Prerequisite: Basic Anatomy & Physiology 111.

Intended for respiratory therapy students only. An in-depth study of the anatomy and physiology of the respiratory system and the diseases that affect it. Involved are three hours of lecture and two hours of recitation. (5 hours per week)

199 General Clinical Practice . . . . . 3 credit hours

Prerequisite: Admission to the Respiratory Therapy Program.

Bedside practice of general respiratory therapy techniques, such as intermittent positive pressure breathing, oxygen therapy, humidity therapy, cardio-pulmonary resuscitation, sputum induction, and equipment rounds. This course will meet in a cooperating hospital. Experiences will be coordinated with topics covered in Basic Equipment and Procedures 121.

200 Advanced Clinical Practice . . . . . 4 credit hours

Prerequisite: Ventilators and Diagnostic Tests 212 prior or concurrent.

Structured, at-the-bedside practice of respiratory therapy techniques involved with the care of acutely ill patients, children, infants and premature infants, and patients with chronic obstructive pulmonary disease. Also, practice performing pulmonary function testing and blood gas analysis. Students will be rotated through the intensive care units, pulmonary function laboratories, and pediatric units of cooperating hospitals. Involved are two eight-hour sessions per week. (16 hours per week)

212 Ventilators and Diagnostic Tests . . . . . 3 credit hours

Prerequisite: Basic Equipment and Procedures 121.

An in-depth study of the use, classification, operation, advantages, modifications, maintenance, repair, and trouble shooting of medical ventilators, pulmonary function testing devices, and other respiratory therapy equipment. Involved is one three-hour session per week. (3 hours per week)

213 Intensive and Rehabilitative Respiratory Care . . 3 credit hours

Prerequisite: Basic Equipment and Procedures 121 and Respiratory Physiology 122.

A detailed study of the treatment of acute and chronic respiratory failure. The treatment of overwhelming pneumonias, adult respiratory distress syndrome, post-operative problems, poisonings, and the rehabilitation of patients with chronic pulmonary disease will be emphasized. Also, medical specialists will discuss the respiratory care of their patients. (3 hours per week)

217 Seminar-Respiratory Therapy . . . . . 3 credit hours

Prerequisite: Basic Equipment and Procedures 121 and Respiratory Physiology 122.

In this course, three hours each week will be scheduled for seminar discussions of current problems, therapeutic complications, review of current literature, and reports of scientific meetings. In addition, a major portion of the time will be devoted to discussion of and practical application of management techniques as they apply to the operation of a respiratory therapy department. (3 hours per week)

(SCI) SCIENCE

105 Medical Terminology . . . . . 2 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 and other examinations, and to read and to understand medical articles and reports. (2 hours per week)

106 Chemistry for Health Occupations . . . . . 2 credit hours

Prerequisite: Chemistry 057 or a year of high school chemistry, with a grade of "C" or better.

Intended primarily for students in the Health Occupations area, a study of the chemical behavior of liquids, gases, and solutions including acids and bases; with a review of related chemical terms and principles. (2 hours per week) Normally offered only in the fall semester.

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

A survey of the basic structures, functions, and disfunctions of the human body designed for students pursuing a health occupations curriculum. Coverage of the systems of the body is in a logical sequence with emphasis on practical applications to various health fields. Demonstrations and student laboratory experience will be a part of each class meeting. (4 hours per week)

113 Introduction to Medical Science . . . . . 2 credit hours

The nursing problems relative to the hospitalized patient, particularly those receiving inhalation therapy will be presented, analyzed, and discussed. The basic nursing arts will be presented as well as law and legal responsibilities of the paramedical person, selected major pathologic entities, pediatrics, and relevant social-psychological concerns. (2 hours per week)

117 Physics for Health Occupations . . . . . 3 credit hours

Prerequisite: Foundations of Occupational Mathematics 090 prior or concurrently.

The principles of physics are used to explain the operation of instruments used for medical diagnosis and treatment, such as the X-ray machine, Cardiac, Monitor, EKG, Respirator, Pacemaker, Sphygomanometer, and Telethermometer. A one-hour recitation and a two-hour lab session each week are involved. (3 hours per week)

118 Radiologic Physics . . . . . 3 credit hours

Prerequisite: Physics for Health Occupations 117.

The effects of radiation and safe handling of radiation equipment are discussed. Also included is the therapy and use of radioactive isotopes. (3 hours per week)

127 Hospital Microbiology . . . . . .1 credit hour

A survey of the morphology, physiology, and immunology for pathogenic organisms with emphasis placed on infection, aseptic, and sterilizing proceedures. (3 hours per week for five weeks)

128 Elementary Pharmacology . . . . . .1 credit hour

Prerequisite: Basic Anatomy and Physiology 111.

A survey of drugs used to treat disease, with emphasis on drugs commonly used to treat cardio-pulmonary disorders. (3 hours per week for five weeks)

129 Elementary Pathology . . . . . .1 credit hour

Prerequisite: Basic Anatomy and Physiology 111.

A survey of anatomical pathology including inflammation, infection, tuberculosis, viral disease, poisons, tumors, cardiovascular disease, shock, and diabetes. (3 hours per week for five weeks)

207 Emergency Medical Treatment . . . . . .6 credit hours

This course provides the training legally required for ambulance drivers in Washtenaw County. Skill in diagnosis and all emergency treatment procedures short of those rendered by a physician is developed. The use and care of emergency equipment is included, as is an opportunity to take the national certification examination.

(S-O) SECRETARIAL AND OFFICE

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)

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. Credit and contact hours are progressive (100, A, B, C) and are contingent on student progress as determined by proficiency tests undertaken. (4 hours per week PLUS minimum 8-10 practice hours)

107 Clerical Methods and Procedures . . . . . 3 credit hours

Prerequisite: High school typewriting proficiency or concurrent enrollment in intermediate typewriting, or equivalent.

Emphasis is on developing insights into the responsibilities of the clerical office staff, personal qualifications, human relations factors, and their relationship to the effective integration of clerical office methods, systems, and procedures. Includes the study of filing and records systems, telephone and telegraph communication, written reports, transcribing and duplicating equipment. (4 hours per week)

110 Typewriting . . . . . 2 credit hours

An integrative, programmed approach to the development of operative skill in typewriting as a vocational tool. Course coverage includes training in the mastery of the keyboard, development of proper techniques, building speed and accuracy, exposure to basic typing applications. Credit and contact hours are progressive (110, A, B, C) and are contingent on student progress as determined by proficiency tests. (3 hours per week PLUS minimum 6-8 practice hours)

130 Business Machines . . . . . 3 credit hours

Prerequisite: Foundations of Occupational Mathematics 090 or equivalent.

Instruction in the basic mathematical processes on modern calculating machines of both listing and non-listing types. Instruction in operation and use of duplicating and transcribing equipment. Emphasis throughout the course is on machine applications to mathematical problem-solving. (3 hours per week PLUS minimum 5-6 practice hours)

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

Prerequisite: Two-year high school typewriting proficiency or concurrent enrollment in advanced typewriting, or equivalent.

A practical study of the fundamental systems and procedures comprising the modern business offices. Emphasis is on developing insights into the responsibilities of the office staff, personal qualifications, human relations factors, and their essential relationship to the effective integration of all systems and procedures. Includes the study of filing and records systems, telephone and telegraph communications, written reports, transcribing and duplicating equipment. (3-4 hours per week)

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. Skill development and speed building in recording and transcribing notes are emphasized. Course credit and contact hours are progressive (200, A, B, C) and are contingent on student progress as determined by proficiency tests. (2 hours per week PLUS minimum 6-8 practice hours)

(S-S) SOCIAL SCIENCE

100 Woman in Today's World . . . . . 3 credit hours

This course is designed to help students develop an awareness of woman's position in today's world and to identify the economic consequences of that position. Among topics included in discussion are: identity, marriage as a contract, legalities and economics of divorce, women in the work force, benefit programs, political action, and women's legal status and rights. (3 hours per week)

200 Michigan History . . . . . 3 credit hours

A survey of major economic, social, and political developments in Michigan from prehistoric times to the present. Emphasis is placed on the significance of the past in today's world. (3 hours per week)

205 Conservation of Natural Resources . . . . . 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)

(SOC) 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 programs in social work, or advanced work in the social sciences. (3 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)

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 non-economic needs and wants as well as treatment of the ways in

which resources are allocated and products distributed in response to economic needs and wants. The significance of 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)

250 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)

(SPN) SPANISH

111 First Year Spanish . . . . . 3 credit hours

This is a beginning course in Spanish and stresses the spoken language through practice in the language laboratory. (4 hours per week)

122 First Year Spanish . . . . . 3 credit hours

Prerequisite: Spanish 111 or permission of instructor.

The work begun in Spanish 111 is continued, with additional stress on readings and class conversations. (4 hours per week)

213 Second Year Spanish . . . . . 3 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. (4 hours per week)

224 Second Year Spanish . . . . . 3 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. (4 hours per week)

(SPH) SPEECH

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)

103 Radio and Television Speech . . . . . 3 credit hours

The development of an effective voice for speaking on the microphone through a study of contemporary standards in broadcast diction and voice production. The study of voice requirements for standard broadcast forms, news, interviews, features, commercials, and music continuity. Basic oral reading techniques and a brief introduction to the International Phonetic Alphabet. (3 hours per week)

183 Advanced Public Speaking and Persuasion . . . . 3 credit hours

Prerequisite: Fundamentals of Speaking 100 or permission of instructor.

A continuation of theory and practice in the principles of effective public speaking. Course includes practice in securing the acceptance of ideas through psychological appeal as well as logical reasoning. (3 hours per week)

185 Public Speaking and Debate . . . . . 3 credit hours

Prerequisite: Fundamentals of Speaking 100 or permission of instructor.

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 or permission of instructor.

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 Intepretation of Literature . . . . . 3 credit hours

Prerequisite: Fundamentals of Speaking 100 or permission of instructor.

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. Recommended for students entering elementary education. (3 hours per week)

191 Basic Acting . . . . . 3 credit hours

Prerequisite: Fundamentals of Speaking 100 or permission of instructor.

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 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 or permission of instructor.

A workshop in laboratory theatre, this course provides preparation for classic and innovative performance theatre. (3 hours per week)

(TCA) TECHNICAL-COMMERCIAL ART

100 Perspective and Parallel Projection . . . . . 4 credit hours

Prerequisite: Technical Drawing 100 or consent of division.

A detailed study of developing ideas by three dimensional drawing techniques. Emphasis is placed on the fundamentals of oblique, one point, point, isometric, dimetric, trimetric, and three point perspective projection. (6 hours per week)

101 Technical Illustration . . . . . 4 credit hours

Prerequisite: Perspective and Parallel Projection 100 or consent of division.

Illustration projects utilizing perspective and parallel projection and mechanical art aids. Information for problems is obtained from blueprints, written communication, and other sources. Assignments will deal with the presentation of assemblies, exploded views, section, and phantom drawings used by automotive, aircraft, and electronics industries. (6 hours per week)

102 Lettering Techniques . . . . . 2 credit hours

Prerequisite: Basic Drawing 111 and Basic Design 112 or consent of division.

Fundamentals of lettering layout techniques and the various materials used for designing posters, billboards, brochures, and other commercial advertising forms. (4 hours per week)

110 Lettering and Layout . . . . . 4 credit hours

Introduction to the various styles of lettering and techniques used in the design of posters, brochures, and other advertising forms. Also studied are basic techniques in the preparation of art work to be reproduced. (6 hours per week)

111 Basic Drawing . . . . . 3 credit hours

See ART for course description.

112 Basic Design . . . . . 3 credit hours

See ART for course description.

120 Commercial Rendering . . . . . 4 credit hours

Prerequisite: Perspective and Parallel Projection 100 or consent of division.

An introduction to the various materials and rendering techniques used by the commercial artist. Assignments will deal with the rendering of commercial illustrations with water colors, tempera, acrylics, pastels, colored pencils, and pen and ink. (6 hours per week)

121 Advertising Layout . . . . . 4 credit hours

Prerequisite: Perspective and Parallel Projection 100, Basic Drawing 111 and Basic Design 112 or consent of division.

An application of various techniques and methods used to develop commercial advertising art. A simulation of studio situations and problem-solving from rough lettering and layout to final art. (6 hours per week)

122 Technical Rendering . . . . . 4 credit hours

Prerequisite: Commercial Rendering 120 or consent of division.

Fundamentals of rendering techniques and the various compatible materials used in industry by the technical illustrator. Projects will be directed in parallel and perspective shadow construction. Stipple, smudge, and French rendering of geometrics and airbrush and brush photographic retouching. (6 hours per week)

123 Basic Design . . . . . 3 credit hours

See ART for course description.

214 Photography . . . . . .4 credit hours.

See PHOTOGRAPHY for course description.

215 Darkroom Techniques . . . . . .6 credit hours

See PHOTOGRAPHY for course description.

218 Photo Retouch . . . . . 2 credit hours

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

225 Model Construction . . . . . 2 credit hours

Prerequisite: Basic Design 112, Basic Drawing 111, and Perspective and Parallel Projection 100 or consent of division.

Visualization and construction of three-dimensional forms from blueprints,

sketches, and schematics; using wood, plastic, cardboard, clay, and plaster for construction. Emphasis placed on use of shop equipment; blueprint reading, use of model construction materials, and cost estimating. (3 hours per week)

226 Commercial Display . . . . . 4 credit hours

An introduction to the techniques of the design and construction of two and three dimensional displays. The assignments emphasize the design, the working drawing or blueprint, and the construction of a functioning model. (6 hours per week)

227 Graphic Reproduction . . . . . 4 credit hours

A survey of the basic processes and techniques used to reproduce graphic materials. Included is a systematic study of the following equipment: letterpress, blueprint machine, spirit duplicators, electrostatic copiers, silk screens, and light duty offset presses. Emphasis is placed on the techniques used for properly preparing and finishing copy for reproduction. (6 hours per week)

228 Airbrush Techniques . . . . . 4 credit hours

Development of rendering techniques using an airbrush and various associated materials. Assignments deal with rendering illustrations and photo retouchings.

236 Specialized Study . . . . . .2-8 credit hours

Prerequisite: Consent of division.

An opportunity for students to work independently with faculty consultation in major study areas of Commercial Art and Technical Illustration. Directed periods of concentrated effort on assignments to demonstrate the individual's development and understanding within selected occupational areas. Major study areas of specialization may include: animation and cartooning, medical illustration, animal illustration, commercial photography, graphic reproduction, advertising and lettering, layout, fashion illustration, and commercial displays. (4 hours per week)

(W-F) WELDING & FABRICATION

100 Fundamentals of Welding . . . . . 2 credit hours

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

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)

111 Welding and Fabrication . . . . . 4 credit hours

The use of oxy-acetylene equipment to perform such operations as butt, lap, and fillet welds using filler rods. Flame cutting, brazing, and silver soldering are included. Safety procedures and practices of gas welding are emphasized. (8 hours per week)

112 Welding and Fabrication . . . . . 4 credit hours

The use of arc welding equipment both A.C. and D.C. to perform such operations as butt, lap, and fillet welds. Using bare and shielded electrodes, all-purpose and special electrodes. Study of electrical welding, power supplies and electrodes is included. Safety procedures are stressed. (8 hours per week)

123 Welding and Fabrication . . . . . 4 credit hours

Prerequisite: Welding and Fabrication 111.

Advanced instruction in oxy-acetylene welding with emphasis on "out of position" welded joints. Procedures are covered and put in practice for fabricative welded joints on steel plate and pipe. Related theory included. (8 hours per week)

124 Welding and Fabrication . . . . . 4 credit hours

Prerequisite: Welding and Fabrication 112.

Advanced instruction in arc welding using both A.C. and D.C. arc welding equipment. Emphasis on "out of position" welded joints in mild steel, alloy steels, and pipe procedures are covered for cutting, beveling, and fabricating various welded joints. Related theory, codes, and standards are included. (8 hours per week)

215 Welding and Fabrication . . . . . 3 credit hours

Prerequisite: Consent of division.

Tungsten-insert-gas shield arc welding with manually operated torch on such metals as aluminum, mild steel, and stainless steel. Technical theory directly related to tig welding including the composition and properties of metals is included. (6 hours per week)

221 Applied Automotive Welding . . . . . .1 credit hour

Practice in the application of welding fundamentals, with emphasis on cutting and brazing. (2 hours per week) 7-1/2 weeks

226 Welding and Fabrication . . . . . 3 credit hours

Prerequisite: Consent of division.

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)

ADMINISTRATIVE STAFF

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B.A.—University of Iowa
M.L.S.—University of Iowa

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Ed.M.—Kent State University

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S.A.—Eastern Michigan University

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Detroit Institute of Technology

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Numatrol Circuit Design School
Illinois Institute of Technology

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B.D.-St. Mary's College
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M.A.—The University of Michigan

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Air Force Technical School
Certified Welder-Navy, Air Force, Army

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B.A.—College of Wooster
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A.R.I.T. (American Registry of Inhalation Therapy)

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M.S.—Michigan State University

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Ford Motor Institute

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General Motors Paint School

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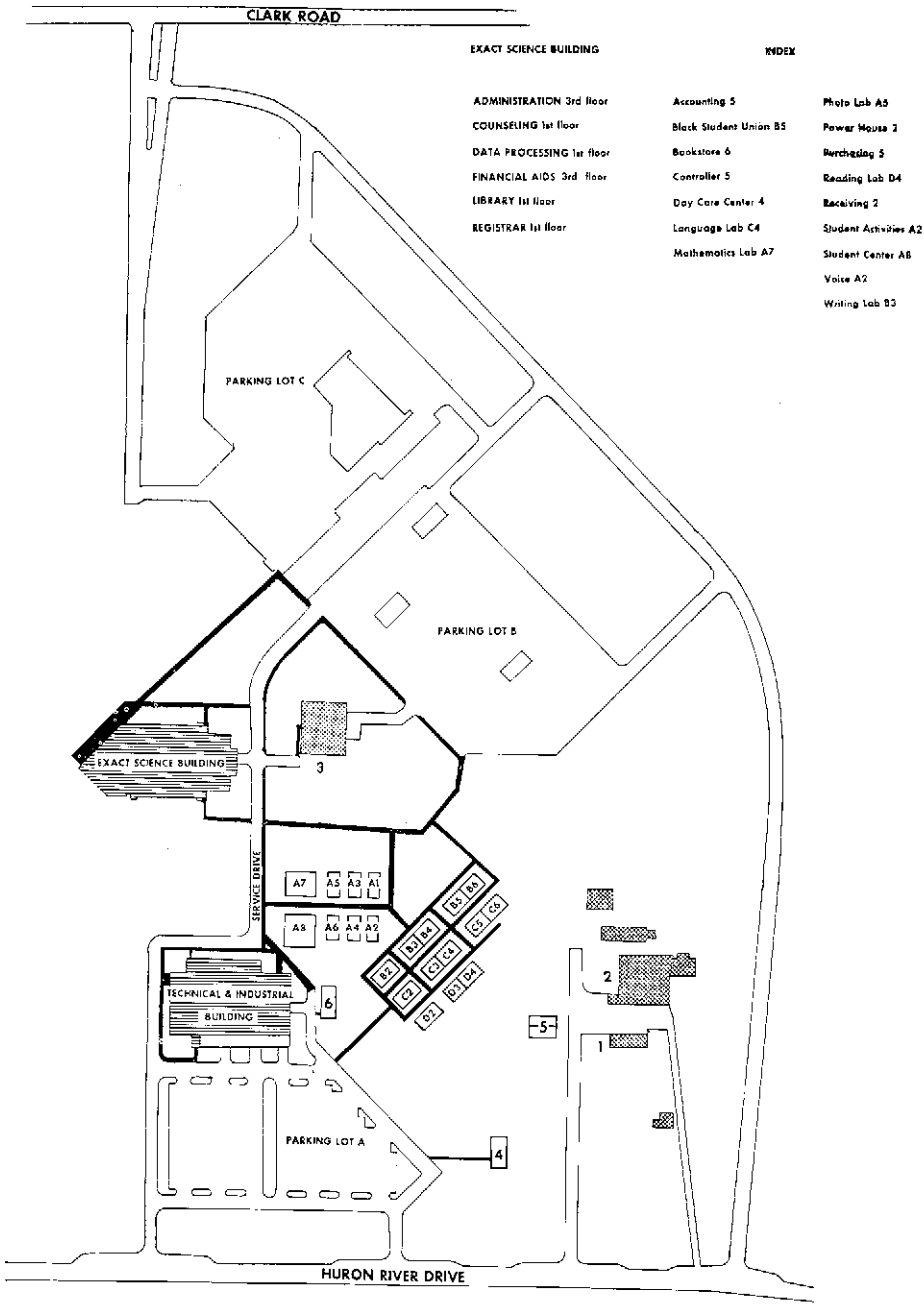

Washtenaw Community College Campus

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