

1977 - 78 CATALOG

CHEMEKETA COMMUNITY COLLEGE

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The information contained in this catalog reflects an accurate picture of Chemeketa Community College at the time of publication. However, conditions can and do change. Thus, the college must, as in the past, reserve the right to make any necessary changes in matters discussed herein, including procedures, policies, calendar, curriculum, course content or emphasis and costs.

Academic Calendar 1977-78

SUMMER SCHOOL 1977

Registration	June 20 (Mon.)
Last day to register without penalty	June 21 (Tues.)
Classes in regular session	June 21 (Tues.)
Last day to register for summer term	June 24 (Fri.)
Last day to make class or program changes	June 24 (Fri.)
Fourth of July Holiday	July 4 (Mon.)
Last day to withdraw from classes without responsibility for grades (8 week classes)	Aug. 5 (Fri.)
End of 8 week classes	Aug. 12 (Fri.)
Last day to withdraw from classes without responsibility for grades (10 week classes)	Aug. 19 (Fri.)
End of 10 week classes	Aug. 26 (Fri.)

FALL TERM 1977-78

Registration	Sept. 19-23 (Mon.-Fri.)
Last day to register without penalty	Sept. 26 (Mon.)
Classes in regular session	Sept. 26 (Mon.)
Last day to register for fall term	Sept. 30 (Fri.)
Last day to make class or program changes	Sept. 30 (Fri.)
Veteran's Day Holiday	Nov. 11 (Fri.)
Thanksgiving Holiday	Nov. 24-25 (Thurs.-Fri.)
Last day to withdraw from classes without responsibility for grades	Dec. 9 (Fri.)
Review and examination	Dec. 12-16 (Mon.-Fri.)
End of fall term	Dec. 16 (Fri.)

WINTER TERM 1977-78

Registration	Jan. 3 (Tues.)
Last day to register without penalty	Jan. 3 (Tues.)

Classes in regular session	Jan. 4 (Wed.)
Last day to register for winter term	Jan. 9 (Mon.)
Last day to make class or program changes	Jan. 9 (Mon.)
Last day to withdraw from classes without responsibility for grades	Mar. 10 (Fri.)
Review and examination	Mar. 13-17 (Mon.-Fri.)
End of winter term	Mar. 17 (Fri.)

SPRING TERM 1977-78

Registration	Mar. 27 (Mon.)
Last day to register without penalty	Mar. 27 (Mon.)
Classes in regular session	Mar. 28 (Tues.)
Last day to register for spring term	Mar. 31 (Fri.)
Last day to make class or program changes	Mar. 31 (Fri.)
Memorial Day Holiday	May 29 (Mon.)
Last day to withdraw from classes without responsibility for grades	June 2 (Fri.)
Review and examination	June 5-9 (Mon.-Fri.)
End of spring term	June 9 (Fri.)

SUMMER TERM 1978

Registration	June 19 (Mon.)
Classes in regular session	June 20 (Tues.)
End of 8 week classes	Aug. 11 (Fri.)
End of 10 week classes	Aug. 25 (Fri.)

FALL TERM 1978-79

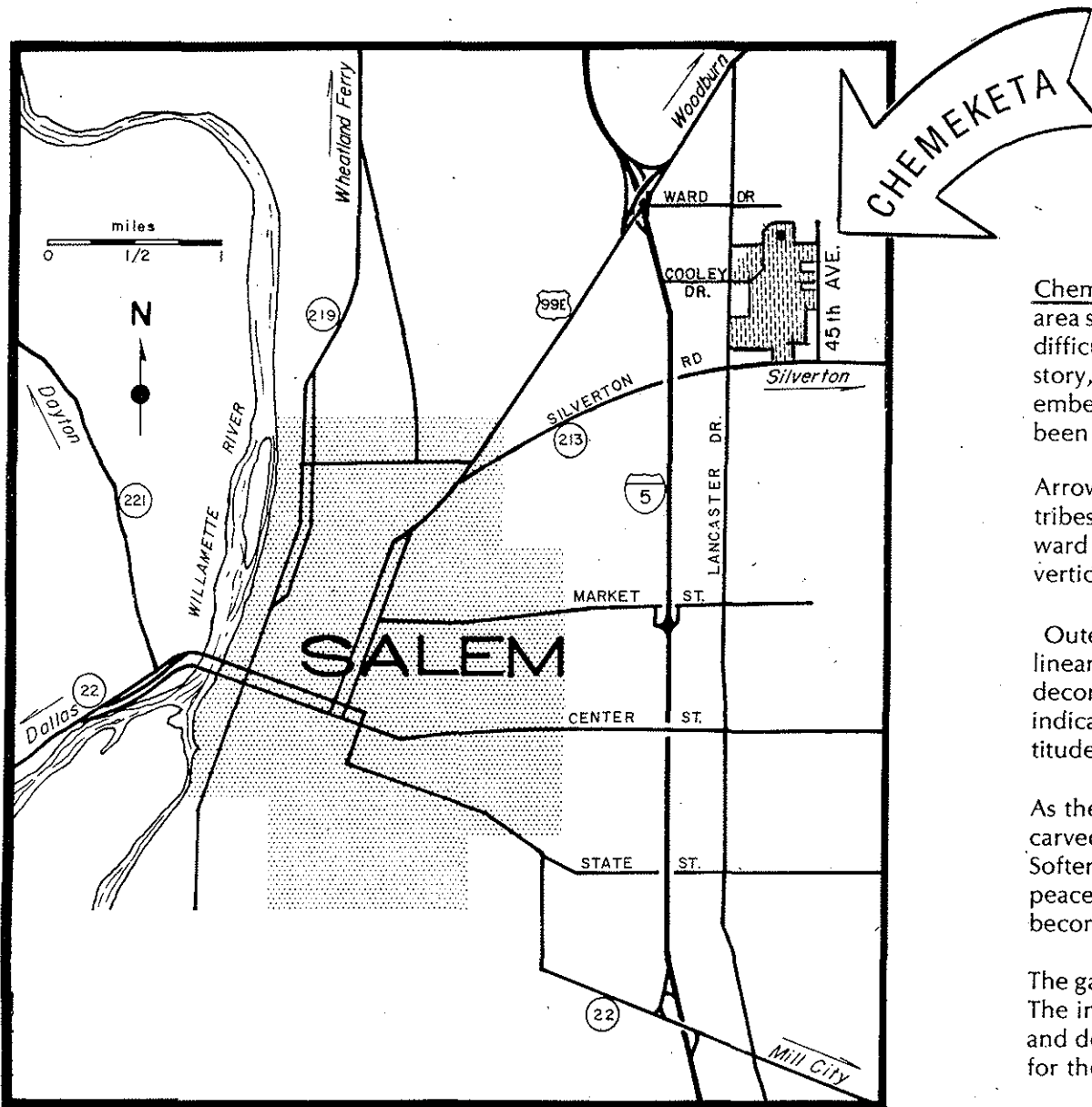
Registration	Sept. 18-22 (Mon.-Fri.)
Classes in regular session	Sept. 25 (Mon.)
End of fall term	Dec. 15 (Fri.)



CHEMEKETA COMMUNITY COLLEGE

(4000 Lancaster Dr. N.E.)
P.O. Box 14007
Salem, Oregon 97309

399-5000



Chemeketa means "The Place of Peace," and was the area set off for friendly meetings of the tribes to work out difficulties and to find ways to live together. To tell this story, the panel pictured on the cover of your catalog embellishes our first permanent building. The mural has been divided in several sections, indicating Territories.

Arrow-shaped thrusts, symbolizing the movement of the tribes toward the established meeting place, push inward from the outside edges. They are divided by these verticals.

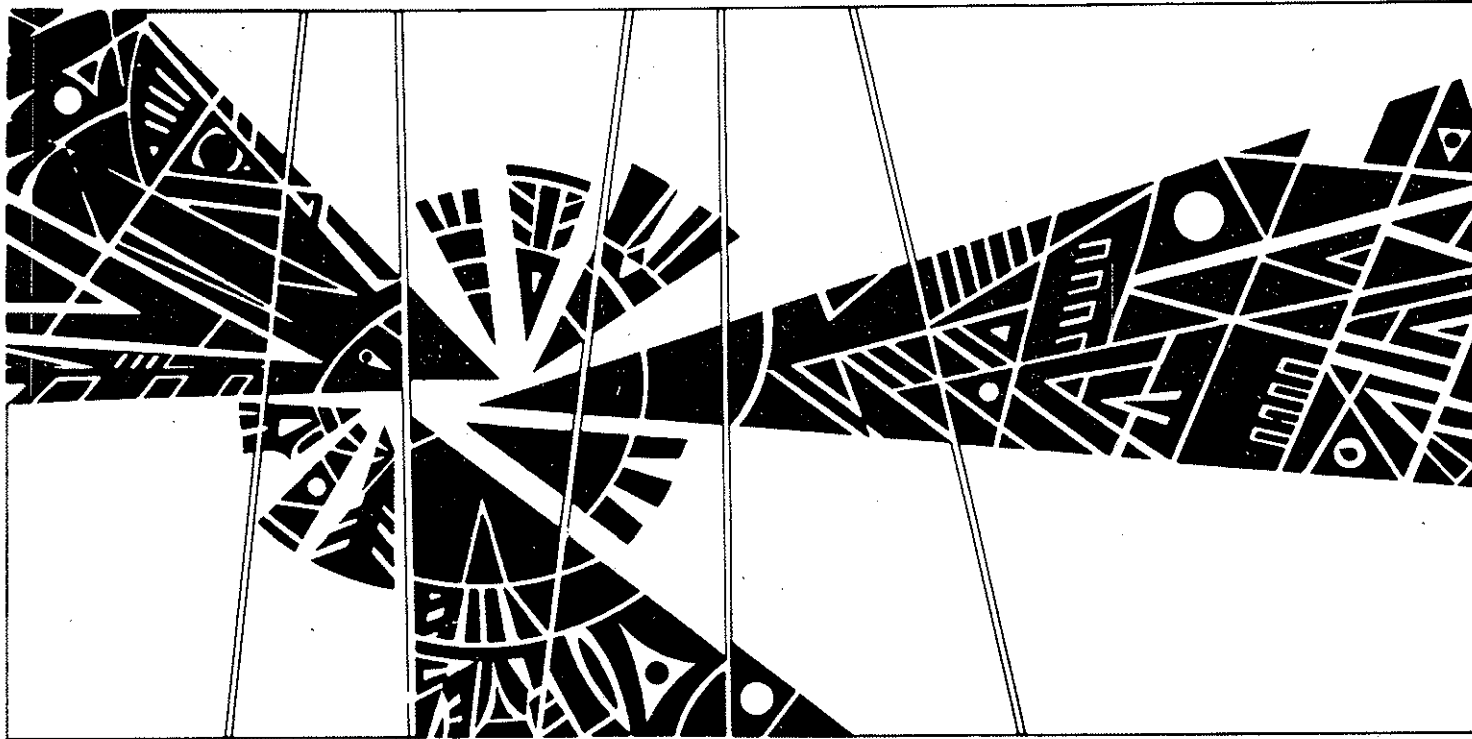
Outer areas of these arrows are very complex, bold, linear forms, arrived at from the tools, weapons and decorations used by the Indians in their daily lives, also indicating their natural proud, strongly independent attitudes in their own territory.

As the tribes move through the territorial divisions, the carved designs become less aggressive and less linear. Softer curves start to enter into the forms, showing more peaceful attitudes. The final points of the arrow shapes become completely calm on reaching the center.

The gathering has now been made for the tribal meeting. The individual Chiefs, each with his own form of dress and decoration and behavior, sit down in a formal circle for the peaceful work of conference.

SITE OF
**CHEMEKETA
 COMMUNITY
 COLLEGE**

4000 LANCASTER DR. NE
 P.O. BOX 14007
 SALEM, OREGON 97309



GENERAL INFORMATION

CHEMEKETA COMMUNITY COLLEGE

GENERAL INFORMATION

PHILOSOPHY

Chemeketa Community College is dedicated to the philosophy that the greatest well-being accrues to the individual, the community and the society only when each individual is accorded the opportunity to define and pursue legitimate interests and discover and develop abilities to the maximum of individual potential.

Chemeketa Community College is dedicated to providing educational opportunities at a minimum cost to the student—with the conviction that the fullest possible development of each individual's abilities is essential to the welfare of the community, the state and the nation. Chemeketa is an open door college, offering post high school educational opportunities up to two years to all people of the district.

This dedication commits the college to offer diversified programs to develop and accommodate the unique potential and needs of its students—widening the horizon beyond the curriculum in all aspects of career and personal life. It commits the college to offer its resources to the entire district and likewise, to enhance and exploit the resources of the area it serves. And, it commits the college to continuously evaluate the relevancy, standards and the quality of its programs; the effectiveness of its instruction and the quality of all services to the students and the district service area. These commitments demonstrate that the college responds flexibly to the demands of society while fully recognizing the worth of each individual.

Implementation of the Philosophy

In view of this nature, role and philosophy of the comprehensive community college,

Chemeketa designs its educational program to meet four objectives—singly or in a combination:

- Vocational-technical education for those who desire to qualify for the specialized demands of a highly diversified and technological society. The one- and two-year programs serve the student by preparing him/her for employment. They serve the community by providing business and industry with competent, trained workers who have learned basic skills in specialized fields. Upon successful completion of these programs, the student is awarded an associate degree or certificate of completion.
- Lower division transfer for students who plan to transfer to a four-year institution. These courses may be taken as separate work or incorporated in a technical-vocational course of study. The courses parallel those of the lower division of Oregon's colleges and universities.
- Adult education opportunities for continuing education and individual enrichment for those who wish to improve technical or vocational skills, retrain for a new position or simply for avocational purposes. These courses are open to all residents of the district in approximately 25 communities. The adult education program includes basic education for those who have had their formal education interrupted.
- General education emphasis throughout all programs in the college developing students' power of analysis and synthesis, offering opportunities for the nurture and development of the mind—the mind free to create and innovate—to move from mental adolescence to intellectual maturity. The college offers all students and requires of all graduates a pattern of courses designed to

produce an awareness of self and provide basic competence in spoken and written English, mathematics, American history, government and economic systems, regard for physical and mental health and in-depth knowledge of one subject area. This approach offers quality within diversity—a major purpose of the comprehensive community college.

ACCREDITATION

Chemeketa received full accreditation by the Northwest Association of Secondary and Higher Schools in December of 1972.

In addition, all of Chemeketa's technical programs are accredited by the State Board of Education. Those programs requiring accreditation by professional associations have achieved the needed accreditation. Chemeketa technical-vocational and transfer instructors as well as transfer courses are approved by the Oregon State Board of Education.

STUDENTS

Chemeketa Community College strives to take a personal and individual approach to student learning. There is no typical Chemeketa student. Students include just-graduated high school seniors, experienced workers wanting to advance, homemakers preparing for re-entry into the labor force, young workers seeking new skills or new direction in their careers and older persons studying to enrich their lives.

The college serves a population of 241,000 distributed over 2,600 square miles. It enrolled approximately 25,000 persons last year. The variety of students provides a valuable social interaction not available at other institutions.

STAFF

There are more than 800 full- and part-time highly-qualified and carefully-selected staff members serving Chemeketa students.

THE LEARNING CENTER

The learning center, located in building 3 houses the library and audiovisual department and study skills, career planning, deaf/blind program, counseling, adult basic education, bilingual, English as a second language, senior citizen programs and a drop-in child care center.

The library contains approximately 34,000 books, and over 960 periodicals are available. The audiovisual department houses the non-print collection and a wide variety of instructional media devices. The instructional television facility is a part of audiovisual. The study skills center, located on the first floor, serves as a diagnostic center where students can receive personal attention for specific concerns. The center is designed to serve the educational needs of Chemeketa's students without additional fees.

Students with hearing or sight deficiencies may acquire help from readers, interpreters, note takers and tutors from the deaf/blind program office located on the first floor. There is no charge for this service.

Students may receive help in language from either the bilingual program office or the English as a second language program, both located on the first floor of the building.

PROGRAMS

Chemeketa offers one- and two-year technical-vocational programs plus concentrated short courses, transfer courses and adult education evening programs.

Technical-Education Programs

Thirty-one two-year technical courses leading to associate degrees and eight one-year programs leading to certificates of completion comprise the career programs at Chemeketa.

Transfer Courses

The lower division offerings are transferable to Oregon four-year colleges and universities. The lower division transfer courses lead to an associate degree.

High School Completion

Chemeketa Community College offers two high school diploma programs. The regular high school completion program allows the student, in cooperation with a high school counselor, to enroll in night classes offered by Chemeketa, but the credit is applied by the student's resident high school. Students wishing to inquire about this program must contact their high school counselor.

The second program is the adult high school diploma program. This allows the student to enroll at Chemeketa as a high school completion student. Students who are interested in this program should contact their high school counselor, to discuss whether or not this is a possible option, and then secure a high school release form from the high school and have the high school send a transcript to Chemeketa. Once the student has secured a release form and a transcript has been sent to the college, the student should make an appointment with one of the college counselors to have an evaluation of the transcript so that the student may know which classes are needed in order to complete the high school diploma under the regulations established by Chemeketa.

Adult Education

Adult education classes are offered in all areas of the college district. Opportunity is provided for students to continue their education on a pre-high school, high school or post-high school level or to receive specialized training to enrich their cultural lives or improve their personal efficiency.

Programs and courses are developed whenever a special need is defined and a minimum of 12 students can be enrolled.

Senior citizens 62 or older may obtain Golden Age cards and be eligible to enroll in most adult education courses free of charge.

FINANCIAL SUPPORT

Financial support for Chemeketa, a public institution, is derived from local taxes, state and federal support and tuition.

AFFIRMATIVE ACTION POLICY

It is the policy of Chemeketa Community College that discrimination on the grounds of race, color, sex, marital status, national origin, age or handicap will not exist in any area, activity or operation of the college.

ADMISSIONS AND ACADEMIC INFORMATION

ADMISSIONS POLICY

Chemeketa Community College subscribes to the "open door" admission policy. In general, its programs are open to any person 16 years of age or older who can benefit from the instruction offered.

One inescapable limitation to the "open door" policy is the limit that may be imposed by lack of staff or space.

The general admissions policy does not assure admittance to a particular program. Several programs (see below) have minimum admissions criteria which must be met.

ADMISSIONS PROCEDURES

Early application for admission is encouraged. Persons planning to enroll need to complete an application form and submit it to the admissions office.

If the program indicated on the application form requires additional information or has special requirements which must be met prior to registration, a packet of materials will be sent to the applicant. The packet includes admissions criteria for the chosen academic major. Each applicant is responsible for making whatever arrangements are necessary to assure that required materials (i.e., application forms, transcripts, test scores, recommendations) are on file with the admissions office.

Students should meet with a counselor, academic advisor or curriculum personnel prior to registration to determine prerequisites and curricula and discuss academic as well as vocational plans.

The following programs are restricted or limited programs and require additional information or have special requirements:

Automotive Technology
Chemical Technology
Dental Assisting
Fire Protection
Human Resource Technology
Machine Shop
Medical Assisting
Nursing
RN, LPN, Refresher Courses
Visual Communications
Welding
Welding & Fabrication

Applicants not accepted into one of the special programs may still be admitted as a regular student and may apply for another major by notifying the admissions office.

After all admission requirements are fulfilled, applicants are notified by mail concerning orientation and registration. All new

students will register on a designated day and time.

PART-TIME STUDENTS

Part-time students may attend the college during the day or evening for credit or non-credit courses. Those students taking credit-bearing classes to apply to a degree should follow regular admissions procedures. Those taking non-credit and evening classes should follow registration procedures as outlined for adult community education, see page 15.

INTERNATIONAL STUDENTS

Any prospective student who is a citizen of another country should first contact the admissions office for special application materials. Federal immigration and college regulations make it necessary for an international student to meet specific requirements prior to entry. Each of these special students must display a proficiency in English and provide a financial support statement. A member of the counseling staff is available to help these students become a part of the college.

RESIDENCE REQUIREMENTS

An in-district student is one who meets at least one of the four following conditions:

1. Married and a resident of the college district at least three months prior to first registration.
2. Age 18 or over and a resident of the college district at least three months prior to first registration.
3. A veteran who has established a permanent address inside the college district within three months of their separation or discharge from the service.

4. A minor whose parents or legal guardians are bona fide residents of the college district.

Those who do not meet in-district criteria and whose home or permanent address is in Oregon but outside the Chemeketa Community College district are out-of-district students.

Any student whose permanent address is outside Oregon is classed as an out-of-state student.

TRANSFER CREDITS FROM OTHER COLLEGES

The student is responsible for initiating transfer of credits to Chemeketa through the admissions office.

The transfer credits accepted from other collegiate institutions become a part of the student's permanent record at Chemeketa. Grades earned are not indicated. Only course grades earned at Chemeketa are used in computing grade point averages.

READMISSION

Students who have discontinued attendance may apply for readmission by completing a new application. Students who have attended another college or university during the interim should submit an official transcript from that school to the admissions office.

COUNSELING SERVICES

Counselors are available in building 23 and building 3 from 8 a.m. to 4:30 p.m. Monday through Friday. Evening counseling is provided in building 3 from 6 to 9 p.m. Monday through Thursday.

Services offered include educational and vocational counseling, admissions information, veteran's information, test administration and interpretation and personal counseling.

Students and non-students alike are encouraged to visit the career information center which is operated by the counseling department in building 3. The main feature of the center is a computer terminal which provides current information about hundreds of careers including job descriptions, pay ranges, job requirements and the hiring outlook for specific areas throughout the state.

ACADEMIC ADVISING

During the day registration process, each incoming student is assigned an academic advisor from the Chemeketa professional staff. That person is available to help the student plan his/her program of study and to carry it out.

Those students who attend classes in the evening only should visit the counseling center periodically for academic advising.

STUDENT-INSTRUCTOR CONFERENCES

Instructors maintain scheduled office hours to confer with students concerning class assignments and methods of study for particular courses. Schedules of hours are posted in each faculty office area or on the office door. Faculty office directories are posted on main bulletin boards.

VETERANS BENEFITS

Most programs listed are approved by the Veterans Administration and the State Department of Veterans' Affairs for payment of education benefits to eligible veterans and eligible dependents of veterans. To qualify as a full-time student in an associate degree program, a veteran must take a minimum of 12 credit hours each term, nine hours for three-fourths time and six hours for one-half time. If less than six credit hours are taken, the veteran

will be paid cost of the class only. Full-time students in certificate programs must be in class-related activities for 22 to 30 clock hours per week, depending on the individual curriculum in which the veteran is enrolled. Prospective students eligible for veterans' benefits should contact the college for program information prior to making application for benefits at the Veterans Administration office. Upon receipt of application the Veterans Administration mails the veteran acknowledgement and provides a claim number. After processing the application, the Veterans Administration issues eligible veterans a certificate of eligibility, valid only at the institution named and only for the objective indicated. The prospective student should bring the certificate of eligibility to the registrar prior to or at the time of initial registration.

STUDENT FINANCIAL AIDS

Information concerning educational scholarships, grants, loans and part-time employment at the college is available at the financial aid office. The college's financial aid program provides assistance and advice to students who would be unable to pursue their education at Chemeketa without such help.

The financial aid staff will forward upon request a financial aid application and a pamphlet which describes the financial aid opportunities at the college.

It is anticipated that during the 1977-78 school year approximately \$2.6 million in financial aid will be available from locally-sponsored scholarships and federal, state and college funds.

REGISTRATION AND ACADEMIC RECORDS

CLASS REGISTRATION

Registration in particular classes and programs follows admission to the college. An

interview with a counselor is recommended. Ideally, the pre-registration interview follows testing and precedes class registration.

FULL-TIME STUDENTS

Students in full-time academic status are those who carry 12 or more credit hours per term.

TUITION AND FEES

Tuition and instructional fees must be paid in full at the time of registration unless other arrangements have been made. Special arrangements for payment of tuition may be made at the business office.

Persons enrolling for 10 or more credit hours are considered full-time students for tuition purposes.

Tuition rates:

Full-time in-district - students living within a radius of 14 miles	\$130 per term
Full-time in-district students living within a radius of 14 to 24 miles	\$120 per term
Full-time in-district students living beyond 24 miles	\$110 per term
Part-time in-district students	\$13 per credit hour
Full-time out-of-district students	\$195 per term
Part-time out-of-district students	\$19.50 per credit hour
Full-time out-of-state students	\$485 per term
Part-time out-of-state students	\$48.50 per credit hour

The college board reserves the right to change tuition rates without prior notice. Courses requiring specialized materials may have additional charges as part of tuition for the course.

Evening courses may require separate registration and tuition.

Students will not be allowed to register until all financial obligations from prior terms are satisfied.

Late Registration Fee

A fee of \$1 per school day, but not to exceed \$10, is charged for late registration. Registration is closed after the day indicated in the academic calendar. This does not apply to part-time evening classes.

Other Fees

Locker fee—optional \$2.50
Laboratory fees for certain courses (vary by course)

Books and Supplies

Books and supplies may be purchased at the college store. The cost of these varies depending upon the program. Normally, they amount to \$150 to \$300 per year.

CLASS LOADS

Regular vocational-technical students are limited to the credit hours of a normal load for that term in their particular curriculum. Lower division transfer students are limited to 22 credit hours per term. Any additional credit hours in either area will require special permission through the registrar's office.

Students authorized to enroll for more than 22 credit hours will be assessed additional fees at the designated rate per credit hour.

CURRICULUM DEVIATIONS

A student may be allowed to deviate from the prescribed curriculum and still meet graduation requirements under certain circumstances.

Petitions for substitution of a course differing from the listed required course may be initiated at the registrar's office. It is advisable that the substitution be discussed with the student's department chairman or academic advisor before being submitted.

Substitution is allowed upon approval of the department chairman if a student can show that such a substitution will benefit him without detracting from the quality of his preparation.

CLASS CHANGES

Changes may be made in a student's class schedule during the program adjustment period (see the academic calendar). These changes should be approved by their academic advisor. Student schedule change forms are available at the registrar's office, staff offices and the counseling center.

INCOMPLETES

When a student has been in regular attendance in a class, but in the judgment of the instructor has failed to complete a minor portion of the required class work, an incomplete may be given. In order to remove an incomplete, the required class work must be made up within the three terms following the term in which the student received the incomplete. The grade will be recorded in the registrar's office. If the course work is not made up within the three terms, the course must then be repeated in its entirety for the incomplete to be removed. It is the student's responsibility to clear his record of incompletes in subjects required for graduation.

REPEATING A COURSE

A student may repeat a course in which he earned a "D", "F", "W", or "I" grade. A higher grade on the repeat attempt will be substituted in computing the student's GPA. Before

repeating the course, the student should confer with his academic advisor.

SATISFACTORY PROGRESS

Students are expected to maintain a 2.00 grade point average each term to remain in good standing.

WITHDRAWAL FROM COLLEGE

Students seeking to withdraw from college must complete the withdrawal procedures. Failure to do so may result in a failing grade and forfeiture of a pro-rated refund. See the academic calendar for the withdrawal period.

Tuition will be refunded in full if the college cancels the course. No refund will be granted when a student is suspended from the college.

Students who have no obligation to the business office, library, or other departments of the college at the time of withdrawal are entitled to a tuition refund based upon the following schedule:

During the first week	
of each term	90%
During the second week	
of each term	70%
During the third week	
of each term	50%
During the fourth week	
of each term	40%

Courses requiring specialized materials may have additional charges as part of tuition for the course.

Claims for refunds must be submitted on a withdrawal form at the time of withdrawal. Refunds are calculated from the date of application, not from the date the students ceased to attend classes. Amounts determined as refundable are applied as a credit against any financial obligation the student may have at the college. The refundable amount in excess of all obligations is paid by check to the student.

Withdrawal forms are available at the registrar's office, staff offices or counseling center.

CREDIT BY EXAMINATION

Under certain circumstances, formal credit may be earned through examination. Petitions for examination for credit may be obtained in the registrar's office. Petitions will be considered only if the course involved is a part of the student's approved curriculum. Such examinations must be scheduled and completed during the first two weeks of a term in which the courses is offered.

The exam must be passed with a grade of "C" or better for credit to be granted. The examination fee is \$5 per credit hour, payable at the time the examination is scheduled.

A student is not permitted to earn more than 24 credit hours through examination for credit.

GRADE SYSTEM

Final grades are issued at the end of each quarter. Letter grades are assigned points according to the following system:

A	Excellent	4
B	Good	3
C	Average	2
D	Below Average	1
F	Failed	0
W	Withdrawal	0
I	Incomplete	0
X	Audit	0

The grade point average is computed by dividing the total quarter hours (excluding W, I and X) into the total points earned.

AUDIT

Auditors are students who enroll in *credit* classes who do not wish to receive a grade or credit for the course. Students wishing to audit

a class may do so by contacting the registrar's office prior to the end of the third week of the term.

TRANSCRIPTS

Upon graduation a student will be entitled to five free transcripts. Official transcripts of grades may be requested through the registrar's office for a fee of \$1 each.

STUDENT RECORDS

Permanent student records, grade reports and requests for transcripts are processed and maintained by the registrar's office.

TRANSFER TO OTHER INSTITUTIONS

Counselors and instructors are available to advise and assist each student who contemplates transfer to a four-year college or university. Lower division college transfer students should consult the catalog of the college or university to which applications for admission will be made and become familiar with the specific lower division requirements in his/her major field (see the lower division transfer section).

Because of the specialized nature of technical programs, a number of the career courses are not designed for transfer to four-year institutions.

DEGREES AND CERTIFICATES

Chemeketa Community College grants associate in science and associate in arts degrees. The associate in arts degree is a nationally recognized degree conferred upon

those who complete the general requirements of the lower division transfer program. The associate in science degree is a nationally-recognized degree conferred by many colleges upon students who complete an occupationally-oriented curriculum. The certificate of completion is awarded those students who complete the requirements of one-year programs.

Associate in Science Degree

General requirements for the associate in science degree are:

1. A minimum of 90 credits (see particular curriculum).
2. A cumulative grade point average of 2.00 or above in all work to be applied to the degree.
3. Completion of the required courses as listed in the specific curriculum. Eighteen credit hours of approved general education subjects must be included.
4. Completion of a minimum of 30 credit hours of regular offerings at the college.

Associate in Arts Degree

The minimum requirements for the associate in arts degrees in transfer programs recommended by the higher education committee for community colleges are employed by Chemeketa. These requirements are:

1. A minimum of 93 credit hours.
2. A cumulative grade point average of 2.00 or above in all work to be applied to the degree.
3. Six credit hours in English composition.
4. One term in personal health.
5. Five terms of physical education (partial or total waiver is available under certain circumstances).
6. One sequence in humanities (English composition sequence does not meet this requirement).

7. One sequence in math or science.
8. One sequence in social science.
9. One additional sequence in humanities, math, science or social science.
10. Completion of a minimum of 30 credit hours at Chemeketa.
11. Up to 12 credit hours earned in one or more of the career programs may be applied toward the degree. (Students should be aware that these credit hours may not transfer to a four-year school.)

Certificate of Completion

General requirements for the certificate of completion are:

1. Satisfactory completion of all required courses in the program.
2. A cumulative grade point average of 2.00 or above for all course work to be applied to the certificate.

APPLICATION FOR GRADUATION

Candidates apply for degrees and certificates through the registrar's office. Students who plan to graduate at the end of the spring term must make application by the fourth week of the winter term.

Students completing requirements at the end of summer, fall or winter terms must file an application by the end of the fourth week of the term preceding the term in which graduation requirements will be completed. For students completing their work in the summer, fall or winter terms, degrees and certificates will be official three weeks from the date that requirements have been met. These students may receive certificates for completion of one-year program requirements or degrees for completion of two-year requirements at the June graduation or have their certificates or diplomas mailed to them after commencement.

WORK RELATED EXPERIENCE

JOB PLACEMENT

Chemeketa provides a job placement service for students and alumni. This provides all students and graduates with a clearinghouse of information about job opportunities. The office maintains communication with business, industry and governmental agencies to gather information about employment trends. The office coordinates on-campus interviews by employers and provides information and advice to students in the job search process and application procedures. This service is designed to help those who seek part-time employment while they are in school and also includes, for the student seeking full-time employment, assistance in writing resumes, developing interview skills and contacting potential employers.

COOPERATIVE WORK EXPERIENCE

Cooperative work experience is an educational partnership with business, industry and government whereby a college student is employed in the same career field as his studies. The student enrolled in cooperative work experience receives college credit and a grade and sometimes is paid for his work. The college performs the role of coordinating the student-employer-college relationship into one dynamic learning program. Full-time students who are already employed may be able to qualify on the basis of their present job and should check with a coordinator to see if credit can be arranged.

COLLEGE WORK-STUDY

This federally-funded program is designed for full-time students who need financial help so they may continue their education. It is designed to help students find part-time

employment. A student must first apply through the financial aid office where financial need is determined according to federal guidelines. A student on college work-study is permitted to work an average of 20 hours a week while classes are in session and up to 40 hours a week during vacation periods if authorized. A variety of job opportunities exist on- and off-campus.

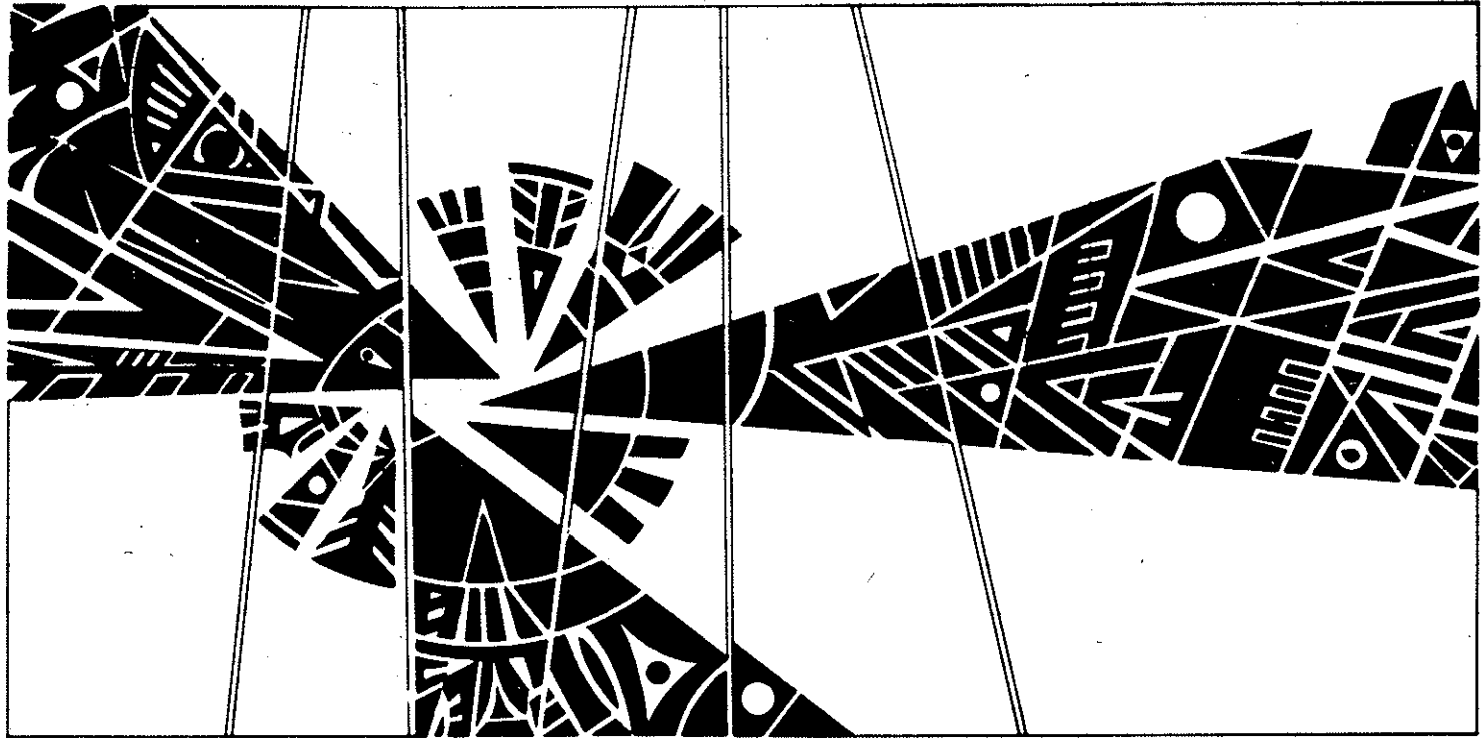
APPRENTICESHIP

Apprenticeship training is a method of vocational education administered by the Oregon Bureau of Labor. Combining full-time, on-the-job work experience with trade-related theoretical instruction at school.

The trade-related instruction at Chemeketa is designed for persons working at a particular trade who need to improve their knowledge of trade theory. Classes generally consist of apprentices registered with the Oregon Bureau of Labor, journeyman tradesmen who wish to upgrade their skills and knowledge, pre-apprenticeship students and others as approved by the local committees.

COOPERATIVE EDUCATION

This is an instructional method where a student, after completing two or three terms of study, alternates a quarter (three months) or longer employment with a like period of study. Generally, the student will have at least two periods of employment before graduation. During the student's college career, this plan enables the student to integrate classroom instruction with practical and valuable on-the-job experience with business, industry and governmental agencies. Cooperative education is a new program and is available only in certain curricula.



STUDENT LIFE

CHEMEKETA COMMUNITY COLLEGE

STUDENT LIFE

STUDENT LIFE

At Chemeketa Community College the educational, recreational and social needs of the student are met in a well integrated program of student activities.

The college administration and staff believes that participation in co-curricular activities contributes to the total development of the individual. A well-balanced program of activities has been developed in response to student interest and needs.

A large measure of responsibility for campus activities is in the hands of the students, under the guidance of the student activities office and with the assistance of the faculty. The students establish and administer most co-curricular activities. They determine campus social programs and participate in the maintenance of discipline essential to an academic community. Activities may vary from quarter to quarter depending upon student interest.

Every student is encouraged to participate in these programs. Students may secure further information from officers of each organization or from the director of student activities in building 1.

STUDENT GOVERNMENT

The Associated Students of Chemeketa Community College (ASCCC) welcomes all Chemeketa students to membership in their own official organization. Aware that student activities are an integral part of a total education, the ASCCC encourages all its members to participate as fully as possible.

The executive council of the ASCCC has its office in building 1. The ASCCC officers have various areas of specialization but all regard fellow students and their ideas to be significant.

The president works closely with the student senate and is the student representative to the

college board of education.

The vice-president is chairman of the student senate and oversees the activities of committees and campus clubs and organizations.

The activities coordinator helps to plan and implement ASCCC-sponsored activities and works closely with the vice-president on activities of campus clubs and organizations.

The publicity coordinator works with the activities coordinator in promoting and publicizing ASCCC-sponsored activities.

The secretary maintains all student records for the executive council and the student senate.

The business manager is responsible for maintaining, collecting and disbursing records of all financial transactions concerning the ASCCC.

The student senate, composed of twenty-four elected representatives from the various curriculums, meets weekly. The meetings are open and all students are encouraged to attend.

STUDENT ACTIVITIES

ASCCC sponsors films, dances, concerts, excursions, lectures and a variety of cultural activities that are entertaining, educational and recreational. This service is planned to appeal to all age and interest groups, campus- and community-wide. A campus calendar, provided by the ASCCC, is printed each term and includes all scheduled activities.

STUDENT CLUBS AND ORGANIZATIONS

The following clubs have been chartered by the ASCCC and are active on the Chemeketa campus:

Adult Learning Center Club - Service, fellowship and co-curricular interests are the main goals of this group. Graduation exercises for the ABE program are provided by the club.

American Society of Certified Engineering Technicians (ASCET) - An organization open to persons seeking careers in engineering technology. Students belonging to ASCET at Chemeketa may continue to affiliate with the national organization after graduation.

American Welding Society, Student Chapter - A group with the purpose of increasing the student awareness of the welding industry and to enhance student learning. This is accomplished through exposure to the results of welding research and the development of welding processes.

Automotive Club - This club's objective is to bring together people with a genuine interest in the automotive field, and to put that interest to use in the form of projects approved by the majority.

Bowling Club - Promotes and fosters the game of American tenpins. Its membership is open to all students, staff members and their spouses.

Chess Club - Promotes and fosters the game of chess. It also participates in chess tournaments. Membership is open to all students, staff members and their spouses.

Chicano Club - All students of Spanish-American descent and anyone interested in the Chicano culture are encouraged to join this club.

Christian Fellowship Association - Chemeketa's non-denominational Christian Fellowship meets each week and features guest speakers and music.

Drama Club - A group of Chemeketa students and staff who participate in dramatic activities. Most of these activities are short plays.

Early Childhood Education Club - A service and social organization. It publicizes the early childhood program through public service and provides social activities for its members.

Fire Protection Club - A service and social organization. It publicizes the fire protection program through public service and provides social activities for its members.

Foosball Club - Open to students and staff who are interested in learning and playing the game of foosball and to promote tournaments and other worthwhile activities.

Forestry Club - Organized to promote, publicize and create public awareness of the forest technology program and the industry. It serves to represent and promote the needs of our forestry technology students.

Gourmet Club - Organized to promote gourmet cooking, provide public service, individual and group improvement and bring together food service students and alumni.

Human Resources Technology Club - Advocates the recognition, acceptance and utilization of para-professionals for the human service field, both public and private.

Indian Club - The purpose of this club is to bring together interested students to deal with problems peculiar to American Indian students and to organize social activities which reflect and enhance Indian culture.

Latter Day Saints Organization - Organized for the fellowship of members of the Church of Christ of Latter Day Saints but is open to all.

Law Enforcement Club - A service and social organization, It publicizes the law enforcement program through public service and provides social activities for its members.

Medical Assistants' Club - Organized to promote the medical assistant program, to provide public service, employment opportunities and promote individual and group improvements.

Minorities Club - Open to all student who are interested in the needs and interests of minority peoples.

Phi Beta Lambda - A national service organization for students in post-secondary schools, colleges or universities who are preparing for careers in business or business education.

Pool Club - For students and staff interested in learning and playing pocket billiards and promoting worthwhile competition.

Science Club - Organized for students interested in ecology.

Ski Club - Hopes to promote interest and involvement in snow skiing. It is open to all students of Chemeketa Community College. The club frequently organizes weekend ski trips.

Student Nurses of Oregon (SNO) - The Salem chapter of the national Student Nurses of Oregon was chartered in 1969. Membership is open to students enrolled in the associate degree nursing program. The organization assists in preparation of student nurses for assuming professional responsibilities.

Table Tennis Club - Dedicated to promoting and increasing participation in the game of table tennis. The club attempts to promote tournaments within the community and with other community colleges.

Veteran's Club - A service and social organization open to any man or woman who has served in the armed forces of the United States.

Women's Club (Not For Women Only) - Open to all students and staff and meets weekly at noon.

Writer's Club - Publishes a journal, *Before the Sun*, each spring and is open to interested students and staff. Frequent readings are scheduled by the club to allow members to share their work.

NEW IDEAS WELCOME

Students interested in organizing a new club or organization should visit the student activities office in building 1 for information concerning the necessary procedures for obtaining a charter.

Ideas for activities and excursions are also welcome. Planning is done with students' interests foremost.

STUDENT NEWSPAPER

Chemeketa's student newspaper, *Courier 4*, is published weekly during the fall, winter and spring quarters. Written and prepared by journalism students, the newspaper has established a consistently high rating in national competition (Associated Collegiate Press). *Courier 4* was recently granted associate membership in the Oregon Newspaper Publisher's Association.

A curriculum of lower division journalism courses designed for pre-majors and non-majors has supported the growth of the publication.

Entirely produced on campus, the *Courier 4* is printed by students of the visual communications program.

Students interested in working on the student newspaper as reporters, editors or photographers, may apply for staff positions through the newspaper adviser. The *Courier 4* office is located in building 1

RALLY SQUAD

The rally squad is the main force in building the school spirit which contributes to winning teams. Cheerleaders are elected early in the fall term. Applicants may sign up in the ASCCC Office.

SWING CHOIR

The Chemeketes, the college's swing choir, performs at a variety of functions on campus and in the community. Participants may receive college credit by registering for the Music 197, Chorus class.

ATHLETICS

Throughout the year, Chemeketa students may participate in a variety of intramural activities, including bowling, volleyball, softball, basketball, skiing and golf.

Participation in intercollegiate sports is based on the requirements of the National Junior College Athletic Association. Chemeketa is a member of the National Association and the Oregon Community College Athletic Association. Every member of the OCCAA has agreed to abide by the rules of the NJCAA as a minimum standard. Chemeketa students participating in sports must be taking 12 credit hours and maintain a GPA of at least 1.75.

Interscholastic sports require special insurance coverage and a physical examination. These are provided at no cost to the student by the college. Participating students may obtain information at the physical education department office.

STUDENT INFORMATION

STUDENT CONDUCT

Chemeketa Community College expects persons who attend or visit the campus to

utilize their time in a positive and constructive manner. The school property is to be used with intelligence and care. All clubs or groups should secure rooms through the proper authorities. The use of intoxicants or illegal drugs or having such in one's possession is strictly forbidden by public law and college regulations. Gambling is also prohibited by state and local regulations.

Smoking, eating and drinking are not permitted in any of the present college classroom facilities by staff or students. Since smoking would jeopardize the college's use of these facilities, students and staff are requested to adhere faithfully to this rule. Smoking is permitted in the student and administrative areas.

STUDENT LIVING ACCOMODATIONS

The college does not provide living accommodations and assumes no responsibility for student living arrangements. However, there is a wide range of living accommodations available in the Salem area. Some listings are available in the counseling center.

STUDENT HEALTH SERVICES

Chemeketa maintains a first aid office in the counseling center. There is a couch to lay down on and home or doctor will be called on request.

Because the college has no physician, students are expected to have general medical needs, including medications (prescriptive and non-prescriptive) met by their personal physician, dentist or clinics.

STUDENT HEALTH AND ACCIDENT INSURANCE

A low-cost health and accident insurance program is available through the college for students and their dependents.

Additional information about health and ac-

cident programs may be obtained at the counseling center or the business office.

AUTOMOBILE USE ON CAMPUS

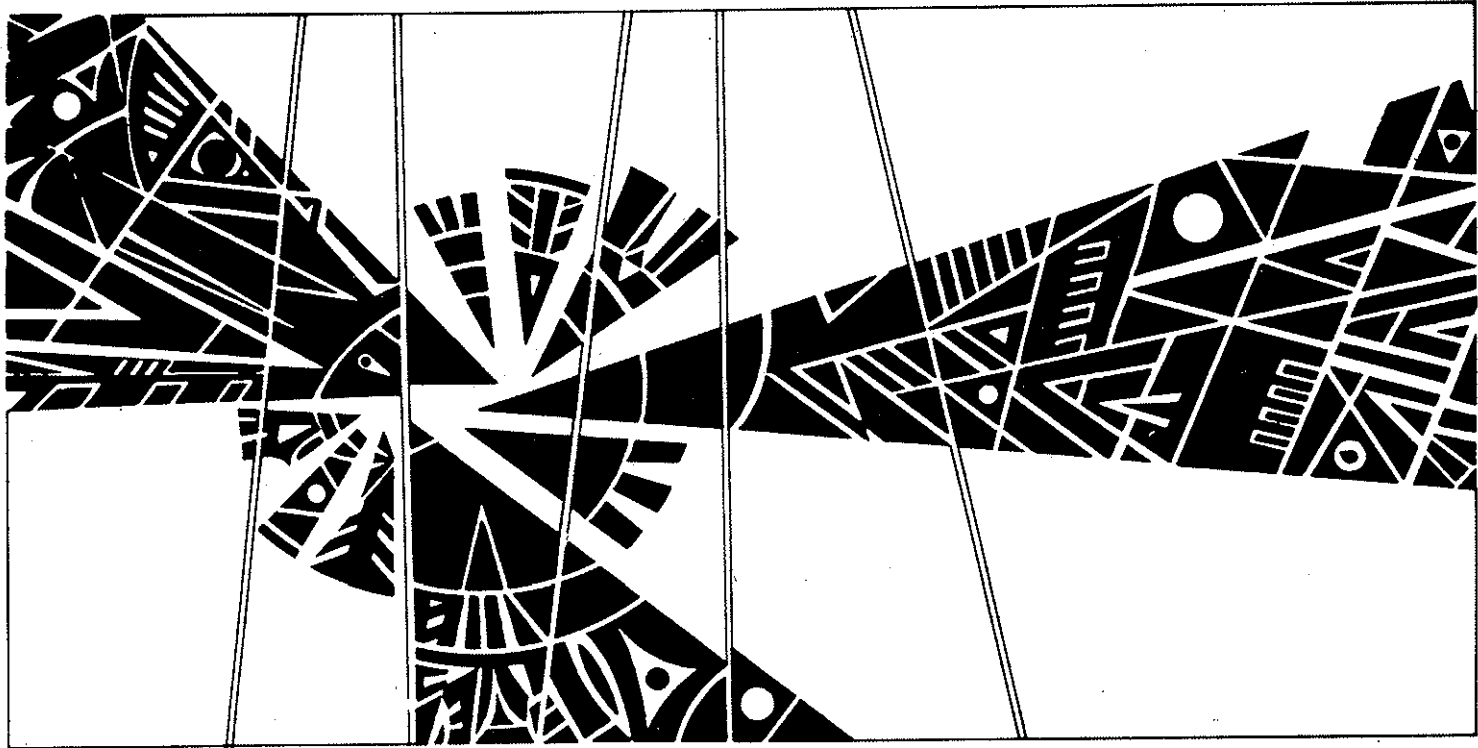
All faculty, students and visitors who have motor vehicles in their possession or control for use on the Chemeketa Community College campus at any time during the day must obtain the appropriate permit for the area in which they are parking. Parking permits are obtained free at the time of academic registration or at the security office in building 22. Parking of a vehicle on campus without a proper parking permit may result in a fine. Faculty and students are responsible for knowing the regulations pertaining to operating a vehicle on campus and will be held responsible for any violations of these regulations pertaining to operating a vehicle on campus and will be held responsible for any violations of these regulations in which a vehicle in their possession is involved, regardless of who operates it. Specific information on parking and traffic regulations is available at the time of registration at the security office.

PETS ON CAMPUS

Animals, insects, fowl, etc., are not to be brought on campus, with the exception of seeing-eye dogs.

REGISTERING TO VOTE

All students on the Chemeketa campus are encouraged to become registered voters. This may be done by contacting an official registrar in the student activities office or the learning center or by using the forms provided by the elections office. These forms are distributed at various points on campus and may be mailed directly to the elections office. It is hoped that students will take a responsible part in the operation of their local, state and national governments.



COMMUNITY SERVICES

CHEMEKETA COMMUNITY COLLEGE

COMMUNITY SERVICES

COMMUNITY EDUCATION

GENERAL INFORMATION

The Chemeketa Community Services Division was organized to meet the college's commitment to a total education program for the community. Chemeketa is committed to providing, for citizens of all ages, educational programs and opportunities that help each person reach his objectives and potential.

The division offers a wide variety of short-term courses, workshops and special programs. These low-cost adult education courses are offered at the college campus and at some 150 other locations throughout the college district. In reality, the entire college district is the campus for a wide variety of courses, programs and activities.

A major factor in the growth of Chemeketa is participation of citizens in community education offerings. Enrollment in adult community education courses has steadily increased to an estimated 22,000 students enrolled in 1976-77.

The community services division offers a full schedule of evening classes which extend the day program into the evening hours for the convenience of working or part-time students. Schedules and registration information may be obtained by contacting the community services office at 4000 Lancaster Drive N.E., or by calling 399-5135.

Community education is what you want to make it. Whatever your need, Chemeketa Community College is available to help you find or plan the program to answer that need.



SPECIAL SERVICES

COUNSELING

Both day and evening counseling services are available to help students plan their educational goals. Counselors are willing to assist whenever possible to make the student's experience at Chemeketa more meaningful. Counseling hours are from 8 a.m. to 4:30 p.m. and 6 p.m. to 9 p.m. Monday through Thursday and 8 a.m. to 4:30 p.m. Fridays. Counselors are also available by appointment at outreach centers.

CONTRACT SERVICES

Special programs and courses for business, industry, civic and social groups can be arranged through the community services division. Many agencies have utilized this service to provide specialized training for employees at a minimal cost.

SENIOR CITIZENS

Adults 62 years of age or older are eligible for a golden age card which provides the following benefits: free tuition where there are enough paying students to justify holding the class, free admission to most Chemeketa sponsored activities such as art exhibits, film series, athletic events and use of the college library facilities. Contact the community services division office for application forms. Many special classes for senior citizens are held in the daytime hours.

CAREER PREPARATION

Courses to teach new skills or to upgrade the skills of an employee are available through community education. A variety of courses are offered in many areas of instruction. Some classes may be taken for community college credit leading to a degree or a certificate; others may be taken on a non-credit basis. Programs are geared to the individual's needs.

COLLEGE TRANSFER COURSES

Courses transferable to four-year colleges

and universities are available in many fields. Chemeketa offers a wide choice of general studies and liberal art courses during the evening hours and at outreach locations for the convenience of the part-time student.

SPECIAL INTERESTS AND SKILLS

Over one thousand adult education classes are offered each term, ranging from cake decorating to chemistry and from sewing to sociology.

The wise use of land, labor and capital is

stressed in Chemeketa's farm management program; basic nursing skills are taught to those men and women enrolled in the nursing assistant program; owners of small businesses are assisted through their participation in the small business management program; and many other specialized courses, seminars, workshops and lectures provide educational opportunities for persons of all ages and educational backgrounds.

COMMUNITY EVENTS

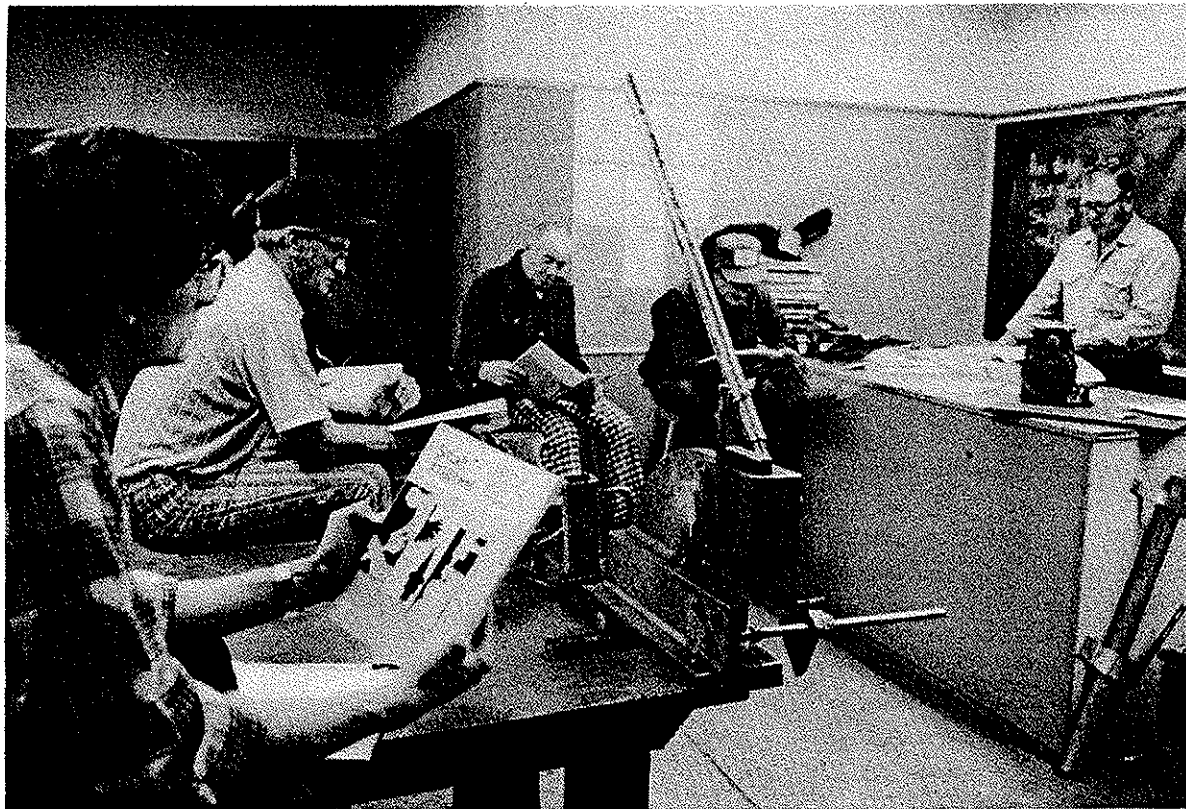
Community events programs offer educational, life enrichment and entertainment opportunities in a variety of formats. They include Salamagundi on Saturday, the food and thought dinner series, historical tours, family power presentations at the Salem Y.M.C.A., brown bag lunch programs, lectures, seminars, outdoor films, cultural programs and film styles series. All are open to the public.

ENROLLMENT INFORMATION

To enroll in an adult education course, a person must be at least 16 years of age. If under 18 years of age, he must receive special permission from his or her local high school district. For additional information, call the community services division.

Students may register at the first class session, or they may register early. Some classes require early registration (see the quarterly schedule for information). Payment of fees is requested at the time of registration. Each student is requested to have his/her Social Security number at the time of registration.

All credit (lower division college transfer and community college credit) classes are scheduled on the basis of \$13 per credit hour. There may be additional fees for books, materials and supplies which are not covered by the tuition fee.



Local Centers

Salem Metropolitan Area 399-5135

Polk County

Dallas 623-5567

Independence-Monmouth 838-1989

*Yamhill County

McMinnville 472-9482

Marion County

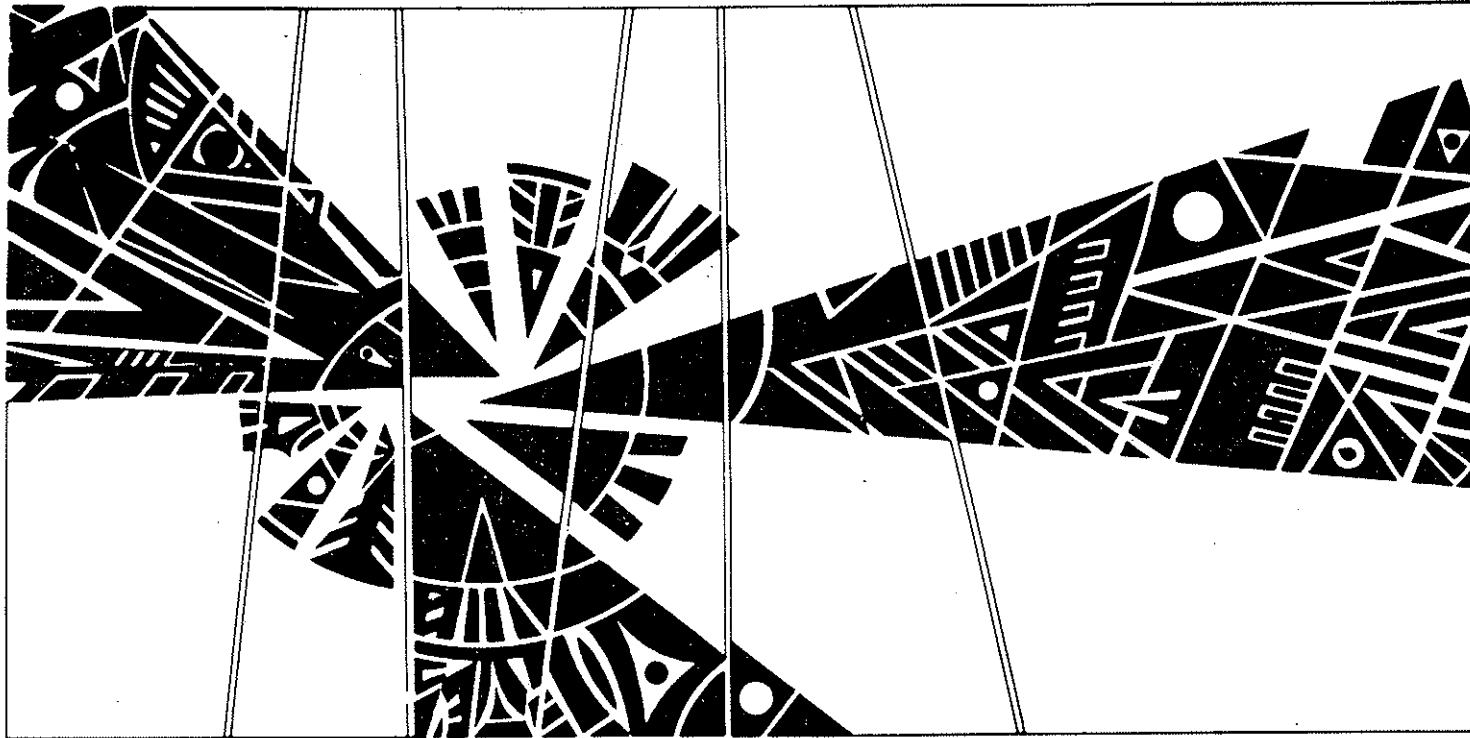
Silverton-Mount Angel 873-8484

Stayton 769-3560

Woodburn 981-9555

*Call McMinnville number for name and number coordinators in Sheridan, Willamina, Yamhill, Dayton, and Falls City.





BUSINESS and MANAGEMENT

CHEMEKETA COMMUNITY COLLEGE

BUSINESS TECHNOLOGY— ACCOUNTING

The accounting curriculum offers a core of accounting, business and general education courses necessary for an entry-level position in accounting as a full-cycle bookkeeper, accounting clerk or junior accountant for government or private industry. A graduate of this challenging program will have specialized knowledge of accounting plus a general knowledge of business.

Upon successful completion of 104 term units following the sequence of courses outlined below, the student will receive an associate in science degree in business technology—accounting option.

Math requirements—proficiency in math is required for graduation. Business mathematics 6.918, is the minimum achievement level. Placement in the initial math course is based on a math placement test. Any transfer math, Math 95 or higher, will be accepted in place of the business math.

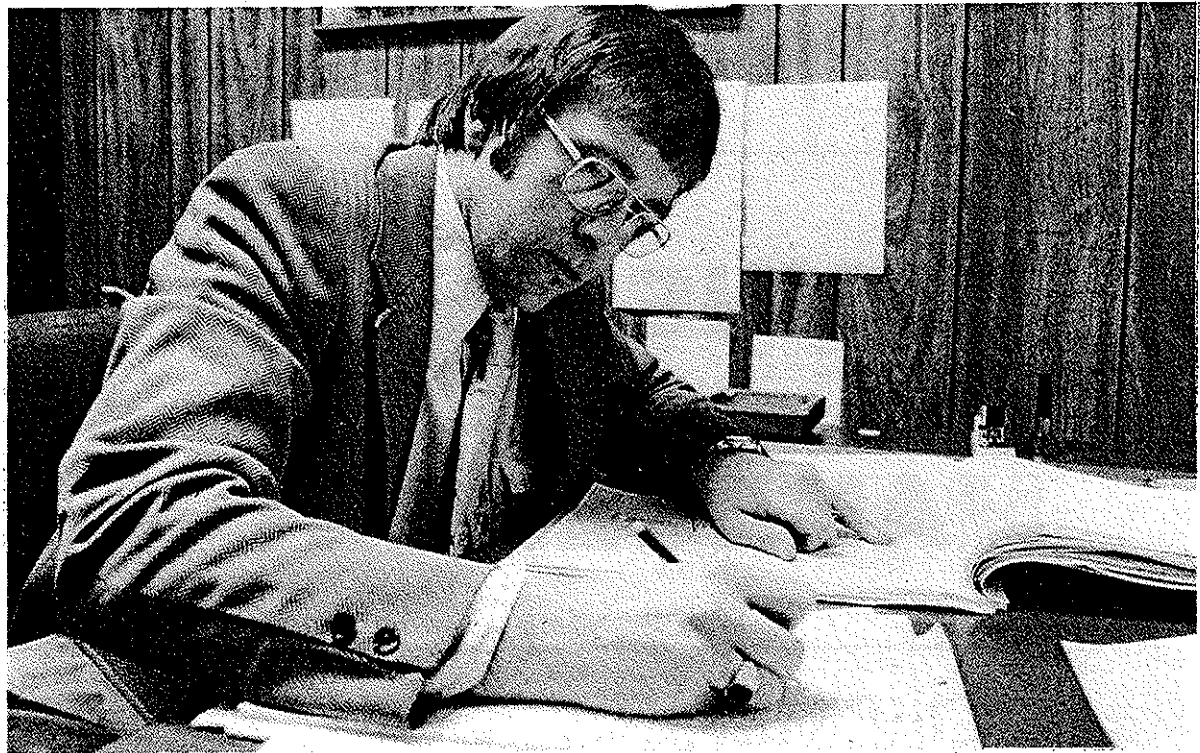
English requirements—proficiency in English is required for graduation. Minimum achievement level is business communications BA214 or 2.672. Placement in the initial course is based on an English placement test. Transferable English composition, Wr121, 122, 123, will be accepted in place of 1.101, 2.673 and 2.672 or BA214.

Typing requirements—proficiency in typing is required for graduation. Minimum level is typing 2.606 or SS121.

Cooperative work experience—students are eligible for cooperative work experience if work relating to accounting is obtained. CWE is strongly recommended for second-year students. A maximum of 12 term units of CWE may be applied toward graduation.

Term 1 Course No.	Course Title	Credit Hour
	English Variable (based on Placement Test)	
	or	
	General Education Elective	3
	Math Variable (based on Placement Test)	3
BA211	Financial Accounting I	4
BA101		
	or	
2.502	Business Environment	4
2.658	Introduction to Calculators	2
BA131		
	or	
6.940	Introduction to Data Processing	3

Term 2	Course Title	Credit Hour
	English Variable	
	or	
	General Education Elective	3
2.401	Real Estate— A Consumer Approach	3
	Math Variable	3
BA212	Financial Accounting II	4
Psy201	General Psychology	
	or	
Psy100	Introduction to Psychology	3
SS121		
	or	
2.606	Typing	3



Term 3	
BA214	
or	
2.672	Business Communications..... 3
BA213	Managerial Accounting..... 4
Soc204	
or	
Soc100	General Sociology..... 3
Psy202	General Psychology
	or
Psy101	Psychology of
	Human Relations..... 3
2.559	Governmental Accounting
	or
	Business Elective..... 3
BA217	
or	
2.660	Business Machines..... 3
Term 4	
2.551	Intermediate Financial
	Accounting I..... 4
BA226	
or	
2.320	Business Law I..... 3
BA222	
or	
2.556	Finance..... 3
BA216	
or	
2.554	Income Tax Accounting..... 3
	Business Elective..... 3
Term 5	
2.552	Intermediate Financial
	Accounting II..... 4
Ec100	Outline of Economics..... 3
BA206	
or	
2.501	Business Management
	Principles..... 3
BA215	
or	
2.576	Cost Accounting..... 3

2.687	
or	
2.688	Cooperative Work Experience
	or
	Business Elective..... 3/4
Term 6	
2.553	Intermediate Financial
	Accounting III..... 4
2.555	Auditing..... 3
Wr227	
or	
1.106	Technical Report Writing..... 3
1.610	Public Speaking
	or
Sp111	Fundamentals of Speech..... 3
2.687	
or	
2.688	Cooperative Work Experience
	or
	Business Elective..... 3/4

science degree in business technology—management option.

Math requirements—proficiency in math is required for graduation. Applied Business Mathematics, 6.918, is the minimum achievement level. Placement in the initial math course is based on a math placement test. Any transfer math, Math95 or higher will be accepted in place of the business math.

English requirements—proficiency in English is required for graduation. The minimum achievement level is business communications, BA214 or 2.672. Placement in the initial course is based on an English placement test. Transferable English composition, Wr121, Wr122 and Wr123, will be accepted in place of 1.101, 2.673, and 2.672 or BA214.

Cooperative work experience—students are eligible for cooperative work experience if work relating to business management is obtained. CWE is strongly recommended for second-year students. A maximum of 12 term units of CWE may be applied toward graduation.

BUSINESS TECHNOLOGY— MANAGEMENT

The management curriculum offers a core of business courses. Graduates of the program may work in a small business or large retail firm as a management-trainee or in another entry-level position in which further specialized training in business is not required.

Once the graduate has gained the requisite in-house training and experience, the program will enhance his potential for advancement within the organization.

Upon successful completion of 104 term units following the sequence of courses outlined below, the student will receive an associate in

Term 1 Course No.	Course Title	Credit Hour
	English Variable	
	or	
	General Education Elective..... 3	
	Math Variable (based	
	on placement test)..... 3	
BA211	Financial Accounting I	
	or	
6.923	Accounting Procedures..... 4	
BA101		
or		
2.502	Business Environment..... 4	
2.401	Real Estate—A	
	Consumer Approach..... 3	

Term 2

English Variable
or
General Education Elective 3

SS121
or
2.606 Typing 3
Math Variable 3

BA212 Financial Accounting II
or
6.924 Accounting Procedures II 4
Psy201 General Psychology

or
Psy100 Introduction to Psychology 3
BA131

or
6.940 Introduction to
Data Processng 3

Term 3

BA214
or
2.672 Business Communications 3
BA213 Managerial Accounting

or
6.925 Accounting Procedures III 4
Soc204 Introduction to
General Sociology 3

Psy202 General Psychology
or
Psy101 Psychology of
Human Relations 3

BA233
or
2.104 Marketing Principles 3
BA206

or
2.501 Business Management
Principles 3

Term 4

BA241
or
2.341 Risk and Insurance 3



BA226
or
2.320 Business Law I
BA215
or
2.576 Cost Accounting
Soc205 General Sociology
BA238
or
2.109 Salesmanship

Term 5

BA222
or
2.556 Finance
Ec100 Outline of Economics

Wr227
or
1.106 Technical Report Writing
BA227 Business Law II

BA239
or
2.100 Advertising

2.687
or
2.688 Cooperative Work Experience
or
Business Elective

Term 6

BA250
or
2.557 Small Business Management
Personnel Principles
and Supervision

1.610 Public Speaking
or
Sp111 Fundamentals of Speech ..

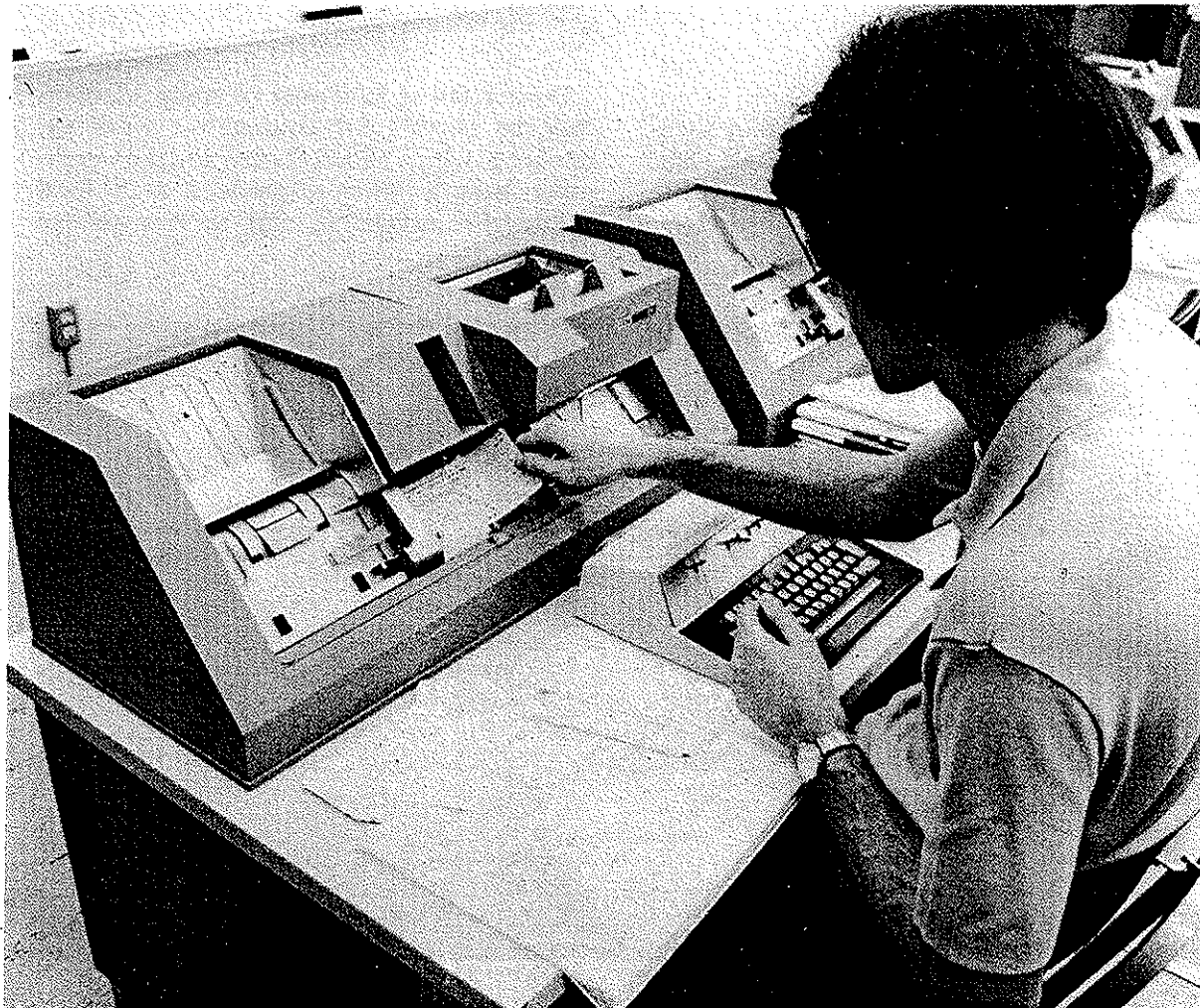
2.105 Merchandising
Business Elective

DATA PROCESSING

The objective of the data processing curricula is to provide training for individuals preparing for entry-level positions in the field of data processing and for those already engaged in the field who desire additional training.

The two programs of study are: Computer operations (one-year curriculum) and computer programming (two-year curriculum).

The student-oriented computer center, equipped with unit record equipment and an IBM/370 Model 125 computing system, provides training for students in a professional data processing environment with current technology.



Computer Operations

The computer operations curriculum provides for concentrated study and hands-on experience in all positions of computer center operations including control clerk, console operator, scheduler, peripheral equipment operator, librarian and operations supervisor.

Emphasis is placed on professional performance including advanced operating standards and techniques, problem solving, recovery procedures and coordination with other people to achieve efficiency and reliability of results in a professional computer center.

During the second and third terms, students may be eligible for cooperative work experience, which allows students to gain computer operations experience at a local employer's installation and receive college credit.

A certificate of completion is awarded to individuals who satisfactorily complete the required courses. The certificate meets the minimum education/experience requirement to qualify for employment classification with the State of Oregon as a computer operator I.

Students must demonstrate an English proficiency level equal to satisfactory completion of communications skills 1.101. This may be demonstrated by achieving a comparable score on the English placement test. Alternative, successful completion of Communication Skills, 1.101, or English Composition, Wr121, fulfills the requirement.

The minimum number of term units required for a certificate of completion is 50.

Term 1		
Course No.	Course Title	Credit Hour
	English Variable (based on Placement test)	
	or	
	General Education Elective	3
BA211	Financial Accounting I	
	or	
6.923	Accounting Procedures	4
BA213		
	or	
6.940	Introduction to Data Processing	3
6.979	Keypunch I	3
6.950	Computer Center Operations I	5
Term 2		
1.606	Technical Report Writing	3
	or	
Wr122	English Composition	3
6.956	System 370 Concepts and Facilities	3
6.951	Computer Center Operations II	3
6.983	FJE Operation	3
6.993	Computer Center Lab II	6
	or	
6.991	Computer Center Lab II	3
	and	
2.688		
or		
FE201	*Cooperative Work Experience	4
Term 3		
6.952	Computer Center Operation III	3
6.975	DOS/VS Utility and Librarian Programs	3
6.946	Data Center Management I	4

6.994	Computer Center Lab III	6
	or	
6.992	Computer Center Lab III	3
	and	
2.688		
or		
FE201	*Cooperative Work Experience	4
Term 4		
6.947	Data Center Management II	3
2.693		
or		
FE201L	*Cooperative Work Experience	12

*Students are eligible for CWE only if they have a grade average of 2.5 or better in all data processing courses completed and have the recommendation of the CWE instructor-coordinator for computer operations.

Computer Programming

This two-year program is designed to produce a professional computer programmer. For this reason, the courses are not simply comprised of theory and technical details.

Emphasis is placed on performance of actual programming tasks designed to prepare the student for professional employment. Accounting and management principles are also stressed, as well as systematic problem solving and working effectively with people.

During the second year of study, students may be eligible for cooperative work experience, which allows students to gain computer programming experience at a local employer's installation and receive college credit.



An associate in science degree is awarded to individuals who satisfactorily complete the required courses. This degree meets the minimum education/experience requirement to qualify for employment classification with the State of Oregon as a Computer Programmer I.

There are three communications requirements:

1. Students must demonstrate a proficiency level equal to satisfactory completion of Communications Skills, 1.101. This may be demonstrated by achieving a comparable score on the English placement test or by successful completion of Communications Skills, 1.101, or English Composition, Wr121.
2. Students must successfully complete: Public Speaking, 1.610, or Fundamentals of Speech, Sp111, or Sp112.
3. Students must successfully complete: Technical Report Writing, 1.106, or English Composition, Wr112.

A math proficiency level equal to satisfactory completion of Beginning Algebra, Mth10, must be demonstrated prior to enrolling in Data Processing Math, 6.941. This may be demonstrated by achieving a comparable score on the math placement test.

A minimum number of term units required for the Associate in Science Degree is 101.

During the second year of study, students may be eligible for cooperative work experience, which allows students to gain computer programming experience at a local employer's installation and receive college credit.

**Term 1
Course**

No.	Course Title	Credit Hours
	English Variable (based on placement test)	3

	Math Variable (based on placement test)	3
BA211	Financial Accounting I or	
6.923	Accounting Procedures I	4
BA131	or	
6.940	Introduction to Data Processing	3
6.948	Fundamentals of Computer Programming	2
Term 2		
	English Variable or	
	General Education Elective	3
BA212	Financial Accounting II or	
6.924	Accounting Procedures II	4
6.941	Data Processing Math	4
6.956	System 370 Concepts and Facilities	3
	Select One:	
6.961	COBOL I	5
	or	
BA131	Business Data Processing	4
Term 3		
	English Variable or	
	General Education Elective	3
BA213	Managerial Accounting or	
6.925	Accounting Procedures III	4
6.949	DOS/VS Utilities and Job Control	4
6.963	COBOL II	5
Term 4		
2.576	Cost Accounting	3
6.944	Introduction to Systems and Procedures	3
6.969	Assembler I	5
	General Education Elective	3

	Select One	
	Business Elective or	
2.687, 2.688		
or		
FE201	*Cooperative Work Experience	3/4
Term 5		
Ec100	Outline of Economics or	
Ec201	Principles of Economics	3
6.976	Data Communications	3
6.964	COBOL III	5
6.971	OS/VS Concepts and JCL	4
	Select One:	
	Business Elective or	
2.687		
or		
FE201	*Cooperative Work Experience	3
Term 6		
6.945	Systems Analysis	3
6.988	RPG II for Programmers	3
	Programming Elective	3
	Social Science Elective	3
	Select One:	
	Business Elective or	
2.687, 2.688		
or		
FE201	*Cooperative Work Experience	3/4

*Students are eligible for CWE only if they have a grade average of 2.5 or better in all data processing courses completed and have the recommendation of the CWE instructor-coordinator for computer programming.

FARM BUSINESS MANAGEMENT

This three-year program is for the farm operator and spouse who lease or manage a farm and keep or have access to a full set of farm financial records.

The farm management records analysis program consists of monthly class meetings and farm visits by the instructor. Instruction focuses on keeping basic farm records, annual computer analyses of each farm business, a cost production summary and the application of analysis information to improving the management and organization of each business.

The tuition covers the instruction and the year-end computer farm business analysis. Contact either the Salem or McMinnville community services office for information (Salem, 399-5135, McMinnville, 472-9482).

Farm Business Management Program of Study

First Year

Farm Management I Farm Records 9.820

Overview of farm management skills and family goals, uses of farm records-net worth statements, enterprise record keeping, inventories and depreciation, budgeting farm income and expenses, cash flow projections, business principles used in farm management, credit planning, tax management, closing the account book for analysis and developing a profit and loss statement.

Second Year

Farm Management II—Farm business analysis 9.821.

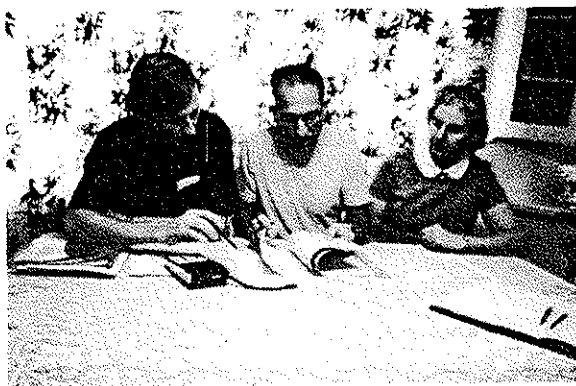
Income tax and social security, interpreting farm records and analysis, measures of efficiency and business size,

crop and livestock costs and return, labor costs and returns, capital costs and returns, wills and estate planning, use of computerized farm records system and tax management, closing the accounts for analysis, profit and loss statement, the process of making decisions.

Third Year

Farm Management III—Farm Business Organization 9.822

Evaluating the farm business, net worth, credit planning and budgeting, optimum production levels, studying income possibilities, developing crop and livestock plans, planning investments in buildings and equipment, purchasing or leasing land, planning non-farm investments, developing alternative farm plans and closing the accounts for analysis.



INSURANCE

The insurance curriculum provides men and women with a broad knowledge of the insurance industry and a general knowledge of business. It is designed for persons who seek a lifetime career of serving the needs of the insurance-buying public.

People who have the technical training offered in this program may be able to serve the consumer in many capacities. Employment opportunities exist as salespersons, in office operations and administration, claims work, entry level risk management positions and in certain government offices.

Students completing this program will receive an associate in science degree; 103 term units are required for graduation.

The curriculum also provides continuing education for persons active in the insurance industry and allows them an opportunity to reinforce and sharpen their knowledge and skills. Insurance Institute of America courses and other society-sponsored courses assist insurance personnel with the professional preparation required for a successful career.

Math requirements—proficiency in math is required for graduation. Applied Business Mathematics, 6.918, is the minimum achievement level. Placement in the initial math course is based on a math placement test. Any transferable math, Math 95 or higher, will be accepted in place of the Applied Business Math.

English requirement—proficiency in English is required for graduation. The minimum achievement level is Business Communications, BA 214. Placement in the initial course is based on an English placement test.

Transferable English Composition, Wr121, 122, 123, will be accepted in place of 1.101, 2.673, 2.672 or BA214.

A maximum of six credits of CWE can be applied toward graduation.

**Term 1
Course**

No.	Course Title	Credit Hour
	English Variable or General Education Elective 3 Math Variable 3	
BA211	Financial Accounting or Accounting Procedures I 4	
6.923 BA101		
or		
2.502 BA241	Business Environment 4	
or		
2.341 2.658	Risk and Insurance 3 Introduction to Calculators 2	

Term 2

	English Variable or General Education Elective 3 Math Variable 3	
SS121		
or		
2.606 2.119	Typing 3 Insurance— Property and Casualty 3	
Ec100 Psy101	Outline of Economics 3 Psychology of Human Relations 3	
2.344	Insurance Occupational Survey Seminar 1	

Term 3

2.343	Insurance Principles— Life and Health 3	
BA214		
or		
2.672 2.342 BA226	Business Communications 3 IIA-Insurance 21 3	
or		
2.320 BA223	Business Law 3	
or		
2.104	Principles of Marketing 3	

Term 4

2.120 2.401	IIA—Insurance 21 4 Real Estate—A Consumer Approach 3	
BA131		
or		
6.940	Introduction to Data Processing or Management by Objectives 3	
2.644 BA238		
or		
2.109 1.610	Salesmanship 3 Public Speaking or Fundamentals of Speech 3	
Sp111		

Term 5

2.121 2.228	IIA—Insurance 23 4 Policies and Forms— Life and Health 3	
2.223	Rating and Underwriting— Property and Casualty 3	
2.230	Investments 3	
	*General Education Elective 3	



Term 6

2.222	Underwriting— Life and Health 3	
2.225	Group and Social Insurance 3	
2.231	Risk Management Analysis 3	
2.226	Regulations and Laws 2	
PS203	State and Local Government or General Sociology 3	
Soc204 FE201		
or		
2.687	Cooperative Work Experience or *General Education Elective 3	

*Electives must be approved by your advisor.

REAL ESTATE

The goal of the real estate program is to develop in students a functional awareness of the complexities of real estate. Factors affecting the value, control, use, appreciation, responsibilities and privileges associated with real property are considered in the required work.

The curriculum is designed to provide the student with opportunity for specialization in three basic areas: Appraisal, brokerage, and escrow and loan officer training. Sufficient opportunity is provided to permit students to select a combination of these options.

Men and women with technical training in this curriculum serve in many capacities. They may find employment in county assessors' offices, county recorder's offices, city planning departments, federal housing administration, veterans affairs, title insurance companies, escrow departments, state highway departments, mortgage companies, savings and loan associations, commercial banks, state tax commissions, federal land banks, farm credit administration and building and subdivision firms as well as work in real estate brokerage and appraising offices.

Proficiency in communication skills, both oral and written, is required for graduation. The minimum achievement level for written communication is Business Communications, BA214. Placement in an initial course in English is based on an English placement test. The student must be able to demonstrate proficiency in expressing his/her ideas orally. Minimum requirement is one course in speech.

Mathematics is also considered an integral part of the curriculum. Minimum achievement level is applied business mathematics, 6.918.

Placement tests are provided to assist students in choosing math courses consistent with their ability.

During the second year of study, students may be eligible for cooperative work experience which allows them to gain valuable on-the-job training in their field of emphasis.

An associate in science degree is awarded to individuals who satisfactorily complete the required 105 units.

Term 1 Course No.	Course Title	Credit Hour
	English Variable (based on placement test)	
	or	
	General Education Elective	3
	Math Variable	3



BA101	
or	
2.502	Business Environment
BA260	
or	
2.400	Real Estate Principles
BA211	Financial Accounting I
	or
6.923	Accounting Procedures I
	Term 2
	English Variable
	or
	General Education Elective
	Math Variable
BA261	
or	
2.414	Real Estate Principles II
BA264	
or	
2.406	Real Estate Finance
2.437	Legal Descriptions
2.658	Introduction to Calculators
BA263	
or	
2.402	Real Estate Law
	Term 3
BA214	
or	
2.672	Business Communications
BA262	
or	
2.427	Real Estate Practices
SS121	
or	
2.606	Typing
BA226	
or	
2.320	Business Law I
2.408	Real Estate Appraisal I
Ec100	Outline of Economics
	or
Ec201	Principles of Economics

Appraisal Option

Term 4

- 1.610 Public Speaking
or
- Sp111 Fundamentals of Speech 3
- 2.409 Real Estate Appraisal II 3
- 2.423 Escrow Procedures I 3
- Psy101 Psychology of
Human Relations 3
- 2.419 Real Estate Investment
Analysis I-Principles 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Elective 3

Term 5

- 2.411 Real Estate Appraisal III 3
- 2.418 Elements of Design
and Construction 3
- 2.416 Real Estate Investment
Analysis II-Taxation 3
- 2.424 Escrow Procedures II 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Elective 3

Term 6

- 2.425 Zoning, Subdivision and
Community Planning 3
- 2.428 Real Estate Seminar 3
- 2.429 Public Relations
in Business 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Electives 6

Brokerage Option

Term 4

- 2.409 Real Estate Appraisal II 3
- 2.423 Escrow Procedures I 3
- 2.419 Real Estate Invest
Analysis I - Principles 3
- BA238
or
- 2.109 Salesmanship 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Electives 6

Term 5

- 2.424 Escrow Procedures II 3
- 2.418 Elements of Design
and Construction 3
- 2.416 Real Estate Investment
Analysis II-Taxation 3
- 1.610 Public Speaking
or
- Sp111 Fundamentals of Speech 3

Term 6

- 2.426 Escrow Procedures III 3
- 2.417 Real Estate Investment
Analysis III-Sales
and Exchange 3
- 2.425 Zoning, Subdivision and
Community Planning 3
- 2.428 Real Estate Seminar 3
- 2.419 Public Relations
in Business 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Elective 3

Escrow Option

Term 4

- 1.610 Public Speaking
or
- Sp111 Speech 3
- 2.423 Escrow Procedures I 3
- Psy101 Psychology of
Human Relations 3
- SS122
or
- 2.607 Typing 3
- 2.419 Real Estate Investment
Analysis-Principles 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Elective 3

Term 5

- 2.424 Escrow Procedures 3
- 2.416 Real Estate Investment
Analysis II-Taxation 3
- 2.641 Office Procedures 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Electives 6

Term 6

- 2.426 Escrow Procedures III 3
- 2.417 Real Estate Investment
Analysis III - Sales
and Exchange 3
- 2.428 Real Estate Seminar 3
- 2.429 Public Relations
in Business 3
- FE201
or
- 2.687 Cooperative Work Experience
or
- *General Education Electives 6

*Electives must be approved by your advisor.

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SMALL BUSINESS MANAGEMENT

The three-year small business management program is for the sole business operator and spouse who own, lease or manage a business or have access to a full set of financial records.

The records analysis program involves monthly class meetings as well as visits by the instructor once a month to each small business. Instruction centers upon keeping basic records, annual computer analyses of these records, a cost of operation summary and the application of analysis information to improving the management and organization of each business.

The tuition covers the instruction and the year-end computer analysis. Contact the community services office, 399-5135, for enrollment information.

First Year

Small Business Management I—Business Records 9.298

Stimulating an interest in small business management, showing the need for small business records, measure of small business family progress and use of small business and home records, inventories as an important part of small business records, keeping business accounts current, the balance sheet and monthly summary, cash flow and cash flow projections, employer's records, social security and income tax, unemployment compensation, workmen's compensation and fair labor standards act, employee relations, OSHA and safety considerations, depreciation schedules, income tax management and tax planning, end of year inventory and closing the record book for computer analysis.



Second Year

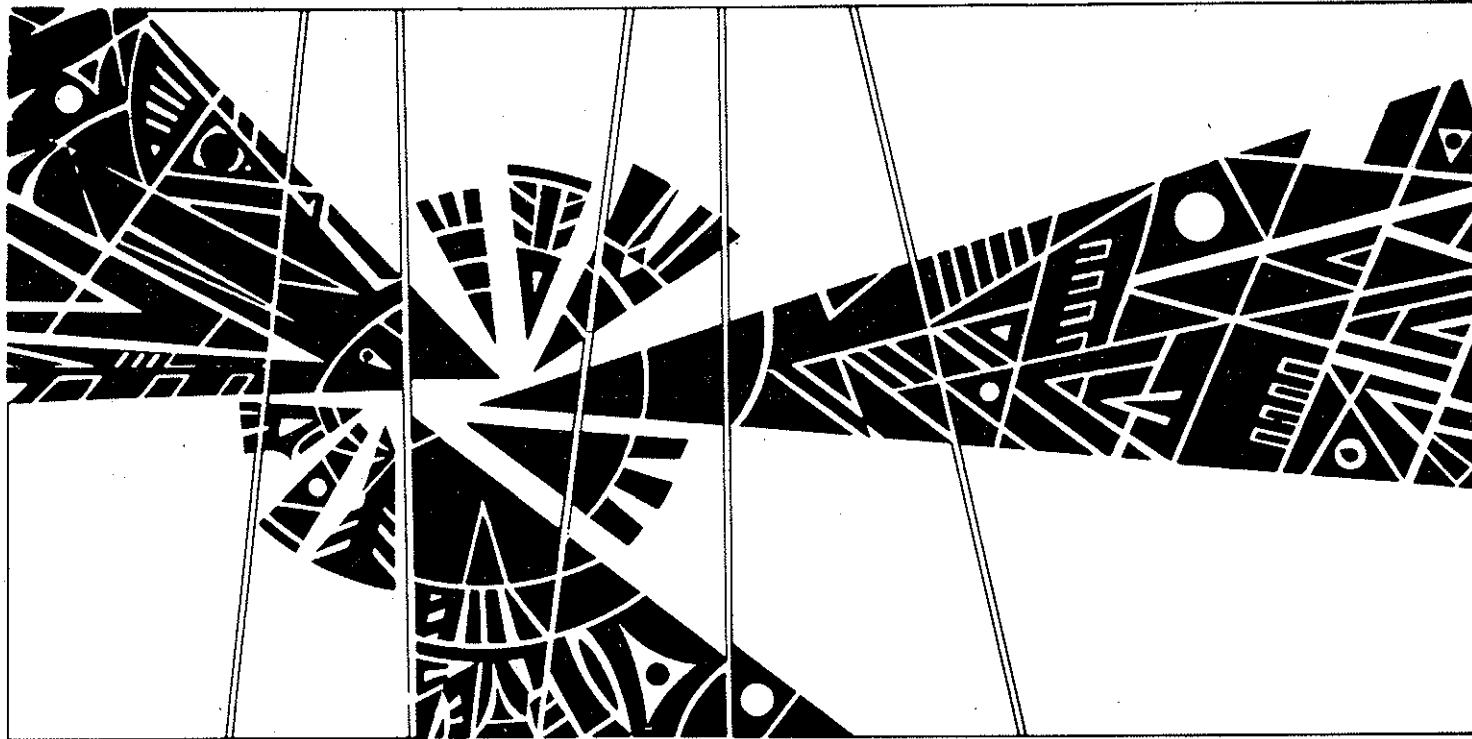
Small Business Management II

Calculating income, self employment and social security taxes, measures of business profit and size, importance of inventories, analyzing the customer service department, analyzing mechanization, labor, equipment and building costs, analyzing major department efficiencies, income tax planning and management and closing the business account book for analysis.

Third Year

Small-Business Management III

Attributes of successful small business entrepreneurs, determining the most profitable level of operation, selection of departments, evaluation of customer service and other major departments, evaluation of overhead and general business costs, maximizing income, site building and merchandise handling, planning and transitional stages and analysis of records for closing the business year.



COMMERCIAL FOOD PRODUCTION

CHEMEKETA COMMUNITY COLLEGE

COMMERCIAL FOOD PRODUCTION

The one-year commercial food production program is designed primarily for training food service personnel in quality food production and service.

The program is flexible to allow for preparatory training for those who are getting ready to enter the food trades industry and supplementary training for those already employed in the occupation who wish to increase their knowledge and skills.

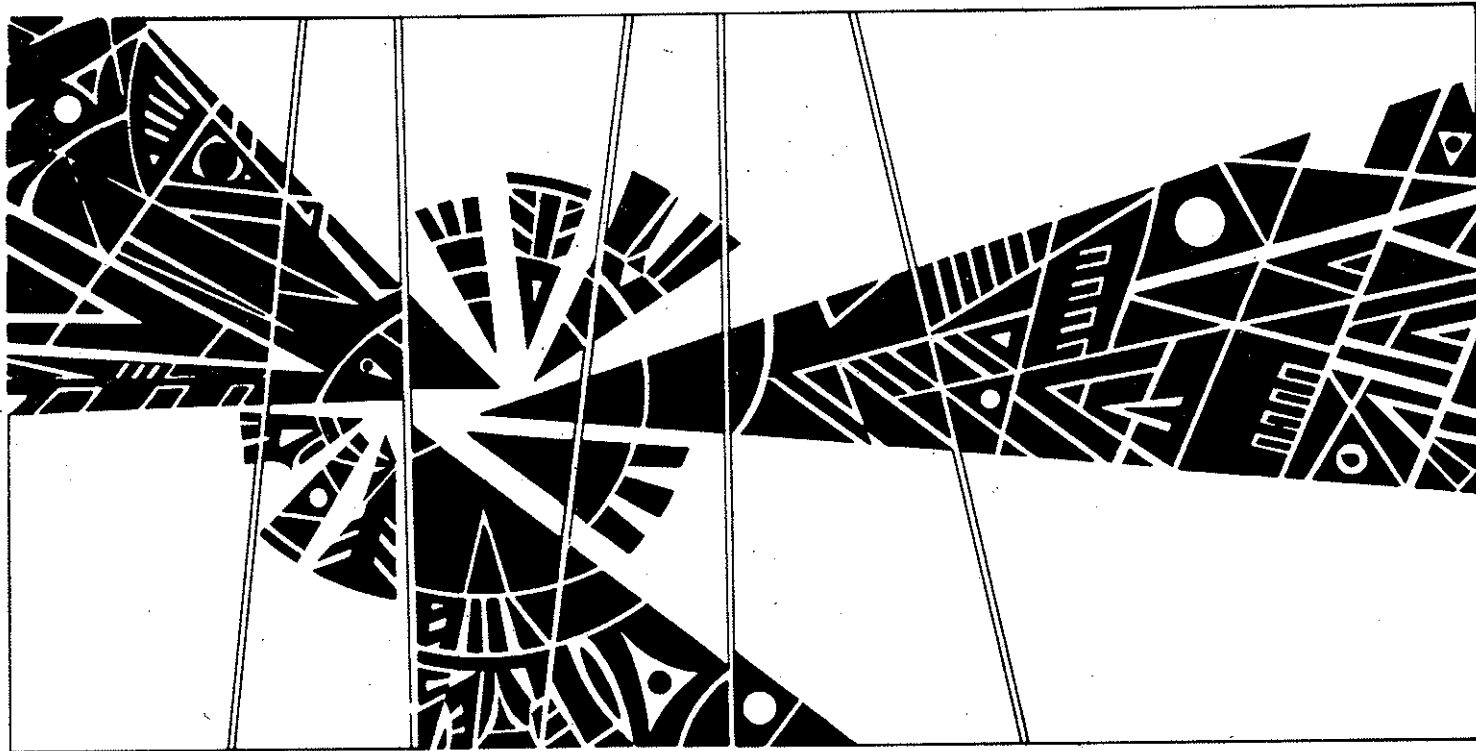
A certificate of completion is awarded to those individuals who have satisfactorily completed the required courses.

Graduates may find work in restaurants, hotels, hospitals, country clubs, military installations, institutions and other large food complexes.

A minimum of 52 term units is required for graduation.

Term 1 Course No.	Course Title	Credit Hour
3.200	Basic Food and Nutrition	2
3.201	Quantity Foods Production I	8
3.204	Dining Room Operation I	2
3.210	Sanitation and Safety	2
1.104	Communication Skills	
or		
3.216	Math for Food Service	3
Term 2		
3.211	Menu Planning and Culinary Terms	2
3.202	Quantity Foods Production II ...	8
3.205	Dining Room Operation II	2
3.212	Purchasing and Store Control ...	3
1.104	Communication Skills	
or		
3.216	Math for Food Service	3
Term 3		
3.213	Elementary Food Cost Analysis	2
3.203	Quantity Foods Production III ...	8
3.206	Dining Room Operation III	2
3.214	Food Production Organization and Planning	2
2.687	Cooperative Work Experience ...	3





CRIMINAL JUSTICE ADMINISTRATION

CHEMEKETA COMMUNITY COLLEGE

CRIMINAL JUSTICE

This area of study offers an occupational preparatory curriculum designed for individuals who desire a career in criminal justice.

Students may select one of five options: criminal justice administration, corrections, law enforcement, law enforcement technician (criminalistics) and security systems management. With the exception of security systems management, each option is fully transferrable to most four-year institutions.

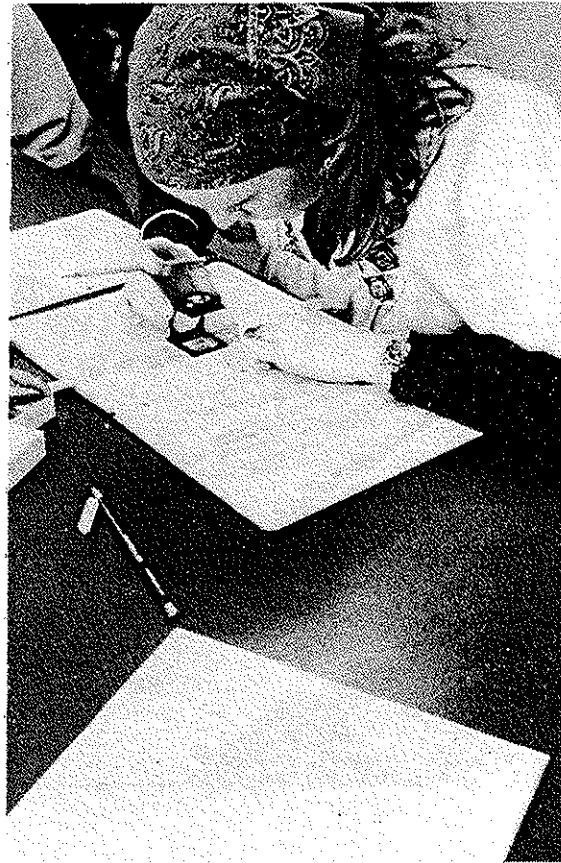
The criminal justice program also provides the opportunity for those already employed in a criminal justice agency to improve their competency and develop a broader understanding of their role in society.

The program has been developed in cooperation with the State Department of Education and the Board of Police Standards and Training. Students may participate on a full- or part-time basis. Financial assistance in the form of grants and/or loans is available for eligible students. Upon satisfactory completion of program requirements, students are awarded an associate in science degree.

In addition to general education and professional course requirements, each option has its own specialty courses.

General Education Requirements (34 hours)

Course No.	Course Title	Credit Hour
	English/Communication Skills (must include 3 hours of speech and 6 hours of writing— Communication Skills or Wr prefix courses)	9
	Math/Science	4
	PE/Health	3
	Social Science/Humanities	18



Professional Core Course Requirements (26 hours)

CJA111	Introduction to Law Enforcement	3
CJA112	Crime and Delinquency	3
CJA113	Introduction to Criminology	3
CJA211	Administration of Justice	3
CJA212	Introduction to Criminal Law	3
CJA213	Introduction to Evidence	3
CJA214	Criminal Investigation	3
CJA215	Introduction to Criminalistics	5

Corrections Option

Term 1		
CJA220	Introduction to Penology	3

CJA221	Introduction to Probation and Parole	3
	Professional Core Requirement	3
	General Education Requirements	6

Term 2		
CJA222	Introduction to Juvenile Corrections	3
	Professional Core Requirements	6
	General Education Requirement	3
	*Approved Elective	4

Term 3		
CJA223	Introduction to Corrections Process	3
	Professional Core Requirement	3
	General Education Requirements	6
	*Approved Elective	3

Term 4		
CJA233	Criminal Justice Administration	3
	Professional Core Requirements	6
	General Education Requirements	6
	*Approved Elective	3

Term 5		
CJA225	Introduction to Corrections Casework	3
	Professional Core Requirement	5
	General Education Requirement	7

Term 6		
CJA232	Constitutional Law	3
	Professional Core Requirement	3
	General Education Requirements	6
	*Approved Elective	3

*Electives must be approved by your advisor.

Criminal Justice Administration Option

Term 1
CJA232 Constitutional Law 3
Professional Core
Requirements 6
General Education Requirements .6

Term 2
CJA219 Introduction to
Community Relations 3
Professional Core
Requirements 5
General Education Requirements .6
*Approved Elective 3

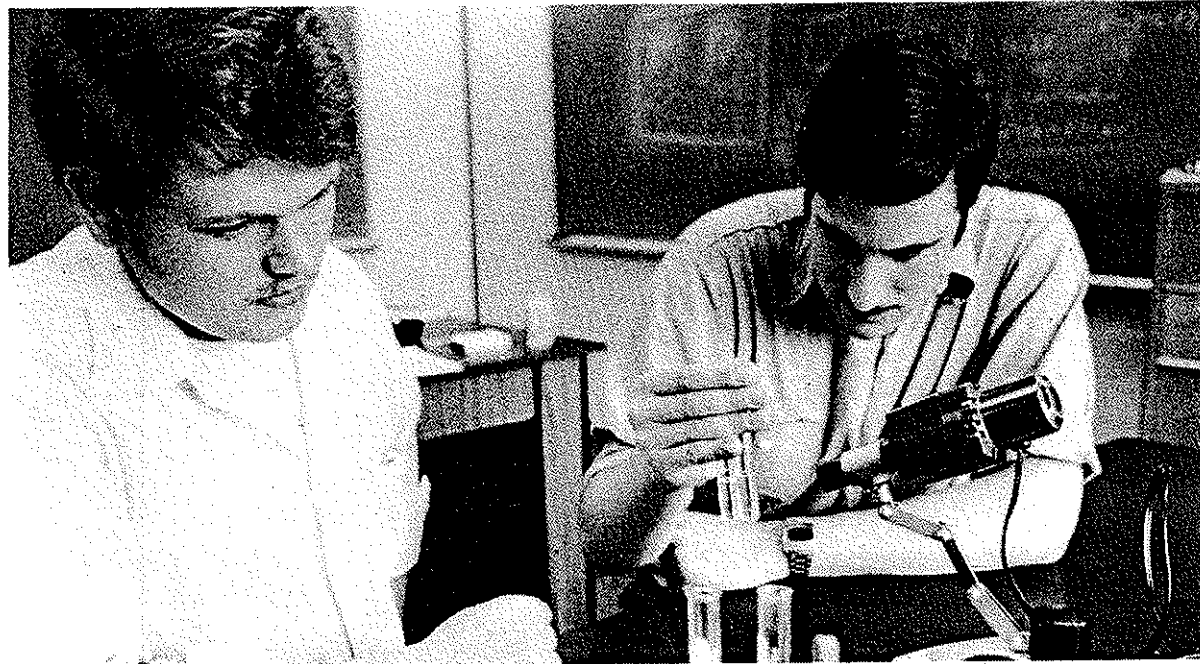
Term 3
CJA233 Criminal Justice Administration .. 3
Professional Core Requirement .. 3
General Education Requirements .6
*Approved Electives 6

Term 4
CJA226 Criminal Law II 3
Professional Core
Requirement 3
General Education
Requirements 6
*Approved Elective 3

Term 5
Professional Core
Requirement 3
General Education
Requirements 6
*Approved Electives 6

Term 6
Professional Core
Requirements 6
General Education
Requirement 4
*Approved Elective 4

*Electives must be approved by your advisor.



Law Enforcement Option

Term 1
CJA232 Constitutional Law 3
Professional Core
Requirements 6
General Education
Requirements 6

Term 2
5.214 Moot Court 3
CJA219 Introduction to
Community Relations 3
Professional Core Requirement .. 3
General Education
Requirement 3
*Approved Elective 4

Term 3
CJA222 Introduction to
Juvenile Corrections 3
Professional Core Requirement .. 3
General Education
Requirements 6
*Approved Elective 3

Term 4
CJA226 Criminal Law II 3
Professional Core
Requirements 6
General Education
Requirements 6
*Approved Electives 3

Term 5
CJA233 Criminal Justice Administration .. 3
Professional Core
Requirements 5
General Education
Requirement 7

Term 6
CJA231 Seminar in Criminal Justice 3
Professional Core Requirement .. 3
General Education
Requirements 6
*Approved Elective 3

*Electives must be approved by your advisor.

Law Enforcement Technician Option

Term 1
 Ch204 General Chemistry 5
 Professional Core
 Requirements 6
 General Education
 Requirements 6

Term 2
 Ch205 General Chemistry 5
 Professional Core Requirement.. 3
 General Education
 Requirement 3
 *Approved Elective

Term 3
 Ch206 General Chemistry 5
 Professional Core Requirement.. 3
 General Education
 Requirements 6
 *Approved Elective 3

Term 4
 Ch226 Organic Chemistry 5
 Professional Core
 Requirements 5
 General Education
 Requirement 7

Term 5
 Ch227 Organic Chemistry 5
 Professional Core
 Requirements 5
 General Education
 Requirements 7

Term 6
 Bi103 General Biology 3
 Professional Core Requirement.. 3
 General Education
 Requirements 7

*Electives must be approved by your advisor.

Security Systems Management Option

Term 1
 5.232 Administration of
 Security Procedures 3
 Professional Core
 Requirements 6
 General Education
 Requirements 6

Term 2
 5.233 Personnel Screening 3
 5.234 Educational Security 3
 Professional Core Requirement.. 3
 General Education
 Requirement 3
 *Approved Elective 4

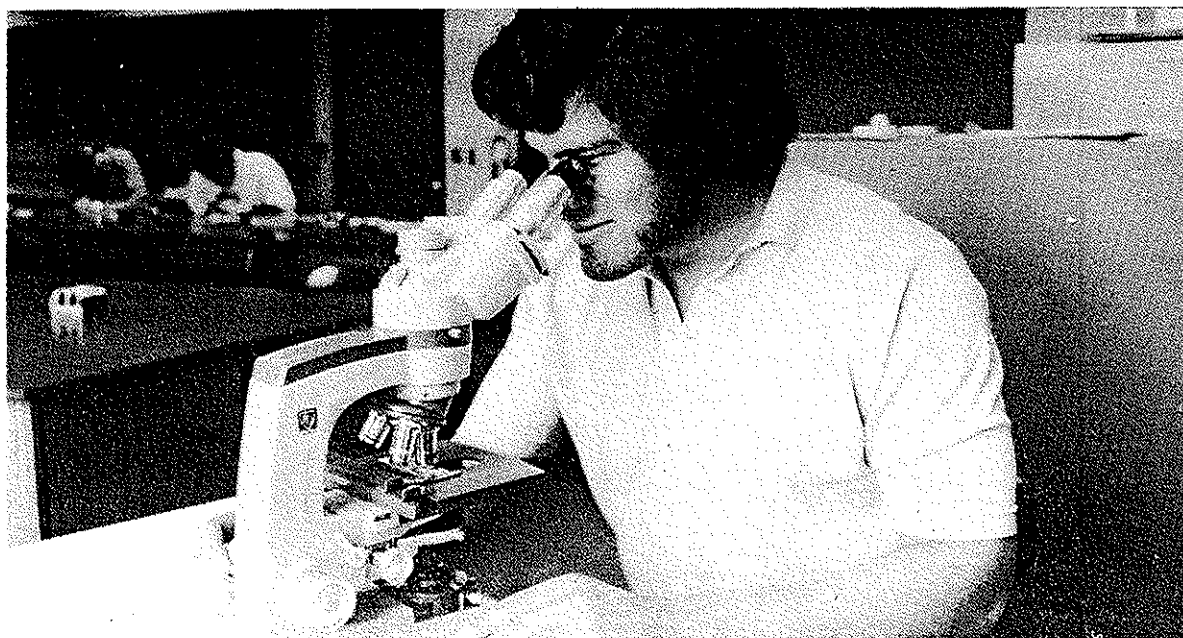
Term 3
 5.235 Embezzlement and Shoplifting .. 3
 Professional Core Requirement.. 3
 General Education
 Requirements 6
 *Approved Elective 3

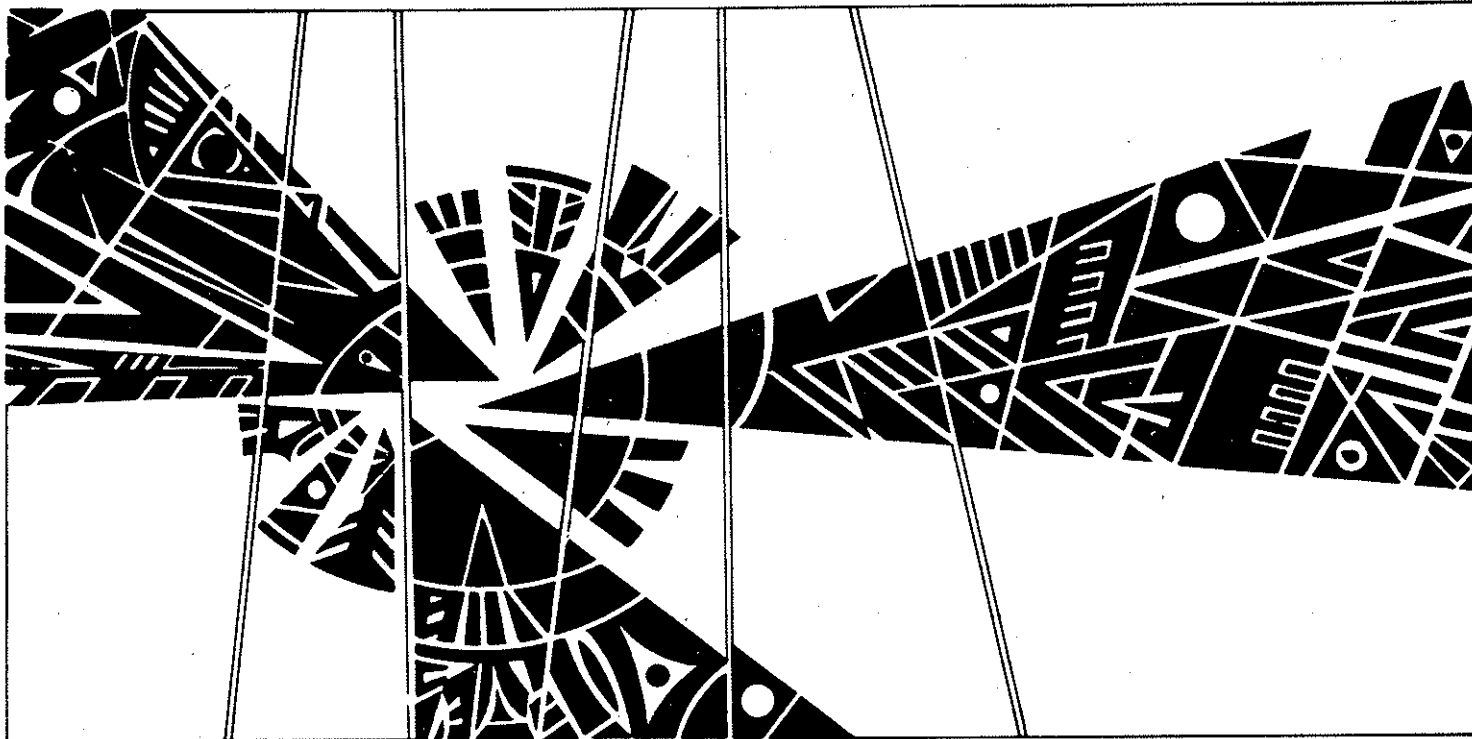
Term 4
 5.236 Transportation Security 3
 Professional Core
 Requirements 6
 General Education
 Requirements 6
 *Approved Elective 3

Term 5
 5.237 Communications Security 3
 Professional Core Requirement.. 5
 General Education
 Requirements 7

Term 6
 CJA226 Criminal Law II 3
 Professional Core Requirement.. 3
 General Education
 Requirements 6
 *Approved Elective 3

*Electives must be approved by your advisor.





DRAFTING

CHEMEKETA COMMUNITY COLLEGE

DRAFTING

The drafting technology program trains people for positions in engineering departments in the areas of mechanical drafting, design, technical illustration and other drafting-oriented positions.

The courses within the program are specifically selected and planned to train technicians for drawing preliminary sketches, making layouts from technical information, rendering drawings in pencil, ink and other media, making overlays and pasteups and detailed drawings of complete and final work drawings.

The curriculum is centered around occupational elements that normally cannot be obtained through experience alone—elements such as principles of design, materials and processes, mathematics and physical science concepts as applied to the technical drafting area.

Graduates may obtain employment in technical illustration, sheetmetal layout drafting, machine drafting, structural drafting, aeronautical drafting, electronics and electrical drafting and engineering graphics. A student completing the required 94 units is awarded an associate in science degree.

Term 1

1.101	Communication Skills	3
Psy100	Introduction to Psychology	3
4.202	Mathematics	3
4.118	Sketching	1
4.221	Machine Drafting	4

Term 2

1.104	Communication Skills	3
4.222	Machine Drafting	4
6.261	Technical Mathematics	4
6.606	Manufacturing Processes	3
SS121	Typing	
	or	
2.606	Typing	
	or	
	General Education Elective	3

Term 3

1.106	Technical Report Writing	3
4.111	Structural Drafting	3
4.131	Mapping and Platting	3
6.101	Plane Surveying	4
6.262	Technical Mathematics	4

Term 4

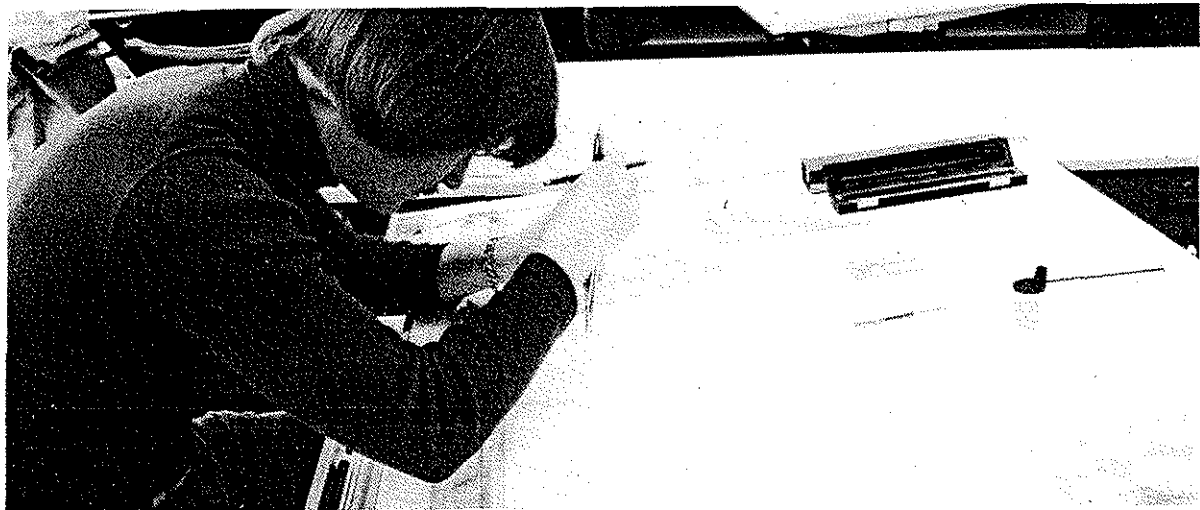
4.126	Drafting Room Computations	1
4.302	Practical Physics	4
6.103	Plane Surveying	4
4.236	Civil Engineering Drafting	3
4.100	Electronics Drafting	
	or	
4.234	Architectural Design	3

Term 5

4.115	Descriptive Geometry	3
Mth151	Introduction to Programming/	
	or	
4.203	BASIC	3
6.371	Applied Physics	4
4.226	Architectural Drafting	3
4.235	Photogrammetry I	
	or	
4.228	Technical Illustration	
	or	
	Selected course from Mechanical Design Curriculum with consent of instructor and advisor	3

Term 6

4.102	Introduction to Specifications	3
4.224	Pipe and Flow Systems Drafting	3
	General Education Elective	3
	Select two:	
4.227	Architectural Drafting	
4.229	Technical Illustration	
4.237	Photogrammetry II	
	or	
	Selected course from Mechanical Design Curriculum with consent of instructor and advisor.	



MECHANICAL DESIGN

The mechanical design technology program offers a comprehensive drafting curriculum along with a practical approach to engineering concepts.

Courses are offered to train technicians in the areas of machine, electronics, pipe and flow systems, control systems and sheet metal drafting. Instruction in design stresses the use of manufacturers' technical catalogs, technical handbooks and practical application of concepts from theoretical and mathematical subjects which are taken concurrently.

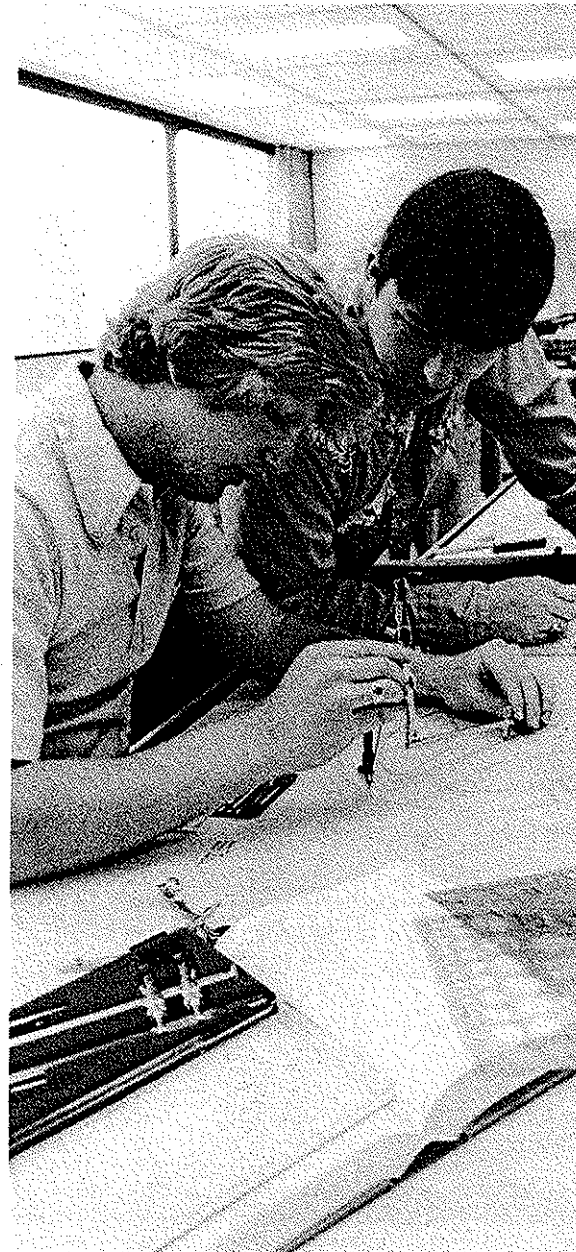
The student also receives instruction in engineering concepts such as specification writing, material selection, systems design and sizing of elements based on strength formulas.

Upon satisfactory completion of the required 97 units, the student is awarded an associate in science degree.

Graduates in the mechanical design technology program may obtain positions as junior designer or drafting technicians in the fields involved in the design of mechanical systems, flow systems, control systems and tooling and gauging. Additional opportunities may be open in testing, quality control and engineering sales.

Term 1 Course

No.	Course Title	Credit Hour
4.221	Machine Drafting	4
4.118	Sketching.....	1
6.261	Technical Mathematics	4
4.802	Machine Shop I.....	3
1.101	Communication Skills	3
	General Education Elective	3



Term 2

4.222	Machine Drafting	4
4.126	Drafting Room Computation	1
6.262	Technical Mathematics	4
4.170	Industrial Materials and Processing	3
1.104	Communication Skills	3
	General Education Elective	3

Term 3

4.224	Pipe and Flow Systems Drafting	3
4.115	Descriptive Geometry	3
6.266	Technical Mathematics	4
1.106	Technical Report Writing	3
4.177	Foundry and Metal Forming Applications	3

Term 4

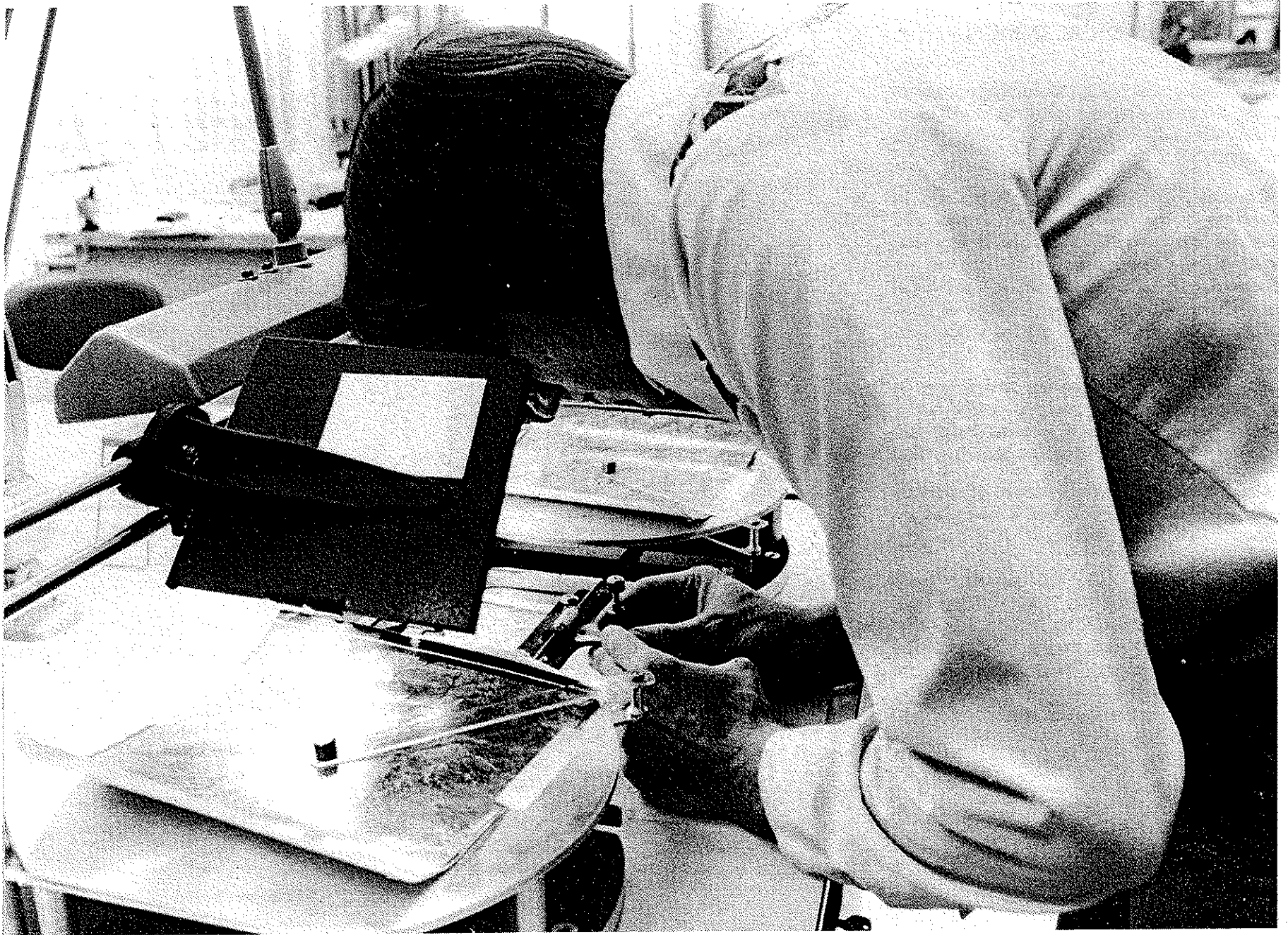
4.100	Electronic Drafting	3
4.230	Sheet Metal Drafting	3
Mth151 or 4.203	Introduction to Programming/ BASIC	2
6.109	Applied Mechanics	3
6.275	Introductory Chemistry	4

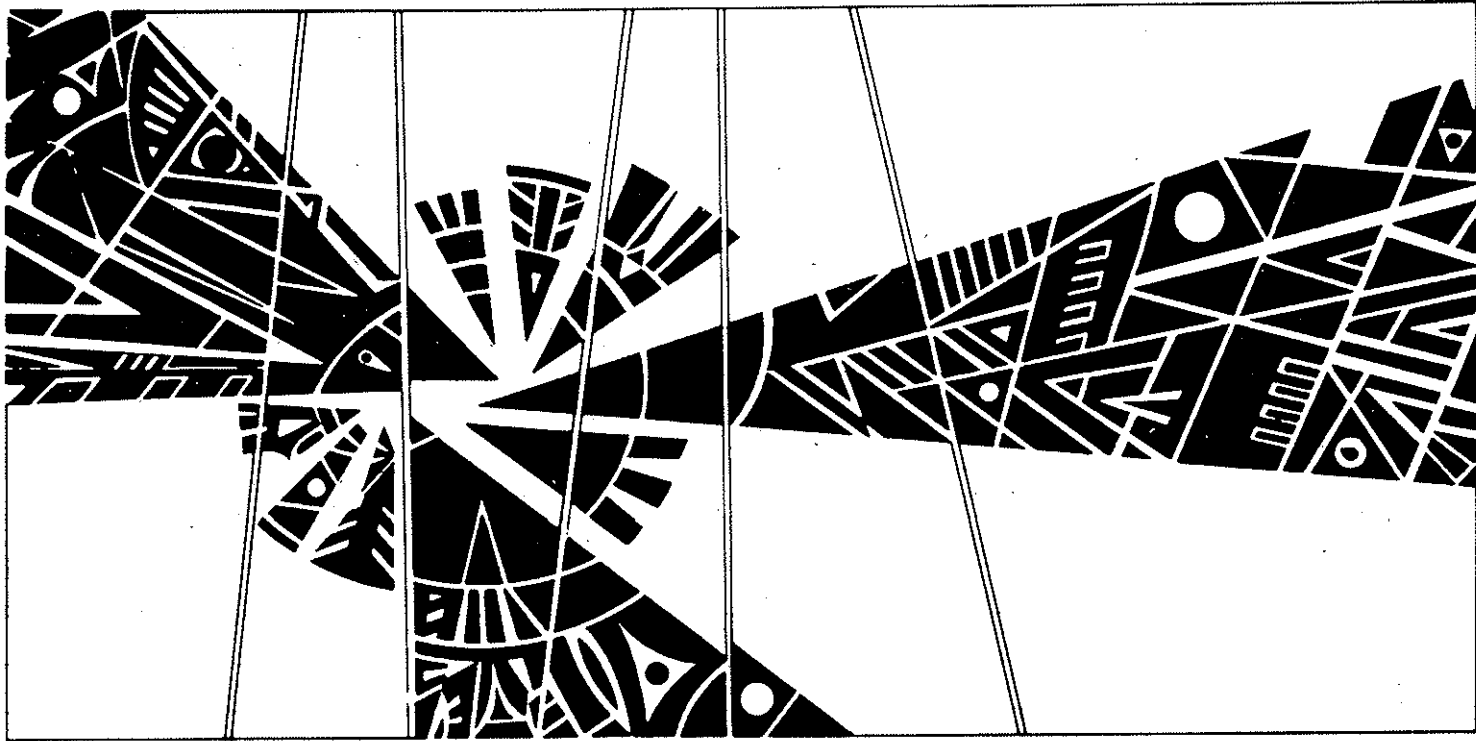
Term 5

4.232	Machine Design Lab.....	3
4.231	Tool Design Lab I	3
4.175	Industrial Control Systems	3
6.602	Metallurgy.....	3
6.105	Strength of Materials	3

Term 6

4.603	Machine Design	6
4.220	Tool Design II	3
4.174	Industrial Control Systems Design Lab	3
	General Education Elective	3





EARLY CHILDHOOD EDUCATION

CHEMEKETA COMMUNITY COLLEGE

EARLY CHILDHOOD EDUCATION

The early childhood education program is designed to train people as child care aides, assistants and teachers. Many of the courses are excellent electives for parents or others who work with children.

The two-year program leads to an associate in science degree. National trends indicate increasing employment opportunities, as subsidized day care and greater understanding of the importance of early development increases.

Graduates may work in nursery schools, kindergartens, Head Start programs, day care centers and as paraprofessional members of teams in public schools.

A certificate of completion in early childhood education can be granted upon completion of specialized one-year curriculum courses.

Associate in science degree requirements: 95 term units. Certificate of completion requirement: 52 term units.



Term 1 Course No.

	Course Title	Credit Hour
7.119	Development in Childhood I	3
7.129	Introduction to Early Childhood Education	3
1.101	Communication Skills	
	or	
Wr121	English Composition	3
Psy100	Introduction to Psychology	
	or	
Psy201	General Psychology	3
7.131	Observing and Recording Preschool	3

Term 2

7.120	Development in Childhood II	3
7.137	Personal Dynamics	3
7.132	Observing and Guiding Behavior	3
1.104	Communication Skills	
	or	
Wr122	English Composition	3
Psy101	Psychology of Human Relations	
	or	
Psy202	General Psychology	
	or	
Psy199	Processes in Living	3

Term 3

7.115	Child Nutrition	
	or	
FN225	Nutrition	3
He199C	Special Studies in First Aid	3
7.136	Creative Activities	3
7.134	Supervised Field Experience I	3
	Physical Education Elective	1
	*General Education Elective	3

Term 4

7.117	Children's Literature	3
7.123	Environments for Young Children	3



7.127	Family Living	
	or	
FL222	Partner Relationships	3
7.135	Supervised Field Experience II	4
	*General Education Elective	3

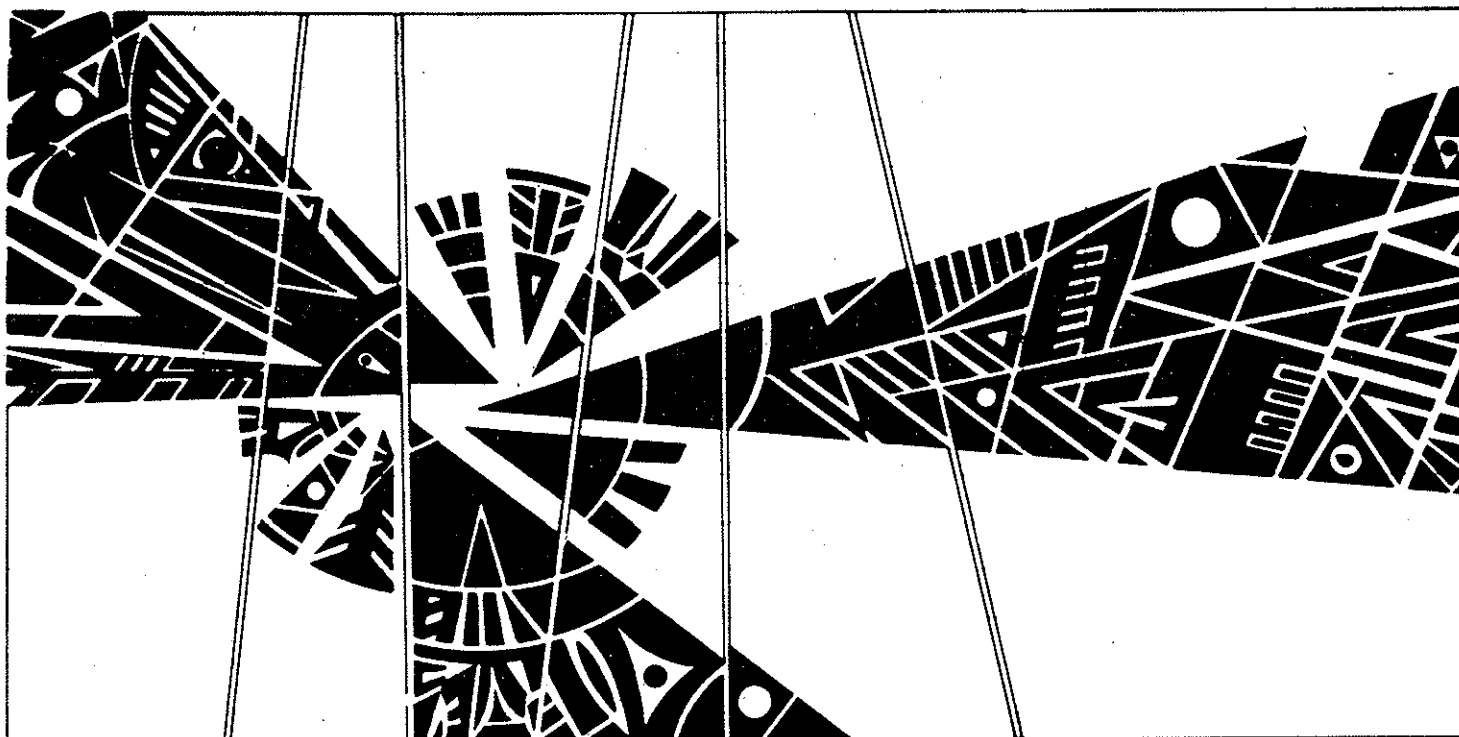
Term 5

7.125	The Exceptional Child	3
7.130	Music for Young Children	3
7.124	Learning Experiences for Young Children	3
7.121	Directed Participation I	7

Term 6

7.126	Home, School, Community	3
7.113	Administration of Child Care Centers	3
7.122	Directed Participation II	8
	*General Education Elective	3

*Suggested electives: Personal Health, Art, Spanish, Speech, Ethnic History, Sociology, Cooperative Work Experience, Consumer Finance, Science.



ELECTRONICS

CHEMEKETA COMMUNITY COLLEGE

ELECTRONICS

ELECTROMECHANICAL TECHNOLOGY

This curriculum is designed to provide the depth of understanding and technical knowledge required for occupations in the broad electromechanical field. Practical laboratory training provides application of theoretical technical, mathematical and science courses taken concurrently.

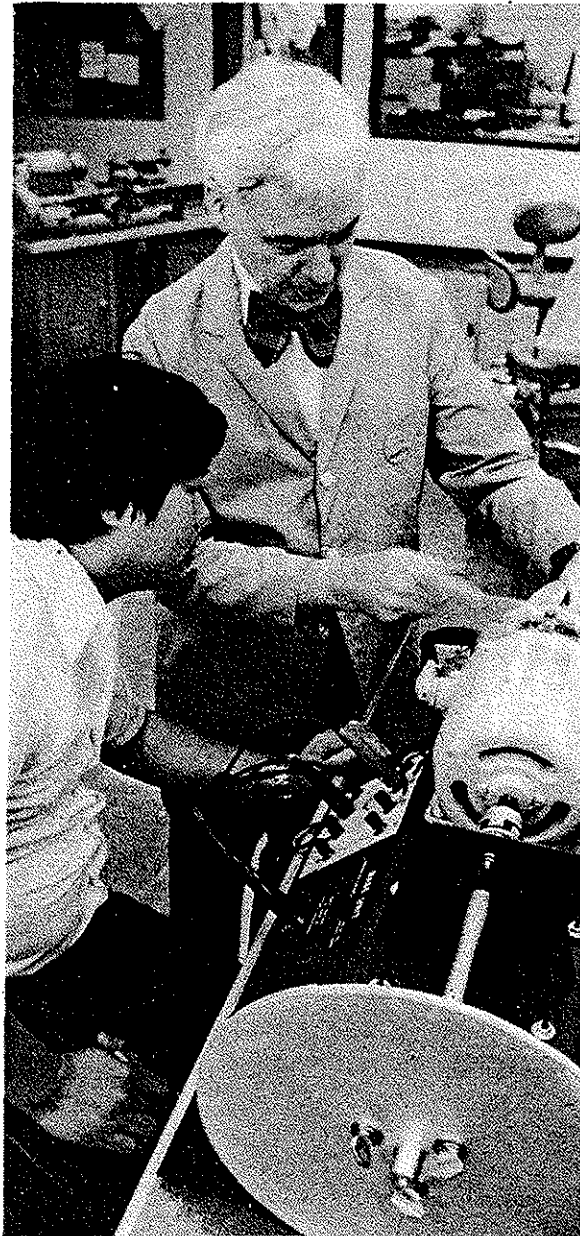
Electromechanical technicians may assist in design and development of electromechanical devices or systems; operate as field engineers; design and install industrial control systems; and operate, maintain or repair EM equipment utilizing their technical knowledge and engineering data.

Examples of placement opportunities are in field engineering, research, design, systems, quality control, technical writing, industrial control, automation, sales, engineering, maintenance, technical representation, atomic energy control, instrumentation, medical devices and automatic production.

Upon completion of the required 113 units, students are awarded an associate in science degree.

Term 1 Course

No.	Course Title	Credit Hour
6.200	Electrical Theory DC.....	4
6.194	Engineering Orientation	1
6.261	Technical Mathematics	4
4.124	Basic Drafting for Electronics	2
6.370	Applied Physics	4
1.101	Communication Skills	3



Term 2

6.202	Electrical Theory AC.....	4
6.138	Engineering Problems	1
6.262	Technical Mathematics	4
6.210	Transistor Fundamentals	4
6.371	Applied Physics	4
1.104	Communication Skills	3

Term 3

6.211	Transistor Circuits	5
6.243	Electromechanical Devices	2
6.244	Electromechanical Shop Practice	2
6.247	Rotating Machines	4
6.195	Properties of Materials.....	3
	General Education Elective	3

Term 4

6.267	Digital Mathematics	3
6.238	Solid State Devices	3
6.196	Fluid Systems	3
6.245	Electromechanical Fabrication ...	2
6.612	Mechanisms	4
	General Education Elective	3

Term 5

6.255	Electrical Control Systems	3
6.241	Data Communications	3
6.240	Electronic Data Processing	3
6.218	Industrial Electronics	4
6.269	Computer Programming	3
	General Education Elective	3

Term 6

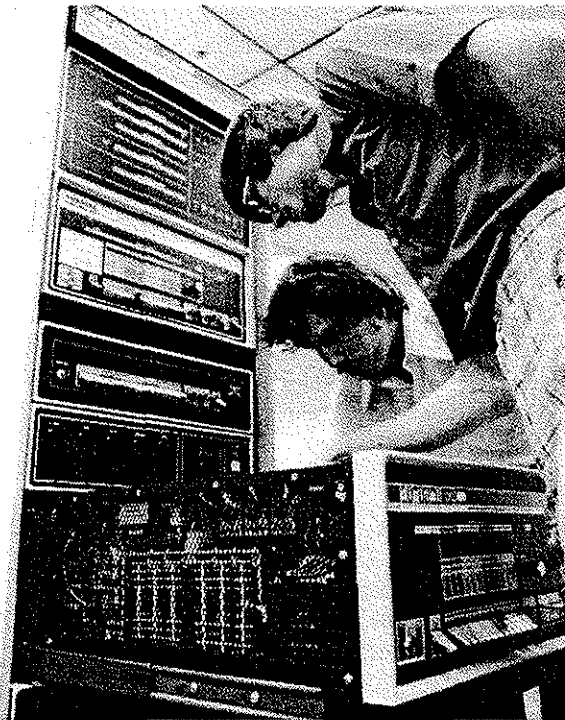
6.221	Mechanical and Electrical Measuring Principles	3
6.246	Electromechanical Maintenance Procedures	3
6.256	Servo and Regulator Systems	3
6.268	Digital Control Systems	4
6.257	Electrical/Electronic Troubleshooting	3
	General Education Elective	3

ELECTRONIC ENGINEERING

This curriculum offers a broad technical background in electronics, balancing theory understanding with technique capabilities. It is a comprehensive program planned to prepare graduates for a diversity of high-level, specialized technician positions in the electronic industry.

They include research and development, radio and television, microwave station operations and maintenance, calibration, commercial and domestic maintenance and other areas using vacuum tubes and semiconductor circuits. A strong background of electronic theory, math and physics is included to enable the student to handle complex technical work.

The student gains proficiency in the practical application of theory, analyzing circuits, developing elementary electronic units, work-



ing with modern test and measuring equipment, trouble shooting and evaluating operating characteristics of electronic equipment.

Graduate electronic technicians employed in research and develop activities usually assist physical scientists or engineers in designing, testing and modifying experimental electronic devices.

They may be called upon to devise practical solutions to problems of design, select suitable material, determine the best methods of building a piece of equipment and test and evaluate the operating characteristics of the electronic device. They also may be called upon to make necessary modifications in the experimental equipment.

Graduates may gain employment in such occupations as radio communications technicians (aircraft, etc.), radio operators and dispatchers, electronics technicians, laboratory technicians (electronics), electronic instrument technicians (manufacturing), guided missile technicians, electronic computer technicians, microwave radio technicians, electronic instrument service technicians, industrial electronic technician supervisors, electronic equipment designers and electronic engineering technicians.

Upon satisfactory completion of the required 113 units, the student is awarded an associate in science degree.

Term 1 Course

No.	Course Title	Credit Hour
6.200	Electrical Theory DC.....	4
6.137	Slide Rule Operations	1
6.261	Technical Mathematics	4
4.124	Basic Drafting for Electronics	2
6.275	Introductory Chemistry	4
1.101	Communication Skills	3

Term 2

6.202	Electrical Theory AC.....	4
6.138	Engineering Problems	1
6.262	Technical Mathematics	4
6.210	Transistor Fundamentals	4
6.370	Applied Physics	4
1.104	Communication Skills	3

Term 3

6.206	Electrical Circuits	4
6.211	Transistor Circuits	5
1.106	Report Writing	3
6.266	Technical Mathematics	4
6.371	Applied Physics	4

Term 4

6.115	Electrical Mathematics	3
6.212	Electronic Circuit Concepts	4
6.234	Wave Generation and Shaping	3
6.237	Semiconductors	3
6.230	Network Analysis.....	2
	General Education Elective	3

Term 5

4.103	Electrical Drafting	2
6.218	Industrial Electronics	4
6.228	Industrial Television	5
6.240	Electronic Data Processing	3
6.231	Antennas and Transmission Lines	2
	General Education Elective	3

Term 6

6.216	Advanced Electronic Circuits	2
6.220	Electronic Instruments	3
6.235	Closed Circuit Systems	4
6.248	Advanced Industrial Electronics	3
6.242	Microwaves.....	3
	General Education Elective	3

TELEVISION RADIO SERVICE

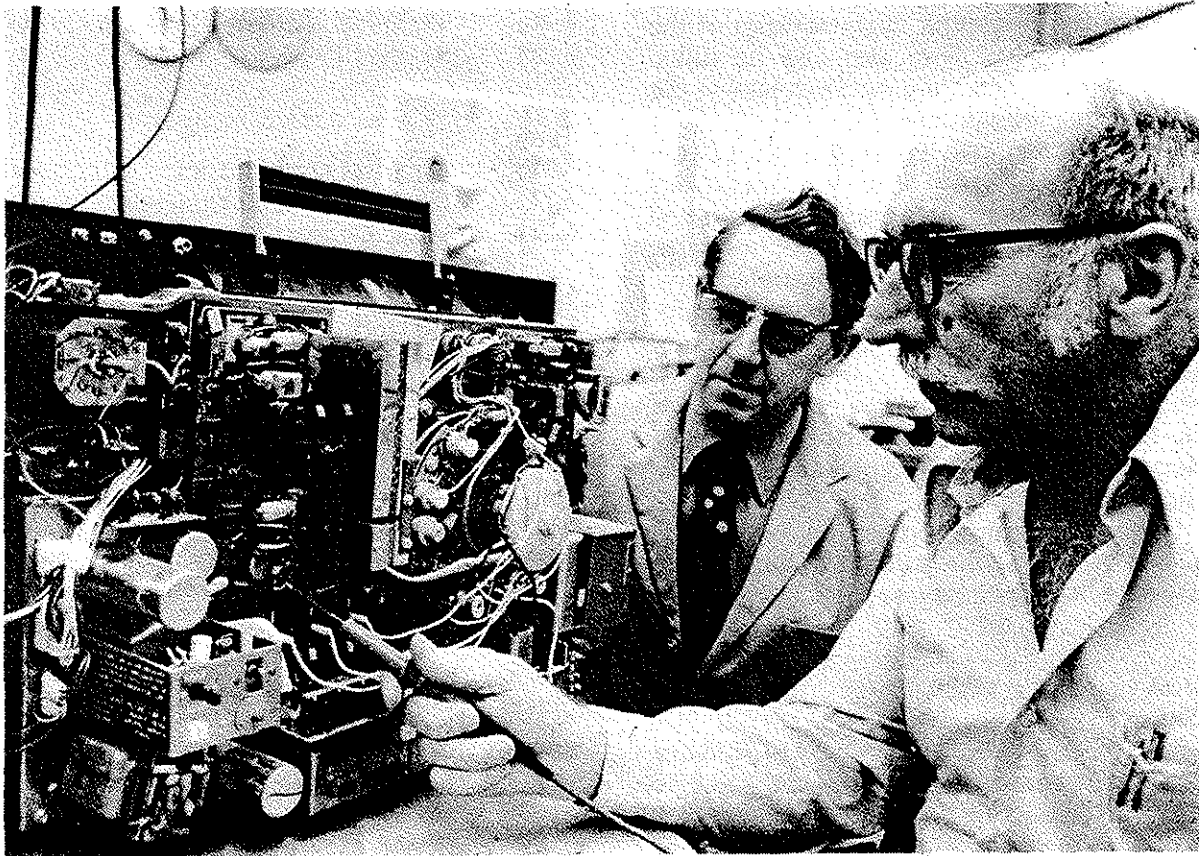
The television-radio service program prepares students for employment in the field of radio and television servicing.

The Chemeketa television-radio service curriculum implements the student-centered individualized curriculum for electronics (ICE) in which students progress at their own pace and receive credit for prior education and demonstrated competence.

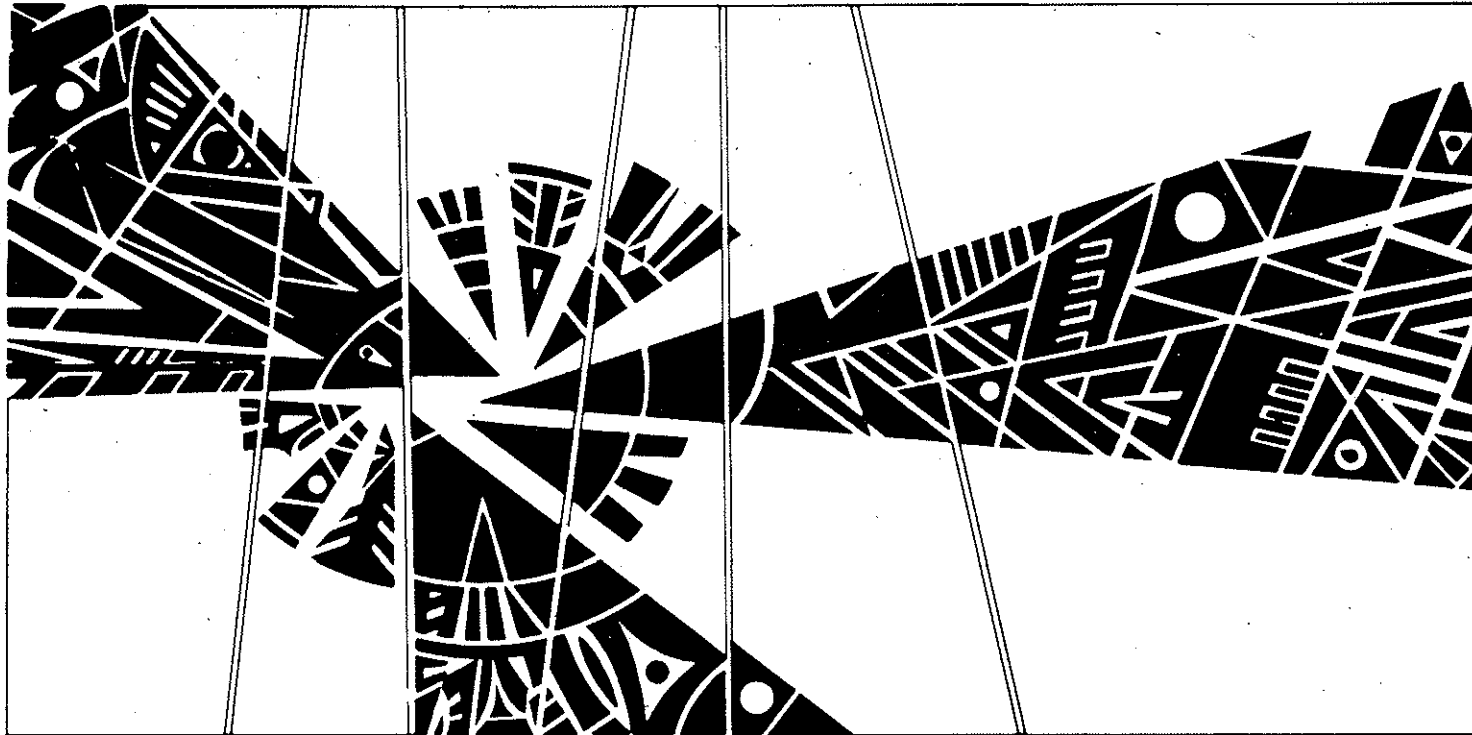
This program provides basic principles, theory and laboratory experience in the practical phases of radio and television service work. Basic mathematics and communication skills necessary to the technician are included in the theory courses as needed.

A certificate of completion is awarded to those individuals who have satisfactorily completed the required courses within the curriculum.

Note: Application has been made to the Oregon Board of Education to increase this curriculum to two years. If approved, a catalog addendum will be published. Contact program staff before enrolling in classes listed below.



Term 1 Course No.	Course Title	Credit Hour
4.255	DC Theory and AC Theory	9
4.256	DC Theory and AC Theory Lab	2
4.257	Electronic Devices	5
4.258	Electronic Devices Lab	2
Term 2		
4.259	Transistors and Circuits Theory	5
4.262	Electronic Principles	2
4.263	Electronic Principles Lab	2
4.260	Use of Instruments I	2
4.266	Television Principles	3
4.267	Television Principles Lab	3
Term 3		
4.264	Radio Servicing	2
4.265	Radio Servicing Lab	1
4.268	Television Servicing	3
4.269	Television Servicing Lab	3
6.235	Closed Circuit Systems	4
4.270	FM and HIFI Theory	3
4.271	FM and HIFI Theory Lab	1
2.275	Electronic Management Orientation	2
Term 4		
4.273	Color Television Servicing	5
4.272	Solid State Servicing	4
4.274	Logical Trouble Shooting	4
2.687	Cooperative Work Experience ...	3



FIRE PROTECTION

CHEMEKETA COMMUNITY COLLEGE

FIRE PROTECTION

FIRE PROTECTION

Fire protection technology is designed for persons preparing for career employment in fire departments. The curriculum relates indirectly to professions in insurance industries, industrial fire safety and other public and private fire protection occupations.

Guidelines set forth in the *Fire Science Curriculum Guide*, published by the Oregon Board of Education, have been followed in developing this program, thus providing for compatibility with curriculums offered by other community colleges in Oregon.

Upon satisfactory completion of the 106 required units, a student is awarded an associate in science degree.

Term 1		
Course No.	Course Title	Credit Hour
4.200	Mathematics	3
1.101	Communication Skills	3
5.100	Introduction to Fire Protection ..	3
5.122	Fire Related Experience	3
PE185FM	Fitness Appreciation	1
	General Education Elective	3

Term 2		
Course No.	Course Title	Credit Hour
4.202	Mathematics	3
1.104	Communication Skills	3
5.103	Elementary Science for Firefighters	4
5.123	Fire Related Experience	3
PE185FN	Fitness Appreciation	1

Term 3	
Psy100	Introduction to Psychology
6.995	Fire Science
5.105	Fire Pump Construction and Operation
5.120	Rescue and Emergency Care
5.124	Fire Related Experience
PE195FP	Fitness Appreciation

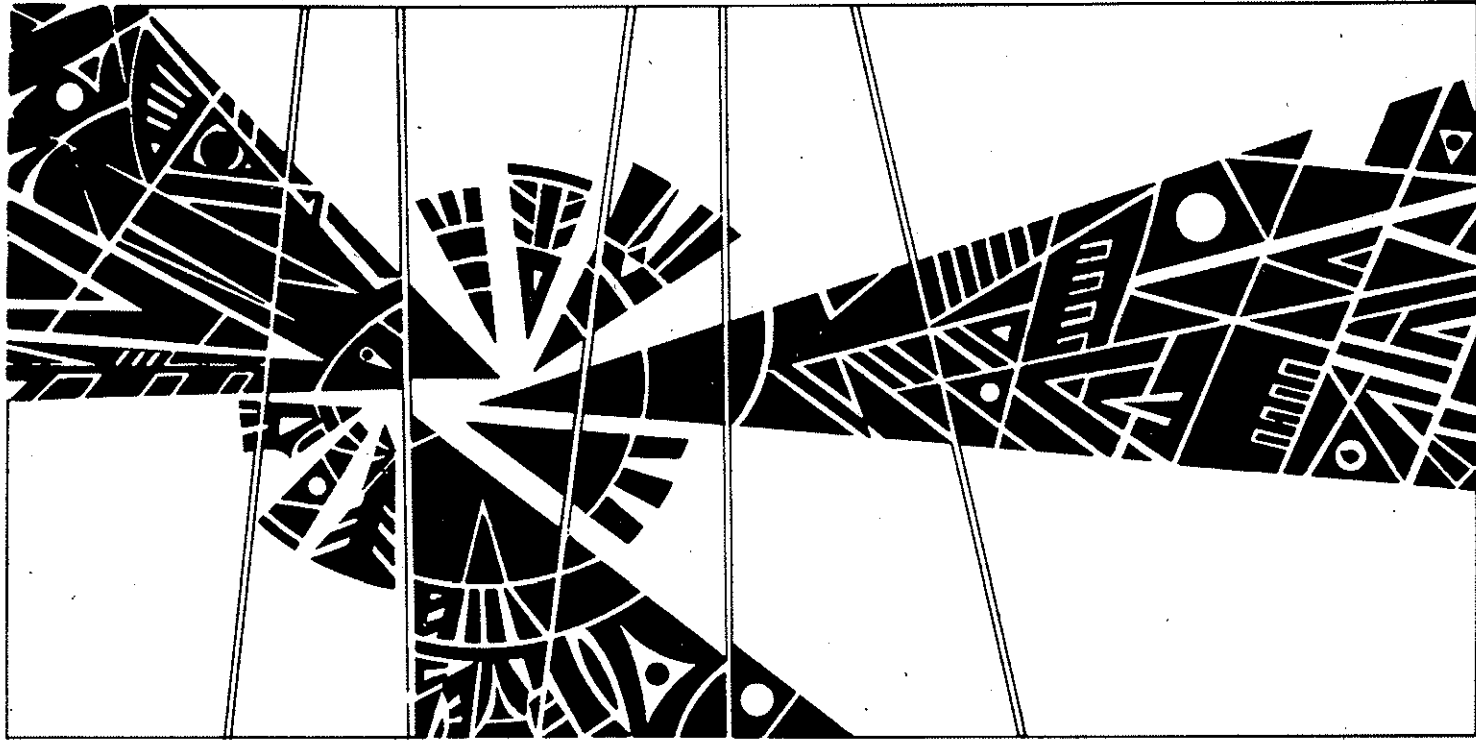
Term 4	
5.135	Emergency Medical Techniques I
6.996	Fire Science
5.101	Fundamentals of Fire Prevention
5.108	Hazardous Materials
PE185CA	Conditioning
	*Technical Electives (5.151 and 5.125 recommended)

Term 5	
5.136	Emergency Medical Techniques II
5.109	Hazardous Materials
5.131	Building Construction for Fire Suppression
PE185CB	Conditioning
	*Technical Electives (5.126, 5.116 and 5.106 recommended)

Term 6	
1.106	Technical Report Writing
PE185CC	Conditioning
	*Technical Electives (5.127, 5.112, 5.107, 5.113 recommended) ..

*Technical Electives: Fire Protection Systems, 5.106; Fire Investigation, 5.107; Fire Training Program and Techniques, 5.110; Fire Insurance Principles and Grading Schedules, 5.111; Fire Department Organization and Management, 5.112; Firefighting Tactics and Strategy, 5.113; Fire Codes and Ordinances, 5.116; Water Distribution Systems, 5.117; Fire Related Experience, 5.125, 5.126, 5.127.





FORESTRY

FORESTRY

CHEMEKETA COMMUNITY COLLEGE

FOREST PRODUCTS

The forest products program prepares individuals for a wide range of occupations within the forest products and related industries. The courses include basic industry processes and equipment, quality control and testing, technical representation and selling of building materials.

Two options within this program are emphasized: wood processing and pulp and paper—adhesives, coatings and plastics.

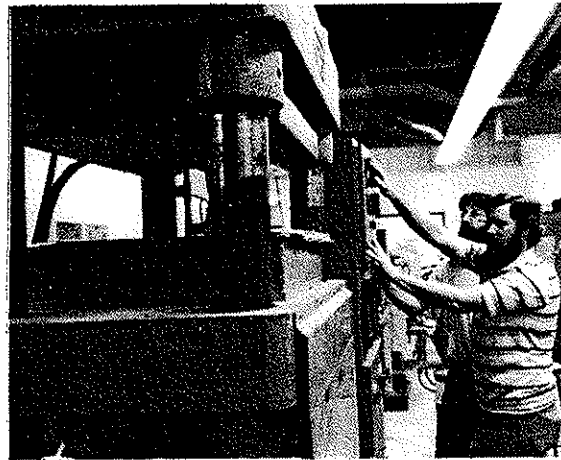
Students are advised to select either in addition to common core subjects. Course deviations and substitutions, including cooperative work experience, can be arranged through a student's advisor.

An associate in science degree is awarded when students complete the required 103 units.

Term 1

Course

No.	Course Title	Credit Hour
Core Subjects		
6.285	Plywood Composite and Laminated Wood Products	4
1.101	Communication Skills	3
6.192	Introduction to Engineering Calculators	1
4.202	Mathematics	
or		
6.261	Technical Mathematics	3-4
Option A		
3.600	General Forestry	3
3.603	Equipment, Machines and Instruments	2
Option B		
6.320	Chemistry for Technicians	6



Term 2

Core Subjects

6.282	Wood Preservation and Drying	4
4.204	Mathematics	
or		
6.262	Technical Math	3-4
6.370	Applied Physics I	
or		
4.300	Practical Physics I	4
Option A		
4.280	Forest Products	4
4.101	Drafting	2
Option B		
6.321	Chemistry for Technicians	6

Term 3

Core Subjects

6.281	Building Materials	4
6.261	or Technical Mathematics	
6.266	Technical Mathematics	4
6.371	or Applied Physics II	
4.302	Practical Physics II	4
Option A		
6.275	Introductory Chemistry	4
3.612	Commercial Trees	2
Option B		
6.322	Chemistry for Technicians	6

Term 4

Core Subjects

1.104	Communication Skills	3
4.281	Pulp and Paper Technology I	4
Ec100	Outline of Economics	3

Option A

6.208	Electricity	4
4.173	Hydraulic and Pneumatic Systems	3

Option B

6.323	Chemistry for Technicians	6
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Term 5

Core Subjects

4.286	Wood Industry Economics	3
6.279	Wood Adhesives and Coatings	4
1.106	Technical Report Writing	3
5.513	First Aid	1

Option A

3.617	Scaling Practices	4
6.280	Wood Structure and Identification	3

Option B

6.324	Chemistry for Technicians	6
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Term 6

Core Subjects

3.614	Wood Products Marketing	3
6.287	Industrial Quality Control	3
4.287	Methods of Supervision	3
4.283	Milling Practices	3

Option A

6.244	Electromechanical Shop Practices	2
6.243	Electromechanical Devices	2

Option B

4.284	Pulp and Paper Technology II	3
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FOREST TECHNOLOGY

The forest technician curriculum includes instruction in the basic knowledge and technical skills required for employment as a forest technician.

Job opportunities are available in the areas of log scaling, timber management, fire control, recreation, timber stand improvement and forest engineering.

Upon satisfactory completion of the required 105 term units, the student is awarded an associate in science degree.



Term 1 Course

No.	Course Title	Credit Hour
3.600	General Forestry	3
1.101	Communication Skills	3
4.101	Drafting	2
4.202	Mathematics	3
3.605	Tools and Equipment	2
3.611	Tree Identification	2
6.192	Introduction to Engineering Calculators	1

Term 2

1.104	Communication Skills	3
4.135	Project Graphics	2
3.610	Tree Identification	2
4.280	Forest Products	4
5.513	First Aid	1
Psy100	Introduction to Psychology	3

Term 3

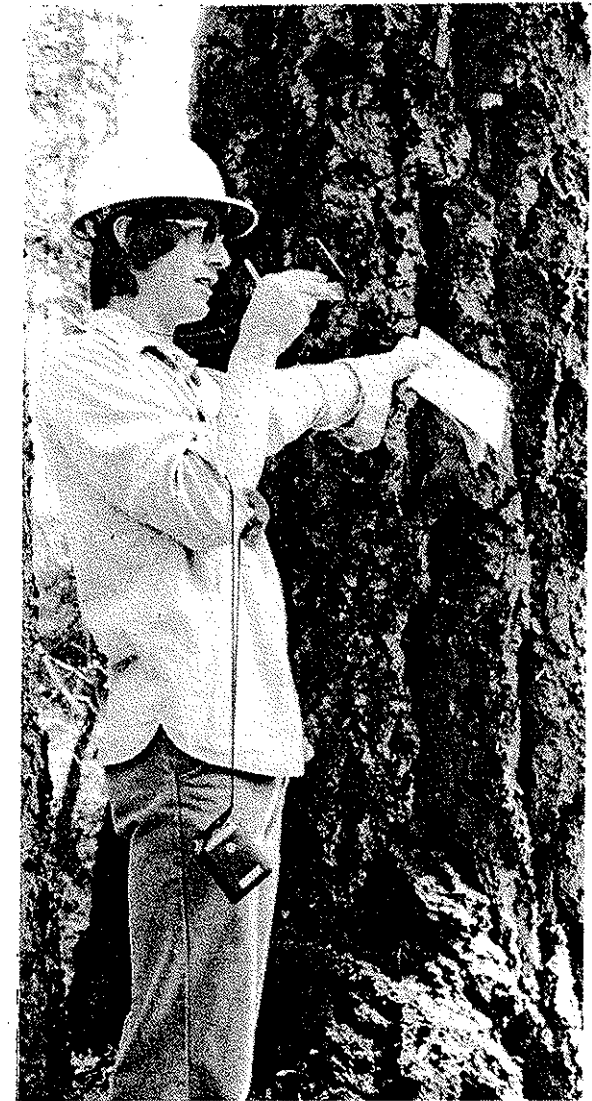
6.300	Forest Mensuration I	4
3.624	Forest Photogrammetry	3
3.626	Forest Sciences	3
6.101	Plane Surveying	4
4.302	Practical Physics	4

Term 4

5.151	Natural Cover Fire Protection	4
4.282	Logging and Milling	4
Ec100	Outline of Economics	3
6.103	Plane Surveying	4
6.301	Forest Mensuration II	4

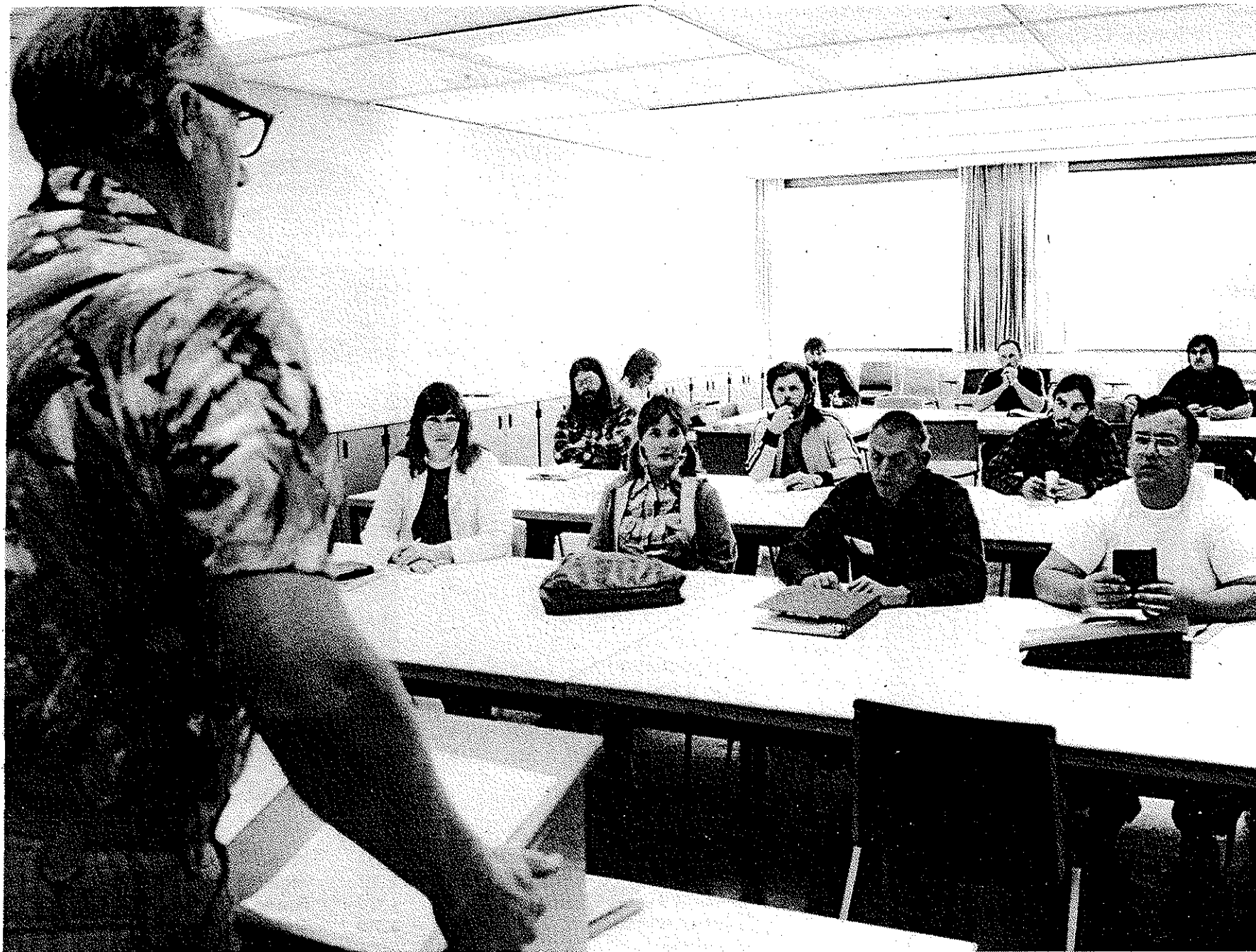
Term 5

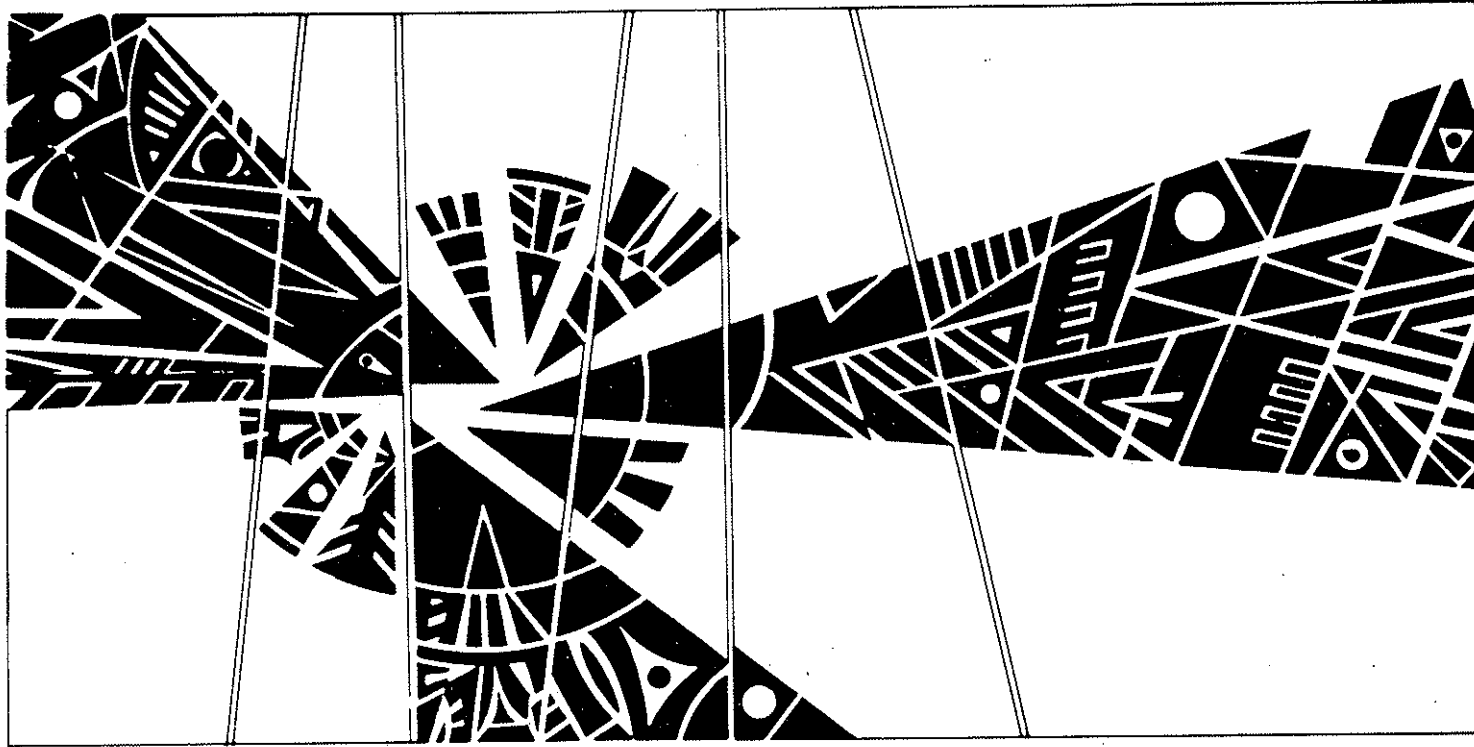
6.280	Wood Structure and Identification	3
3.617	Scaling Practices	4
4.286	Wood Industry Economics	3
1.106	Technical Report Writing	3
3.601	Forestry Seminar	1
3.630	Silviculture	3



Term 6

3.614	Wood Products Marketing	3
4.287	Methods of Supervision	3
4.172	Power Systems	4
6.510	Forest Road Survey	4
	General Education Elective	3





HEALTH OCCUPATIONS

CHEMEKETA COMMUNITY COLLEGE

DENTAL ASSISTING

This one-year program provides the technical preparation necessary to qualify for employment in dental offices, laboratories and clinics. It also provides an opportunity for those already working in the field to further develop knowledge and skills. The program is accredited by the American Dental Association, Council on Dental Education.

The student receives instruction in assisting the dentist in a variety of capacities in the private office or in a dental health clinic. Selected activities include clinical and field trip experiences.



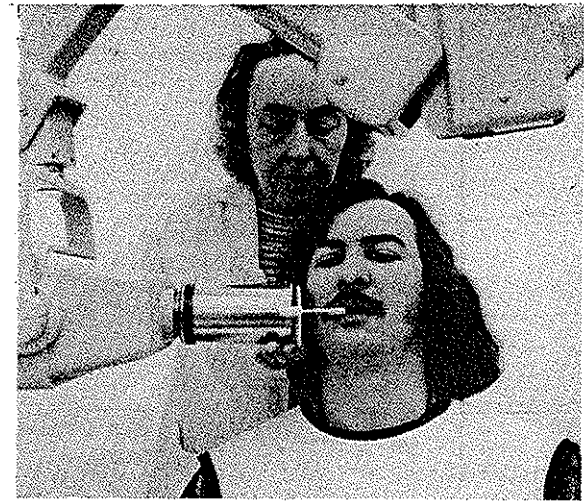
Typical duties include preparation of patients for treatment, mixing restoration materials and dental cement, checking and sterilizing equipment, taking inventory and ordering supplies. Laboratory duties include pouring study models of teeth, casting inlays and exposing and developing x-ray films. As office manager, the dental assistant acts as receptionist, schedules appointments, keeps accounts and records, sends out statements and is responsible for the general appearance of the office.

Prior to graduation, students are required to take an examination for state certification in dental x-ray. Upon satisfactory completion of the requirements in the dental assisting program the student is awarded a certificate of completion. Graduates are eligible to take the national certification examination of the American Association of Dental Assistants.

The courses listed term 1 of the program should be completed prior to beginning term 2 of the program. Term 2 is fall term, term 3 is winter term and term 4 is spring term. This may require some students to go to school full time in the summer to finish the term 1 courses, and the student should plan ahead accordingly.

Term 1 Course

No.	Course Title	Credit Hour
4.200	Business Mathematics	3
1.104	Communication Skills	
or		
Sp111, 112 or 113	Speech	
or		
Psy101	Psychology of Human Relations	
or		
Psy100	Introduction to Psychology	
or		
Psy201	General Psychology	
or		
Psy202	General Psychology	3



5.601	Basic Sciences for Health Occupations	4
2.606	*Typing	3
Term 2		
5.700	Health Occupations Overview	1
5.405	Dental Anatomy and Physiology	4
5.411	Introductory Concepts in Dental Assisting	6
5.415	Dental Sciences I	3
5.400	Principles of Dental Radiography	2
Term 3		
5.403	Chairside and Basic Lab Procedures	6
5.416	Dental Sciences II	4
5.401	Expanded Duties I	1
5.410	Dental Office Management	3
5.408	Applied Radiography I	1
Term 4		
5.407	Advanced Lab Procedures	4
5.402	Expanded Duties II	1
5.409	Dental Office Practicum	6
5.413	Applied Radiography II	1

*Competency 35 wpm required

HUMAN RESOURCE TECHNOLOGY (Mental Health Technology)

The two-year human resource technology program combines academic course work with field placement experiences in each quarter. A significant number of courses within the program are transferable to Oregon's four-year colleges.

Upon successful completion of this curriculum, the student has developed basic skills of observation, interviewing and counseling (individual and group) and gained a working knowledge of the health and welfare services offered by the community.

This program prepares the student to accept paraprofessional level positions with many human service agencies throughout Oregon.

Applicants must meet the admission criteria for both the college and the human resource technology program.

Associate in science degree requires 95 term units.

Term 1 Course

No.	Course Title	Credit Hours
Psy201	General Psychology	3
Soc204	Introduction to General Sociology	3
Sp111	Fundamentals of Speech	3
5.700	Health Occupations Overview... 1	
Psy299	Growth and Development	3
5.436	Human Resource Technology I (Survival in the Bureaucracy) ..	3
5.442	Community Resources	3

Term 2

Psy202	General Psychology	3
Soc205	General Sociology—Institutions.3	
Wr121	English Composition	3

5.437	Human Resource Technology II (Interviewing Skills)	3
5.445	Practicum Experience	5

Term 3

Psy203	General Psychology	3
Soc206	General Sociology— Social Problems	3
Wr122	English Composition	3
5.438	Human Resource Technology III (Group Dynamics)	3
5.445	Practicum Experience	5

Term 4

	*Contemporary Issues Elective ..	3
He250	Personal Health	3
5.439	Human Resource Technology IV (Therapeutic Modalities)	3
5.445	Practicum Experience	5

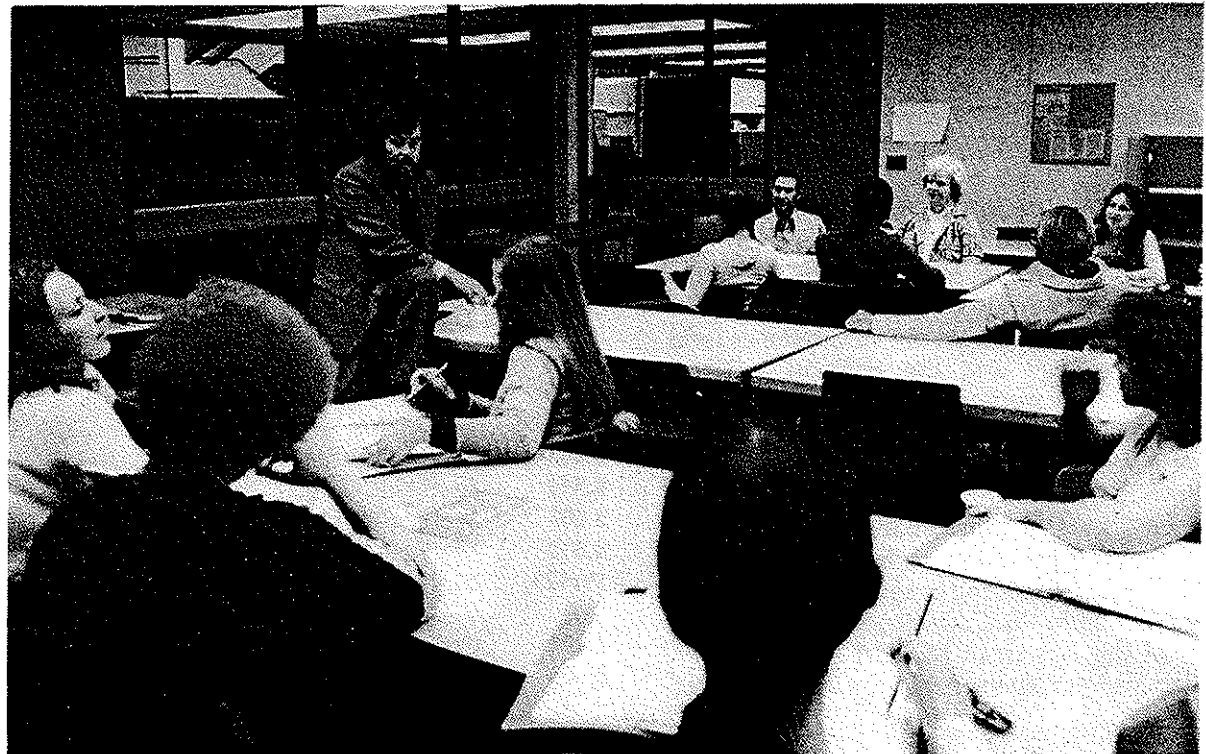
Term 5

	General Education Elective (unspecified)	3
	Math or Science Elective	3
5.440	Human Resource Technology V (Communications)	3
5.445	Practicum Experience	5

Term 6

	General Education Elective (unspecified)	3
5.525	Gerontology	3
5.441	Human Resource Technology VI (Futures)	3
5.445	Practicum Experience	5

*Hst257, 258, 259; WS101, 102, 103; Psy206; Anth207, 208, 209; Psy199; Soc222.



MEDICAL ASSISTANT

Medical assistants assist qualified physicians in their offices or other medical settings, performing delegated administrative and/or clinical duties.

Medical assistants have a wide range of duties in many aspects of the physician's practice. Their business/administrative duties include scheduling and receiving patients, obtaining patients' data, maintaining medical records, handling telephone calls, correspondence, purchasing and maintaining supplies and equipment and assuming responsibility of office care, insurance matters, office accounts, fees and collections.

Their medical duties include assisting with examinations and treatments, taking medical histories, performing certain diagnostic tests, carrying out those laboratory procedures that can be done in a physician's office and sterilizing instruments and equipment.

The medical assistant program develops understanding for the professional nature of the physician's practice and a respect for human dignity and rights of those who seek his service. It develops the skills needed to function safely and effectively as a health team member.

The one-year curriculum includes field trip experiences and the concluding term of the program includes an externship phase in approved clinical settings.

Applicants must meet the admission criteria for the college and the medical assistant program. The student is required to earn a minimum grade of 'C' in all medical assisting courses each quarter in order to enroll in the following quarter.

A certificate of completion is awarded upon satisfactory completion of the program.

The medical assisting program at Chemeketa is accredited by the Council on Medical Education of the American Medical Association in collaboration with the American Association of

Medical Assistants, which certifies graduates by examination.

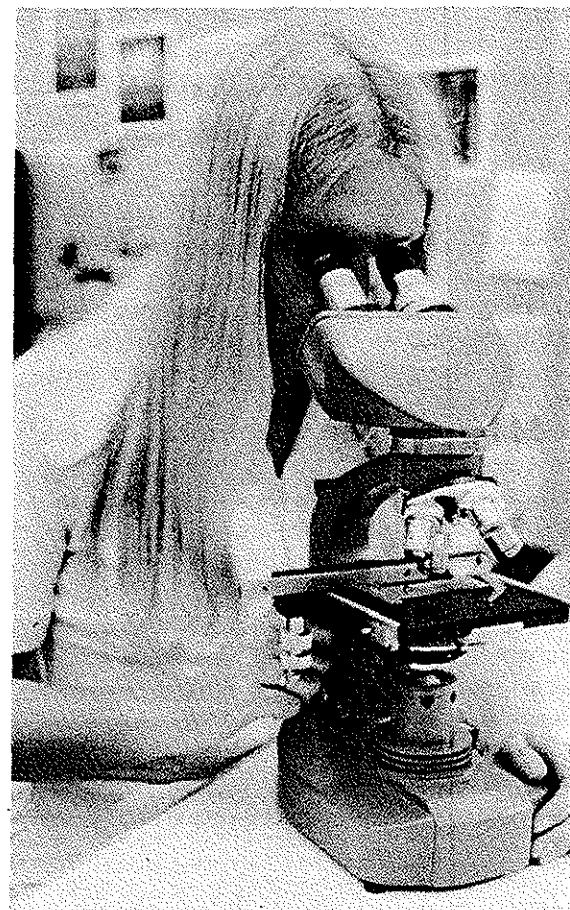
Students enrolled in the medical assisting program may opt to modify programs to complete the health records requirements for certificates as health records clerk (terms 1 and 2), and as medical transcriptionist (terms 1, 2 and 3). Successful completion of the health records option at Chemeketa will be accepted at Portland Community College for the first year in medical record technology. Portland and Central Oregon Community Colleges offer two-year associate degree programs for medical records technicians. Students must maintain a 'C' in all major courses. They also must provide transportation to clinical facilities within the college district.

Term 1 Course

No.	Course Title	Credit Hours
5.602	Medical Assisting Basic Procedures	3
5.700	Health Occupations Overview...	1
5.611	Medical Law & Ethics	3
4.200	Mathematics	3
5.615	Body Structure and Function I...	3
5.600	Medical Terminology I	3
2.607	*Typing	3

Term 2

5.616	Body Structure and Function II	3
5.604	Medical Office Procedures	3
5.513	First Aid	1
5.607	Medical Office Management	3
5.610	Medical Terminology II	3
Wr121	English Composition or	
1.101	Communication Skills	3
5.603	Medical Transcription	2



Term 3

5.605	Medical Science	3
5.606	Medical Assisting Advanced Procedures	3
5.609	Medical Office Practice	6
Psy100	General Psychology	
Psy100	Introduction to Psychology	
	or	
Psy201	Introduction to Psychology	3

*Typing at 35 wpm is a prerequisite for 2.607. Students not meeting this requirement will need to first enroll in 2.606.

Health Records Option

*Term 1 Course

No.	Course Title	Credit Hour
5.700	Health Occupations Overview...	1
5.615	Body Structure and Function I...	3
5.600	Medical Terminology I	3
5.620	Health Information Systems Procedures I	4
5.611	Medical Law and Ethics	3
5.513	First Aid	1

Term 2

5.616	Body Structure and Function II ..	3
5.610	Medical Terminology I	3
5.621	Health Information Systems Procedures II	5
5.609	Medical Office Practice	6

Term 3

5.603	Medical Transcription	2
5.622	Health Records Processing	5
5.605	Introduction to Medical Science ..	3
5.604	Medical Office Procedures	3
4.200	Mathematics or	
1.101	Communication Skills or	
Wr121	English Composition or	
Psy201	General Psychology	3

*Typing with a proficiency of 35 wpm is a prerequisite to the program.

NURSING EDUCATION

Chemeketa offers a career ladder program in nursing education for those students who want to become licensed practical nurses or registered nurses.

The nursing curriculum is designed to prepare men and women for positions as licensed personnel at the following levels:

First Level

The licensed practical nurse functions as a member of a nursing or health team and gives nursing care to patients of all ages in simple nursing situations. The licensed practical nurse assists the RN in complex nursing situations.

Successful completion of the first year nursing curriculum is based on completion of the criteria given in a handbook for student nurses. Completion entitles the student to take the



Oregon licensure examination to become a licensed practical nurse and to make application for the second year of the Chemeketa program.

The student who successfully completes the first term work and exits from the educational program is eligible to receive a certificate as a nursing assistant.

The nursing assistant functions under the direction and supervision of a registered nurse or licensed practical nurse. He or she assists licensed nursing personnel with meeting normal patient needs for safety, comfort, hygiene activity, rest, sleep, nutrition, elimination and fluid balances, oxygen and emotional support.

Term 1

Course

No.	Course Title	Credit Hour
Nur101	Nursing	8
Bi110	Life Science Principles	4
Wr121	English Composition	3
5.700	Health Occupations Overview...	1

Term 2

Nur102	Nursing	8
Wr122	English Composition or	
Sp111	Fundamentals of Speech	3
Bi121	Human Anatomy and Physiology	4
Psy299	Growth and Development	3

Term 3

Nur103	Nursing	10
Bi122	Human Anatomy and Physiology	4
	*General Education Elective	3

*Select from Wr122; Eng253, 254, 255; Soc204, 205, 206; Anth207, 208, 209; Hst257, 258, 259; PS201, 202, 203; WS101, 102, 103; Psy201, 202, 203; Hst107, 108, 109.

Second Level Nursing

The associate degree nurse, or RN, applies knowledge drawn from broad, in-depth education in the social and physical sciences in assessing planning, ordering, giving, delegating, teaching and supervising care which promotes the patient's optimum health and independence.

The associate degree nurse also guides other team members with less education and/or experience, evaluates the need for patient instruction, plans and participates in health teaching and applies mental health principles to nursing care and function.

The registered nurse assumes responsibility for his/her professional development.

Chemeketa advises and helps students plan their program of pre-nursing for transfer to a school of nursing which grants the baccalaureate degree and offers general education courses applicable to the B.S. program. The college also offers specialized and re-entry courses to help registered nurses, licensed practical nurses and other health care personnel keep abreast of current knowledge and new developments in their field. General education courses are available for licensed nursing personnel who want to continue their education for transfer into a senior college.

**Term 4
Course**

No.	Course Title	Credit Hour
Nur201	Nursing	8
Bi123	Microbiology	4
Sp113	Fundamentals of Speech	3
	*Elective.....	3

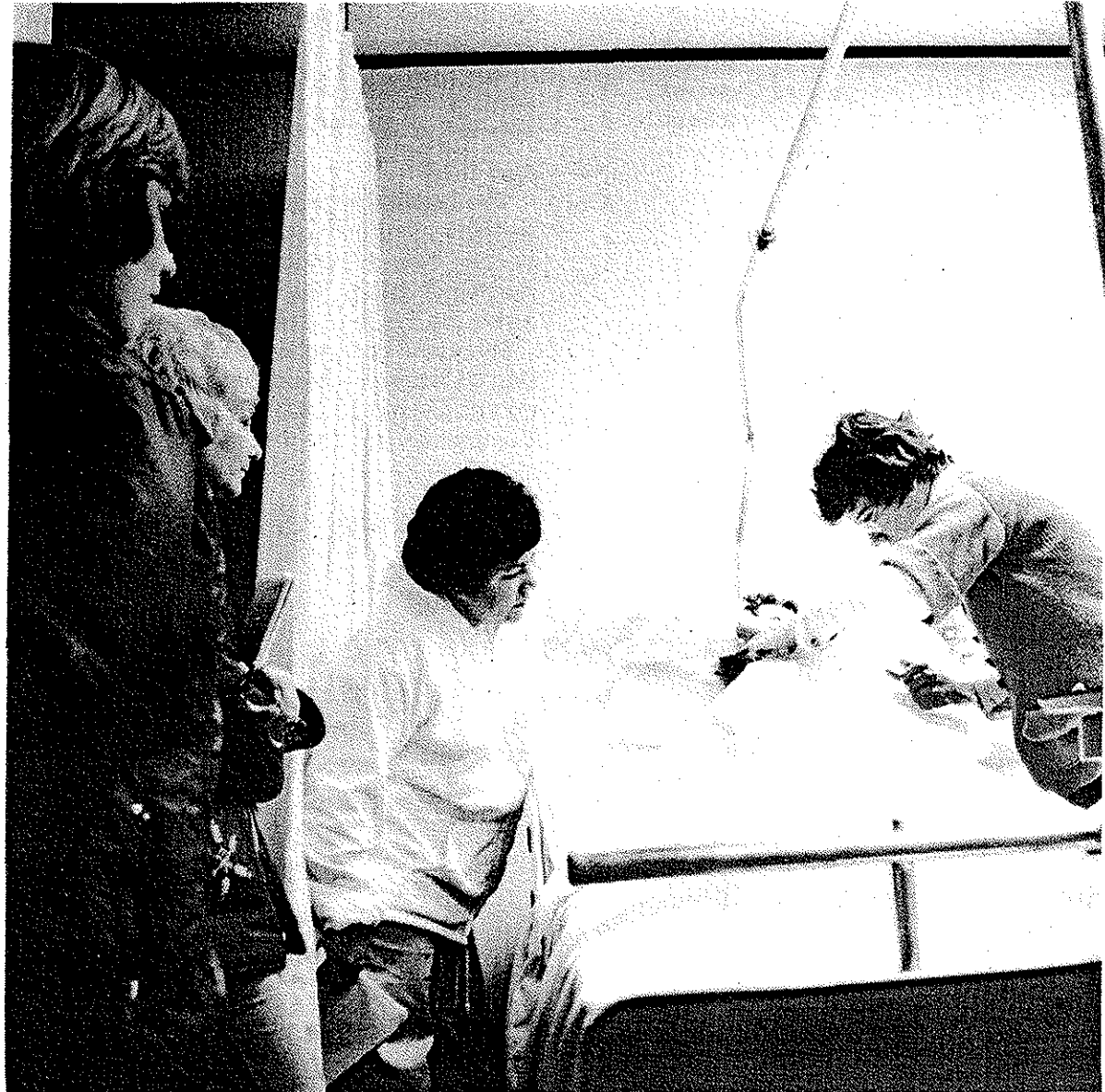
Term 5

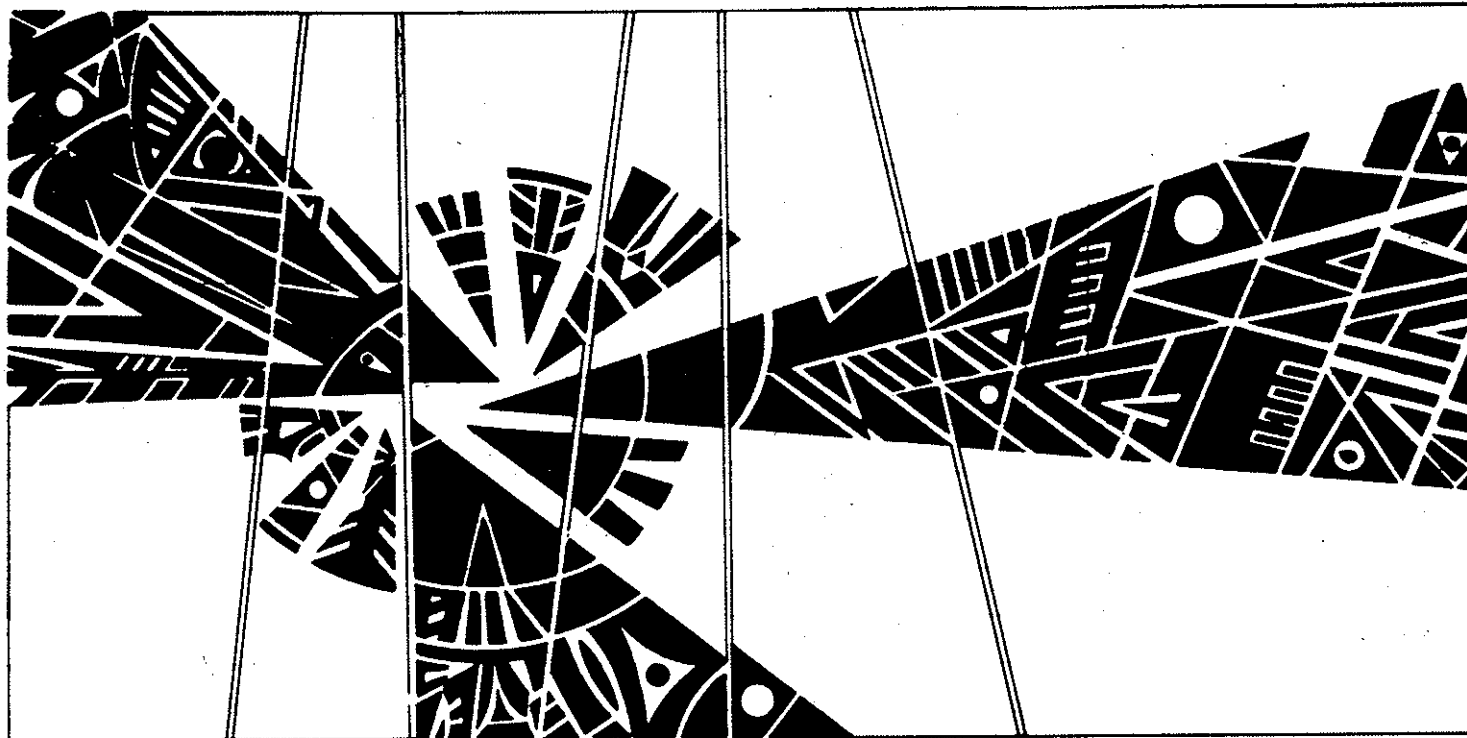
Nur202	Nursing	10
	Sociology Elective	3
	*Elective.....	3

Term 6

Nur203	Nursing	10
Nur207	The Nurse at Work	3
	*Elective.....	3

*Approved electives are listed following Level I. Students are strongly urged to choose a variety of electives.





LOWER DIVISION TRANSFER

CHEMEKETA COMMUNITY COLLEGE

LOWER DIVISION TRANSFER

LOWER DIVISION TRANSFER

Chemeketa offers a comprehensive slate of lower division transfer courses which serve two basic purposes.

First, they are incorporated into many of the vocational-technical curricula. In addition to providing knowledge necessary to the occupation for which the student is preparing, they increase the flexibility of this preparation by building a repertoire of credits which will transfer to a four-year school should the student's career plans turn this direction.

Second, the lower division courses are offered to students who are not interested in majoring in a technical field but who are interested in building a broad base of knowledge by completing as many lower division requirements as possible—which, if desired, may be transferred to a university or liberal arts college.

Students wishing to transfer to a four-year school may accumulate up to 108 transferable credits at Chemeketa. Any credits beyond this total must be earned at a four-year institution. Transferable credits obtained at a college other than Chemeketa must be included in this total.

In many fields, Chemeketa Community College offers all or most of the lower division courses required by baccalaureate level college and universities. Every attempt is made to keep offerings current with those of Oregon's four-year institution.



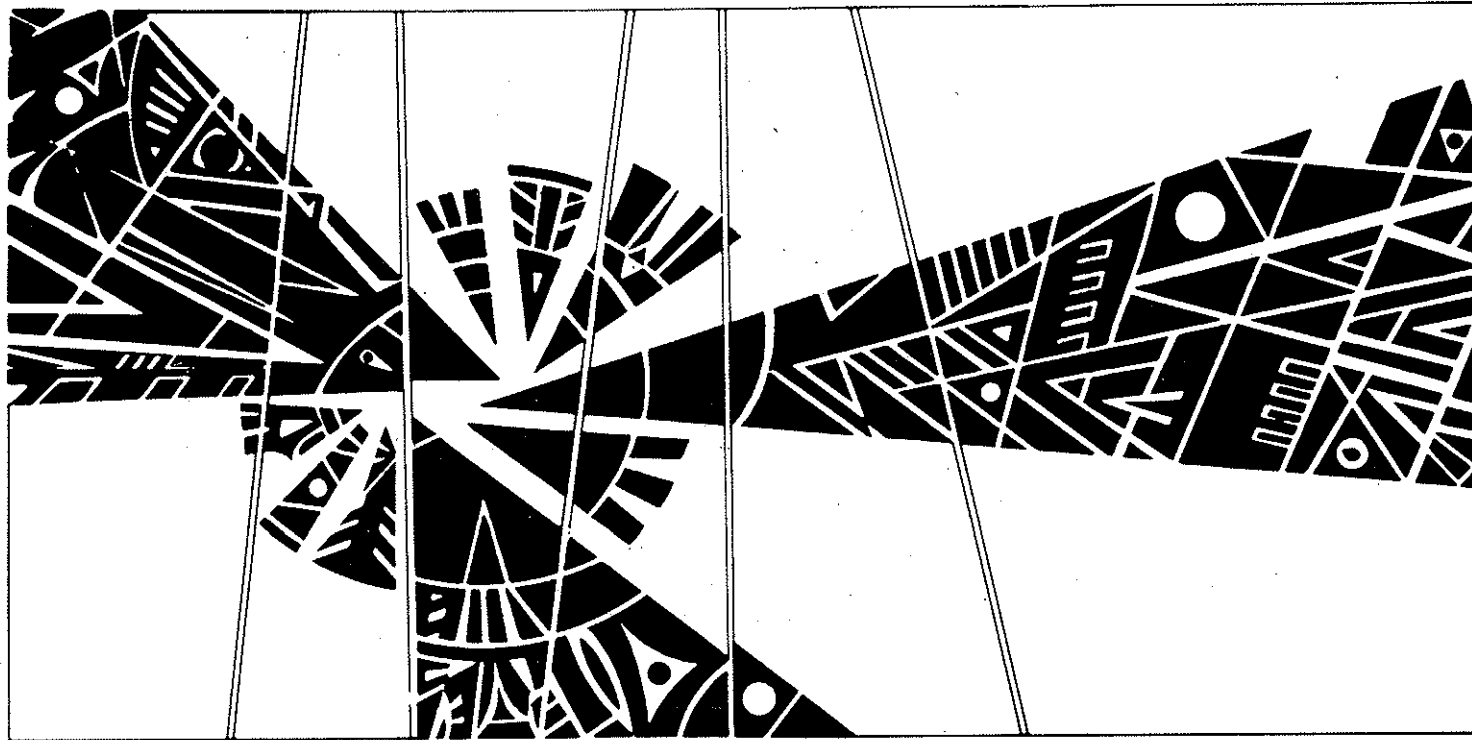
However, the college is not required to offer every course listed. Some courses will be offered only if adequate staff and facilities are available or on an alternate year basis due to student interest.

Students taking 93 hours of lower division courses may qualify for the associate in arts degree. Up to 12 vocational hours may be applied toward the degree, but students should be aware that vocational credits may not transfer to a four-year institutions.

The requirements for the AA degree are as follows: six credit hours in English composition, one term in personal health, five terms of physical education (partial or total waiver is available under certain circumstances), one sequence in humanities (English composition sequence does not meet this requirement), one sequence in math or science, one sequence in social science and one additional sequence in humanities, math, science or social science.

A manual titled *Transfer Curricula*, published by the Oregon State System of Higher Education, lists all transfer program requirements. The manual is available through Chemeketa counselors and advisors, in the Chemeketa library and in the office of many high school counselors.

College transfer students should contact the college or university to which application for admission will be made to discover the specific lower division requirements in a particular major field. Chemeketa counselors and advisors will assist in building the required program.



SCIENCE and ENGINEERING

CHEMEKETA COMMUNITY COLLEGE

SCIENCE AND ENGINEERING

CHEMICAL TECHNOLOGY

The chemical technician is a member of the scientific team in chemical laboratories in the chemical and allied industries, research institutions and governmental agencies.

This curriculum is designed with a basic core of essential courses and thirty units of optional science and/or technical courses. The basic core courses deal with laboratory principles and techniques in every major discipline of chemistry, plus effective courses in mathematics and communications.

The opportunity for optional courses allows the student to develop particular educational goals to meet the needs of particular types of laboratories or an expertise in a laboratory.

One year of high school algebra or its equivalent is required for admission to this curriculum. Required math sequences are Technical Mathematics 6.261, 6.262, 6.266 or Math 95, 101 and one of the following: Mth102, 103, or 106. Students qualifying for a math higher than Mth95 are encouraged to complete three terms of math at the appropriate level.

Upon satisfactory completion of the curriculum, which requires a minimum of 109 approved term units, the student is awarded the Associate in Science Degree.

Term 1 Course

No.	Course Title	Credit Hour
6.320	Chemistry for Technicians	6
1.101	Communication Skills	
	or	
Wr121	English Composition.....	3
	Math variable.....	3/4
5.450	First Aid	2
	Electives in area of concentration (see below) ..	3/4

Term 2

6.321	Chemistry for Technicians	6
1.104	Communication Skills	
	or	
Sp111	Fundamentals of Speech	3
	Math variable	3/4
6.151	Chemical Problems	1
	Elective (see below)	3/4

Term 3

6.322	Chemistry for Technicians	6
1.106	Technical Report Writing	
	or	
Wr122	English Composition.....	3
	Math variable	3/4
6.150	Observing Chemical Operations.1	
	Electives (see below)	3/4

Term 4

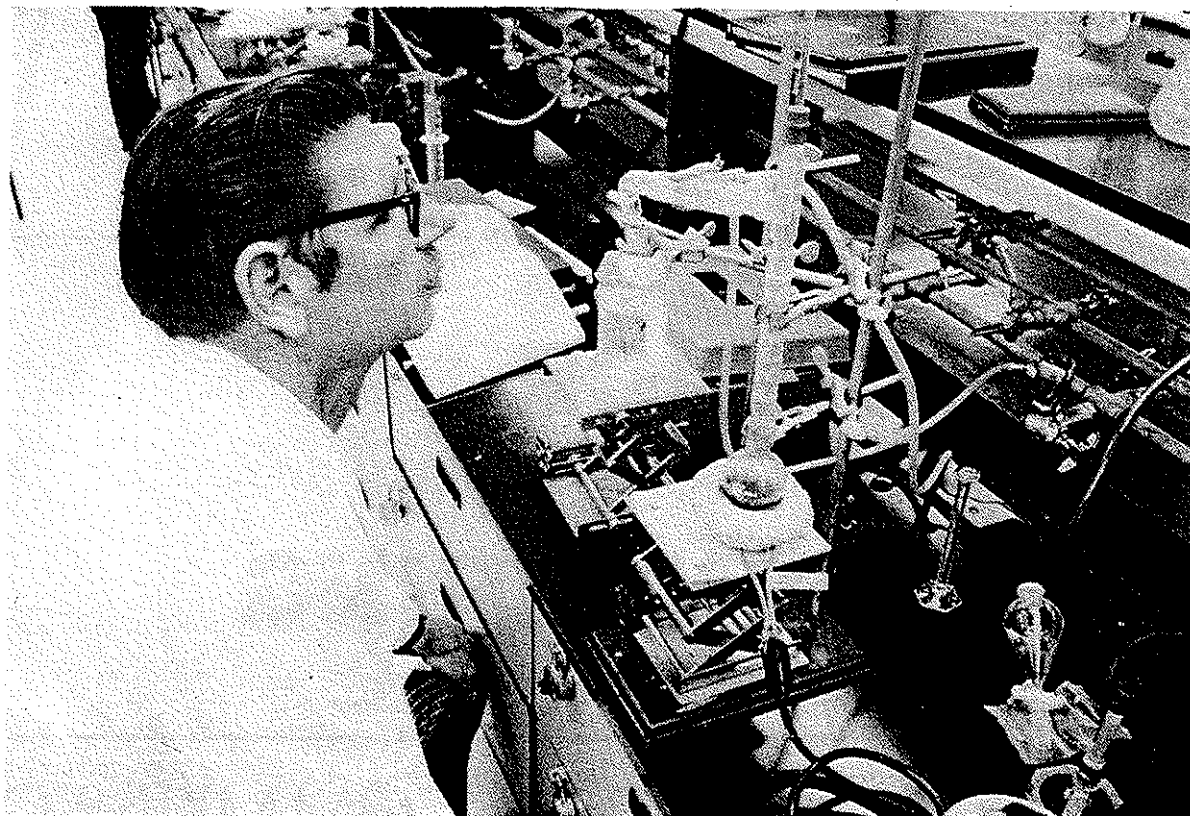
6.323	Chemistry for Technicians	6
6.339	Glass Blowing.....	1
BA131	Introduction to Data Processing	3
	Electives (see below)	9/10

Term 5

6.324	Chemistry for Technicians	6
6.326	Quantitative Analysis for Technicians	1
	Electives (see below)	9/10

Term 6

6.325	Chemistry for Technicians	6
6.345	Radiation Measurements.....	3
	Electives (see below)	9/10



Electives consist of nine (9) units of general education courses and thirty (30) units of science or technical courses. As a part of the thirty units either Applied Physics, 6.370 (4 units) or the Physics 201, 202, 203 (4 units) sequence is required.

The other electives provide a unified area of educational background and are subject to class scheduling and approval by the advisor. Approved science or technical courses providing direction toward a specific chemical laboratory type or position are:

Environmental Laboratory

Bi101	Biology	4
Bi102	Biology	4
Bi103	Biology	4
Bi123	Microbiology	4
6.130	Environmental Quality Control ..	3

Industrial Materials & Control Lab

6.371	Applied Physics	4
6.109	Applied Mechanics	3
6.105	Strength of Materials	3
6.128	Strength of Materials	3
6.117	Applied Fluid Power	3
4.170	Industrial Materials of Processes	3

Forest Products Laboratory

4.281	Pulp and Paper Technology	4
6.285	Plywood, Composite and Laminated Wood Products	3
6.279	Wood Adhesives and Coatings ..	4
4.280	Forest Products	4

Metals Refining Laboratory

6.602	Metallurgy	3
G201, 204	Geology	4
G202, 205	Geology	4
G203, 206	Geology	4



Instrumental Laboratory

6.200	Electrical Theory DC	4
6.202	Electrical Theory AC	4
6.210	Transistor Fundamentals	4
6.211	Transistor Circuits	5
6.237	Semiconductors	3

Chemical Data Analysis Processing

Mth103	Probability and statistics	4
6.941	Data Processing Math	3
6.956	Systems 370 Concepts and Facilities	3

Other pertinent technical courses can also be selected with approval of the student's advisor to build a proficient background.

Another important part of the program is cooperative work experience. Up to 12 credits as technical electives can be achieved by placement in a learning laboratory situation. A number of area industrial and governmental laboratories are involved in this program.

Appropriate summer employment may also be used for CWE by arrangement with the WRE office before the end of the spring term.

CIVIL-STRUCTURAL ENGINEERING

The civil-structural engineering curriculum provides practical training in the application of current theory and practices common to the field of civil engineering, preparing the student for employment and advancement in various branches of the civil and structural fields.

The program is designed to prepare competent engineering technicians for positions in civil engineering enterprise with excellent opportunities for careers in highway, bridge, dam and factory development and construction, design drafting, estimating, inspection, material analysis and photogrammetry.

Comprehensive practical training in areas of surveying, strength of materials and construction activities provides application of the theoretical and mathematical courses taken concurrently.

Preparation for advancement in and adaptation to the changing technological and social world are included, enabling the student to use the program as a base in general civil engineering and related work. Together with further study and sufficient experience, the graduate would have opportunity to advance to a civil engineering rating while employed by certain federal, state or city organizations.

On construction plans, civil structural technicians may help in estimating costs or preparing specifications for materials or participate in surveying, drafting or design work. Once the actual construction work has begun, they may assist the contractors or engineers in scheduling construction activities and inspecting the work for conformance with blueprints and specifications.

Examples of areas of job opportunities are construction foreman, survey instrument inspector, assistant engineer, surveyor, construc-

tion estimator, cost estimator, civil engineering technician, contractor's assistant, structural designer, technical writer, superintendent of construction and engineering aide.

Upon satisfactory completion of the required 106 units, the student is awarded an associate in science degree.



Term 1 Course

No.	Course Title	Credit Hour
6.101	Plane Surveying	4
4.101	Drafting	2
6.261	Technical Mathematics	4
6.192	Introduction to Engineering Calculators	1
1.101	Communication Skills	3
	General Education Elective	3

Term 2

6.138	Engineering Problems	1
6.374	Applied Physics	4
1.104	Communication Skills	3
4.135	Project Graphics	2
6.103	Plane Surveying	4
6.262	Technical Mathematics	4

Term 3

6.109	Applied Mechanics	3
6.500	Surveying Computations	3
6.105	Strength of Materials	3
6.266	Technical Mathematics	4
1.106	Report Writing	3

or

Select One:

6.370	Applied Physics	4
	or	
6.929	Computer Problems for Engineering Technicians	3

Term 4

6.335	Land Division and Mapping	3
6.128	Strength of Materials	3
6.118	Contracts and Specifications	3
6.528	Earthwork Computation and Estimates	2
6.130	Structural Analysis and Design	2
Psy101	Introduction to Psychology	3

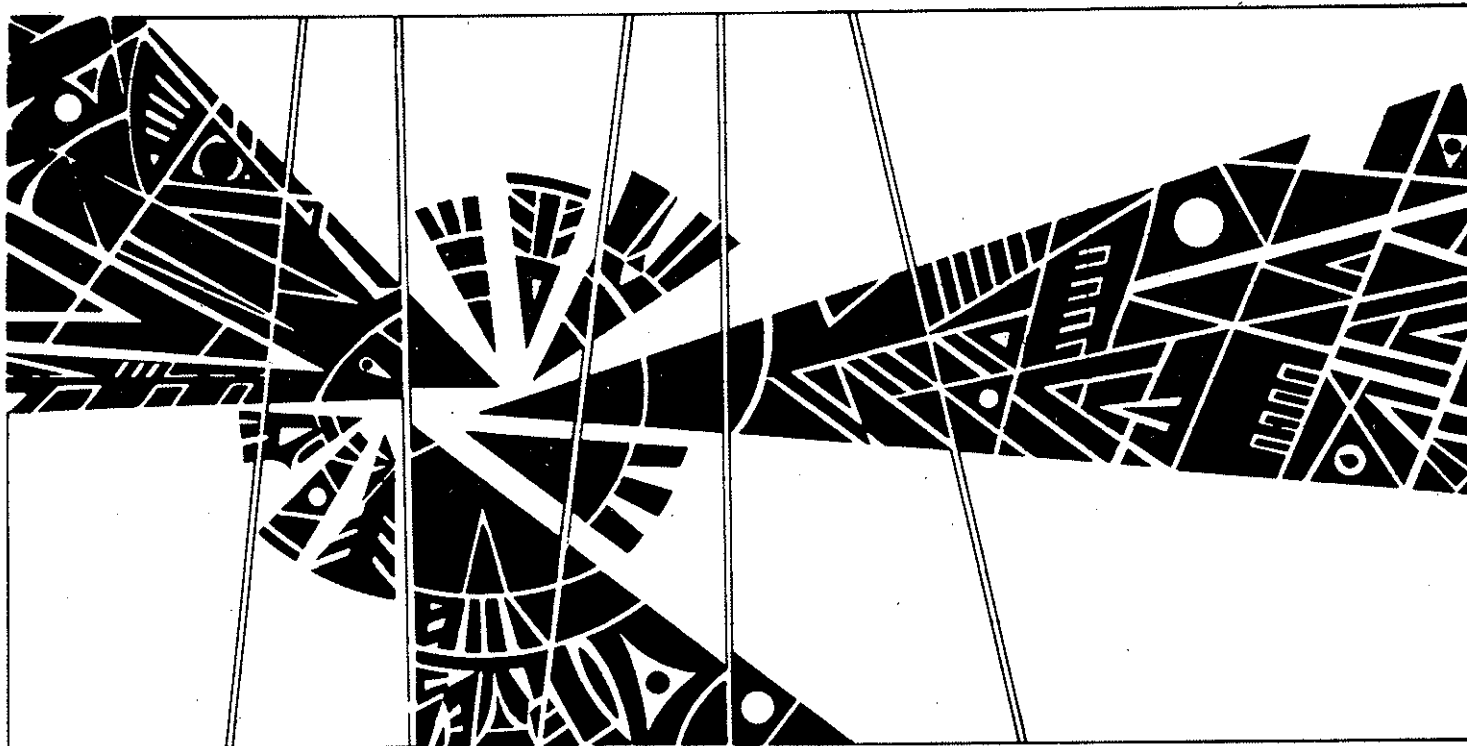
Term 5

6.112	Hydraulics	3
6.110	Construction Estimating	3
6.125	Timber and Steel Construction	4
6.139	Environmental Quality Control ..	3
6.127	Practical Descriptive Geometry ..	2
	General Education Elective	3

Term 6

6.114	Hydraulics	3
6.123	Concrete Construction and Design	3
6.140	Sanitary Engineering	3
6.124	Soil Mechanics	3
6.507	Route Survey	3
4.287	Methods of Supervision	3

Cooperative work experience in lieu of selected technical courses may be used to complete program requirements. Cooperative work experience requires departmental approval.



SECRETARIAL SCIENCE

CHEMEKETA COMMUNITY COLLEGE

SECRETARIAL SCIENCE

OFFICE OCCUPATIONS

The office occupations class is designed to meet the needs of those people who want to develop or brush up on clerical skills in order to get into office work.

The course concentrates on developing basic skills to prepare students for employment as receptionists, file clerks, stenographers, typists and related jobs.

Independent study and individualized instruction are utilized to give students a comprehensive review of typing, shorthand, machine transcription, filing, business English, records management and office machines.

Students may enroll on any Monday when vacancies are available. This is a short-term, full-day program. For additional information call the community services office or the associate director for secretarial/clerical programs.



CLERICAL TECHNOLOGY

The clerical technology curriculum has been designed to provide practical training for the person interested in working in one of several occupations, including general office clerk, receptionist, typist, stenographer, file clerk, transcribing machine operator, bookkeeper and data processing clerk.

The curriculum is recommended for those who like to work with people and who wish to prepare for work in a minimum amount of time.

An advisor will work with the student to develop a complete program to fit the student's needs for the desired occupation.

A certificate of completion is awarded with a minimum of 48 term units required.

Math requirements—Business Math 4.201 required for graduation.

Electives—Minimum of 18 required for graduation. Approved electives may be selected from all business or general education courses, or cooperative work experience, and approved by assigned advisor.

Cooperative work experience—recommended for a minimum of three term units and a maximum of nine term units toward the certificate of completion.

Term 1		
Course No.	Course Title	Credit Hour
	Math Variable (based on placement test)	3
2.703	Business PAR	3
SS121		
or		
2.606	Typing	3
SS101	Office Careers Survey	1
	Approved Electives	6
Term 2		
2.673	Business English Fundamentals	3
2.709	Typing Skill Building	3
2.658	Introduction to Calculators	2
	Social Science Elective	3
	Approved Electives	6
Term 3		
BA214		
or		
2.672	Business Communications	3
2.641	Office Procedures	3
SS122		
or		
2.607	Typing	3
	Approved Electives	6

SECRETARIAL SCIENCE

Two-year Options

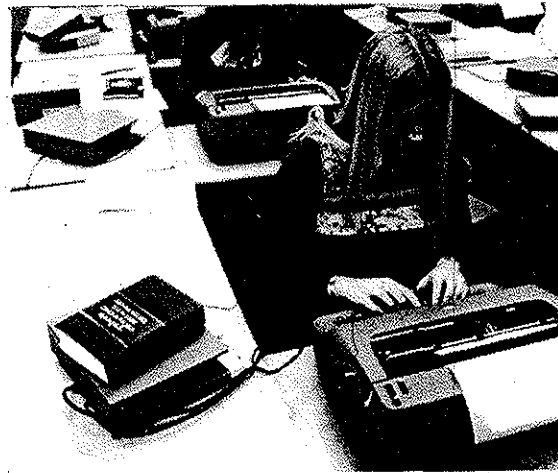
- Engineering Secretary
- Insurance Secretary
- Medical Secretary
- Professional Secretary

The two-year options in secretarial science are designed to meet the needs of persons preparing for employment in the stenographic or secretarial field.

The programs also provide opportunities for persons already engaged in business to obtain further training that will help them advance in their employment.

The selection of courses offered enables students interested in secretarial work to become highly skilled.

The responsibilities of an office worker are varied and vital to the inner workings of the company or institution for which he or she works. Jobs are interesting and challenging. The work may be highly specialized or it may be closely related to management-level personnel concerned with policy decisions.



Associate in science degree is awarded with a minimum of 99 term units required.

A three-term sequence in Gregg shorthand or briefhand is suggested. Also recommended are drafting, blueprint reading and building materials.

Cooperative work experience is recommended. Students are eligible for CWE if they have a grade point average of 2.5 or better and have completed approximately 60 term units of the program.

ENGINEERING SECRETARY OPTION

The two-year engineering secretary curriculum is designed to prepare persons for employment in an engineering-related office, whether a large consulting firm or a small firm of engineers.

Graduates would work with an engineer on an individual project, assist with the writing of contracts and specifications, make engineering calculations and give secretarial support services.

Term Course No.	Course Title	Credit Hour
1.101	Communication Skills	3
6.261	Technical Math	4
SS111		
or		
2.620	Stenography	
	or	
SS114		
or		
2.700	Briefhand	
	or	
	General Education Elective	3

SS121		
or		
2.606	Typing	3
SS101	Office Careers Survey	1
	Social Science Elective	3

Term 2

SS122		
or		
2.607	Typing	3
SS112		
or		
2.621	Stenography	
	or	
2.701	Briefhand	
	or	
	General Education Elective	3
2.661	Copying Processes	3
2.642	Records Management	3
6.192	Introduction to Engineering Calculators.....	1
6.262	Technical Math	4

Term 3

6.266	Technical Math	4
BA214		
or		
2.672	Business Communications.....	3
SS113		
or		
2.622	Stenography	
	or	
2.702	Briefhand	
	or	
	General Education Elective	3
SS123		
or		
2.608	Typing	3
2.641	Office Procedures	3

Term 4	
BA211	Financial Accounting I
or	
6.923	Accounting Procedures 4
6.101	Plane Surveying 4
Ec100	Outline of Economics 3
6.118	Contracts and Specifications 3
	General Education Elective 3
Term 5	
1.106	Technical Report Writing 3
2.663	Transcribing Machine Operation 3
6.110	Construction Estimating..... 3
6.139	Environmental Quality Control .. 3
6.103	Plane Surveying 3
Term 6	
BA226	
or	
2.320	Business Law 3
6.140	Sanitary Engineering 3
6.193	Engineering Terminology 4
1.104	Communication Skills 3
	*General Education Elective 3

*Cooperative Work Experience recommended



INSURANCE SECRETARY OPTION

The two-year insurance secretary curriculum is designed to prepare persons for employment in insurance-related offices, such as an independent agent's office, a large district insurance office or in the personnel benefits department of a corporation or institution.

The insurance secretary may perform a variety of duties including processing applications and forms, answering questions of policyholders or handling written communications of all types.

Associate in science degree is awarded with 99 minimum term units.

Math requirement—minimum achievement level in math is Applied Business Math, 6.918.

English requirement—minimum achievement level in English is Business Communications, BA214 or 2.672. An English placement test is administered by secretarial/clerical staff during registration.

Cooperative work experience—maximum of six credit hours of CWE will be accepted toward graduation requirements. Students are eligible for cooperative work experience if they have a grade point average of 2.5 or better and have completed approximately 50 term units of the program.

Term 1 Course

No.	Course Title	Credit Hour
	English Variable (based on placement test)	
or		
	General Education Elective 3	
	Math Variable (based on placement test) 3	

BA101	
or	
2.502	Business Environment 4
SS121	
or	
2.606	Typing 3
BA241	
or	
2.341	Risk and Insurance 3

Term 2

	English Variable
or	
	General Education Elective 3
	Math Variable 3
SS121	
or	
2.607	Typing 3
Ec100	Outline of Economics
or	
Ec201	Introduction to Economics 3
2.119	Insurance—Property and Casualty 3
2.344	Insurance Occupational Survey Seminar 1

Term 3

BA214	
or	
2.672	Business Communications 3
SS123	
or	
2.608	Typing 3
1.610	Public Speaking
or	
Sp111	Fundamentals of Speech 3
BA226	
or	
2.320	Business Law 3
2.658	Introduction to Calculators 2
2.343	Insurance— Life and Health 3

Term 4	
BA211	Financial Accounting or
6.923 SS114 or 2.700	Accounting Procedures I..... 4 Briefhand or
SS111 or 2.620 2.662	Stenography 3 Transcribing Machine Operation 3
2.342	IIA—Insurance 21 4 Business Elective 3
Term 5	
BA212	Financial Accounting II or
6.924 2.701 or	Accounting Procedures II 4 Briefhand or
SS112 or 2.621 2.223	Stenography 3 Rating and Underwriting— Property and Casualty 3
2.641	Office Procedures 3 *General Education Elective 3
Term 6	
2.702 or	Briefhand or
SS113 or 2.622 2.226	Stenography 3 Regulations and Law 2 *General Education Electives 6
FE201 or 2.687	Cooperative Work Experience... 3 Social Science Elective 3

*Electives must be approved by your advisor.

MEDICAL SECRETARY OPTION

The two-year medical secretary curriculum is designed to prepare persons for employment in a medical office where they would perform duties such as making appointments, managing patient and office records, meeting patients, typing correspondence, transcribing patient records, maintaining financial records or completing insurance forms.

Associate in science degree is awarded with 95 minimum term units.

Business Math, 4.201 is required for graduation.

English requirements—minimum achievement level is Business Communications, BA214 or 2.672. English placement test administered by the secretarial/clerical staff during registration.

Cooperative work experience recommended for one term. A maximum of six term units in CWE will be accepted toward graduation requirements. Students are eligible for cooperative work experience only if they have a grade point average of 2.5 or better and have completed approximately 60 term units of the program.

Term 1 Course

No.	Course Title	Credit Hour
	English Variable (based on placement test)	
	or	
	General Education Elective 3	
	Math Variable (based on placement test) 3	

SS111 or 2.620	Stenography or
SS114 or 2.700 SS121 or 2.606 BA101 or 2.502 SS101	Briefhand 3 Typing 3 Business Environment 4 Office Careers Survey 1

Term 2

	English Variable or
	General Education Elective 3
SS122 or 2.607 SS112 or 2.621	Typing 3 Stenography or
2.701 1.641 BA131 or 6.940	Briefhand 3 Office Procedures 3 Introduction to Data Processing 3

Term 3

BA214 or 2.672 SS113 or 2.622 or 2.702	Business Communications 3 Stenography or Briefhand 3
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SS123	
or	
2.608	Typing 3
2.642	Records Management 3
2.658	Introduction to Calculators 2
	Social Science Elective 3

Term 4	
5.600	Medical Terminology I 3
SS211	
or	
2.549	Applied Stenography 3
2.566	Medical Secretary Procedures ... 3
2.663	Transcribing Machine Operation 3
5.615	Body Structure and Function I 3

Term 5	
5.616	Body Structure and Function II 3
5.610	Medical Terminology II 3
2.569	Medical Machine Transcription 3
BA211	Financial Accounting or
6.923	Accounting Procedures I 4
	*General Education Elective 3

Term 6	
2.570	Medical Machine Transcription II 3
5.605	Medical Science 3
BA226	
or	
2.320	Business Law 3
Ec100	Outline of Economics or
Ec201	Introduction to Economics 3
	*General Education Elective 3

PROFESSIONAL SECRETARY OPTION

The two-year professional secretary curriculum is designed to prepare persons for employment in the secretarial field and as an essential part of a business management team. Each secretarial position varies according to the size and nature of the business or profession, the position of the supervisor, the willingness of the executive to delegate responsibility and the ability of the secretary to assume administrative duties.

Associate in science degree is available with 99 minimum term units.

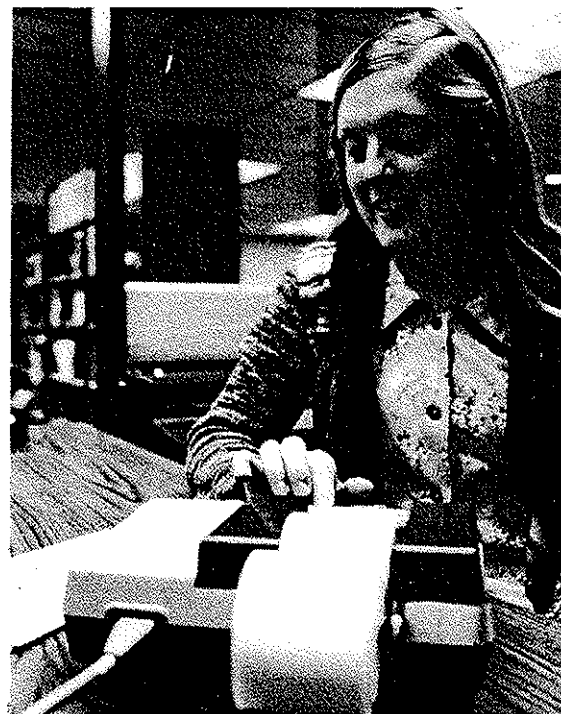
The student satisfactorily completing requirements for the professional secretary curriculum is eligible to sit for the Certified Professional Secretary examination in the spring of the second year during the final term of study.

Math requirements—Business Mathematics, 4.201, required for graduation.

English requirement—Business Communications, BA214 or 2.672. Placement in the prerequisites of this course is based on an English test administered by the secretarial/clerical staff.

Cooperative work experience—recommended for one term. A maximum of six term units in CWE will be accepted toward graduation requirements. Students are eligible for cooperative work experience only if they have a grade point average of 2.5 or better and have completed approximately 60 term units of the program.

Term 1		
Course	Course Title	Credit Hour
No.	English Variable (based on placement test)	
	or	
	General Education Elective 3	
	Math Variable (based on placement test) 3	
SS111		
or		
2.620	Stenography 3	
SS121		
or		
2.606	Typing 3	
BA101		
or		
2.502	Business Environment 4	
SS101	Office Careers Survey 1	



Term 2

English Variable
or
General Education Elective 3

SS112

or

2.621 Stenography 3

BA131

or

6.940 Introduction to
Data Processing 3

SS122

or

2.607 Typing 3

2.641 Office Procedures 3

Social Science Elective 3

Term 3

BA214

or

2.671 Business Communications 3

SS113

or

2.622 Stenography 3

SS123

or

2.608 Typing 3

2.663 Transcribing Machine Operation 3

2.661 Copying Processes 3

2.658 Introduction to Calculators 2

Option A—Second Year**Term 4**

SS211

or

2.549 Applied Stenography 3

2.710 Secretarial Practicum 3

2.642 Records Management 3

BA211 Financial Accounting I

or

6.923 Accounting Procedures 4

BA217

or

2.660 Business Machines 3

Term 5

SS212

or

2.537 Applied Stenography 3

BA251

or

2.643 Office Management 3

BA212 Financial Accounting II

or

6.924 Accounting Procedures II 4

BA226

or

2.320 Business Law 3

Business Elective 3

Term 6

SS213

or

2.538 Applied Stenography 3

Ec100 Outline of Economics

or

Ec201 Introduction to Economics 3

Social Science Elective 3

Business Electives 6

Option B—Second Year

This option allows the student to be employed at a full-time paid position while receiving 12 term units. The position is secured by the work related experience office to enable the student to integrate secretarial skills and knowledge with practical and valuable on-the-job experience with business or governmental agencies.

Associate in science degree is awarded with 108 minimum term units. Other requirements listed above.

Term 4

Cooperative Education 12

Term 5

SS211

or

2.549 Applied Stenography 3

2.642 Records Management 3

BA211 Financial Accounting

or

6.923 Accounting Procedures I 4

BA217

or

2.660 Business Machines 3

2.710 Secretarial Practicum 3

Term 6

Cooperative Education 12

Term 7

SS212

or

2.537 Applied Stenography 3

BA251

or

2.643 Office Management 3

BA212 Financial Accounting II

or

6.924 Accounting Procedures II 4

BA226

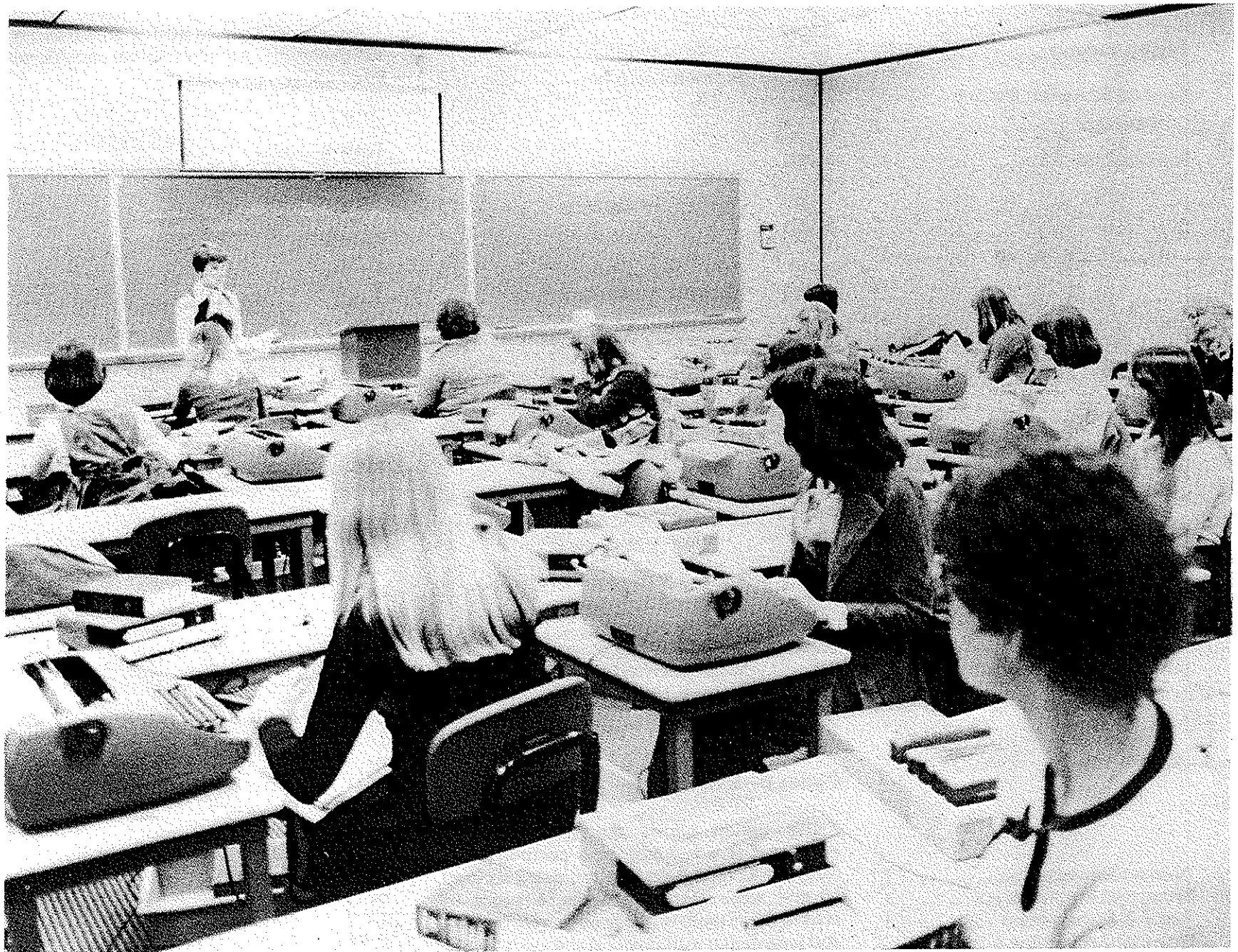
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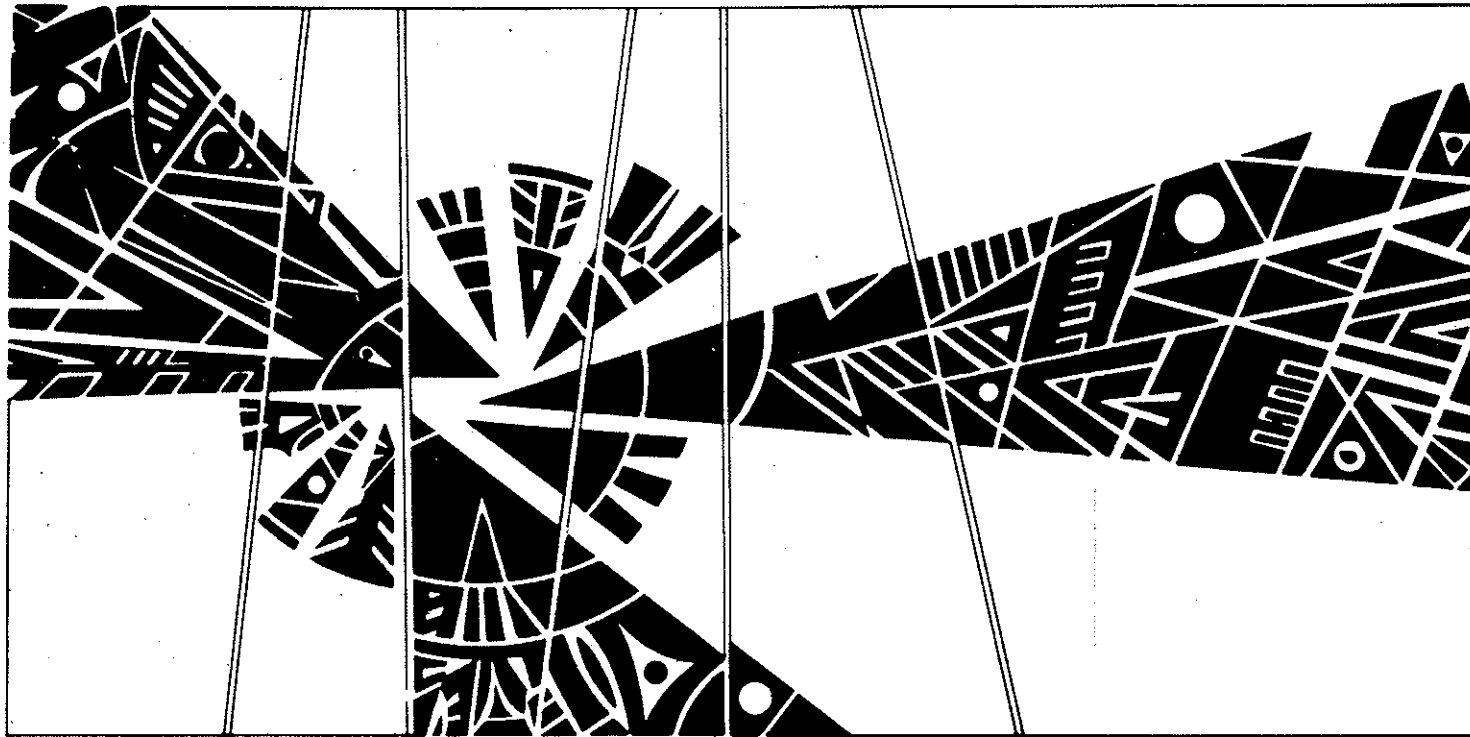
2.320 Business Law 3

Ec100 Outline of Economics

or

Ec201 Introduction to Economics 3





TRADES and INDUSTRY

CHEMEKETA COMMUNITY COLLEGE

TRADES AND INDUSTRY

AUTOMOTIVE TECHNOLOGY

This curriculum provides technical knowledge and skills for automotive maintenance and repair occupations. It includes comprehensive experience based on understanding and skills developed in study of component systems and specialties.

Written and oral communications, along with other general education courses are included to prepare for effective participation in occupational, social and public activities. Related scientific, mathematical and general mechanical principles are stressed throughout the curriculum.

Upon satisfactory completion of the required 93 units, the student is awarded an associate in science degree.

Term 1 Course

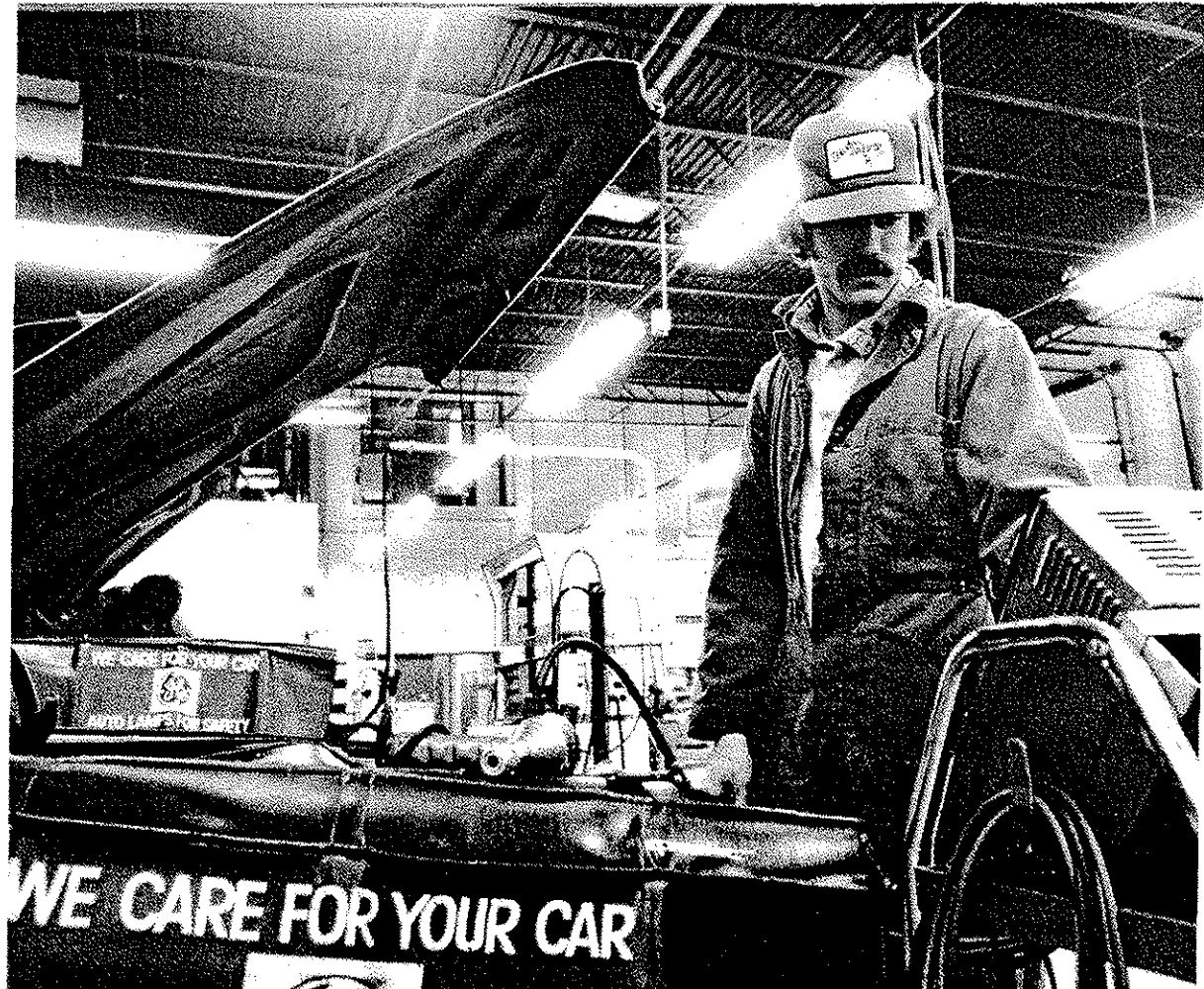
No.	Course Title	Credit Hour
3.330	Internal Combustion Engines	6
3.304	Automotive Electrical Systems I . .	4
3.303	Automotive Shop Safety	1
4.135	Welding	2
1.101	Communication Skills	3

Term 2

3.306	Applied Fluid Mechanics	3
3.305	Power Trains	5
3.309	Technical Diagram Interpretation	2
1.104	Communication Skills	3
4.200	Mathematics	3

Term 3

3.307	Automotive Chassis	3
3.301	Fuel Systems and Carburetion I	3
3.327	Automotive Repair I	4
3.308	Automotive Machine Shop	3



Term 4

3.316	Fuel Systems and Carburetion II	4
3.325	Automotive Transmission	3
3.328	Automotive Repair II	4
	General Education Elective	3

Term 5

3.329	Automotive Repair III	4
3.317	Automotive Electrical Systems II	4

3.319	Automotive Auxiliary Systems . . .	4
3.320	Automotive Service Operations	2
	General Education Elective	3

Term 6

3.330	Tune Up and Diagnosis	6
3.326	New Automotive Developments	3
Psy100	Introduction to Psychology	3
3.302	Automotive Materials	2
	General Education Elective	3

MACHINE SHOP

This curriculum provides technical knowledge and skills for machine shop and related occupations. It includes a background in manufacturing materials, processes and systems with drafting, blueprint reading and shop sketching for effective participation in the industry.

Written and oral communications, along with other general education subjects, are included to prepare for effective participation in occupational, social and public activities.

Related scientific, mathematical and general mechanical principles are stressed throughout the curriculum.

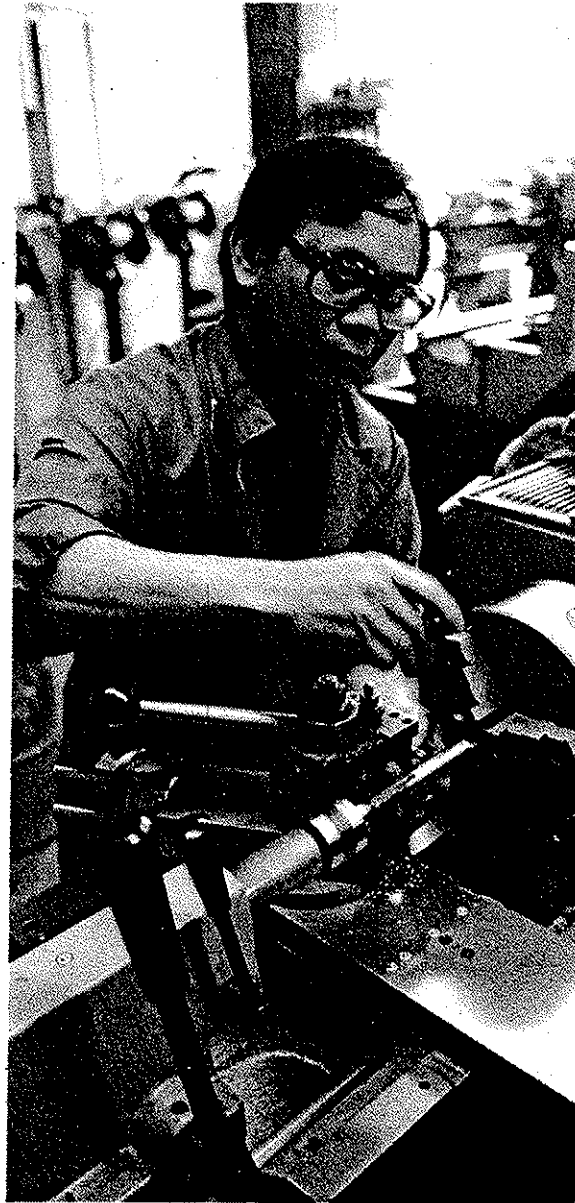
Upon satisfactory completion of the 105 required units, the student is awarded an associate in science degree.

A machine shop technician sets up and operates drill presses, engine and turret lathes and milling machines, and works from blueprints or sketches to produce specified items. This may require handling related bench and layout operations, jigs, fixtures and pattern or automated control equipment.

Positions for which graduates may qualify include: external grinder operation, gear cutting machine operation, millwright (machinist), machine tool setup, plant maintenance (machinist) and machine tool operation.

Term 1 Course

No.	Course Title	Credit Hour
4.200	Mathematics	3
1.101	Communication Skills	3
Psy100	Introduction to Psychology	3
4.101	Drafting	2



4.802	Machine Tool Processes I	4
4.253	Shop Safety	1
4.810	Shop Drawing and Layout I	3

Term 2

4.202	Mathematics	3
4.300	Practical Physics	4
4.105	Drafting	2
4.808	Machine Tool Processes II	4
4.150	Welding	2

Term 3

4.204	Mathematics	3
1.104	Communication Skills	3
4.809	Machine Tool Processes III	5
4.302	Practical Physics	4
4.170	Industrial Materials and Processes	3

Term 4

4.171	Mechanical Systems	4
4.820	Machine Shop Problems	3
4.841	Machine Shop Practices	6
4.173	Hydraulic and Pneumatic Systems	3
	General Education Elective	3

Term 5

4.176	Hydraulic and Pneumatic Systems II	3
4.174	Metal Fabrication and Finishing	4
4.833	Advanced Lathe Practices	4
4.837	Advanced Milling Machine Practices	3
	General Education Elective	3

Term 6

4.824	Machine Shop Automation	2
4.845	Job Machining Practices	8
4.847	Tool and Fixture Design and Application	4
4.500	Employer-Employee Relations ...	3

WELDING

Courses in the welding program are designed to provide the training and knowledge required in welding occupations.

Laboratory time is utilized in development and practice of welding skills.

This is a one-year program, and students finishing the 45 required units receive a certification of completion.

An opportunity is provided to take the examination for certification in arc welding given through the State Department of Commerce. An extra fee for this test is determined by the number of students involved and the type of test.

Graduates may find employment in job, specialty, production and maintenance shops, choosing from a variety of positions including oxyacetylene burner, MIG weldor, arc weldor, oxyacetylene weldor, semiautomatic welding equipment operator and TIG weldor.

Term 1 Course

No.	Course Title	Credit Hour
4.240	Basic Arc Welding	5
4.161	Basic Oxyacetylene Welding	4
4.244	Blueprint Reading and Sketching .2	
4.200	Mathematics	3
4.235	Shop Safety	1
4.242	Oxyacetylene Cutting	1

Term 2

4.241	Intermediate Arc Welding	6
4.245	Layout Practices	3
4.250	Basic MIG Welding	2
4.251	Basic TIG Welding	2
4.247	Welding Metallurgy I	2



Term 3

4.252	Advanced MIG Welding	3
4.166	Advanced Arc Welding	3
4.249	Weld Shop Problems	6
4.248	Welding Metallurgy II	2

Cooperative work experience in lieu of selected technical courses may be used to complete program requirements. Appropriate summer employment may be used for CWE by arrangement before the end of spring term. CWE requires departmental approval.

WELDING AND FABRICATION

This curriculum provides required technical knowledge and skills for welding, fabrication and related occupations. It includes a background in manufacturing materials, processes and systems with drafting, blueprint reading and shop sketching for effective participation in the industry.

Written and oral communications, along with other general education subjects are included. Related scientific, mathematical and general mechanical principles are stressed throughout the curriculum.

Upon satisfactory completion of the 115 required units, the student is awarded an associate in science degree.

A welding and fabrication technician is skilled in the use of oxyacetylene welding and cutting equipment, manual arc, tungsten inert gas and metallic inert gas processes. He or she has a good working knowledge of shop blueprints and welding symbols, jig fabrication and assembly processes.

At the end of the sixth term, welding and fabrication students have an opportunity to take the plate and/or pipe certification test administered by the State Department of Commerce. An extra fee for this test is determined by the number of students involved and the type of test.

Graduates can choose from several types of positions in business and industry in such occupational areas as: machinery fabrication, structural fabrication, welding fitting and layout, automatic and semiautomatic welding, automatic flame cutter operation, millwright welding, plant maintenance and quality control and development.

Term 1 Course

No.	Course Title	Credit Hour
4.160	Electric Arc Welding.....	4
4.244	Blueprint Reading and Sketching	2
4.802	Machine Shop I.....	3
4.200	Mathematics	3
1.101	Communication Skills	3
4.101	Drafting	2
4.235	Shop Safety	1

Term 2

4.161	Basic Oxyacetylene Welding	4
Psy100	Introduction to Psychology	3
1.104	Communication Skills	3
4.155	Fabrication Practices I	3
4.300	Practical Physics	4
4.202	Mathematics	3

Term 3

4.250	Basic MIG Welding	2
4.251	Basic TIG Welding.....	2
4.204	Mathematics	3
4.302	Practical Physics	4
4.500	Employer-Employee Relations ...	3
4.156	Fabrication Practices II.....	3
6.600	Elements of Metallurgy	3

Term 4

4.849	Heat Treatment of Steel	3
4.238	Advanced TIG Welding	2
4.162	Electric Arc Welding.....	5
4.243	Fabrication Procedures	3
4.168	Fabrication Shop Problems	3

Term 5

4.157	Fabrication Practices III	3
4.169	Fabrication Problems	3
4.252	Advanced MIG Welding	3
4.804	Machine Shop II	3
	General Education Elective	3

Term 6

4.167	Welding for Certification	4
4.158	Fabrication Practices IV	4
4.165	Production MIG Welding	3
4.254	Shop Projects	2
	General Education Elective	3



WELL DRILLING

The well drilling program at Chemeketa prepares the student for entry into the well drilling industry. Employment is available for drillers, helpers, equipment salesmen, field engineers and other related jobs.

Students learn various methods of well construction, taking and analyzing samples, choosing and setting correct screens, proper grouting methods and test pumping. Through classroom and field experience, students study geology and hydrology as these subjects pertain to ground water and are made aware of the importance of the protection of this valuable resource.

In the first year, students may take the pipe certification arc welding test administered by the State Department of Commerce.

An associate in science degree is granted upon completion of the required 100 term units.



Term 1 Course

No.	Course Title	Credit Hour
4.200	Mathematics	3
1.101	Communication Skills	3
4.810	Shop Drawing and Layout I	3
4.305	Elementary Geology	4
4.150	Welding	2
4.290	Drilling Operations I	4

Term 2

4.202	Mathematics	3
1.104	Communication Skills	3
4.802	Machine Shop I	3
4.154	Intermediate Arc Welding for Drillers	4
4.152	Oxy-Acetylene Welding	2
4.253	Shop Safety	1

Term 3

4.302	Practical Physics	4
4.170	Industrial Materials and Processes	3
4.167	Welding for Certification	4
4.292	Drilling Operations II	3
	General Education Elective	3

Term 4

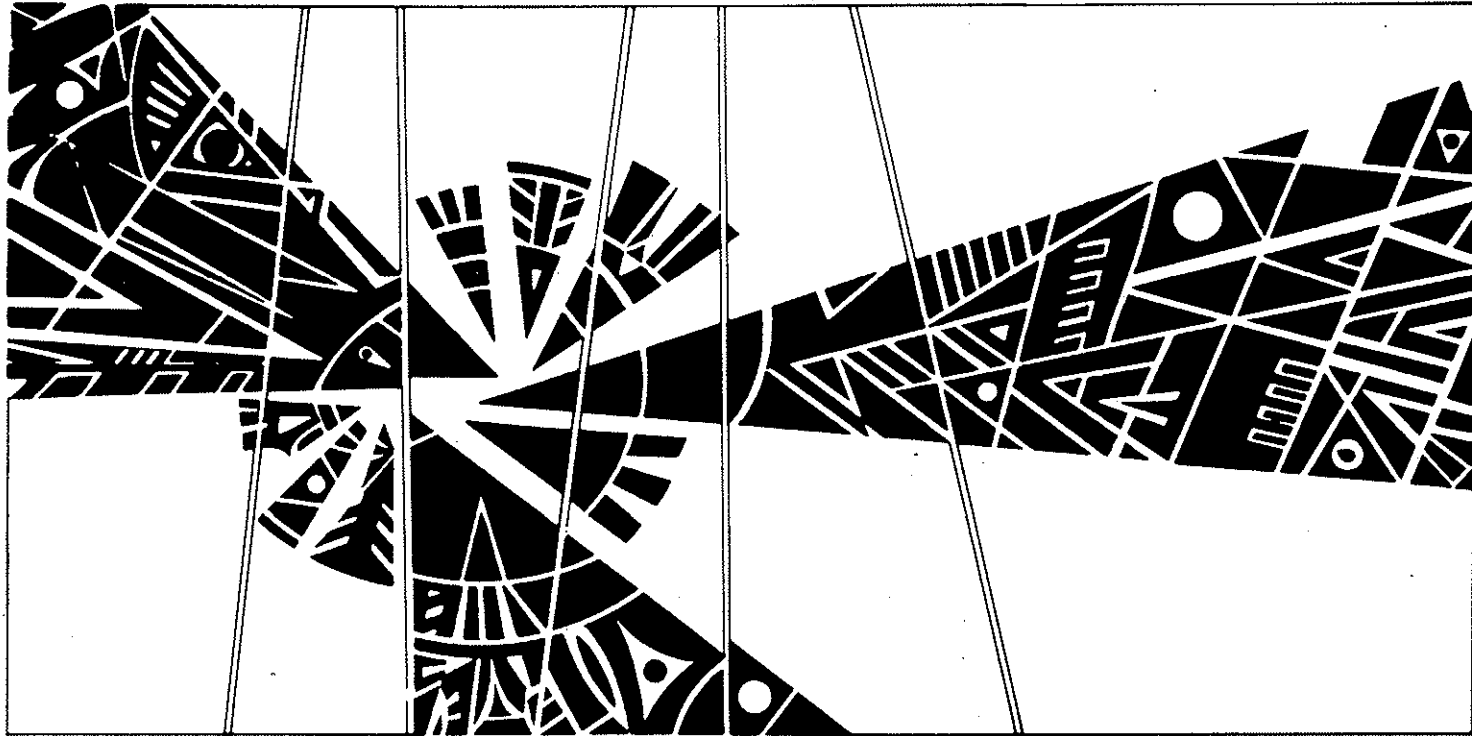
Ec100	Outline of Economics	3
4.293	State Drilling Standards and Record Keeping	3
4.172	Power Systems	4
4.295	Drilling Operations III	5

Term 5

4.171	Mechanical Systems	4
4.291	Engine Theory and Maintenance	3
4.296	Drilling Operations IV	5
	Approved Elective	3

Term 6

Psy101	Psychology of Human Relations	3
4.294	Hydrology for Drillers	4
4.297	Drilling Operations V	8



VISUAL COMMUNICATIONS

CHEMEKETA COMMUNITY COLLEGE

VISUAL COMMUNICATIONS

The visual communications technician program is intended to provide knowledge, skills and experience which will prepare students for employment in one or more fields of the visual communications industry such as press operator, process photographer and graphic designer.

Learning activities will be provided so students may learn to operate representative types of graphic equipment, including process cameras, printing presses, densitometers, enlargers and phototypesetters.

Upon satisfactory completion of the required 92 units, the student is awarded an associate in science degree.

Lower division transfer courses may be taken in lieu of general education, math and science courses to complete program requirements. Any other program deviations must be approved by the department.

Cooperative work experience in lieu of selected technical courses may be used to complete program requirements. Cooperative work experience requires departmental approval.

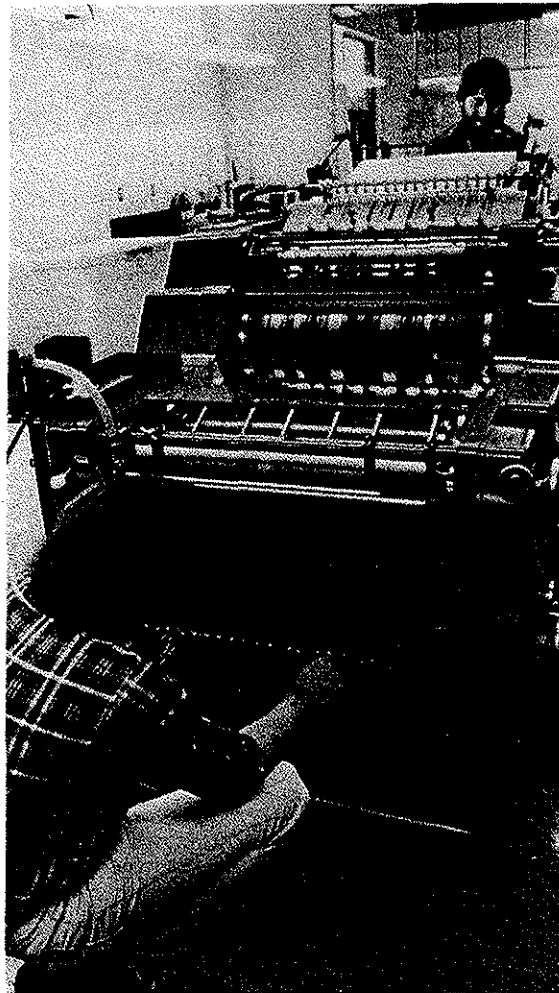
Term 1 Course

No.	Course Title	Credit Hour
6.163	Basic Technical Photography	5
4.200	Mathematics	3
1.101	Communication Skills	3
*Select one with consent of instructor:		
6.166	Graphic Design and Character Generation	5

6.168	Process Photography, Stripping and Platemaking	6
6.170	Presswork and Reproduction Systems	7

Term 2

4.202	Mathematics	3
1.104	Communication Skills	3
	Science Elective	4
Select one (see term 1): 6.166, 6.168, 6.170		



Term 3

Psy100	Introduction to Psychology	3
	Communication Elective (English, speech, etc., to be arranged with advisor or counselor)	3
Select one (see term 1): 6.166, 6.168, 6.170		

*Courses 6.166, 6.168, 6.170 will be taught concurrently each term. Students will be counseled into enrollment on an individual basis.

Term 4

6.164	Intermediate Technical Photography	6
	General Education Elective	3
**Select one with consent of instructor:		
6.167	Advanced Graphic Design	6
6.169	Image Conversion and Image Carriers for Offset Lithography	6
Special Problems in Graphic Communications: 6.172 (3 cr. hr.), 6.173 (5 cr. hr.), 6.174 (6 cr. hr.) or 6.175 (7 cr. hr.)		

Term 5

6.171	Advanced Presswork	6
	General Education Elective	4
Select one (see term 4): 6.167, 6.169, 6.172, 6.173, 6.174, 6.175		

Term 6

Special Problems in Graphic Communications: 6.172, 6.173, 6.174, 6.175		
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**Courses 6.167, 6.169, 6.171, 6.172, 6.173, 6.174 and 6.175 will be taught concurrently each term. Students will be counseled into enrollment on an individual basis.

Course Descriptions

Not all courses listed will be offered each term, or each year, and Chemeketa Community College reserves the right to cancel any course if enrollment in the course is below a minimum number. The hours indicated opposite the course name and number refer to the total number of clock hours per week (lecture plus lab) and the term units (credit hours) of the course. Courses requiring prerequisites are designated by an asterisk (*). Prerequisites for the course are included in the course description. Students should not enroll in a course for which they are not eligible under these prerequisites without consent of the instructor.

All courses designated by the symbol (f) are

ACCOUNTING

*†BA211 Financial Accounting I 4 0 4

Study of the accounting profession including recording transactions, adjustments, financial statements, worksheets, closing entries, accounting for merchandising concerns, accounting systems, specialized journals, internal control, cash and accounts receivable, notes and interest and payrolls. Intended for those students in the accounting curriculum and/or students transferring to four-year institutions.

Prerequisite: Business Math 4.201 or consent of instructor.

*†BA212 Financial Accounting II 4 0 4

Study of accounting for plant and equipment, intangible assets, accounting principles, partnerships, corporate organization and operation, corporate stock transactions, corporate retained earnings and consolidations, inventories and cost of goods sold, long term liabilities, investments and statement of changes in financial position.

Prerequisite: BA211

*†BA213 Managerial Accounting 4 0 4

Study of the role of the managerial accountant, master budget, volume-profit relationships, cost behavior and the income statement, flexible budgets and standards, variations of cost behavior, responsibility accounting and cost allocation, the contribution approach to problem solving, capital budgeting and the impact of income taxes on management planning.

Prerequisite: BA212 or consent of instructor.

*BA215 or 2.576 Cost Accounting 3 0 3

A course designed to analyze methods of detailed and

transferrable to the four-year institutions of the Oregon State System of Higher Education. Other courses with alphabetic prefixes may transfer as general education units at the discretion of the senior institution. Vocationally-numbered courses may also transfer, as agreements have been made in a number of curriculum areas with the various neighboring institutions to accept a specified number of vocational credits. Check with your advisor or a counselor for information if you are interested in a vocational course and do plan to transfer at the end of your time at Chemeketa.

Courses numbered 9.000 - 9.999 are ungraded courses offered to meet special vocational needs. These are

specific identification of cost elements within the business enterprise, especially job order, process and standard cost accounting systems and their related theory. The major emphasis is on principles, techniques and managerial use of cost accounting data and the use of budget and performance reports, as they relate to cost accounting.

Prerequisite: Accounting 6.925 or BA 213 or two terms of college accounting.

*BA216 or 2.554 Income Tax Accounting 3 0 3

The comprehensive study of income tax withholding, individual income taxes, form 1040, declaration of estimated taxes, supporting schedules and forms for individuals and special tax situations for individuals.

Prerequisite: BA211 or 6.923 or consent of instructor.

*2.551 Intermediate Financial Accounting I 4 0 4

The comprehensive study of the environment and development of accounting principles, basic theory, accounting process, statement of income and retained earnings, statement of financial position, present value, monetary assets, valuation of inventories and current liabilities.

Prerequisite: BA213 or consent of instructor.

*2.552 Intermediate Financial Accounting II 4 0 4

The comprehensive study of plant assets, depreciation, depletion, intangible assets, long-term liabilities, stockholders equity, earnings per share and long-term investments.

Prerequisite: 2.551 or consent of instructor.

primarily short-term technical or business courses designed to improve job competency, and with very few exceptions do not accumulate credit toward a degree. Some curriculums, however, accept them as electives, hence they are considered part of a full course load for students receiving financial aid of various types. Check with your advisor or counselor to determine their applicability to your curriculum.

Chemeketa offers many personal enrichment and special vocational courses which are not listed here. Schedules of these courses are printed quarterly. Call the community services or campus information phone listing for information on courses offered in your area of interest.

*2.553 Intermediate Financial Accounting III 4 0 4

The comprehensive study of revenue recognition, accounting changes, error analysis, income taxes, pension plans, leases, statement of changes in financial position, financial statement analysis, full disclosure and price level-adjusted financial statements.

Prerequisite: 2.552 or consent of instructor.

*2.555 Auditing 3 0 3

The comprehensive study of professional auditing and audit reports, internal control, audit work papers, evidence, original record examination, statistical sampling, cash, receivables, related revenues and credit losses, investments and related revenues, inventories and cost of sales, prepaid items and related expenses, fixed assets and related expenses, intangible assets, current liabilities and related costs and expenses, long-term liabilities, owners' equities, completing an audit, post-statement disclosure and legal responsibilities of professional accountants.

Prerequisite: 2.552 or consent of instructor.

2.559 Governmental Accounting 3 0 3

The comprehensive study of accounting for governmental and non-profit entities. The course considers budgets, accounting for general funds, special revenue funds, revenue accounting, expenditure accounting, capital projects funds, debt service funds, special assessment funds, enterprise funds, general fixed asset group of accounts and summary of funds and groups.

*6.923 Accounting Procedures I 4 0 4

The study of business accounting, including basic

procedures using the double-entry system, accounting for cash, payroll accounting, accounting for personal service firms, accounting for merchandise, accrual accounting, end-of-period work sheet and financial statements. Designed for students who do not plan to attend a four-year college and/or who are not enrolled in Chemeketa's two-year accounting curriculum.

Prerequisite: Business Mathematics 4.201 or consent of instructor.

***6.924 Accounting Procedures II 4 0 4**

The study of accounting for notes and interest, purchases, sales, inventory and prepaid expenses, tangible long-lived assets, owner's equity and accrual accounting for a wholesale concern. Students work through a practice set for a retail business. Designed for students who do not plan to attend a four-year college and/or who are not enrolled in Chemeketa's Accounting curriculum.

Prerequisite: Mathematics 4.201 or equivalent or consent of instructor.

***6.925 Accounting III 4 0 4**

The study of accounting for partnerships, corporations, capital stock, corporate earnings, corporate bonds, investments, intangible long-lived assets, annual reports, manufacturing business and cost accounting. Designed for students who do not plan to attend a four-year college and/or who are not enrolled in Chemeketa's accounting curriculum.

Prerequisite: 6.924 and Mathematics 6.918 or equivalent, or consent of instructor.

Advertising, see MARKETING

American Institute of Banking, see BANKING AND FINANCE

Anatomy, see BIOLOGY

ANTHROPOLOGY

†Anth101 Human Evolution 3 0 3

An examination of human evolution—both physical and cultural. Focuses on evolutionary concepts and processes, genetics, the fossil record, primate classification and the myth of race. Provides an understanding of what it is to be human and our place in nature.

†Anth102 Archeology 3 0 3

A Study of prehistoric development, this course includes a survey of archeological method and theory and dating techniques. Examines the agricultural revolution and the rise of civilizations and considers the age-old problems of civilization—poverty, pollution, over-population, energy

crises, dysfunctional stratification systems and runaway governmental structures. Offers some guides to the future of world civilization.

†Anth103 Introduction to General Anthropology 3 0 3

A survey of culture and its relationship to human nature. Examining cross-cultural methodology and anthropological theory. Provides a general over-view of human language, economic systems, technology, sex and social organization, governmental forms, art, religion, warfare and play. Investigates the problem of controlling culture and managing our social selves.

†Anth207 Cultural Anthropology 3 0 3

An analysis of the concept of culture, its significance for human beings, its diverse forms and degrees of elaboration among different groups of people with special emphasis on the divisions of anthropology and rise of anthropological theory. Also covered are the structure of language and its role in cultural transmission, the varieties of human subsistence patterns and technologies, and the interdependence of heredity, society and environment.

***†Anth208 Cultural Anthropology 3 0 3**

A study of the variety of human social organization and political forms and the nature of cross-cultural belief systems. Includes an examination of art and ritual.

Prerequisite: Anth 207 recommended.

***†Anth209 Cultural Anthropology 3 0 3**

An exploration of the processes of cultural growth and expansion and the nature of culture change. The nature of culture as it relates to such conditions as acculturation and assimilation, the implications of programs of technical assistance to developing nations and ethics of applied anthropology.

Prerequisite: Anth207 or 208 recommended.

Architecture, See DRAFTING

ART

***†Art195, 196, 197 Basic Design 2 2 3**

These courses form a three-term introductory sequence involving a series of studio participation exercises involving the basic principles of design. Two hours studio-lecture with outside assignment for each hour of credit.

Prerequisite: Courses taken in sequence or consent of instructor.

†Art 201, 202, 203 Survey of Visual Art 3 0 3

This art appreciation course is designed to provide the student with a basis for qualitative discrimination among works of architecture, landscape architecture, the crafts

and industrial design, photography and the motion picture, illustration and printmaking and easel and mural painting. Although selected examples from various cultures of the past are made the objects of intensive case studies, along with examples from immediately contemporary cultures, no attempt is made to follow the history of art, whether occidental or oriental, from prehistoric times down to the present.

†Art204, 205, 206 Introduction to History of Art 3 0 3

A historical survey of the visual arts from prehistoric to modern times. Selected works of painting, sculpture, architecture and other arts are studied in relation to the cultures producing them. Designed for both non-major and major students.

Art255 Ceramics 0 6 3

An introduction to ceramics with emphasis on pottery. Instruction offered in hand construction, throwing, glazing and firing. A two-hour studio period for each hour of credit.

Art260 General Photography 2 4 3

This course covers fundamental and technical aspects of photography including types of cameras, f/systems, shutter speeds, film types and specifications, developing, basic enlarging, composition, familiarity with basic materials and processing, vocabulary and equipment. Designed for students who are interested in photography as a part of their general education. Directed photographic assignments and photo lab work are included. Students will be responsible for supplying their own camera, film, paper, exposure meter, tripod and flash. The film and paper run between \$35 and \$75 per quarter. The college will furnish enlargers, chemicals and other incidental darkroom equipment.

Art261 Intermediate Photography 2 4 3

This course is designed as a continuation of the general photography course. It covers somewhat more complex aspects of photography including familiarity with varied materials and processing techniques such as light measuring, gamma, densitometry, interpretation of and uses of technical data with an eye toward improving the design and aesthetic approaches to photography. Uses of darkroom techniques, densitometers and special films and developers will be incorporated into project-oriented assignments.

***Art281 Printmaking 0 3 3**

An introduction to techniques of silkscreen printing stencil methods.

Prerequisite: Art291 or consent of instructor.

***†Art290 Painting 0 6 3**

This course is intended as an introduction to painting problems. Emphasis will be placed on learning basic, fundamental skills and approaches to traditional subject matter. The course will stress disciplined study, observation and representation. Demonstration of an awareness of compositional considerations, the importance of close observation of detail, problems and solutions in the use of color and the potential of painting for personal expression. **Prerequisite:** Art 291 or consent of instructor.

†Art291 Drawing 0 6 3

This class will function as a working studio. Assignments will include observation, selection and recording of a variety of visual elements—still life, photographic, landscape and the human figure—with a variety of drawing media. Instruction will be primarily on an individual basis.

***†Art292 Watercolor 0 6 3**

An introduction to printing problems and the technique and use of watercolor. Emphasis will be placed on learning fundamental skills and approaches to traditional subject matter. Special attention will be given to the characteristics of water color as a medium, compositional problems, color problems, observation of detail and the potential for personal expression. **Prerequisite:** Art291 or consent of instructor.

†Art293 Elementary Sculpture 0 6 3

An introduction to materials and elementary considerations of form—technical and compositional exercises in clay, plaster, wood and stone. A two-hour studio period for each hour of credit.

Auditing, see ACCOUNTING

AUTOMOTIVE TECHNOLOGY

3.300 Internal Combustion Engines 3 9 6

A course designed to familiarize the student with construction, working principles and methods of servicing the internal combustion engine. Proper use of shop tools and equipment. Engines are disassembled, studied, serviced and properly reassembled, using accepted rebuilding and servicing procedures.

3.301 Fuel Systems and Carburetion I 2 3 3

A course in the fundamental principles of carburetion and the basics of fuel systems. Detail and instruction on the basic carburetor circuits.

3.302 Automotive Materials 2 0 2

A course developed to familiarize the student with materials and material production commonly associated with the automobile including uses and applications of the materials.

3.303 Automotive Shop Safety 1 0 1

A survey of principles of safety for the auto industry. Includes the use of films and case studies to develop an awareness of hazards and positive attitudes toward the prevention of accidents.

3.304 Automotive Electrical Systems I 3 4 4

A course designed to familiarize the student with basic electricity terminology, fundamentals and principles of operation applied to the circuitry of the automobile.

3.305 Power Trains 3 6 5

A course designed to familiarize the student with operation removal, repair and replacement of the essential power train components of the automobile. Includes proper methods of determining which parts should be replaced, when and how to order them.

3.306 Applied Fluid Mechanics 2 3 3

A course designed to provide instruction in the fundamental principles of automotive fluid power systems. Included are the study of the basic components of fluid power systems, how they are combined to build up circuits and the repair of these circuits. The basic design and use of hydraulic and pneumatic power systems as related to automobiles are also covered.

3.307 Automotive Chassis 2 3 3

A course designed to familiarize the student with basic frame and chassis related components of the automobile including how suspension systems work and methods of repair and adjustment. Steering gears, brakes, brake systems and related studies will be applied with methods of adjustment and repair using lab vehicles and components.

***3.308 Automotive Machine Shop 2 3 3**

A course designed to familiarize the student with operations in an automotive machine shop including cylinder head and block resurfacing, valve grinding, piston knurling, valve guide knurling, cylinder boring, piston fitting, honing, methods of precision measurement, piston pin and rod replacement and other aspects of precision machining for automotive technology. **Prerequisite:** Internal Combustion Engines or department approval.

3.309 Technical Diagram Interpretation 1 3 2

A course designed to give the student fundamentals in sketching objects related directly or indirectly to automotive field. Sketching will involve pictorial representation, sectional views and dimensioning. Methods of diagramming will be studied including symbols, how to read diagrams related to auto wiring and how to draw and use diagrams.

***3.316 Fuel Systems and Carburetion II 3 4 4**

A lecture-demonstration course dealing with two-barrel, four-barrel and multiple carburetion systems. The diagnosis of problems in systems, technical coverage of operating principles of major types of carburetors, theory and principles of carburetor accessor devices, manifold heat risers, etc. Students become involved with the actual units in the laboratory. **Prerequisite:** Fuel Systems and Carburetion I or department approval.

***3.317 Automotive Electrical Systems II 3 4 4**

A lecture-demonstration course covering in detail complete testing, diagnosis and theory of operation of the ignition, charging, cranking and lighting systems. Students participate on actual components. Laboratory reports on each job are required. **Prerequisite:** Automotive Electrical Systems I or departmental approval.

3.319 Automotive Auxiliary Systems 3 2 4

A course designed to teach the student operation, testing and repair of malfunctions in auxiliary systems consisting of power tops, windows, seats, overdrives, vacuum controls (head lamps, doors, power brake units, door locks, etc.), power steering and other automotive assist units.

3.320 Automotive Service Operations 2 0 2

An outline of the duties and responsibilities of the parts and service managers. Methods of organizing service personnel and shop facilities and an introduction to shop layout. The student will study the operation of parts rooms and problems common to both parts and service departments.

3.325 Automatic Transmissions 2 3 3

A course designed to familiarize the student with fundamentals of automatic transmission operation including hydraulic principles, power flows and methods of gear change used in automatic transmissions. Different makes and models of transmissions as well as applications will be explored.

3.326 New Automotive Developments 3 0 3

A course designed to keep the student aware of new changes that are occurring every day in field. Primary concern will be emission control devices of all types used on major brand autos. Another section will cover changes dealing with safety, economy and operation of the vehicles such as transistor or regulators and G.M.'s new integral alternator regulators.

***3.327 Automotive Repair I 1 9 4**

A course designed to give the student experience doing many jobs on actual automobiles. The laboratory work

consists primarily of prescribed jobs. Job reports are required.

Prerequisite: Third-term standing or departmental approval.

***3.328 Automotive Repair II 1 9 4**

A continuation of Automotive Repair I, with other jobs on the automobile. Designed to provide experience and develop speed in the mechanical field.

Prerequisite: Fourth-term standing or department approval.

***3.329 Automotive Repair III 1 9 4**

This course is primarily a specialty class to allow the student to specialize in a particular area of interest. Automatic transmissions, engines and general areas are emphasized for students not wishing to specialize. Speed and skill are of importance.

Prerequisite: Fifth-term standing or department approval.

***3.330 Tune-Up and Diagnosis 3 9 6**

A course designed to familiarize the student with tune-up and diagnosis procedures of the gasoline internal combustion engine including use of diagnostic equipment on the actual vehicle during laboratory practice. Repairing electrical and fuel systems related to tune-up and diagnosis of these systems along with proper repair procedures, keyed to actual experience on components and vehicles during lab periods.

Prerequisite: Electrical Systems II and Fuel Systems and Carburetion II or departmental approval.

6.117 Applied Fluid Power 2 2 3

The fundamental principles of fluid power systems including the basic components of fluid power systems, how they are combined to build up circuits and the uses of these circuits. The basics of design and use of fluid power systems and various components in these circuits are also covered. Laboratory time is provided to illustrate and amplify the classroom learning.

BANKING AND FINANCE

9.251 Marketing for Bankers 3 0 3

A course dealing with fundamental concepts and philosophy of marketing, marketing information and research, product distribution, promotion and pricing strategies and marketing planning.

9.253 Money and Banking 3 0 3

A look at money and banking, financial institutions, characteristics of money, structure of the commercial banking system, creation of bank deposits, cash assets of banks, secondary reserves, earning assets, banking in the United States prior to 1913, the federal reserve system,

federal reserve credit, sources and uses of member bank reserves, the money market, interest rates and liquidity.

9.254 Principles of Bank Operations 3 0 3

This course presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may view his chosen profession in a broad (operational) perspective.

9.255 Credit Administration 3 0 3

A discussion of factors influencing and determining loan policy. Methods of credit investigation and analysis, credit techniques, specific credit problems and regular as well as unusual types of loans.

9.258 Home Mortgage Lending 3 0 3

An introduction to mortgage credit in the United States. Covers structure of the mortgage market, development of a mortgage portfolio, determining mortgage plans, loan application and processing, residential construction lending policies and practices, appraisal of property, credit analysis of the borrower, FHA insured loans, guaranteed loan for veterans, legal aspects, closing mortgage loans, servicing mortgage loans, management of foreclosed real estate and management considerations in mortgage lending.

9.259 Bank Investments 3 0 3

An introduction to the economic background of investments. Covers federal government securities, federal agency securities, municipal securities, general obligation bonds, reserve bonds, markets for treasury and municipal securities, general nature of bank liquidity, primary reserve, secondary reserves, security prices and rules, yield curves and their uses, safety considerations, tax and related considerations and investment policies.

9.260 Trust Department Services 3 0 3

This course presents a complete picture of the services rendered by institutions engaged in trust business. An introduction to the services and duties involved in trust operations, the course is intended for all bankers, not only those who are engaged in trust business. It endeavors to keep clear the distinction between business and legal aspects of trust functions.

9.261 Bank Management 3 0 3

The study and application of new trends in the philosophy and practice of management covered in this course provide new and experienced bankers with a working knowledge of bank management. Case studies are also introduced.

9.262 Law and Banking 3 0 3

An introduction to basic American law, presenting the

rules of law which underlie banking. Emphasis is on the uniform commercial code.

9.263 Agriculture Finance 3 0 3

A course covering the dynamics of agriculture, capital structure and credit needs of agriculture, the role of bank policy, loan analysis, legal instruments, livestock and poultry financing, crop financing, capital loans, agribusiness, sources of credit, management of the farm loan portfolio, public relations, business development and sources and use of agricultural information.

9.265 Installment Credit 3 0 3

A course dealing with the techniques of installment lending. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan and collecting the amounts due. Each phase of a bank's installment credit operation is studied. Other topics include inventory financing, special loan programs, business development and advertising and the public relations aspect of installment lending.

9.266 Accounting I AIB 3 0 3

A basic course in accounting principles and procedures. Coverage includes analysis of transactions, the accounting cycle-service sole proprietorship, special journals and ledgers, end-of-cycle procedures-trading business, payroll and control systems, payables and receivables, valuation of other assets, taxes and completion of cycle-partnership, accrual basis. An individualized performance guide is provided for each student.

9.267 Accounting II AIB 3 0 3

This course builds upon the foundation developed in accounting one. The student learns more advanced concepts and techniques including departmentalized accounting, the partnership accounting cycle, branch and home office accounting, corporation accounting, manufacturing and cost accounting, budgeting, reporting and statement analysis. A final review of basic concepts and an overview of data processing systems complete the course.

9.273 International Banking 3 0 3

This course presents the basic framework and fundamentals of international banking, including how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks and how money is changed from one currency to another.

9.276 Savings and Time Deposit Banks 3 0 3

This course includes the historical development of savings institutions and the basic economic function of the savings process. Designed to facilitate an understanding of the current operations and policies of the institutions.

9.277 Management of Commercial Bank Funds 3 0 3

This course deals with the philosophy of funds management. The importance of funds management as the catalyst that brings together policies in the areas of loans, deposits, investments and capital, and their relation to each other is stressed.

9.289 Fundamentals of Data Processing AIB 3 0 3

This course provides a nontechnical explanation of electronic data processing as applied to banks. It is geared to the fundamental principles, concepts and functions of the bank data processing. A practical approach to the automation of banking systems.

BIOLOGY

Bi101, 102, 103 General Biology 3 3 4

An introduction to biological principles as applied to ecology and populations. Introduction to lower plants and animals of ecosystems. Emphasis on cell structure and function, introduction to organismal biology and Mendelian genetics with concentration on human genetics and related disease.

Bi110 Life Science Principles 3 3 4

This course includes core concepts and principles of life sciences specifically for health workers, from microbiology to biochemistry and physics.

Prerequisite: Ch101 or acceptable score on chemistry test.

Bi120 Human Anatomy and Physiology 2 3 3

This course provides an understanding of chemical, physical and biological principles and their application to cellular and bodily processes. Partially audio-tutorial, plus individual work with film and tape.

***Bi121, 122 Human Anatomy and Physiology** 3 3 4

Structure and functions of the human body beginning with the single cell and continuing through tissues, organs and body systems.

Prerequisite for Bi 121: Ch101, Bi110 or high school chemistry.

Prerequisite for Bi122: Bi121 or permission of instructor.

Bi123 Microbiology 3 3 4

An overview of the various microorganisms (bacteria, algae, fungi, protozoa, viruses) and their effects upon man and the environment.

***Bi124 Medical Microbiology** 3 3 4

A continuation of the survey of bacteria and other microorganisms emphasizing their impact upon human

health. Includes discussion of infection, immunity, common pathogens and methods and mechanisms of control.
Prerequisite: Bi110 or Bi123.

Bookkeeping, see SECRETARIAL/CLERICAL

BOTANY

***Bot201, 202, 203 General Botany** 3 3 4

An introductory study of plant life dealing with the principles of plant biology. Covers introductory ecological principles, cell structure, photosynthesis, respiration, genetics and evolution of the plant kingdom including bacteria, algae, fungi, mosses, ferns, conifers and flowering plants.

Prerequisites: Completion of high school biology and chemistry with a grade of 'B' or better.

Briefhand, see STENOGRAPHY

BUILDING INSPECTION

6.120 Building Codes and U.B.C. 3 0 3

An introduction to the state building code and building inspection certification requirements. Course content is based on the needs of the inspectors, contractors and suppliers.

BUSINESS, GENERAL

See also BUSINESS COMMUNICATIONS, ACCOUNTING, BUSINESS MANAGEMENT, MARKETING

†BA101 or 2.502 Business Environment 4 0 4

This course is designed to acquaint the student with the inter-relationships of business, government and society. The defined and/or established roles of members of the business community, ethics and social responsibility are emphasized. Attention is also given to employment opportunities in the various disciplines of the business field.

***BA222 or 2.556 Financial Management** 3 0 3

A description of managerial finance and how financial decisions affect society at large. Topics to be discussed include the tax environment, ratio analysis, financial planning and control, current asset management and term loans and leases.

Prerequisite: BA212 or 6.924.

***†BA226 or 2.320 Business Law I** 3 0 3

The nature and function of the law in our business society, obligations arising out of tort, formation and performance

and discharge of contracts.

Prerequisite: BA101/2.502 or consent of instructor.

***BA227 Business Law II** 3 0 3

A continuation of BA226. Includes legal aspects of business associations, sales and commercial paper and property.

Prerequisites: BA226 or 2.320.

BA229 Consumer Finance 3 0 3

The study of the role of the consumer in our society including consumer decision-making, money and marital happiness, consumer credit and borrowing, consumer food shopping, consumer clothing management, home ownership, family transportation, health care and services, social security, life insurance, annuities, estate planning, wills, trusts and consumer protection.

***†BA232 Introduction to Business Statistics** 3 0 3

The use of elementary statistical techniques to aid decision making in the business environment. Includes populations and samples, estimating, hypothesis testing, analysis of variances, indexes and time series.

Prerequisite: Mth95.

BA277 or 2.430 Business Ethics 3 0 3

A comparative study of ethical and economic systems designed to increase decision-making capabilities. Emphasis on issues and policy formation in varied business settings.

2.429 Public Relations in Business 3 0 3

This course investigates the problems of balancing organizational operations with the goals of the consuming public. The problems of customer apprehensiveness, indecision, unrest and dissatisfaction as well as problems with personnel relating to the consuming public. Research and class activities involving communication via letters, telephone and face-to-face situations.

BUSINESS COMMUNICATIONS

***†BA214 or 2.672 Business Communications** 3 0 3

The study of the purpose and effectiveness of communications in business. Analysis and writing in simulated business situations including business letters, memorandums and reports and report format.

Prerequisite: Business English 2.673, Writing 122, or the equivalent.

2.673 Business English Fundamentals 3 0 3

The emphasis of this course is on the expression of ideas in written form including a review of grammar and punctuation. Business vocabulary and spelling will be stressed.

2.703 Business Par 3 0 3
 A course for developing English skills, efficiency and study habits which are basic to success in future business courses. Word study and dictionary skills are included.

Business Economics, see ECONOMICS

BUSINESS MACHINES

***BA217 or 2.660 Business Machines** 1 4 3
 Instruction in the operation of mechanical printing, electronic display and electronic printing calculators. Solving business problems with calculators is stressed.
Prerequisite: Introduction to Calculators 2.658 or consent of instructor.

2.658 Introduction to Calculators 0 2 1
 An introductory course in the use of printing, electronic display and electronic printing calculators in the solution of simple mathematical problems used as a basis for routine business problems.

2.661 Business Machines 1 4 3
 An introduction to a variety of up-to-date copy and duplication machines and special-use typewriters used to handle business communications. The general function of the machines, understanding their care and acquiring reasonable skills in their use are major goals.

***2.663 Transcription Machine Operation** 1 4 3
 A course covering dictation of letters, memos and reports and techniques of transcribing from the recorded voice to the typewriter. Operation of the transcriber and transcribing available copy with speed and efficiency are included.
Prerequisite: Typing 2.606 or SS121 or equivalent.

***2.667 Transcribing Machine Operations** 1 4 3
 A continuation of Transcribing Machine Operation 2.663, building the transcribing efficiency of the student from machine dictated materials. English skills and typing speed and accuracy will be improved to a usable, on-the-job level.
Prerequisite: Transcribing machine operation 2.663 or consent of the instructor.

BUSINESS MANAGEMENT

BA206 or 2.501 Business Management Principles 3 0 3
 Analyzes current and historical theories of leadership and motivation, group processes, organizational structure, personnel policies, managing change, effective communication and decision-making. These subjects are then synthesized via case studies and various reports.

BA250 or 2.557 Small Business Management 3 0 3
 A study of general functions and procedures used in operation of a small business. An introduction to the basic aspects of managing a small business. The five management functions of planning, organizing, staffing, actuating and controlling are applied in the areas of a small business.

BA251 or 2.643 Office Management 3 0 3
 A study of the broad scope of responsibilities of the administrative manager. Includes portrayal of the centralization of office services necessitating a knowledge of planning, organizing and controlling of business services, systems and procedures.

2.644 Management By Objectives—MBO 3 0 3
 The purpose and method of what is perhaps the most dynamic management tool ever discovered. Sometimes termed managing for results. The basic principles of this idea apply equally to managing a small or large business.

2.685 Personnel Principles and Supervision 3 0 3
 A study of the principles of employee-employer relations, training and evaluation, the social side of business, compensation, union activities, industrial relations and the field of personnel supervision.

4.287 Methods of Supervision 3 0 3
 The basic techniques of supervision. Covers all aspects of supervision such as leadership, organization, communications, morale, job analysis, job training, accident prevention, planning time studies, cost analysis, etc.

4.500 Employer-Employee Relations 3 0 3
 A course dealing with the rights and responsibilities of labor and management and the roles played by them in relation to the individual, the community and the national economy. Areas covered include history, organization, laws, wage and hours, contracts and community responsibilities.

***9.298 Small Business Management—Inservice** variable
 A program designed to teach basic economic principles and make practical application of these principles in each cooperating family's business operation.
Prerequisite: Admission to Small Business Management Program

9.513 Personnel Management 3 0 3
 A course on working effectively with employees. How to solve absenteeism or other discipline problems, why and how you can motivate employees, enrich their job and reward their efforts. The topics will include safety, union, increasing demands of government, employment, collective bargaining, training, work performance measurement

and evaluation, job development organizational planning, promotions and transfers and grievances.

9.528 Management By Objectives and Results 3 0 3
 A seminar designed to help participants develop an understanding for the MBO/R process and provide them with sufficient guided practice in its application to ensure effective post-class implementation.

***9.820, 9.821, 9.822 Farm Business Management I** 8 0 8
 A program designed to teach basic economic principles and make practical application of these principles in each cooperating family's farming operation. This is accomplished by enterprise accounting and analysis in each major enterprise on each farm.

CADASTRAL SURVEYING

***6.101 Plane Surveying** 2 6 4
 A beginning study of surveying techniques including fundamentals of taping and leveling, care and handling of surveying instruments and office procedures. Provision is made by appropriate field work for practical application of the techniques learned.
Prerequisites: Foresters, Math 4.202; Engineers, Math 6.261.

***6.103 Plane Surveying** 2 6 4
 A continuation of Plane Surveying 6.101. A study of distance and direction measurement, employing transits, theodolites, and steel tapes, traversing and associated office computations, areas, stadia, circular curves and brief outline of public land surveys.
Prerequisites: Engineers, Plane Surveying 6.101 and Foresters, Plane Surveying 6.101 and Math 4.202.

6.132 Survey Law 3 0 3
 A study of the obligations, liabilities and legal responsibilities of the land surveyor and the basic principles of land survey law as evolved in the courts.

***6.134 Public Land Survey** 3 0 3
 A study of the laws and procedures for the surveying and subdivision of the public lands of the United States and for relocation of lost and obliterated boundaries. Fundamental knowledge for land surveyors.
Prerequisites: Plane Surveying, 6.101 and 6.103, Project Graphics 4.135

6.141 Cadastral Surveying Field Lab and Seminar I and II 1 39 7
 Credit for work experience during spring and summer terms. The student submits a written report of his/her work

experience which is reviewed and discussed with a surveying instructor.

6.500 Survey Computations 1 6 3
A study of trigonometric and geometric formulas, mechanical computers and integrating instruments, area computations, traverse calculations, leveling and plotting surveys, simple curves, intercepts of straight lines, solar observations, state plane coordinates and spiral curves.

***6.507 Route Surveying I** 1 6 3
The location and selection of a route for current modes of transportation. The student will use the transit and machine calculators to lay out a route on the ground and do the necessary computations.
Prerequisites: Survey Computation 6.500, or approval of associate director.

***6.510 Forest Road Surveying** 2 6 4
A study of the principles of forest road design and layout, including circular curves, grades, cross sections, profiles and earthwork computations. Other topics included are solar observations, computation of areas of land and balancing of survey coordinates.
Prerequisites: Plane Surveying 6.103, Mathematics 4.204, Technical Mathematics 6.262, or second year standing and the approval of the associate director.

CAREER AWARENESS

FE205 Job Search Techniques 1 0 1
A seminar course designed to help students find and apply for the job they want upon graduation. Included will be preparing oneself for the job-search process, preparing and writing the resume, sources of information about jobs, preparing for the interview, what is required in a job and what the employer is looking for in an employee.

Psy114 Career Development, Personal Perspective 3 0 3
A comprehensive developmental program that provides exploratory opportunities to integrate the personal, educational and occupational elements of career development. Encourages career planning and decision making, based on realistic self-knowledge and self-assessment.

Ceramics, see ART

CHEMICAL TECHNOLOGY

6.150 Observing Chemical Laboratories 0 3 1
An observation course with visits to various laboratories and operations to illustrate the type of opportunities open

to chemical technicians. The student will also be able to see the type of work that the chemical technician does in various industries.

6.151 Chemical Problems 0 2 1
A study of the presentation of technical data and computations. The procedures for statistical analysis of data, experiment design graphing of linear functions and algebraic operations in solving chemical problems will be emphasized. Practical applications utilize diagrams, charts, graphs and calculator.

6.320 Chemistry for Technicians 3 8 6
An introduction to science and techniques of chemistry. The nature and characterization of matter, states of matter, gas laws, paper and gas chromatography, liquids and solutions, bonding, periodicity of the elements and nomenclature of inorganic chemicals will be emphasized. The study of the chemical equations as a quantitative tool will be initiated. Class and laboratory activities will be coordinated.

***6.321 Chemistry for Technicians** 3 8 6
A course dealing with qualitative and quantitative principles and techniques. Included are sample preparation, pH measurements, gas, gravimetric and titrimetric analysis, oxidation reduction, common metals and nonmetals and an introduction to organic nomenclature. Coordination of class and laboratory is continued.
Prerequisite: 6.320

***6.322 Chemistry for Technicians** 3 8 6
An introduction to the principles and techniques of organic chemistry. Characterization and separation of organic compounds, infrared spectroscopy and reactivity and preparation of compounds will be emphasized and organic nomenclature will be expanded. Coordination of class and laboratory is continued.
Prerequisite: 6.321

***6.323 Chemistry for Technicians** 3 8 6
An introduction to techniques and principles of physical chemistry with emphasis on equilibrium and rates of reactions, spectroscopy and atomic absorption spectrophotometry. Selective biochemical compounds and synthetic polymers will also be considered. Coordination of class and laboratory is continued.
Prerequisite: 6.322

***6.324 Chemistry for Technicians** 3 8 6
A course emphasizing special techniques of chromatography, nuclear chemistry and electrochemistry. Coordination of class and laboratory is continued.
Prerequisite: 6.323

***6.325 Chemistry for Technicians** 3 8 6
A course covering thermal methods of analysis, nuclear magnetic resonance spectroscopy and mass spectrometry. The student will be assigned a short individual project based on interests and future plans. Job interviewing and types of positions will be discussed. Coordination of class and laboratory is continued.
Prerequisite: 6.324

***6.326 Quantitative Analysis for Technicians** 1 3 2
An extension of the analytical procedures and techniques covered in Chemistry 6.320-6.325. A variety of procedures and techniques using official methods will offer a more in-depth experience. Modern methods using instrumental analysis will be emphasized. Class and laboratories are coordinated.
Prerequisite: 6.325

CHEMISTRY

CH100 Chemistry, Man and Society 3 2 4
A one-term introductory course for students who have little or no background in chemistry. Includes atomic structure, nuclear power, bonding, plastics, energy, food products, water and air pollution, drugs and poison.

†CH101 Consumer Chemistry 3 2 4
A general introduction to chemical principles, including atomic structure, states of matter, chemical reactions, thermodynamics and energy. This is followed by chemistry of life, including carbohydrates, lipids, proteins and nucleic acids. The course ends with a look at the chemical processes in the ecosystem.

†CH102 Consumer Chemistry 3 2 4
A study of chemistry and consumer materials including food and food additives, poisons, drugs, plastics, fuel sources and energy alternatives and nuclear chemistry and the nuclear energy option.

†CH103 Consumer Chemistry 3 0 3
A survey of the major air and water pollutants and their effects on the environment. A close look at the pesticide dilemma and alternative methods of insect control. Concludes with a look at the future and what we must do.

***†CH104, 105, 106 General Chemistry** 4 3 5
An introduction to the field of chemistry providing an understanding of the structures of atoms, molecules and ions and their interactions, and a foundation for the further study of chemistry. Three lectures, one lecture-discussion and one three-hour laboratory period.
Prerequisite: (CH104), Math 95 or the equivalent.
Prerequisite: (CH105), CH104
Prerequisite: (CH106), Ch105

- *†Ch204 **General Chemistry** 3 5 5
A professional course for students majoring in science and related professional fields. Includes atomic structure, stoichiometry, bonding (atomic and molecular orbital theory) oxidation-reduction, chemical reactions and gas laws.
Prerequisite: One year of high school chemistry and Math95.
- *†Ch205 **General Chemistry** 3 5 5
A continuation of Ch204 with emphasis on crystal theory, changes of state, properties of solutions, thermodynamics, kinetics, chemical equilibrium and acid-base theory.
Prerequisite: Ch204.
- *†Ch206 **General Chemistry** 3 5 5
A continuation of Ch204 and Ch205 with emphasis on ionic equilibria, electrochemistry, spontaneity, coordination compounds, radioactivity and organic chemistry.
Prerequisite: (Ch205 or Ch106).
- *Ch226, 227 **Organic Chemistry** 3 6 5
Chemistry of the carbon compounds, the aliphatics, aromatics and derivatives.
Prerequisite: (Ch226), Ch106, 206.
Prerequisite: (Ch207), Ch226.
- Ch228 **Introduction to Biochemistry** 3 0 3
An introductory course in biochemistry highlighting the structure, biological function, biosynthesis and breakdown of molecules found in living cells. For students majoring in biology and biology-related disciplines and for students generally interested in biochemistry.
- *†Ch234 **Quantitative Analysis** 3 6 5
The fundamental principles of quantitative analytical chemistry including gravimetric, volumetric and limited instrumental methods. Designed to satisfy the requirements in quantitative analysis for pharmacy, premedical, pre dental and medical technology students.
Prerequisite: Ch206 or consent of instructor.
- 6.275 **Introductory Chemistry** 3 2 4
The fundamentals of modern chemistry for students who have had little or no previous training in chemistry. Covers the basic principles of chemistry with emphasis on industrial application.
- 6.276 **Chemistry** 3 2 4
A course in chemistry covering an introduction to organic chemistry, basic wood and paper chemistry, the chemistry of paints and adhesives and the chemistry of plastic and rubber. Laboratory time is provided for demonstration and experimentation to help clarify principles and procedures covered in class.

Child Care, see
EARLY CHILDHOOD EDUCATION

Child Development, see **EARLY CHILDHOOD EDUCATION**

Chorus, see **MUSIC**

CIVIL ENGINEERING

- *6.105 **Strength of Materials** 2 3 3
A study of the stresses and strains that occur in bodies when subjected to tensile, compressive and shearing forces, including the common theory of beams. The distribution and magnitude of stresses are examined in welded and riveted joints, thin wall cylinders, torsional members and beams. Practice problems emphasize the materials studied.
Prerequisite: Applied Mechanics 6.109 and Technical Math 6.266 taken concurrently or equivalent.
- *6.109 **Applied Mechanics** 2 3 3
A study of static forces and their affect upon rigid bodies at rest. This includes resolution of forces, equilibrium and resultants of force systems.
Prerequisite: Third-term standing or approval of associate director.
- *6.110 **Construction Estimating** 2 3 3
A course designed to develop skills in estimating the amount and cost of materials required and labor cost involved in various types of construction. An opportunity is provided for the application of these skills by making estimates of material and labor quantities and costs for representative types of construction.
Prerequisite: Second-year standing or approval of associate director.
- 6.111 **Applied Mechanics** 2 3 3
This course deals with the motion of rigid bodies and with the forces that produce or change their motion. The principles of rectilinear motion, curvilinear motion, rotation and plan motion are covered. Laboratory time is provided for the conducting of experiments to clarify the principles and procedures covered in class.
- *6.112 **Hydraulics** 2 2 3
The first course in the study of hydraulics covers the fundamental properties of fluids, principles of hydrostatic pressure—including Pascal's law, the hydrostatic paradox, the Archimede's principle—measurement by manometer and the measurement of fluid properties. The relationship of hydrostatic pressure and center of gravity and the effect of hydrostatic pressure exerted against plane surfaces will also be discussed. Time is provided for demonstrations and experiments to help clarify the principles and procedures

covered in class.

Prerequisite: Fifth-term standing or approval of associate director.

- *6.114 **Hydraulics** 2 2 3
A course consisting of the fundamentals of fluid flow, Bernoulli's Theorem, flow profiles, stream restrictions (such as weirs, flumes and metering runs), distribution of energy in the stream, flow through pipe, Reynolds Law, Newton's Law of Hydrodynamics, hydraulic similtude and dimensional analysis. Time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.
Prerequisite: Hydraulics 6.112 or equivalent.
- *6.118 **Contracts and Specifications** 3 0 3
A course designed to acquaint the student with common usage and practice in the preparation of contracts and attendant specifications. Examination of existing contracts covering current jobs will be used whenever possible with practical problems designed to teach the application of theory learned.
Prerequisite: Second-year standing or approval of associate director.
- *6.163 **Concrete Construction and Design** 2 3 3
A course covering the theory and design of reinforced concrete structural members and the design and control of concrete mixtures. A study of construction inspection and field and laboratory testing procedures.
Prerequisite: Sixth-term standing or approval of associate director.
- *6.124 **Soil Mechanics** 2 3 3
A study of the properties of soils including soil index properties, strength, compaction, permeability and lateral pressures. Laboratory experiments cover each phase of study.
Prerequisite: Second-year standing or approval of associate director.
- *6.125 **Timber and Steel Construction** 3 3 4
A study of steel and wood fasteners and connections, timber beams and columns. Structural members will be analyzed for design features. Field trips will be used to visualize application.
Prerequisite: Strength of Materials 6.120 and Structural Analysis and Design 6.130 or equivalent.
- *6.128 **Strength of Materials** 2 3 3
A study of the stresses and strains that occur in bodies when subjected to tensile, compressive and shearing forces.
Prerequisite: Strength of Materials 6.105 or equivalent.
- *6.130 **Structural Analysis and Design** 1 3 2
The determination of stresses induced by loads on simple

and framed structures. Analysis and design of simple and continuous beams utilizing moment distribution, influence lines and "three moment equation." Analysis and design of frames subjected to lateral forces. A review of truss analysis.

Prerequisite: Applied Mechanics 6.109 and Strength of Materials 6.105 or equivalent.

***6.138 Engineering Problems 0 2 1**

A study of the presentation of technical data and computations. The procedures for dimensional analysis, recognition and usage of unit systems, preparation and usage of graphs and curves and practical applications of such skills are emphasized.

Prerequisite: Introduction to Engineering Calculators 6.192 or consent of instructor.

6.139 Environmental Quality Control 2 3 3

A course covering the major aspects of air and water pollution, their causes, the harmful effects to the environment and ways and methods of prevention and treatment. Water storage, treatment and distribution are also studied and discussed.

6.140 Sanitary Engineering 2 2 3

A study of domestic and industrial water supply and waste disposal, collection, storage and treatment facilities.

6.185 Applied Mechanics 2 1 2

A course dealing with the forces acting upon rigid bodies at rest including resolutions of forces, equilibrium and resultants of force systems, friction and centroids. Laboratory time is provided for conducting experiments to clarify the principles and procedures covered in class.

6.192 Introduction to Engineering Calculators 0 2 1

A lab course giving students hands-on experience with a variety of calculators to solve engineering and surveying problems.

6.528 Earthwork Computations and Estimates 1 3 2

Problems in computing cuts and fills in highway work, mass diagrams and borrow pits are worked out in detail. Estimating is limited to computations of quantities and costs on highway, bridge and heavy construction work.

Clothing, see HOME AND FAMILY LIVING

COMMERCIAL FOOD PRODUCTION

3.200 Basic Foods and Nutrition 2 0 2
An introduction to commercial foods and principles of

basic food preparation. Nutritional values of foods, the retention of nutrients in cooking, the four basic food groups and menu balance are covered.

3.201 Quantity Foods Production I 3 20 8

Preparation of quantity foods in a commercial kitchen under supervision. Included are preparation of various breakfast items, salads, entrees, stocks, soups, sauces, bakery and dessert products and short order cooking by standardized recipes following professional preparation techniques. Stations are rotated approximately every two weeks to assure students the widest-possible exposure to the commercial kitchen. Lectures on the handling of tools, equipment and materials.

***3.202 Quantity Foods Production II 3 20 8**

Preparation of quantity foods in an operating kitchen under professional guidance. Students will be assigned projects in international cuisine and service.

Prerequisite: Quantity Food Production I.

***3.203 Quantity Food Production III 3 20 8**

Preparation of quantity foods in an operating kitchen under professional guidance. Students will be exposed to classical buffet and garde manger cookery during the term.

Prerequisite: Quantity Food Production II.

3.204 Dining Room Operations I 1 4 2

Students work in various types of restaurant services—cafeteria, snack bar, fountain, banquet and table service.

3.205 Dining Room Operations II 1 4 2

Continuation of Dining Room Operations I. Students will also learn American and English service techniques.

3.206 Dining Room Operations III 1 4 2

Continuation of Dining Room Operations II. Will also include discussion and demonstration of French and Russian service.

3.210 Sanitation and Safety 2 0 2

Food service sanitation and environmental health, bacteriology and food contamination, personal hygiene and safety practices, legal regulations of federal and state agencies pertaining to restaurant sanitation and USDA requirements.

3.211 Menu Planning and Culinary Terms 2 0 2

Principles of menu planning and the menu as a tool for marketing, merchandising, personnel scheduling and equipment planning and pricing. Single use, permanent and cycle menus, standard menu terminology and foreign terms are covered. Student projects in menu planning and recipe research for special occasions are included.

3.212 Purchasing and Store Control 2 2 3

Techniques of buying for large-scale food operations,

comparing food quality and establishing food specifications, use of federal and state grade standards, stock receiving, storing and issue controls.

***3.213 Elementary Food Cost Analysis 2 0 2**

Basic methods of computing food costs, including the costing of standard recipes, yield of raw food, standard portions, analysis of daily food costs and the steward's report.

Prerequisite: Math for Food Service 3.216 or equivalent.

3.214 Food Production, Organization and Planning 2 0 2

Organization of commercial kitchens, quantity production work methods, the use and care of heavy duty kitchen equipment, planning and forecasting of food production and the use of cook's production worksheets.

3.216 Mathematics for Food Service 3 0 3

Basic math used in food production, including adjusting menus for various servings, use of fractions, percentages, weights, measures and an introduction to the metric system.

COMMUNICATION SKILLS

see also **SPEECH, READING,**

WRITING, STUDY SKILLS

1.101 Communication Skills I 3 0 3

Designed to improve the student's communicative skills through reading, listening, writing and speaking, with emphasis on research and writing. The practical phase of communication problems is kept in the foreground. Problems in reading, note taking, gathering information, report writing and conventional usages of mechanics and grammar are covered.

1.104 Communication Skills II 3 0 3

A continuation of Communication Skills I. Practical applications are provided to develop effective habits of communication through speaking, participating in conferences, presentation of reports, gathering information, listening, observing and evaluating sources.

1.115 Language Development for the Deaf and Hearing Impaired 3 0 3

This course is designed to enrich a deaf student's vocabulary, language level and reading and writing skills. Emphasis will be upon expanding vocabulary, a better understanding of the language used in his/her classes and improving reading and writing skills. The teachers of this class will be skilled in American sign language and will communicate with the students at their individual language level.

1.116 Manual Communication With the Deaf I 3 0 3

This course is designed to instruct the community college student in learning manual communication skills used by deaf people. Opportunities for the student to develop and practice manual communication skills will be provided through specific skill training by experienced teachers and deaf adults in the community. Emphasis will be placed on fingerspelling and expressive and receptive manual communication skills.

1.117 English As a Second Language 3 3 4

This course teaches foreign students how to listen and understand native speakers, how to speak English fluently, how to read and speak using correct intonation, how to write using appropriate grammatical English patterns and how to improve study skills.

1.121 Basic Writing Skills for Deaf and Hearing Impaired 3 0 3

A remedial course aimed at improving writing skills for deaf and hearing-impaired students. The course will involve lessons on sentence structure and paragraph, report and creative writing.

1.122 Basic Reading Skills for Deaf and Hearing Impaired 3 0 3

A course in remedial reading for deaf and hearing-impaired students who want to improve their reading skills. The course involves reading newspapers, magazines and books aimed at improving reading comprehension, vocabulary and speed.

1.123 Basic Communication Skills for Deaf & Hearing Impaired 3 0 3

This course consists of expressive and receptive communication skills. Organizing written and oral reports will be stressed as well as developing better listening skills. Learning how to communicate effectively in a group situation will also be stressed.

1.125 Manual Communication With The Deaf II 3 0 3

Continuation of Manual Communication I. Increasing manual communication vocabulary and an introduction to the physical aspects related to deafness. This course will review and reinforce expressive and receptive fingerspelling and the basic sign vocabulary of Manual Communication I. It will introduce an additional 400-word vocabulary and will emphasize the improvement of both receptive and expressive skills.

1.126 Manual Communication With The Deaf III 3 0 3

Continuation of Manual Communication I and II. In-

creases manual communication vocabulary and introduces various aspects of the education of the deaf. This course will reinforce the basic skills of fingerspelling and manual communication with an emphasis on developing skills in the simultaneous methods of communication. Additional vocabulary and idiomatic signs will be introduced.

1.127 Conversational Sign I 3 0 3

A continuation of vocabulary introduction. However, the emphasis will be on the comprehensive study of translating English with American sign language and both English and deaf idioms will be emphasized.

1.128 Beginning Interpreting for the Deaf 3 0 3

A course designed to introduce students already involved in using manual communication to the field of interpreting. Students will be introduced to the basic theories, principles and practices of interpreting for deaf people. An overview into the role of an interpreter.

1.129 Studies in Deafness 3 0 3

Students will be presented with the historical as well as present aspects of deafness. Notable deaf persons will be discussed and the role of deafness will be explored in today's world, enabling students to develop a sense of personal pride in their own deafness. Open to hearing students.

Computer Programming, Computer Science, see DATA PROCESSING

COOPERATIVE WORK EXPERIENCE

FE201 or 2.686-2.693 Cooperative Work Experience

Placement of the student in a business, industry or agency for on-the-job training/experience related to the student's on-campus instruction. This field experience is supervised by college instructors and work experience coordinators.

CRIMINAL JUSTICE

†CJA111 Introduction to Law Enforcement 3 0 3

An orientation in law enforcement, history and philosophy of enforcement of criminal laws, administration of justice, etiology of criminal behavior, correctional treatment and professional career opportunities.

†CJA112 Crime and Delinquency 3 0 3

Examines facts of crime and delinquency and relates them to data including variations of crime and delinquency rates with age, sex, race, poverty, educational status, urbanization and other variables. The incidence among criminals

and delinquents of various biological, psychological and social traits, characteristics and processes is also discussed.

†CJA113 Criminology 3 0 3

Factual materials pertaining to control of crime are related to sociological and psychological theories of punishment and treatment. Imprisonment, probation, parole, etc., are identified as society's reactions to crime and variations of these reactions are studied. Operations of police departments, courts, probation and parole departments and persons are examined.

†CJA211 Administration of Justice 3 0 3

A review of the court systems and procedures from occurrence of criminal violation to final disposition. Covers the six primary functional areas of administration of justice and reviews the principles of federal, state, criminal and civil laws as they apply to and affect law enforcement.

†CJA212 Introduction to Criminal Law 3 0 3

Introduction to the origin and structure of common-law crimes and procedures as well as statutory crimes. Definitions and distinctions between criminal and civil law, criminal court procedures, criminal law case reading, federal and state law and Oregon criminal code sections.

†CJA213 Introduction to Evidence 3 0 3

Survey of basic principles of the law of criminal evidence with emphasis on the role of the investigator in collecting, preserving and introducing evidence in court. Discussion of current court decisions as they affect the rules of evidence.

***†CJA214 Introduction to Criminal Investigations** 3 0 3

Introduction to the history and theory of the fundamentals of criminal investigation from crime scene to court room. Includes scientific techniques, psychology of the offender and recent pertinent court decisions.

Prerequisite: CJA212 & 213 or consent of instructor.

***CJA215 Introduction to Criminalistics** 3 4 5

A survey of the basic principles and techniques involved in criminalistics and definitions and distinctions between criminal investigation and criminalistics. Criminalistics laboratory must be taken concurrently.

Prerequisite: Introduction to Evidence, CJA213, and Introduction to Criminal Investigation, CJA214, or consent of instructor.

CJA217 Introduction to Toxicology 2 2 3

Recognition of pathological conditions caused by the action of a poison or toxin, including specific product of the metabolic activities of a living organism upon introduction of poisons or toxins and the affects and investigative

problems involved when poisons are either accidentally or purposefully ingested by the victim.

CJA218 Police Personnel Seminar 3 0 3
A study of the police profile, employment applications and resume testing techniques and criminal justice personnel problems arising from communications reporting, and attitudinal conflict difficulties. All aspects are studied both from the employer and employee's viewpoint.

†**CJA219 Introduction to Community Relations 3 0 3**
A survey of the role of the police in a changing community. It explores the subject of racial and community tension and minority group crime, social forces in the community and factors relating to police image.

CJA220 Introduction to Penology 3 0 3
A basic introductory overview of the current role of imprisonment as a correctional tool, together with a survey of some of the more significant activities involved in the treatment of prisoners.

CJA221 Introduction to Parole and Probation 3 0 3
An introductory survey of the basic principles and techniques involved in the correctional programs of probation and parole, together with a critical analysis of their individual roles in the administration of criminal justice.

CJA222 Introduction to Juvenile Corrections 3 0 3
An introductory perspective of the historical and contemporary aspects of the juvenile offender including examination of juvenile court philosophy and current treatment programs.

CJA223 Introduction to Corrections Process 3 0 3
An analysis of the historical and contemporary background of the adult offender with emphasis on current prevention, control and rehabilitative programs.

CJA224 Introduction to Corrections Administration 3 0 3
A basic introduction study of public and corrections administrative structure and practices. Analysis of administrative leadership, effectiveness and staff roles.

CJA225 Introduction to Corrections Casework 3 0 3
An introduction to approaches of behavior modification through interviewing and counseling. An overview of the techniques available to entry level practitioners in corrections in counseling and interviewing. Traces the development of positive relationships between the client and corrections personnel.

CJA226 Criminal Law II 3 0 3
A study of criminal offenses which affect sovereignty and the administration of governmental functions such as perjury, bribery, escape and obstruction of justice. The concepts of imputability, causation and intent are discussed in some detail.

CJA227 Police Administration 3 0 3
An overview of the principles of organization and management in law enforcement. Major problems in police administration, organization, planning and research are analyzed and evaluated. An introduction to the concepts of organizational behavior and an understanding of the planning process in a police department are provided.

CJA228 Traffic and Patrol 3 0 3
Methods of movement of traffic with safety through the use of public education, enforcement and engineering. An introduction to the function of the uniform patrol as a major division of a police department.

***CJA229 Criminal Investigation II 3 0 3**
A sociological-psychological study of homicide. The scientific disciplines related to death and the investigator's approach to scientific evidence.
Prerequisite: CJA214 or consent of instructor.

***CJA230 Issues in Criminal Justice 3 0 3**
A forum for special course offerings focusing upon special issues in criminal justice by visiting instructors or regular faculty.
Prerequisite: Consent of instructor.

***CJA231 Seminars in Criminal Justice 3 0 3**
Workshops designed for personnel staffing management positions in the criminal justice system. Focusing upon solutions to particular administrative problems.
Prerequisite: Consent of instructor.

CJA233 Criminal Justice Administration 3 0 3
A survey of the administrative practices of criminal justice agencies. Administration in the public sector including topics in organizational theory, public management and policy making in criminal justice.

5.214 Moot Court 2 3 3
A study of proper courtroom procedures with emphasis on the part played by the police witness. The proper attire for the witness, his demeanor in court, his manner of response to questioning and his maintenance of a strictly unbiased and impartial attitude are reviewed and studied. The student participates in moot court sessions gaining experience in court procedures.

5.231 Police Personnel Management 3 0 3
A course designed to familiarize the student with prin-

ciples related to evaluating, testing and selecting of personnel, as well as supervision and advancement evaluations. Both general and specific testing and evaluating procedures are studied and practiced.

5.232 Administration of Security Programs 3 0 3
A study of alarm and protection devices, protective patrol and internal precautionary procedures in administration of security programs in business and industry. Includes protection against burglary, robbery and industrial espionage. Consideration is given to prevention of lawsuits and certain business frauds. Emphasis is on planning and implementation of a well-rounded program in these areas.

5.233 Personnel Screening and Investigation 3 0 3
A study of the three aspects of screening and investigation of personnel. The actual screening and investigation of personnel in industry, business, education and government are scrutinized and alternate programs analyzed.

5.234 Educational Security Systems 3 0 3
An examination of the problems of establishing and maintaining a balanced and inclusive program of educational security. Included are routine patrol, parking and traffic control, investigations, key control and administrative advisor in case of riots, demonstrations and all other types of disturbances. A look at how to develop and maintain rapport with students, staff and faculty of educational institutions.

5.235 Embezzlement and Shoplifting 3 0 3
This course is designed to provide a general overview of security problems which develop from external theft (shoplifting) and internal theft (embezzlement) in retail establishments.

5.236 Transportation Security 3 0 3
A study of the problems of security in the transportation industry including airlines, trucking lines and railway transportation. Emphasis is placed on hijacking and skyjacking. The skyjacker profile is analyzed and modus operandi in such crime studied. Equal stress is placed on protective measures and investigative operations in this broad field.

5.237 Communications Security 3 0 3
Covers security measures pertaining to all police, industrial and commercial telecommunications systems, including computers, telephone, teletypes and radios. Reviews the legal and moral aspects of invasion of privacy relating to these matters.

5.238 Firearms Identification and Ballistics 2 2 3
The various methods of scientific and technical analysis,

comparison and identification of firearms, bullets, cartridges and related evidence.

5.239 Questioned Document Analysis 2 2 3
Analysis of handwriting, typewriting and forged and altered documents as they pertain to criminal justice and presentation of document evidence in court.

5.240 Fingerprint Identification 2 2 3
The science of fingerprints in law enforcement work, including techniques and procedures involved in classification, latent prints and imprints, chemical treatment of questioned evidence for the development of fingerprints and courtroom presentation.

DATA PROCESSING

BA131 Introduction to Data Processing 3 0 3
The concepts, elements and structure of business data processing systems, including the classifying, calculating and reporting functions, programming and computer fundamentals.

***BA231 Business Data Processing** 3 3 4
Application of computers to business data processing using COBOL. The development of a common business-oriented computer language and its use in modern business organizations. Comparison of COBOL with other automatic programming languages.
Prerequisite: BA131.

CS213 Introduction to Symbolic Language Programming FORTRAN 4 0 4
Computer applications and elementary FORTRAN.

6.940 Introduction to Data Processing 3 0 3
An introduction for persons with no prior knowledge of data processing. Includes a brief discussion of the history of data processing, current uses, how computers work and how people interface with computers and control them. Introduction to data processing machines.

6.941 Data Processing Mathematics 4 0 4
An introduction to the field of mathematics used in data processing. Covers binary numbering systems, numerical methods, boolean algebra, logic and set theory.

6.944 Introduction to Systems Procedures 3 0 3
Use of procedures as a basic administrative technique. The principles of organizing, planning and administering a procedure program. Methods of carrying out individual systems and procedure studies.

6.945 Applied Systems and Procedures 3 0 3
Fundamentals of automated data systems and procedures. Techniques and principles of systems analysis, forms

design and control, systems economics, feasibility studies and the installation of electronic data processing systems.

6.946 Data Processing Management 3 3 4
An introduction to the fundamentals of management and coordinator of a data center.

6.948 Fundamentals of Computer Programming 3 0 3
This course covers such techniques and tools as decision tables and flowcharts, the use of computer components and programming systems, solving problems and providing adequate documentation for solutions. Provides an introduction to programming techniques such as loops, switching routines, branches and indexing.

6.949 DOS/VS Utilities and Job Control 4 0 4
An introduction to the functional characteristics and general principles of the internal operation and supporting software of the IBM S/370. Lab problems include writing job control to achieve specified results, file to file utilities and the sort-merge program.

6.950 Computer Center Operation I 3 8 5
An introduction to the operation of a computer center.

***6.951 Computer Center Operations II** 3 0 3
An intermediate course in the operation of a computer center using the IBM/370 Model 125 computing system. Emphasis is placed on introducing operator commands, computer center standards and procedures, recovery procedures, scheduling considerations and the physical organization of disk and tape. Designed to be taken concurrently with either Computer Center Lab II 6.993 or 6.991.

Prerequisite: Computer Center Operation I 6.950 and Introduction to Data Processing 6.940 or BA131 or consent of instructor.

***6.952 Computer Center Operations III** 3 0 3
Continuation of Computer Center Operations 6.951.
Prerequisite: Computer Center Operations II, 6.951, and Computer Center Lab II, 6.991 or 6.993.

6.956 System 370 Concepts and Facilities 3 0 3
A study of the hardware and software components of the IBM System/370 Model 125 DOS/VS computing system as well as an introduction to job control.

6.961 COBOL I 3 6 5
An introduction to ANS COBOL. Simple business-oriented programs are coded and documented with emphasis placed on language structure, data formats, card and sequential disk files, table processing, problem statements and documentations. Equivalent to BA231.

6.963 COBOL II 3 6 5
An intermediate course in ANS COBOL. Business-oriented programs are coded and documented. Emphasis includes table processing and indexing, sort feature, subprograms, segmentation and sequential and indexed sequential files.

***6.964 COBOL III** 3 6 5
An advanced course in ANS COBOL. Complete business application packages are coded and documented. Emphasis includes efficiency coding, file backup and restore procedures, systems planning, modular programming, VSAM files, systems documentation, data management techniques, independent research and problem solving.

Prerequisite: COBOL II 6.963.

6.969 Assembler I 3 6 5
An introduction to assembler language. Simple programs are coded using the standard and decimal instruction set and linked to precoded I-O routines.

6.970 Assembler II 3 6 5
A programming option for students interested in becoming systems programmers. Subprogram modules and macros are written, linked and tested.

6.971 OS Concepts and Facilities 3 0 3
A study of the concepts and facilities of the IBM OS/VS1 operating system as well as an introduction to job control language. Students run exercises on the IBM System/370.

6.973 System Generation 3 0 3
A study and generation of the disk operating system.

***6.975 DOS/VS Utility and Librarian Programs** 3 0 3
Students use utility programs to create and modify files as well as dumping files to the printer. Special purpose utilities also are used to copy and restore disk packs and initialize disk packs with label information. Librarian programs are used to manage and update all system libraries. Designed for computer operations students.
Prerequisite: System 370 Concepts and Facilities 6.956 or consent of instructor.

6.976 Data Communications 2 0 2
Concepts of data communication and real time data collection. Systems are covered and related to programming and operations management.

***6.979 Key punch I** 1 4 3
Key punch machine operation including the preparation and use of drum cards and extensive practice using keypunch.
Prerequisite: Typing 2.606 or consent of instructor.

***6.980 Keypunch II** 1 4 3
A continuation of Keypunch I with emphasis on speed building and accuracy.

Prerequisite: Keypunch I or consent of instructor.

***6.982 Forms Design and Procedure Writing** 1 3 2

A concentrated course on two aspects of systems analysis, design and control of forms and writing procedures. Assignments include generating and analyzing various types of forms and different styles of procedure writing. Emphasis is placed on total systems considerations for determining the criteria used in selecting appropriate forms and procedure formats.

Prerequisite: Introduction to Systems and Procedures 6.944 or consent of instructor.

6.983 RJE Operation 3 0 3

An introduction to the concepts and applications of the use of remote terminals for file inquiry and update and program processing. The characteristics of a number of different terminals are also studied during operation.

***6.985 OS Utilities and Data Management** 1 3 2

A study of various file organization methods as well as the criteria for selecting one organization method over another. OS/VSI utility and sort programs are also used to generate and manipulate data files. Exercises involved designing and creating data files, given various manual systems for controlling business records.

Prerequisite: OS Concepts and Facilities 6.971 or consent of instructor.

6.988 RPG for Programmers 2 2 3

This course consists of a study of the features of the RPG II language. The student will write a number of computer programs, using RPG II that print reports and build and maintain files.

***6.991 or 6.993 Computer Center Lab II**
(3 or 6 credits) 0 9 3
0 18 6

This laboratory course is taken concurrently with Computer Center Operation II, 6.951. Hands-on experience is gained in the college computer center using an IBM/370 Model 125 computing system.

Prerequisite: Computer Center Operation I 6.950 or consent of instructor.

***6.992 or 6.994 Computer Center Lab III**
(3 or 6 credits) 0 9 3
0 18 6

This laboratory course is taken concurrently with Computer Center Operation III, 6.952. Hands-on experience is gained in the college computer center using an IBM/370 Model 125 computing system.

Prerequisite: Computer Center Operation II, 6.951, Computer Center Lab II, 6.993 (or 6.991) and System 370 Concepts and Facilities, 6.956.

9.770 Managerial Computer Concepts 3 0 3

A course covering data processing, elements of computer systems, software, programming, system analysis and data communications to enable individuals to make more effective decisions regarding data processing within their organization.

DENTAL ASSISTING

***5.400 Principles of Dental Radiography** 2 0 2

This course is designed to give the dental assistant a basic understanding of the principles of radiology and how they are applied clinically.

Prerequisite: Consent of associate director.

***5.401 Expanded Duties I** 0 3 1

A presentation of the theory and practice of new procedural responsibilities delegated to dental auxiliary personnel. Includes discussion and demonstration of fluoride application, rubber dam application, polishing of silver alloys and preventative dentistry.

Prerequisite: Introductory Concepts of Dental Assisting 5.411 or equivalent.

***5.402 Expanded Duties II** 0 3 1

A continuation of 5.401 includes laboratory procedures with practical application of the topics covered in Expanded Duties I.

Prerequisite: Expanded Duties I 5.401.

***5.403 Chairside Assisting and Basic Lab Procedure** 2 11 6

Basic chairside procedures including mixing filling materials, preparing impression materials and processing the impression. Provides practical experience in chairside assisting at University of Oregon Dental School.

Prerequisite: Satisfactory completion of all courses in dental assisting curriculum prior to winter term.

5.405 Dental Anatomy and Physiology 3 3 4

A study of anatomical terminology, head anatomy including skeletal structure blood supply, innervation of the face, oral anatomy and physiology, muscles of mastication and paranasal sinuses.

5.407 Advanced Laboratory Procedures 3 3 4

Principles of full and partial denture prosthesis and the use of laboratory equipment. Instruction includes experience in investing and casting crowns and bridges and assisting in other advanced laboratory procedures.

Prerequisite: Dental Sciences II 5.416.

5.408 Applied Radiography I 0 3 1

Practical application of principles, practice in placement of film, cone angulation, machine manipulation and film processing to develop proficiency in taking x-rays.

Prerequisite: Principles of Radiography 5.400 or consent of associate director.

***5.409 Dental Office Practice** 1 16 6

Practice and observation in a dental office.

Prerequisite: Satisfactory completion of all courses in dental assisting curriculum prior to spring term.

***5.410 Dental Office Management** 2 2 3

A course designed to help the student with personal and vocational relationships, including the telephones, reception procedure, business office procedure, purchases, storage and care of supplies and maintenance of office and equipment.

Prerequisite: Introductory Concepts in Dental Assisting 5.411.

***5.411 Introductory Concepts in Dental Assisting** 4 6 4

A basic study of the dental assistant's role with reference to personal regimen, housekeeping, terminology, materials, instruments and equipment. Emphasis is placed on the qualifications necessary for success in the dental assistant field.

Prerequisite: Consent of associate director.

***5.413 Applied Radiography II** 0 3 1

A continuation of Applied Radiography I, 5.408, designed to develop further skills in taking x-rays.

Prerequisite: Applied Radiography I, 5.408, or consent of associate director.

***5.415 Dental Sciences I** 3 0 3

A study of the sciences associated with the practice of dentistry. The course includes such subjects as microbiology, oral pathology, sterilization, anesthesia, first aid and pharmacology.

Prerequisite: Basic Sciences for Health Occupations, 5.601 or Physiology Fundamentals, Bi120, or consent of associate director.

***5.416 Dental Sciences II** 3 3 4

A study of the various fields of specialized dentistry recognized by the American Dental Association and the sciences associated with them. The course includes such subjects as diet and nutrition, as well as the dental disciplines of oral surgery, periodontics, pedodontics, endodontics, orthodontics and public health dentistry. Applied psychology is covered through role playing in simulated clinical situations.

Prerequisite: Dental Sciences I, 5.415, or consent of associate director.

DRAFTING,

see also MECHANICAL DESIGN

*4.100 Electronic Drafting 0 8 3

A course for drafting majors in electrical drafting. Schematic and wiring diagrams are stressed. Other areas of study include block and flow diagrams, PC board layout and charts and graphs.

Prerequisite: Second-year standing in drafting or consent of instructor.

4.101 Drafting I 0 4 2

Fundamentals of drafting designed to give the student a basic understanding of drawing techniques. Emphasis is placed on application of drafting instruments. Standard orthographic projection, layout procedures and ASA approved lettering techniques, drawing techniques such as geometric construction, selection of views, sectional auxiliary views and standard dimensioning practices are also covered.

4.102 Introduction to Specifications 3 0 3

A survey of development, composition, legal aspects and writing of construction contract documents. Students are involved in writing exercises, inspection of actual contract documents, simulations and field visitations.

*4.103 Electrical Drafting 0 4 2

A course in fundamental electronic and electrical drafting for non-drafting majors. Areas of study include standard symbols, schematic drawings, block diagrams, industrial wiring diagrams, PC board layout and the graphing of typical electrical data.

Prerequisite: Basic Drafting for Electronics 4.124 or Drafting 4.101 or consent of the instructor.

*4.105 Drafting II 0 4 2

A continuation of 4.101 with emphasis on basic drawing techniques. Areas covered include isometrics, additional sectional and auxiliary views, assembly and detail drawings, fasteners, welding drawings and developments.

Prerequisite: Drafting 4.101 or consent of instructor.

*4.111 Structural Drafting 0 8 3

A course dealing with the utilization of structural design data for the production of structural working drawings. Includes drafting and coordinating plans and details for a specific structure emphasizing layouts, procedures and terms standard to the construction industry.

Prerequisite: Second-year standing in drafting or consent of the instructor.

*4.115 Descriptive Geometry 1 5 3

A course for design/drafting majors. Graphic solutions to mathematical and space relationship problems including

auxiliary views, point line plane problems and revolutions. The geometric solution of vectors will also be introduced.
Prerequisite: Machine Drafting 4.222 and Technical Mathematics 6.262 or consent of instructor.

4.118 Sketching 0 3 1

The development of basic freehand technical sketching skills and techniques as used in the drafting process and practical pictorial communication.

4.124 Basic Drafting for Electronics 0 4 2

Basic drafting techniques and standards are stressed in this course. Includes use of materials and equipment, freehand lettering, orthographic projections dimensioning practices and the graphic and symbolic language of drafting. Line work, lettering and the appearance of the finished drawing are stressed throughout.

*4.126 Drafting Room Computation 0 2 1

A course in the computation and presentation of technical data. The application of the engineering type calculator will be stressed. Typical problems from mechanical, civil, tool design and other related areas will be utilized in this course.

Prerequisite: Technical Mathematics 6.261 and Machine Drafting 4.221 or consent of instructor.

*4.131 Mapping and Platting 1 7 3

An introduction to basic components of maps, subdivisions and plats with particular emphasis on drafting skills and techniques.

Prerequisite: Plan Surveying 6.101 or approval of instructor.

*4.135 Project Graphics 0 4 2

The making of plot plans and working drawings and plotting field data which may be found in forestry and civil engineering. The problems used in this course are those which might be found in these fields as standard industrial applications.

Prerequisite: Drafting 4.101 or approval of instructor.

4.221 Machine Drafting 1 7 4

An introduction in the general area of machine drafting. Lettering, the use of drafting machines and instruments and line quality are stressed in this course. Shape description and elements of modern dimensioning are included through the applications of problems in the area of orthographic projections. Geometric construction methods are covered with practical applications.

*4.222 Machine Drafting 1 7 4

A continuation of Machine Drafting 4.221. Includes the application of precision dimensioning, geometric toleran-

cing, auxiliary and sectional views.

Prerequisite: Machine Drafting 4.221 or approval of instructor.

*4.223 Machine Drafting 1 6 3

A continuation of Machine Drafting 4.222. Includes assembly and production drawings, isometric drawing and related pictorial drawings.

Prerequisite: Machine Drafting 4.222 or approval of instructor.

*4.224 Piping & Flow Systems Drafting 0 8 3

The detailing of a variety of piping and industrial flow systems. Schematic diagrams and pictorial layouts are also covered. Applications from heating, etc., will be included in addition to normal pipe and flow system drawings. The elements of flow systems design will be discussed.

Prerequisite: Machine Drafting 4.222 and Technical Math 6.262 or consent of instructor.

*4.225 Cam and Gear Drafting 0 8 3

An advanced course in mechanical drafting stressing the computation of various types of gears. Detailed working drawings of gears and cams will be produced. Displacement diagrams and cam applications will be an important part of this course.

Prerequisite: Machine Drafting 4.222 and Technical Mathematics 6.262 or consent of instructor.

4.226 Architectural Drafting 0 8 3

A course emphasizing basic architectural drafting techniques and methods. Covers architectural lettering, layout, arrangement symbols and conventional construction methods used in residential or light commercial buildings.

*4.227 Architectural Drafting 0 8 3

The development of basic architectural drafting techniques, symbols and methods. Familiarizes the student with advance planning, detailing, design and the application of related resource materials.

Prerequisite: Architectural Drafting 4.226.

*4.228 Technical Illustration 0 8 3

Includes methods of pictorial drawing, exploded view drawings with pencil and ink shading. The use of both freehand and template drawings are covered. Various color media and rendering techniques are introduced.

Prerequisite: Second-year standing in drafting or consent of instructor.

*4.229 Technical Illustration 0 8 3

A continuation of Technical Illustration 4.228. The illustration of more complex pictorial presentations, exploded views and charting methods. Use of a variety of media and techniques.

Prerequisite: Technical Illustration 4.228.

- *4.230 Sheet Metal Drafting** 0 8 3
Covers the development of patterns for sheetmetal and similar applications. The principle of descriptive geometry will be utilized in the development of typical patterns by parallel line, radial line, triangulation and simplified triangulation methods.
Prerequisite: Machine Drafting 4.222, Descriptive Geometry 4.115 or consent of the instructor.
- *4.234 Architectural Design** 0 8 3
A problem-solving course dealing with the production of architectural design solutions for assigned program requirements.
Prerequisite: Architectural Drafting 4.226 and 4.227 or approval of instructor.
- *4.235 Photogrammetry I** 0 8 3
An introduction to mapping procedures using aerial photo interpretation skills. Map construction is developed using standard methods, equipment and symbols.
Prerequisite: Mapping and Platting 4.131 or consent of instructor.
- *4.236 Civil Engineering Drafting** 0 8 3
An introductory course in the typical drafting room problems of consulting engineering firms. Typical drawings from the areas of plan-profile sheets, construction details, piping details and standards will be studied in their relationship to an overall set of plans. The student will prepare selected drawings from a sewer system, a water system or similar project.
Prerequisite: Second-year technical drafting standing or consent of instructor.
- *4.237 Photogrammetry II** 0 8 3
A continuation of aerial photo interpretation methods. Topographic map construction skills using anaglyphic mapping equipment are developed.
Prerequisite: Photogrammetry I, 4.235, or consent of instructor.
- 4.321 Introduction to Drafting** 0 3 1
Fundamentals of drafting designed to give the student a basic understanding of drawing techniques. Emphasis is placed on application of drafting instruments, standard orthographic projection, layout procedures and ASA-approved lettering techniques. Drawing techniques such as geometric construction, selection of views, sectional and auxiliary views, revolutions, heads and standard dimensioning practices are covered.
- 4.324 Architectural Drafting I** 0 3 1
A problem-solving course dealing with the production of architectural design solutions for assigned program requirements.

- 4.325 Architectural Drafting II** 0 3 1
Basic architectural drafting techniques and methods. Covers architectural lettering, layout, arrangement, symbols and conventional construction methods used in residential or light commercial buildings.
- 4.326 Architectural Drafting** 0 3 1
Development of basic architectural drafting techniques, symbols and methods. Familiarizes the students with advance planning, detailing, design and the application of related resource materials.

Drawing, see ART

EARLY CHILDHOOD EDUCATION,

see also

HOME AND FAMILY LIVING

- *7.113 Administration of Childhood Care Centers** 3 0 3
Operation and administration of early childhood programs, cooperative preschools, nursery schools, private kindergartens, day care centers and Headstart. Includes philosophy, program and facilities planning, finance, staffing and licensing.
Prerequisite: Second-year standing in early childhood education or experience with children in an ongoing group situation.
- 7.115 Child Nutrition** 3 0 3
Functional knowledge of human nutrition, with emphasis on the needs of the young child. Includes development of sound attitudes and habits toward food and planning and adequate meals and snacks for preschool.
- 7.116 Childhood Emergencies** 2 0 2
How to plan a safe environment for groups of young children. How to handle emergencies, childhood diseases and good health habits.
- 7.117 Children's Literature** 3 0 3
Introduction to literature for the preschool child, picture books, stories, poetry, both classics and current literature. Includes value of types of books, evaluating and choosing books, ways to share books with young children.
- 7.119 Development in Childhood I** 3 0 3
Basic principles of growth and development, prenatal through age three. Emphasis will be on physical, intellectual, emotional and social development in children.
- *7.120 Development in Childhood II** 3 0 3
A continuation of Development in Childhood I. Basic principles of growth and development, ages four through eleven. Emphasis will be on physical, intellectual, emotional and social development in children.
Prerequisite: 7.119 Development in Childhood I.
- *7.121 Directed Participation I** 3 12 7
Supervised teaching of children in nursery school, kindergarten, day-care center or child development center.
Prerequisite: Second-year standing and Supervised Field Experience II, 7.135.
- *7.122 Directed Participation II** 3 15 8
A continuation of Directed Participation I.
Prerequisite: Second-year standing and Directed Participation I.
- *7.123 Environments for Young Children** 3 0 3
Planning and evaluating environments for preschool children. Includes how children learn, room arrangement, outdoor play areas, play equipment, furniture selection and sources and scheduling for children.
Prerequisite: Second-year standing in early childhood education or comparable work experience as an aide, teacher or volunteer.
- *7.124 Learning Experiences For Young Children** 3 0 3
An extension of environments for young children. Developing, presenting and evaluating various concepts and activities for preschool children including science, creative expression, nature study, language arts, numbers, space and time, field trips and visitors and sensory perceptual activities.
Prerequisite: Environments for Young Children, 7.123.
- *7.125 The Exceptional Child** 3 0 3
Trying to understand the characteristics and 'world' of the preschool child who deviates from the average or normal in mental characteristics, sensory abilities, neuromuscular or physical characteristics, social or emotional behavior, communication abilities, multiple handicaps and cultural or economic differences. Includes community resources, curriculum considerations and parent involvement.
Prerequisite: Development in Childhood I, 7.119, and Development in Childhood II, 7.120, or consent of instructor.
- *7.126 Home, School, Community** 3 0 3
Establishing and maintaining school and community programs for parent education. Learning techniques and skills for developing rapport and communication with parents and families. Using conferences, meetings and community resources as tools for fostering parent-child relations.
Prerequisite: Supervised Field Experience I, 7.134, and second-year standing in early childhood education.

7.127 Family Living 3 0 3
Patterns of family living in modern society, including the varying roles and interaction of family members and factors affecting family life.

7.128 Home, Family and Career Management 3 0 3
Principles of time, energy and money management with emphasis on the problems of combining the role of homemaker and wage earner. Using human and non-human resources and those of the family and the community to meet the goals of the individual family members and the family as a whole.

7.129 Introduction to Early Childhood Education 2 2 3
A beginning course in early childhood education focusing on its historical development, basic philosophies and types of programs for children and career possibilities in the field. Field trips include observation of preschools, nursery schools, kindergartens, day care centers, Headstart and parent cooperatives.

7.130 Music for Young Children 3 0 3
An introduction to music and related activities appropriate to the pre-school child. Includes rhythm and dance, songs and games, use of instruments, use of music for concept formation, enjoyment and appreciation.

7.131 Observing and Recording in the Preschool 2 2 3
A beginning course focusing on the value and useage of objective observations as a teaching tool. Includes weekly lecture/discussions and weekly observations at child development centers.

***7.132 Observing and Guiding Behavior** 2 2 3
A continuation of the experiences gained in observing and recording in the preschool. Emphasis will be on the role of the teacher, guidance and classroom management techniques and improving and utilizing recording and reporting. Includes weekly observations at child development centers.
Prerequisite: Observing and Recording in the Preschool, 7.131.

***7.134 Supervised Field Experience I** 1 6 3
Working with young children in an organized setting and assisting with supervision of the various daily activities in a preschool program.
Prerequisite: Observing and Recording in the Preschool, 7.131, and Observing and Guiding Behavior, 7.132.

***7.135 Supervised Field Experience II** 1 9 4
Continuation of Supervised Field Experience I. Includes some planning, executing and evaluating of curriculum

materials appropriate for the child.
Prerequisite: Supervised Field Experience I.

***7.136 Creative Activities** 2 2 3
Examination of and experience with various media and activities that promote creative growth in young children. Includes understanding the value of various activities, experiencing them in laboratory, how to present them to children and appropriate selection and timing of activities. Encompasses art activities and materials, puppets, finger plays, flannel boards and the use of nature.
Prerequisite: Development in Childhood I and II, 7.119 and 7.120, or consent of instructor.

7.137 Personal Dynamics 3 0 3
Principles and techniques for establishing and maintaining effective parent-child relationships including fundamentals of relationships, listening skills, ways to communicate feelings, verbal and non-verbal communication, problem solving, handling conflicts and creating a healthy emotional climate.

7.139 Child Abuse and Neglect 3 0 3
Abnormal child rearing practices, including physical injury, child neglect, failure to thrive and emotional abuse. Emphasis on 'how to' and 'what to do' in dealing with problems relating to child abuse. Treatment alternatives for abusive parents or custodians to be included.

7.140 Kindergarten Education 3 0 3
Focus on the kindergarten child and how he/she learns. Developing, planning and implementing appropriate kindergarten curriculum, evaluating materials and methods for kindergarten, current issues in kindergarten education and transition to elementary school.
Prerequisite: Second-year standing in early childhood education or consent of instructor.

ECONOMICS

Ec100 Outline of Economics 3 0 3
An introduction to the fundamental concepts of economics basic to the American economic system. The approach is analytical rather than descriptive, dealing with the purpose of an economic system, the factors that business uses in producing goods and services, income analysis and modern fiscal policy, the American economy in relation to the world scene and contemporary problems of the American economy.

†Ec201 Principles of Economics—Macro 3 0 3
An in-depth study of the two basic economic theories in greater depth. National income is studied for both the United States and for undeveloped countries. International economics is also covered.

†Ec202 Principles of Economics—Micro 3 0 3
The foundations of economics theory, markets, the price system, monopoly and the allocation of resources.

†Ec203 Principles of Economics—Micro 3 0 3
A continuation of the study of micro economics, involving incomes, economic power, public policy, public goods, externalities and the public sector. It also covers economic growth and the changing economic world.

ELECTRICITY/ELECTRONICS,

see also

RADIO-TELEVISION

2.275 Electronic Management 2 0 2
A practical course for the service technician covering the areas of customer relations, business costs, inventories, shop planning and advertising methods. Discussion of the state licensing law.

4.255 DC Theory and AC Theory 12 0 9
Basic principles of DC and AC theory. The principles of operation of the radio and television circuits and their components. Basic mathematics is coordinated with the theory as needed.

4.256 DC Theory and AC Theory Lab 0 6 2
Basic principles of soldering, wire connecting and the proper use of hand tools and hand-powered tools. Safety procedures to be used in the shop. Practical experiments using basic meters and other equipment.

4.257 Electronic Devices 6 0 5
The basic principles of solid state devices and vacuum tubes, mathematics and slide rule are coordinated with the theory principles as needed.

4.258 Electronic Devices Lab 0 6 2
The theories and principles of the electronic devices classes. The student sets up equipment to prove the theories and principles studied.

4.259 Transistors and Circuits Theory 3 6 5
A study of electron theory, operation of the transistor, transistor characteristics, amplifiers, oscillators, radio and television circuits, new developments of transistors and servicing of transistor circuits. The laboratory section of this course is used to apply theories and materials covered in the theory section of this course.

4.260 Use of Instruments 2 0 2
A study of electronic instruments and their applications.

4.262 Electronic Principles 2 0 2
The study and use of the basic circuits and components of electronics. Components and circuits covered include

vacuum tubes, solid state devices, amplifiers, oscillators, power supplies and other similar materials.

4.263 Electronic Principles Lab 0 6 2
The lab principles of 4.262. The student builds bread-board models of the circuits for analysis and components are changed to show the effects on the circuits.

6.194 Engineering Orientation 0 2 1
An introduction to electronic and mechanical engineering. Emphasis is placed on calculations, scientific notation, formula manipulation, the interpretation of charts, tables and graphs and metric system conversions.

6.195 Properties of Materials 2 3 3
A study of the properties of various materials and the effects of stress and strain on these materials. Methods of measuring the stress and strain are also covered.

6.196 Fluid Systems 2 3 3
A study of basic principles of fluid flows, circuits and controls. Laboratory experiments demonstrate hydraulic and pneumatic devices and applications.

6.200 Electrical Theory DC 3 3 4
An introduction to electronics on the basis of direct currents with an emphasis on contemporary techniques as a supplement to basic concepts. Covers the principles of electron physics, unidirectional current and factors affecting its magnitude, series circuit analysis, parallel-circuit analysis, complex unidirectional-current circuits, the phenomena of magnetism and electromagnetism and the use of electrical measurement instruments.

6.202 Electrical Theory AC 3 3 4
A continuation of electronics theory on the basis of alternating currents with emphasis on contemporary techniques as a supplement to basic concepts. Covers the principles of electron physics, unidirectional current and factors affecting its magnitude, series current analysis, parallel-circuit analysis, complex unidirectional-current circuits, the phenomena of magnetism and electromagnetism, inductance and its characteristics, characteristics of capacitance and the use of electronics measurement instruments.

6.206 Electrical Circuits 3 3 4
A continuation of electrical theory with an emphasis on the analysis of the characteristics of complex wave form circuits. Covers passive filter networks, bi-directional wave forms, complex waveform analysis of simple circuits, waveform analysis of series R-C circuits, waveform analysis of series R-L circuits and waveform analysis of combined networks.

6.208 Electricity 3 2 4
An introduction to electrical circuitry and equipment with

emphasis on the concepts of electrical physics. Includes electricity and magnetism, circuits and components, currents power, basic electronics and motors and controls.

***6.210 Transistor Fundamentals** 3 3 4
Fundamentals of semiconductor physics presenting the junction diode and its construction, operation and applications as a bridge to understanding transistors. The structure of transistors and their operation in basic common-base, common-emitter and common-collector circuits comprise the second half of the course. Laboratory experiments illustrate diode and transistor theory and operations.

Prerequisite: Electrical Theory DC 6.200 and Technical Mathematics, 6.261, or approval of associate director.

***6.211 Transistor Circuits** 3 6 5
A continuation of Transistor Fundamentals, 6.210. Applying the theory of transistor operation to practical amplifier circuits. Methods of biasing, effects of inverse feedback, temperature stability, frequency response and cascaded stages are studied and tested in the laboratory.

Prerequisite: Transistor Fundamentals, 6.210, or approval of associate director.

6.212 Electronic Circuit Concepts 2 6 4
A study using the basic circuits and components of electronics with emphasis on designing and proving of the design concepts. Areas covered are solid state amplifiers, oscillators and power supplies. Circuits are designed in the laboratory section and proven in the theory section.

6.216 Advanced Electronic Circuits 1 3 2
The use of operational amplifiers in circuits. The circuits are analyzed and constructed by the student, giving hands-on practical application of the devices and how they operate in the circuit.

6.218 Industrial Electronics 3 3 4
An introductory class and laboratory covering the principles and applications of electronic building-block circuits to simple control problems. Industrial component and control symbols and the operating principles of temperature, pressure, light and related transducers are emphasized.

6.220 Electronic Instruments 2 2 3
Application of equipment and some circuits that could be used in instruments are studied. Lab work uses the IC's in instrument-type circuits giving the principles of the individual circuits operations.

6.221 Mechanical and Electrical Measuring Principles 2 2 3
A study of the theory and operation of measuring units and devices. Uses of instruments in analysis, circuit evaluation

and instrument limiting factors. The laboratory experiments are used to prove the theories studied.

6.228 Industrial Television 3 6 5
A theory and lab course designed to cover television systems, scanning and synchronization, composite video signals, frequency modulation, television receivers and monitors, picture tubes, power supplies, video amplification, practical design of video amplifiers, brightness-control and D-C reinsertions, video detection, automatic gain-control and sync-separation and deflection oscillator and amplifier circuits.

6.230 Network Analysis 2 0 2
A basic introductory course into the area of IC's with emphasis on the operational amplifiers.

6.231 Antennas and Transmission Lines 2 0 2
Practical and theoretical aspects of transmission lines and antennas. Basic theory of antenna design, radiation patterns, phasing and coupling networks are studied. Coaxial- and open-wire transmission line studies are emphasized for all frequencies.

6.234 Wave Generation and Shaping 2 3 3
A class and laboratory introduction to pulse techniques. Begins with an introduction to pulses, giving their historical development, typical applications, nomenclature, importance of pulse shapes and responses of frequency-selective circuits to pulses. Includes theory and operation of limiter and clipper circuits, differentiating and integrating circuits and DC restoration. Various multi-vibrator circuits, synchronization circuits and applications of multivibrators are studied.

6.235 Closed Circuit Systems 3 3 4
A theory and lab course designed to cover closed-circuit television and sound systems, picture transmissions, scanning process and composite signal, camera tubes and circuits, camera video amplifier systems, camera sync and deflection generators and several types of commercial industrial cameras, video and film projection systems, signal processors, time-base correctors, switches, special effects generators, RF modulators, RF and video monitors, video and audio dubbers, video recording of films and slides, the use of studio, remote and portable equipment, P.A. systems, microphones, sound mixers, frequency filters, with emphasis on circuit analysis, set-up procedures, operation and adjustment.

6.237 Semiconductors 2 3 3
A survey class and laboratory covering the operating principles of solid-state devices such as the uninjunction transistor silicon-controlled rectifier, thyristors, field effect transistor and photoconductors and their basic circuits and applications.

***6.238 Solid State Devices** 2 3 3
 The physical principles underlying the behavior of semi-conductors, transistors and other solid-state devices as well as their application to various electronic circuits. The physics pertinent to transistors and semi-conductors are discussed as are characteristics and ways in which they operate. The use of semi-conductor devices in various amplifiers, oscillators and switching circuits is covered with emphasis on developing concepts and knowledge basic to transistor and semi-conductor theory and practice.
Prerequisite: Transistor Circuits, 6.211, or approval of associate director.

6.240 Electronic Data Processing 3 0 3
 An introduction to the principles of electronic digital computers. Covers the application and programming of computers in business, industrial and scientific organizations. Reviews numbering systems as they relate to computers, analyzes computer circuitry with emphasis upon solid-state switches, presents the fundamentals of logic design with an introduction to Boolean algebra and analyzes the major divisions of a digital computer with block diagrams.

6.241 Data Communications 2 3 3
 Modern analog and digital communication systems with emphasis on telemetry and remote instrumentation and control. Communication theory, application, circuitry and systems are presented.

6.242 Microwaves 2 3 3
 A theory and lab course designed as a theoretical plus practical introduction to the field of microwaves. Microwave power sources, transmission lines, antennas, components, test equipment, transmitters and receivers and propagation and location of sites are studied.

6.243 Electromechanical Devices 1 2 2
 An introduction to mechanical and electromechanical devices. Included are gears, gear trains, coupling and clutch assemblies, belt- and chain-drive methods, switches, relays, solenoids and actuators. Their principle and applications to practical operation is the central theme of the course.

6.244 Electromechanical Shop Practice 1 3 2
 The use of hand tools and various types of machine tools. Projects are designed to include the interpretation and construction of designs from blueprint.

6.245 Electromechanical Fabrication 1 3 2
 The characteristics and methods of fabricating materials. The processes of gas and electric welding will be practiced. A study is made of ferrous and non-ferrous material and their application to industrial products. Small sub-assembly units will be constructed as part of the laboratory work.

6.246 Electromechanical Maintenance Procedures 2 3 3
 A study of the proper approach and procedures needed to keep industrial equipment operating. Preventative maintenance and troubleshooting of mechanical and electrical problems are given. The *hows and whys* of lubrication and cleaning of equipment including the use of chemical and ultrasonic cleaners are discussed and practiced.

6.247 Rotating Machines 3 3 4
 A study of the different types of DC and AC machines and their applications. Both single phase and three-phase machines are included. Laboratory experiments support the theory portion of the course.

6.248 Advanced Industrial Electronics 2 3 3
 A continuation of industrial electronics with emphasis on combining control functions into larger systems. Application of various transducers and simple servo systems, magnetic amplifiers, small motor controls, light-operated controls and interpretation of control diagrams.

6.253 Industrial Instrumentation 2 3 3
 A study dealing with pneumatic, hydraulic and electronic instruments and measurements for temperature, pressure flow and related phenomena. Employs many principles and laws of physics. The laboratory classes demonstrate ideas brought forth in theory sessions.

6.254 Industrial Instrumentation 2 3 3
 A further study of pneumatic, hydraulic and electrical instruments and measuring devices as they apply to process and control systems. The laboratory classes demonstrate and apply the ideas brought forth in theory session.

6.255 Electrical Control Systems 2 3 3
 An investigation of various control systems commonly used in industry. These circuits are then used in systems and various methods of systems analysis are used to predict performance of a complete system.

6.256 Servo and Regulation Systems 2 3 3
 The principles of open- and closed-loop control systems, servos, regulators and valves. Includes performance evaluation. Types and application of various types of these devices are given and the reasons for the choice of a specified type for a particular system. Laboratory work consists of using and testing of the devices studied in theory sessions.

6.257 Electrical/Electronic Troubleshooting 2 3 3
 Troubleshooting methods and applications as they pertain to electrical and electronic equipment. The laboratory sessions are practical applications of the studied methods.

6.268 Digital Control System 3 2 4
 Input-output units, numerical control units and other digital readout devices. A study of the theory, operation and maintenance procedures of these units. The laboratory work will give hands-on practical applications, *working with and maintaining the equipment studied.*

6.269 Computer Programming 2 2 3
 An application of programming using basic and assembly languages related to control systems and industrial applications.

6.612 Mechanisms 3 3 4
 A combining of units studied in electromechanical devices and rotating machines into working systems. The effects of aligning, loading, speeds and connecting the various component units into systems will be analyzed and tried. Small systems will be designed. Faults and troubles will be analyzed.

EMERGENCY MEDICAL TECHNOLOGY, see also HEALTH

He260 Crash Injury Management 2 2 3
 This 40-hour training program is designed specifically for the law enforcement officer, usually the first person at the scene of a traffic accident. It covers life-threatening emergencies including airway care, pulmonary and cardiopulmonary resuscitation, control of bleeding and prevention and control of shock. The practical aspects of emergency care required at an accident scene are emphasized.

5.120 Rescue and Emergency Care 1 2 2
 A combination of first aid and rescue practices. Standard procedures in the aid and care of victims of the most common emergencies. First aid emphasis will be on the handling of respiratory, burn, cardiac, fracture and shock victims. Practical methods of carrying out rescues in a number of types of emergencies will be covered.

***5.135 EMT Basic Emergency Medical Techniques** 2 2 3
 Recognition of symptoms of illness and injuries and proper procedure for emergency care. Demonstration and practice are utilized as the major teaching method. Test and evaluation sessions are designed to assure attainment of proficiency in all skills.
Prerequisite: Consent of associate director.

***5.136 EMT Basic Emergency Medical Techniques** 2 2 3
 A continuation of EMT 5.135 using demonstration and

practice to gain proficiency in all skills.

Prerequisite: EMT I 5.135 or consent of associate director.

5.137 EMT Basic Emergency Medical Practicum 0 1 1

An opportunity to observe and practice emergency skills, including pre- and post-conference sessions with five hours emergency room experience and five hours ambulance experience.

English, see LITERATURE, WRITING

Ethics, see PHILOSOPHY

Fabrication, see WELDING

Filing, see SECRETARIAL/CLERICAL

**FILM PRODUCTION,
see also THEATER**

FA255 Introduction to Film Styles 1 4 3

Examination of the history, technique and art of film through in-class film viewing and discussion. Emphasis will be on acquiring background and a basis for evaluating film as an art form and an appreciation for a variety of stylistic approaches in the cinema.

FA256 The Great Film Directors 1 4 3

Analysis of films from the standpoint of the director—the creator. The term is devoted to the films of one or two directors in an effort to understand and critique the individual films as a work of a film artist, especially within the context of the films as a body of work expressing a particular and unique view of the world.

FA257 Genres and Themes of Films 1 4 3

An examination of a number of films presenting a single genre (westerns, comedies, etc.) or expressing common themes in an attempt to focus on the various directors involved and the diverse styles, techniques and personal expression they bring to their subject.

**Financial Accounting,
see ACCOUNTING**

FIRE SCIENCE

5.100 Introduction to Fire Protection 3 0 3

The philosophy and history of fire protection, history of loss of life and property by fire and the role and responsibility of fire departments in the community. Includes the organization and function of local, county, state, federal and private fire protection agencies and allied organizations, sources of professional literature and a survey of professional career opportunities.

5.101 Fundamentals of Fire Prevention 3 0 3

The organization and function of fire prevention organizations, familiarization with principles of fire prevention, inspection procedures, public education and state and local laws and ordinances. Includes recognition of fire hazards, engineering a solution for hazard, enforcement of solutions and public relations as it affects fire prevention.

5.103 Fire Science 3 2 4

Practical physics covering matter, measurements, machines and energy. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.

***5.104 Fire Service Hydraulics** 3 2 4

Hydraulic laws and formulas as applied to the fire service. Includes a review of basic math and application of formulas and mental calculations to hydraulic problems. Fireground water supply problems and underwriter's requirements for pumps and accessories are also covered.

Prerequisite: Math 4.200 or equivalent.

***5.105 Fire Pump Construction and Operation** 2 2 3

Theory of pump operation, types and features of various pumps, practical operation of fire pumps and accessories, drafting, hydrant and tanker operations and rule of thumb fireground hydraulics calculations are included.

Prerequisite: 5.104 or approval.

5.106 Fire Protection Systems 3 0 3

Fire sprinkler and other extinguishing systems including foam, dry chemical and halon systems, ventilation systems, fire detection and alarm systems, municipal alarm systems and others.

5.107 Fire Investigation 3 2 3

Study of burning characteristics of combustibles, interpreting clues, burn pattern leading to point of origin, identifying incendiary indications, sources of ignition and materials incinerated and preservation of fire scene and evidence.

5.108 Hazardous Materials 3 0 3

The chemistry of fire. Includes handling emergencies involving flammable liquids, gases and solids, cryogenics, combustible metals, plastics and oxidizing agents.

5.109 Hazardous Materials 3 0 3

Handling of emergencies involving explosive and unstable materials, rocket propellants, water reactive materials, poisons, corrosives, combustion products and radioactive materials.

5.110 Fire Training Programs and Techniques 3 0 3

Purposes of fire training drills and training programs. The development and operation of the departmental training programs. Facilities and equipment necessary for modern training, selecting and training the instructional staff, lesson planning, training aids and other techniques of program training.

5.111 Fire Insurance Principles and Grading Schedules 3 0 3

Insurance grading schedules and principles of application. Methods of analyzing fire hazards and the effects of fire hazards on fire insurance rates. The fundamentals of fire insurance rating methods, loss records and municipal grading.

5.112 Fire Department Organization and Management 3 0 3

Fire company and department organization and management including duties and responsibilities, response to alarms, public relations, fire prevention, records, reports and communications and the individual's role and responsibilities within the organization.

5.113 Fire Fighting Tactics and Strategy 3 0 3

Pre-fire survey and planning, response and size-up, fireground tactics, analysis and post-mortem.

5.116 Fire Codes and Ordinances 3 0 3

Application and use of the uniform building code and applicable fire prevention codes in general use, finding and evaluating building hazards and fire hazards and simplified methods of estimating fire losses.

5.117 Water Distribution Systems 3 0 3

Main systems—size, gridding, valves, hydrants, pumping stations and reservoirs. Fire flow requirements for commercial and residential districts, storage tanks, cisterns and mobile supplies.

5.119 Blueprint Reading for Firemen 3 0 3

Fundamentals of blueprint reading including the interpretation and meaning of lines, views, elevations, conventions and symbols and the relationship of the various elements comprising architectural drawings and specifications.

5.122, 5.123, 5.124, 5.125, 5.126, 5.127 Fire Related Experience 0 9 3

A continuing on-the-job training program providing practical training in areas of firefighting skills, fire prevention work, apparatus and equipment, operation and maintenance, alarm and dispatching, station organization

and management, responsibility and leadership, inspection, prefire planning and other fire-fighting duties. Must be taken in sequence.

5.131 Building Construction for Fire Suppression 3 0 3

A course designed to acquaint the fire fighter with fire problems inherent in structural elements of building. Knowledge gathered through interpretation of blueprints and inspection of various building types provides a basis for applying effective extinguishment practices with adequate safeguards for the fireman.

5.151 Natural Cover Fire Protection 3 2 4

The organization, methods, tactics and strategy of safely controlling and extinguishing grass, brush and forest fires, uses of hand tools, portable pumps, motorized apparatus, aircraft and helicopters, chemicals and other related equipment used in the suppression of natural cover fires. Also covers forest and wildland fire prevention techniques.

***6.995, 6.996 Fire Science** 3 2 4

The physical and chemical properties of substances, chemical bonds and reactions, ionization and covalent substances. Laboratory time is provided for clarifying demonstrations and experiments. Must be taken in sequence.

Prerequisite: 5.103.

FIRST AID,
see also **HEALTH**

He199C Special Studies in First Aid 3 0 3

Either the Red Cross multi-media course or the Red Cross standard course provides the basic first aid procedures. The skills are supplemented with specialized instruction in high altitude emergency care, or childhood emergency procedures or accident prevention and emergency care.

He252 First Aid 3 0 3

Immediate and temporary care for a wide variety of injuries or illnesses, control of bleeding, care for poisoning and proper methods of transportation, splinting and bandaging. Successful completion of course leads to Red Cross standard, advanced and instructors' certificates.

5.450 First Aid 1 2 2

This course is designed to give fundamentals of first aid to the sick and injured, covers practical problems, emergencies, artificial respiration, fractures, etc. Upon satisfactory completion of the course the student will be issued a standard Red Cross first aid certificate.

5.513 First Aid 1 0 1

Skills and knowledge for the immediate and temporary

care in case of accidental or sudden illness and preventative measures. This is a standard Red Cross first aid course.

Food Production, Food Services, see COMMERCIAL FOOD PRODUCTION

FOREIGN LANGUAGE

†RL60, 61, 62 First-Year Spanish 4 0 4

An introduction to Spanish, stressing speaking and reading. Exercises in elementary composition.

†RL107, 108, 109 Second-Year Spanish 4 0 4

Intensive oral and written exercises designed to help the student acquire an accurate and fluent use of Spanish. Study of selections from representative authors.

1.700, 1.701, 1.702 Conversational Spanish I, II and III 2 2 3

Practices and exercises in the basic vocabulary and structural patterns to help the student understand and speak Spanish.

FORESTRY

3.600 General Forestry 3 0 3

An orientation and overall picture of forestry in the United States. It includes how forests and man are interdependent, the role of forests in the building of our country, the distribution and character of our forests, what a forest and forestry are, silvicultural systems, reforestation and the history of forest protection as related to fire, insects, animals and disease.

3.601 Forestry Seminar 1 0 1

A continuing discussion of the essentials necessary for successful employment in a forestry situation. Topics include resumes, interviews, working conditions, safety and evaluations. A review of technical subjects is also included.

3.605 Tools and Equipment 1 2 2

A study of the principles of proper use and care of hand tools and power tools commonly used in forestry work. Includes fundamentals of falling and bucking, sharpening edged tools and safety in the woods. Tools studied include files, axes, pulaskis, hazel hoes, shovels, peevies, wedges, mauls and crosscut and chain saws. Practical work is accomplished for cooperating individuals or agencies. Foremanship is discussed and practiced in labs.

3.610 Tree Identification 1 2 2

A review of basic botany necessary for tree identification including taxonomy, flower and plant parts with emphasis on fruit, bark and twig characteristics. Deals with the com-

mon commercial coniferous species of the Pacific Northwest with emphasis on those species native to Oregon. Use of the dichotomous key is practiced, scientific names are studied and the economic importance of each tree is discussed.

3.611 Tree Identification 1 2 2

Plant identification with emphasis on the native hardwoods of Oregon. The common forest shrubs are included. Use of the dichotomous genus key is covered and study is made of terms used. Recognition is accomplished in field labs where scientific names are specifically required.

***3.614 Wood Products Marketing** 2 2 3

An introduction to all aspects of wood products marketing from the producer to the consumer taking into consideration the relationships of quality control, traffic, wholesaling, retailing, financing, ordering and merchandizing.

Prerequisite: Consumer Economics, 1.525, Wood Industry Economics, 4.286, Building Materials, 6.281 or permission.

***3.617 Scaling Practices** 2 6 4

Theory and principles of log scaling. Considerable time is spent in the field scaling logs for net scale. Types of defect and corresponding deductions for each are discussed in conjunction with field observations.

Prerequisite: Tree Identification 3.610.

***3.624 Forest Photogrammetry** 2 2 3

Techniques and principles of forest photo interpretation including forest-type mapping, volume estimating, horizontal measurement of distance, angle and area, vertical measurements, tree heights and differences of elevation of two ground points.

Prerequisite: Third-term standing or approval of associate director.

3.626 Forest Sciences 3 0 3

A study of important forest diseases, forest insects and animal influences on trees and forests. Covers descriptions, damage inflicted, damage control techniques and operational control projects.

***3.630 Silviculture** 3 0 3

A study of basics of forest soils, silvics and silvicultural treatment of forest stands as they apply to the Pacific Northwest, especially the major forest types of Oregon.

Prerequisite: General Forestry, 3.600, Tree Identification, 3.610 and 3.611, Natural Cover Fire Protection, 5.151, Forest Sciences, 3.626 and Forest Mensuration I., 6.300.

4.280 Forest Products 3 3 4

A study of the major non-chemical wood products industries and a brief introduction to the pulp and paper industry. Emphasis is placed on the economic importance,

properties, uses and manufacturing processes.

4.281 Pulp and Paper Technology 3 3 4

The fundamental processes of the pulp and paper industry. Mechanical and chemical pulping, refining, screening, filling, sizing and sheet formation are included along with cooking liquors, recovering chemicals, fiber recycling and testing of pulp and paper products.

4.282 Logging and Milling 2 6 4

A study of the harvesting and transportation of logs and the manufacturing processes and machines in the lumber industry.

***4.286 Wood Industry Economics** 3 0 3

A basic review of economic principles applied to forestry and wood products industries, including the allocation of forest lands, timber, human and industrial resources to optimal usage. Also includes an economic guide for timber production and an economic approach to products other than timber, such as recreation, water and wildlife, valuation topics, interest, taxes and capital and input-output analysis. Covers the wood industry in the Pacific and Rocky Mountain region of the United States and production economics in lumber and other forest products industries. **Prerequisite:** Consumer Economics, 1.525 or Basic Economic Principles.

6.279 Wood Adhesives, Coatings and Plastics 3 2 4

The basic physical and chemical nature of wood, wood finishing, synthetic resins, plastics, adhesion principles and coating techniques. Quality practices in paint, furniture and glue manufacturing plants and laboratories.

6.280 Wood Structure and Identification 1 6 3

A study of basic wood structure and the gross features of wood. Includes the study of the identification of common softwood and hardwood species.

6.281 Building Materials 2 3 3

Wood as an engineering material, lumber merchandising, basic methods in residential building construction, codes and grading rules. Elementary knowledge of building materials other than wood.

6.282 Wood Preservation and Drying 3 2

The various methods of preserving wood against insects, decay, fire and weathering. Includes a familiarization with wood preservatives, pressure and non-pressure treatments, preparation of material for treatment and properties of treated wood. Explains the methods of air seasoning and kiln drying, developing kiln schedules, drying defects, type of equipment in use, shrinkage, swelling, dimensional stabilization of wood and drying of specialty products.

6.285 Plywood, Composite and Laminated Wood Products 2 4 3

Manufacturing, properties, uses and testing of plywood, particleboard, insulation board and lumber laminates, plastic overlays and veneers, commercial requirements, specifications and quality, log allocation and optimum recovery.

6.287 Industrial Quality Control 2 2 3

Simple quality charts and calculations applied to mass-produced items. Methods in testing and controlling effluents, industrial waste, sound and air and water quality. Also includes selective topics in quality control of specific interest to individual students.

***6.300 Forest Mensuration I** 3 4 4

A study of the measurement of individual forest products and the standing tree in the forest. Includes theory and field work in the various methods of timber cruising.

Prerequisite: Math, 4.204, Tree Identification, 3.610, and Plane Surveying, 6.101 (may be taken concurrently).

***6.301 Forest Mensuration II** 3 4 4

Principles of 3-P timber cruising, forest valuation and forest growth and yield. Includes a review of basic mensurational equipment and procedures and some work in basic forest statistics.

Prerequisite: Forest Mensuration I, 6.300.

General Science, see SCIENCE, MEDICAL SCIENCE

GEOGRAPHY

†Geog105 The Natural Environment 3 0 3

An introduction to the physical elements of geography and the environment in which man lives. Focus is on the planet earth's waters, landforms, atmosphere, vegetation and soils. Students will also be introduced to the problems of graphically representing the earth and its significance to humankind.

†Geog106 The Cultural Environment 3 0 3

An introduction to man's cultural landscapes, cultural areas and integrative systems. Focus is on the study of the urban mosaic, political patterns, language, population, religion, agriculture and industry. Considerable attention is given to the study of ecologically-oriented issues as they are related to the above topics.

†Geog107 Historical Geography 3 0 3

An introduction to the historical evolution of cultures in the context of man-land relations. Focus is on culture areas, culture diffusion and cultural ecology in past times. Special emphasis is given to cultural landscapes in South

Asia, the middle east, Mediterranean Europe, Northwest Europe and the United States.

Geog200 Environment and Man 3 0 3

Man's alteration of natural systems and environmental problems created by natural resources and energy development programs. Human activity at different times and places in regard to soils, climate, vegetation, land forms and water.

GEOLOGY

G199 Geological Field Studies 0 6 3

Geological formation, rocks and minerals of various areas with emphasis on paleontology. Studies will be accomplished in the field.

†G201, 202, 203 Geology 3 0 3

Earth materials, processes and structures and the history of earth and life.

†G204, 205, 206 Geology Laboratory 0 3 1

Laboratory and field work to accompany G201, 202 and 203.

4.305 Elementary Geology 3 2 4

A study of physical geology as it pertains to the drilling industry. Understanding and recognition of geological formation, topography and maps to better identify and locate satisfactory drilling sites.

Government, see POLITICAL SCIENCE

Graphics, see VISUAL COMMUNICATIONS

HEALTH,

see also

EMERGENCY MEDICAL TECHNOLOGY

**He199A Seminar in Health Studies—
Narcotics, Alcohol** 3 0 3

Multidisciplinary study of the detrimental factors of our social environment and their effect on the body.

**He199B Personal Health and
Human Sexuality** 3 0 3

A study of an individual's personal health attitude and behavior in relation to sexuality. Two major areas covered are (1) environmental conditioning and its relationship to identity, self-esteem, love and role definition and (2) physiology in relationship to environmental conditioning and human sexual response.

†He250 **Personal Health** 3 0 3
 A study of personal health with emphasis on implications of family life, mental health, communicable diseases, degenerative diseases, nutrition, mood modifiers and consumer health.

He251 **Community Health** 3 0 3
 A study of community health problems and related agencies. An overview of community health programs, health resources and the relationship of personal health to community health.

HEALTH RECORDS

*5.620 **Health Information System Procedures** 2 4 4
 Health information systems and related skills and practice in admitting and bed control procedures. Includes basic health statistics, health record content and discharge procedures, transcribing doctors' orders, filing procedures, indexes and registers, scheduling and appointments and receptionist functions.
Prerequisite: Enrollment in health records option of either the medical assistant or medical secretary programs. Admission to this option requires skill in typing with proficiency of 35 WPM, basic mathematics and basic English usage.

*5.621 **Health Information Systems Procedures** 3 4 5
 Continuation of Health Information Systems Procedures I.
Prerequisite: Satisfactory completion of Health Information Systems Procedures I, 5.620.

*5.622 **Health Records Processing** 0 20 5
 Processing medical reports and records including basic histories and physicals, discharge summaries, operative reports, medical specialty reports and radiology, pathology and autopsy reports. A variety of problem situations in conclusion which include actual experiences in, or from, a variety of offices and settings. Evaluations in this course is achieved through demonstration by student of his/her proficiency in typing, transcription speed, accuracy and organization/processing of health record information. Projects will be graded continuously by instructor for immediate feedback to the student.
Prerequisite: Health Information System Procedures II, 5.621 Body Structure and Function II 5.616 or Medical Terminology II, 5.610, typing speed of 50 WPM on a five-minute timing and no more than five errors, or consent of associate director.

5.700 **Health Occupations Overview** 1 0 1
 The study of concepts for organization of resources for health care and services, the role of the health worker as a

member of the health team and the rights and responsibilities of the patient as a member of the health team.

HISTORY,

see also **WOMEN'S STUDIES**

Hst107, 108, 109 **History of World Civilization** 3 0 3
 A survey of human cultural, social, economic and political development of the world's civilizations. Hst107—from ancient times to 1500 A.D., Hst108—from 1500 to 1914, Hst109—the twentieth century.

Hst157 **History of the Middle East and Africa** 3 0 3
 A survey of the human cultural, social, economic and political development in the middle east and Africa.

Hst158 **History of the Third World** 3 0 3
 A survey of human cultural, social, economic and political development in Asia.

Hst159 **History of the Third World** 3 0 3
 A survey of human cultural, social, economic and political development in the Middle East, Asia, Africa and Latin America covering the twentieth century.

†Hst201, 202, 203 **History of the United States** 3 0 3
 A study of the cultural, economic, social and political development of the United States. Hst201—1492-1865, Hst202—1865-1920, Hst203—1920-1970.

Hst210 **Futurism, Alternatives for the Future** 3 0 3
 Examines trends of the past and present and uses this information to examine alternative futures. Demographic trends, technical innovations, cultural shifts and what cannot happen and what will happen if we behave in a number of specific ways.

Hst257 **Introduction to Ethnic History, American Indian** 3 0 3
 The native American as a minority group with a culture, heritage, humor, self-consciousness and outlook. The history of the American Indian and his role in American history.

Hst258 **Introduction to Ethnic History, Black American** 3 0 3
 The role of blacks in American history. Recounts and explains the experiences of America's largest minority group in its attempt to secure meaningful first-class citizenship.

Hst259 **Introduction to Ethnic History, Chicano** 3 0 3
 Tracing and analyzing the various aspects of the life and society of the Chicano. Focuses on the racial, cultural,

educational, economic and political development of the Chicano in the United States.

HOME AND FAMILY LIVING,

see also

EARLY CHILDHOOD EDUCATION, NUTRITION

†CT210 **Clothing Construction** 0 8 3
 The application of principles and techniques of construction and fitting to individual projects.

†CT211 **Clothing and Man** 3 0 3
 Sociological, psychological, economic and aesthetic factors affecting the selection of clothing.

†CT250 **Textiles** 3 0 3
 Properties, identification, selection, use and care of textile fibers and fabrics.

†FL222 **Partner Relationship** 3 0 3
 The courtship period and factors in mate selection. Open to men and women.

†FL223 **Family Living** 2 0 2
 Marriage and relationships in the beginning family. Open to men and women.

†FN225 **Nutrition** 4 0 4
 The relationship of food and its components to health with emphasis on the young adult. Current national and international concerns are considered.

†HM250 **Home Management and Decision Making** 3 0 3
 The concepts associated with home management in various situations including values, goals, standards, decision-making, management processes and the uses of human and material resources to meet individual and family needs.

7.138 **Marriage** 3 0 3
 The study of marriage in a changing society. Discussions, panels and audio-visuals focus on such topics as factors in mate selection, adjusting to marriage, marital conflict, changing roles, values, sexuality, communication and developing positive relationships.

Human Relations,
 see **PSYCHOLOGY**

HUMAN RESOURCE TECHNOLOGY

*5.436 **Human Resource Technology I** 3 0 3
 An introductory training course for human service workers with emphasis on awareness and acceptance of self and

others, roles and functions of human service workers, professional ethics and basic communication and problem solving skills.

Prerequisite: Admission to program or consent of associate director.

***5.437 Human Resource Technology II 3 0 3**

Introduction to the theory and practice of interviewing. Didactic material couples with extensive role playing relating to student field placements. Students experience both professional and client roles. Basic purposes and techniques of observation, interviewing, summarizing, recording and communicating are discussed.

Prerequisite: HRT I, 5.436, or consent of the associate director.

***5.438 Human Resource Technology III 3 0 3**

Introduction to the theory of groups and group functioning. Styles of group leadership, roles played by various group members and supervisor-subordinate relationships are defined and discussed. A process is utilized in which the student observes him/herself as part of the group.

Prerequisite: HRT II, 5.437, or consent of the associate director.

***5.439 Human Resource Technology IV 3 0 3**

Successful job-finding techniques and the topic of termination by staff, students and clients.

Prerequisite: HRT III, 5.438, or consent of the associate director.

***5.440 Human Resource Technology V 3 0 3**

A study of the theoretical models used in our culture to describe mental health/illness. Includes an overview of treatment modalities as they relate to various forms of mental health.

Prerequisite: HRT IV, 5.439, or consent of the associate director.

***5.441 Human Resource Technology VI 3 0 3**

The application of the theories of intervention presented in HRT V. Reporting techniques, semantics, advocacy and application of intervention techniques are included. In addition, the physiology of stress is presented from the orientation of how our body communicates with us and others.

Prerequisite: HRT V, 5.440, or consent of the associate director.

5.442 Community Resources 3 0 3

A course designed to familiarize the student with the social service delivery system, both locally and historically.

5.443-5.448 Human Resource Technology 3 0 3

Practicum Experience variable

The practicum experience will be utilized during five quarters for the purpose of reinforcing those skills

presented in the human resource technology curriculum. This laboratory experience will also enable the student to demonstrate his/her knowledge and also to develop greater sophistication in the application of his/her skills and knowledge. The development of these roles will vary according to the previous experience of the students, the structure and roles of the specific agency and the abilities of the two to implement this role-development process.

5.525 Gerontology 3 0 3

The physical, mental and cultural dynamics of aging will be presented as a continuation of the human growth process. The material will be presented from an orientation of involvement of the aging with life rather than a preparation for death.

Humanities, see LITERATURE, PHILOSOPHY, RELIGION, ART, WRITING, SPEECH, MUSIC

Income Tax, see ACCOUNTING

INSURANCE

BA241 or 2.341 Risk and Management 3 0 3

Concepts of risk, probability and insurance and the role of insurance in the management of risk. An examination of the underlying legal principles and common elements of most insurance contracts. Special emphasis on the roles of insurance from the viewpoint of the consumer, business and personal applications of the major types of property and liability insurance and life and health insurance, with emphasis on underlying economic need each is designed to meet.

***2.119 Insurance—Property and Casualty 3 0 3**

An introduction to property, casualty and liability insurance coverages and the general limitations of insurance. Successful completion of this course will provide the student with the basic knowledge needed for Insurance IIA21, IIA22 and IIA23.

Prerequisite: BA241 or consent of instructor.

***2.342 Insurance—IIA21 4 0 4**

The course deals with the general principles of insurance. Includes the concept of risk, its place in economics, methods of treating risk and essentials of an insurable risk. Introduction to insurance contracts and legal concepts which underlie them.

Prerequisite: BA241 or consent of instructor.

***2.120 Insurance—IIA22 4 0 4**

Understanding coverages, policy provisions and concepts common to property insurance. Contracts and forms studied include the standard fire policy, extended

coverage endorsement, dwelling and contents form, building and contents form, crime policies, business interruption forms, bailees' customers' policy and the property coverages provided by multiple-line contracts.

Prerequisite: 2.342 or consent of instructor.

***2.121 Insurance—IIA23 4 0 4**

Coverages, policy provisions and concepts peculiar to casualty, surety and multiple-line contracts. Contracts studied include the family automobile policy, workers' compensation and employer's liability policy, owners', landlords' and tenants' liability policy, comprehensive general liability policy, comprehensive personal liability coverage, life and health insurance coverages and the liability insurance aspects of multiple-line contracts.

Prerequisite: 2.342 or consent of instructor.

***2.222 Rating and Underwriting— 3 0 3**

Life and Health

A continuation of the underwriting and actuarial studies of life and health insurance begun in Policies and Forms II, with in-depth study of the basic practices and decisions made by an insurance company. Includes use of ratebooks, applications and company materials.

Prerequisite: 2.228 or consent of instructor.

***2.223 Rating and Underwriting— 3 0 3**

Property and Casualty

A continuation of the underwriting and actuarial studies of property and casualty insurance begun in IIA 21, with in-depth study of the basic practices and decisions made by an insurance company, including rating using company rate materials.

Prerequisite: 2.342 or consent of instructor.

***2.225 Group Insurance and 3 0 3**

Social Insurance

Analysis of group life and group health insurance, including products, marketing, underwriting, reinsurance, premiums and reserves. Socio-economic problems related to old age, unemployment and disability and various public plans that have been developed to meet these problems are also discussed.

Prerequisite: BA241 and 2.343 or consent of instructor.

2.226 Regulations/Law 2 0 2

(Oregon Insurance Code)

A study of the Oregon revised statutes pertaining to insurance in Oregon, with special emphasis on agents and adjuster practices, fair trade practices and consumer protection afforded by the insurance code.

Prerequisite: One course in life and health and property and casualty.

***2.228 Policies and Forms I 3 0 3**

A study of the various basic forms and amendments used in

iders and life and health insurance, including all forms of life, health and hospital coverages as well as variable life and variable annuity contracts. The course also includes underwriting and actuarial assumptions which related to the various contracts.

Prerequisite: Insurance—IIA21, 2.343

***2.230 Investments 3 0 3**

An opportunity for the student to consolidate and coordinate his previous experiences with the basic information and data an investor needs to survive the maze of alternatives he faces in the marketplace. Included is an explanation of investments as viewed by insurance companies and insurance as a part of the investor's portfolio.

Prerequisite: BA101 and BA211 or consent of instructor.

***2.231 Risk Management Analysis 3 0 3**

A study of the operations of various types of businesses to determine what hazards exist and then how to best treat them. Includes a case study of a small business risk management as a term project.

Prerequisite: 2.228 and 2.342.

***2.343 Insurance Principles—Life and Health 3 0 3**

Studies of basic theory, policy structure, pricing structure and applications of life and health insurance to prepare the student for entry into the insurance industry or to educate the student as a consumer. Covers rate making, cost analysis and uses of various life and health contracts.

Prerequisite: BA241 or approval of instructor.

2.344 Insurance Occupational Survey Seminar 1 0 1

A seminar exploring specific insurance occupations. Practicing professionals in the field are invited as guest speakers. Field trips are also included.

9.540 Individual Life and Health Insurance (CLU) 4 0 4

The role of life and health insurance in meeting economic security needs, type of individual and special life and annuity contracts, individual health insurance contracts and the mathematics of life insurance as related to premiums, reserves, nonforfeiture values, surplus and dividends.

9.541 Life Insurance Law and Company Operations (CLU) 4 0 4

Legal aspects of contract formation, policy provisions, assignments, ownership rights, creditor rights, beneficiary designations, disposition of life insurance proceeds and settlement options. Covers types of insurers, risk selection, company investments, financial statements and regulation and taxation of companies.

9.542 Group Insurance and Social Insurance (CLU) 4 0 4

Analysis of group life and group health insurance, including products, marketing, underwriting, reinsurance, premiums and reserves. Socio-economic problems related to death, old age, unemployment and disability are also discussed.

9.543 Pension Planning (CLU) 4 0 4

Basic features of pension plans including cost factors, funding instruments and tax considerations involved in private pensions, profit-sharing plans and tax-deferred annuities. Also covered are thrift and savings plans and plans for the self-employed.

9.544 Income Taxation 4 0 4

The federal income tax system with particular reference to the taxation of life insurance and annuities. The income taxation of individuals, sole proprietorships, partnerships, corporations, trusts and estates. Also included is the income taxation of transactions involving annuities and life and health insurance.

9.545 Investments and Family Financial Management 4 0 4

Various aspects of investment principles and their application to family management. Includes yields, limited income securities, growth factors, analysis of financial statements family budgeting, property insurance, mutual funds, variable annuities and aspects of other investment media.

9.546 Accounting and Finance 4 0 4

Basic accounting principles including data accumulation systems, income measurement, valuation of assets and liabilities and financial statement analysis. The accounting process from the recording of a business transaction in the books of account to the final preparation of financial statements. Various sources of short-term, intermediate-term and long-term funds available to a business enterprise.

9.548 Business Insurance 4 0 4

Business uses of life and health insurance, including proprietorship, partnership and corporation continuation problems and their solutions through the use of buy-sell agreements properly funded to preserve and distribute business values. Includes other business uses of life and health insurance, such as key man insurance, non-qualified deferred compensation plans and split-dollar plans. Human behavior and ethics in business are also discussed.

9.549 Estate Planning and Taxation 4 0 4

Estate and tax planning emphasizing the nature, valuation,

disposition, administration and taxation of property. The use of revocable and irrevocable trusts, testamentary trusts life insurance, powers of appointment, wills, lifetime gifts and the marital deduction. The role of life insurance in minimizing the financial problems of the estate owner.

Job Search, see CAREER AWARENESS

JOURNALISM

J215 Journalism 0 4 2

Practical application of journalism through work on the student newspaper and related publications. A maximum of six hours.

J216 Newswriting 3 0 3

Study and practices of news gathering and writing of news stories. Learning newspaper style is emphasized. An introduction to feature writing is included. (This course is a recommended prerequisite or corequisite to J215.)

J224, 225, 226 Introduction to Journalism 3 0 3

Survey and criticism of communication media and discussion of journalistic techniques. Fall term, news writing and editorial functions; winter term, advertising and public relations; spring term, production methods. The terms need not be taken in sequence.

Law Enforcement, see CRIMINAL JUSTICE

LEADERSHIP DEVELOPMENT

Ed296 Leadership Development 2 2 3

A course designed to develop leadership skills including the study of communication, organizational skills, creating goals and objectives, decision making and the group process. This course emphasizes skill building through simulated exercises, discussions and participation in leadership experiences.

LITERATURE

†Eng101, 102, 103 Survey of English Literature 3 0 3

An examination of major literary documents and major authors. Lecture-discussion and individual study relates authors and genres to their historical, cultural, intellectual and aesthetic context. Emphasis is placed on students' in-depth involvement in the issues of the literature, with attention to aesthetic analysis and the students' synthesis of literary issues with their own perceptions of contemporary life relationships. Interdisciplinary themes are studied through supplementary reading and popular entertainment forms, exploring continuity and divergency of cultural currents. Eng101 covers the period from Beowulf

to the renaissance in England; Eng102, from Milton to the romantic movement; and Eng103 from the last half of the romantics to modern British fiction.

Eng104, 105, 106 Introduction to Literature 3 0 3

Study of literature and the nature of literature experience through reading of great works of prose and poetry drawn from English and other literatures. Principal literary types are read with emphasis on such elements as structure, style, characterization, imagery and symbolism. Eng104 deals with fiction, Eng105 with drama, Eng106 with poetry.

Eng107, 108, 109 World Literature 3 0 3

A sequence to acquaint the student with outstanding works of ancient, medieval and modern literature that have had a permanent and wide appeal outside their own country.

†Eng201, 202, 203 Shakespeare 3 0 3

The study of Shakespeare's works centering on the formal elements—structure, characterization, setting, movement and imagery—as well as the more illusive elements of the plays—their larger meanings and value systems. The nature of Shakespeare's work will be analyzed in order to relate it to the larger mode of tragedy, comedy and the genre of drama. In addition to the plays, a number of essays in Shakespearean criticism relative to these plays will be assigned. The class will be conducted primarily through discussion. It is imperative that the student read carefully and come prepared to discuss the assigned materials. Eng201, tragedies; Eng202, comedies; Eng203, important Shakespearean plays.

†Eng253, 254, 255 Survey of American Literature 3 0 3

The selected genres (poetry, fiction, drama and expository, religious and critical prose) and works, from the beginnings of American literature to present day, are discussed in relation to the way they imitate, interpret and direct our personal social lives. Reading and assessing interpretive literature for personal enjoyment is stressed. Special emphasis will fall on written and oral discussions of assigned readings, encouraging all students to share their ideas with their peers, not just with the instructor.

Eng256, 257, 258 Minority Literature 3 0 3

A three-term sequence in minority literature which studies major writers of a specific group. The course will explore the individual vision of each writer and how that vision relates to a group ethic as well as group identity. Eng256, Indian; Eng257, Black; Eng258, Chicano.

1.205 Literature for Technicians 3 0 3

An introduction to the essay, short story, novel, poem and

play through discussion and individual study. Non-fiction works are coupled to the modern novel. Emphasis is placed on vicariously experiencing the events affecting characters in literature and relating these experiences to the modern technological world.

1.206 Experience and Expression in Literature 3 0 3

A look into the many images of the American in literature. It includes readings authored by American writers that explore the socially alienated and disadvantaged and social elite aspects of America. Each selection allows one to relate the images of the Americans as they are presented to the images developed as a result of personal experiences, observations and insights. The course will deal with the real American vs. the ideal or mythical American.

MACHINE-MECHANICAL

4.122 Industrial Materials 2 3 3

An introduction to fabrication and engineering materials used in industry. Emphasis is placed on non-ferrous and non-metallic materials including ceramics, plastics, light metals and 'space age' metals. Laboratory time is provided to investigate the physical and electrical properties and the methods to determine these properties.

***4.170 Industrial Materials and Processes 2 4 3**

An introduction to the materials used by modern industry to manufacture industrial products. The ferrous and non-ferrous metals and alloys are covered as well as a number of the newly-develop 'exotic' metals. Emphasis is placed on the non-metallic materials used in industry. Included in the course are the study of the processes and methods of utilizing these industrial materials.

Prerequisite: Machine Tool Processes, 4.802 or approval of associate director.

***4.171 Mechanical Systems 3 3 4**

An introduction to the transfer of power methods used by industry and industrial products with relation to the basic laws of physics. Particular emphasis is placed on the general types of mechanical equipment used. The purpose of the components and the maintenance requirements of the equipment.

Prerequisite: Practical Physics, 4.302, Mathematics, 4.202 concurrently, or approval of associate director.

***4.172 Power Systems 3 4 4**

A study of the operation, maintenance and minor repair of two-cycle and four-cycle gasoline and diesel engines. Instruction includes proper procedures in making minor service adjustments and repairs to these units. Laboratory and

classroom experience in the theory of operation and the component parts of these engines.

Prerequisite: Practical Physics or approval of associate director.

***4.173 Hydraulic and Pneumatic Systems 2 3 3**

Fundamental principles of hydraulic and pneumatic systems. Includes study of the basic components of hydraulic and pneumatic systems and how they are combined to build up various circuits and ultimate use of these circuits. Factors to be considered in the selection, installation and maintenance of hydraulic and pneumatic systems.

Prerequisite: Mathematics, 4.202, or approval of associate director.

***4.174 Metal Fabrication and Finishing 2 6 4**

The concept of the production sequence of a completed part or machine from the fabrication and assembly processes to and including heat treating and final finishing. The student performs the procedure step by step in proper sequence, utilizing knowledge acquired in previous courses.

Prerequisite: Second-year standing in mechanical design or consent of instructor.

***4.176 Hydraulic and Pneumatic Systems II 2 3 3**

A continuation of Hydraulic and Pneumatic Systems 4.173 with emphasis on applications of circuits, with electrical controls.

Prerequisite: Hydraulic and Pneumatic Systems 4.173 or departmental approval.

***4.291 Engine Theory and Maintenance 2 4 3**

A continuation of power systems which involve the student in more detailed study of internal combustion engine performance. A study of diesel engines will be introduced including the operation and maintenance of such engines.

Prerequisite: Power Systems 4.172 or approval of associate director.

4.802 Machine Shop I 2 3 3

A basic machine shop operations course introducing students to the principles involved and operations of basic machine tools work and procedures. Includes hand tools, measuring tools, layout tools, drill press (sensitive), grinder, saws, lathes and milling machine.

***4.804 Machine Shop II 2 3 3**

A continuation of the basic course, machine tool processes, including machine set up and machining operations, radial drill press, lathe, milling machine and surface grinder.

Prerequisite: Machine Shop I, 4.802, or departmental approval.

4.805 Machine Shop Operations Lab 0 3 1
A supplement to existing lab hours for first-year machine shop students, providing practical application of knowledge and skills learned in previous and current machine shop subjects. Included will be technical instruction on specific machinery.

4.807 Machine Tool Processes I 2 6 4
A basic machine shop operations course introducing students to the principles involved and operations of basic machine tools work and procedures. Includes hand tools, measuring tools, layout tools, drill press (sensitive), grinder, saws, lathes and milling machine.

***4.808 Machine Tool Processes II** 2 6 4
A continuation of the basic course machine tool processes, including machine set up and machining operations, radial drill press, lathe, milling machine and surface grinder.
Prerequisite: Machine Tool Processes I, 4.807, or departmental approval.

***4.809 Machine Tool Processes III** 2 9 5
A continuation of the basic machine tool operation sequence introducing students to production methods, inspection and quality control. Includes metal spraying and the job shop type repair projects, generally increasing students' understanding of common industrial practices and an introduction to and application of carbide cutting tools. Habits and attitudes are emphasized as they relate to productivity, general housekeeping, tool care, safety and regard for fellow workers.
Prerequisite: Third-term standing in machine shop program or departmental approval.

4.810 Shop Drawings and Layout I 2 6 4
The first of two courses in development, interpretation and use of mechanical drawings and shop sketches. Covers fundamentals of mechanical drawing and sketching along with blueprint reading and layout principles and tools and practices. Included are drawing techniques such as geometric construction, selection of views, section and auxiliary views, dimensioning with blueprint reading and layout problems in the shop.

4.811 Shop Drawings and Layout II 1 3 2
A continuation of Shop Drawings and Layout I. Further development of mechanical drawing and geometric construction with applications in blueprint reading and layout problems. Limitations of general shop equipment are discussed.

4.820 Machine Shop Problems 3 0 3
An applied mathematics course. Typical machine shop problems are solved with the aid of mathematics. Sections covered include tables and practical applications, figuring

tapers, tolerances and allowances, gearing problems and bearing fits.

***4.824 Machine Shop Automation** 2 0 2
A study of theory and practices of automation. Mechanical numerical card and tape controls are studied. History, theories, trends and applications of automated machines are given attention. Field trips are scheduled to supplement classroom activities.
Prerequisite: Mathematics, 4.202, Machine Tool Processes, 4.804, or approval of associate director.

***4.833 Advanced Lathe Practices** 2 6 4
A continuation of the machine tool series. Studies include internal boring, threading and taper turning, angular turning and machine reaming. Laboratory time is provided for student operation of equipment.
Prerequisite: Machine Shop Practices, 4.841.

***4.837 Advanced Milling Machine Practices** 2 4 3
A continuation of the machine tool series. Studies include straddle milling, rotary table work, dividing head construction and indexing, gear cutting and terminology and boring work on milling machines. Laboratory time is provided for student operation of equipment.
Prerequisite: Machine Shop Practices, 4.841.

4.841 Machine Shop Practices 3 6 5
This course stresses the working conditions of a typical machine shop. Students are assigned projects that require the related technical information and shop skills previously acquired. Instruction will include advanced theory application and extended machine operations.

***4.845 Job Machining Practices** 3 12 7
Typical job shop applications and sequence with emphasis on speed and quality of finished product.
Prerequisite: Advanced Lathe Practices, 4.833, Advanced Milling Machine Practices, 4.837, Metal Fabrication and Finishing, 4.174.

***4.847 Tool Fixture Design and Application** 2 4 3
An overview of design and making of tool fixtures and jigs. Application of drill jigs, special work-holding devices, indexing work holders and other applications. Class time devoted to study of design and application, while lab time is devoted to designing and drawing jigs and fixtures.
Prerequisite: Advanced Lathe Practices, 4.833, Advanced Milling Machine Practices, 4.837, Metal Fabrication and Finishing, 4.174.

4.849 Heat Treatment of Steel 2 3 3
A study of methods and procedures for improving the characteristics of steel by hardening and tempering. Processes of heat treating including furnace and flame

hardening, case hardening, tempering, annealing and normalizing and hardness and tensile testing. Laboratory time is provided for hardening, tempering and testing demonstrations and experiments.

***6.600 Elements of Metallurgy** 3 0 3
A continuation of heat treatment with emphasis on non-ferrous and stainless steel. Special attention will be given to the specifications for welding exotic metals (zirconium, titanium, etc.).
Prerequisite: Heat Treatment of Steel, 4.849 or approval of associate director.

***6.602 Metallurgy** 2 3 3
Principles relating to metals, structures and physical properties. The uses, heat treatments and testing of various metals are explored. Laboratory time is provided for demonstrations and experiments to aid classroom studies.
Prerequisite: Introductory Chemistry, 6.275 or equivalent.

6.606 Manufacturing Processes 2 3 3
Manufacturing materials and fundamental types of manufacturing methods as employed in cold working processes. Through lecture, demonstration and practical applications, the student is given the opportunity to become familiar with the various types of machine tools, tooling, measuring and inspection procedures. Automation is introduced and information is presented to acquaint the student with modern practices of numerical control for machine tools.

Management, see BUSINESS MANAGEMENT

MARKETING

***BA223 or 2.104 Principles of Marketing** 3 0 3
Functions of marketing from marketing research and product development to the sale of a product or service and feedback of consumer acceptance. Emphasis on marketing planning and strategy as dictated by the consumer. A preview of marketing which will serve as a foundation for advanced marketing courses.
Prerequisite: Business Environment, BA101/2.502 or consent of instructor.

BA238 or 2.109 Salesmanship 2 2 3
The role of sales as an integral part of the total marketing function. The application of selling to the behavioral sciences is included with special emphasis on sales psychology, sales techniques and the fundamental principles of sales communications.

***BA239 or 2.100 Advertising** 3 0 3
An examination of advertisements within each segment of

the media. The relative merits of several media are then explored. Practice in the planning and analysis of complete advertising campaigns and their coordination with other marketing strategies.

Prerequisite: Business Environment, BA101/2.502 or consent of instructor.

***2.105 Merchandising 3 2 4**

Application of principles to merchandise display problems of space utilization, improvisations, seasonal display, lighting and organization and merchandising in display. Expands on the merchandising concepts and practices which were introduced in introductory courses of retailing and marketing.

Prerequisite: Principles of Marketing, BA223

**Marriage, see
HOME AND FAMILY LIVING,
SOCIOLOGY**

MATHEMATICS

†Mth10 Beginning Algebra 4 1 4

A basic course in algebra for students who have not had high school algebra and who need a review of algebra before enrolling in Mth 95, Intermediate Algebra. A review of arithmetic operations and properties of real numbers, introduction to linear equations, factoring, inequalities, algebraic fractions, exponents and graphs.

***†Mth95 Intermediate Algebra 4 1 4**

The fundamental laws of algebra with the real numbers, linear equations in one and two variables, linear inequalities, factoring, algebraic fractions, systems of linear equations, exponents, radicals, quadratic equations and inequalities and word problems.

Prerequisite: Completion with 'C' or higher of one year of high school algebra and one year of geometry or Mth10, or consent of instructor.

***†Mth101 College Algebra 4 0 4**

The study of polynomials in algebraic expressions with equations and inequalities of various degree. An introduction to the concepts of relations and functions with real numbers and graphs in both two and three dimensions. Polynomial, rational, exponential and logarithmic functions are studied along with an introduction to complex numbers, matrices, determinates, sequences and series.

Prerequisite: Completion with 'C' or higher of two years of high school algebra and one year of geometry, or Mth 95, or consent of instructor.

***†Mth102 Trigonometry 4 0 4**

A continuation of the study of functions by taking circular,

trigonometric and inverse functions. Complex numbers are studied with vectors and graphing with polar coordinates.

***†Probability and Statistics 4 0 4**

A one-term course designed as an introductory survey in the basic concepts of statistics and probability. A study of inferential methods and assessing reliabilities of numerical information related to all occupational fields. Application of formulas to problem solving is stressed over the mathematical theory.

Prerequisite: Mth101 with 'C' or higher, or consent of instructor.

***†Mth106 Elementary Calculus 4 0 4**

A one-term course with an intuitive approach to differential and integral calculus. The techniques of calculus in applied problem solving are emphasized. Designed primarily for students who are business, social science, life science or liberal art majors.

Prerequisite: Mth101 with 'C' or higher, or consent of instructor.

***Mth151 or 4.203 Introduction to Programming, Basic 2 2 3**

The student will study concepts, commands and statements of the basic language, and write programs suited to his/her curriculum. Emphasis will be on applications using a PDP 8 computer. The student will analyze a problem, flow chart, code, run and debug the program and interpret the machine output.

Prerequisite: Mth10, or Mth 4.202, or consent of instructor.

***†Mth191, 192, 193 Mathematics for Elementary Teachers 3 0 3**

A three-term sequence in mathematics for prospective elementary teachers. The course is designed to partially fulfill the mathematical requirements for students majoring in elementary education. Emphasis is placed on the concepts, terminology and skills encountered in the K through 9 elementary school mathematics curriculum. Although the course is primarily the study of subject matter, several concepts are presented through concrete examples utilizing manipulative materials, games and activities. Mth 193 includes field experiences. Must be taken in sequence or obtain consent of instructor.

Prerequisite: Proficiency with whole numbers.

Mth199 Math with Pocket Calculator 2 0 2

A course designed to aid the student in the selection and purchase of a pocket calculator that best fits his/her individual needs. The student is then taught how to use their calculators as an effective educational tool including basic mathematical operations, exponentials, logarithms and

trigonometry. The emphasis is on applications of practical mathematics using the pocket calculator that are appropriate to everyday living, vocational occupations and developing concepts for further study in mathematics.

Prerequisite: Mth10 with 'C' or higher or consent of instructor.

***†Mth200 Calculus with Analytic Geometry 4 0 4**

First term of typical undergraduate calculus covering limits, continuity, the derivative, applications of the derivative and integration.

Prerequisite: Mth101 and Mth102 with 'C' or higher, or consent of instructor.

***†Mth201 Calculus with Analytic Geometry 4 0 4**

Second term of typical undergraduate calculus covering applications of the definite integral, exponential and logarithmic function, trigonometric and hyperbolic functions and techniques of integration.

Prerequisite: Mth200 with 'C' or higher, or consent of instructor.

***†Mth202 Calculus with Analytic Geometry 4 0 4**

Third term of typical undergraduate calculus covering polar form of equations, conic sections, indeterminate forms and infinite series.

Prerequisite: Mth201 with 'C' or higher, or consent of instructor.

***†Mth203 Calculus with Analytic Geometry 4 0 4**

Typical undergraduate course in multivariable calculus including vectors, partial derivatives, multiple integrals and their applications.

Prerequisite: Mth202 with 'C' or higher, or consent of instructor.

***4.200 Mathematics 2 2 3**

A basic course in practical mathematics including the fundamentals of addition, subtraction, multiplication and division in problems involving the use of whole numbers, fractions, decimals, percentages and geometric measurements. Special emphasis is placed on the analysis and solution of problems encountered in vocational fields.

Prerequisite: Proficiency with whole number operations.

***4.201 Business Mathematics 3 0 3**

A continuation and practical application of the business mathematics principles studied in Mathematics, 4.200, including mathematics of payroll, depreciation, insurance, taxes, dividends and inventory.

Prerequisite: Mathematics, 4.200 or consent of instructor.

***4.202 Mathematics 2 2 3**

A course in basic algebra and geometry designed to introduce the student to practical algebraic and geometric techniques and applications. Includes signed numbers,

elements of algebra, equations and formulas, ratio and proportion, geometric figures, basic geometric measures and occupational applications of these topics.

Prerequisite: Mathematics, 4.200 or consent of instructor.

***4.204 Mathematics 2 2 3**

A practical course in mathematics which is designed to introduce the student to further geometric techniques and basic trigonometry. The following areas will be covered, the Pythagorean Theorem, similar triangles, right triangle trigonometry, some oblique triangle trigonometry and occupational applications of these topics.

Prerequisite: Mathematics, 4.202.

6.115 Electrical Mathematics 3 0 3

An introduction for work in logic, digital and computer areas. Topics include binary, octal and hexadecimal number systems with conversion to decimal, non-decimal arithmetic, binary number codes, Boolean algebra principles and logic circuits with emphasis upon hardware and simplification. The laboratory work applies the topics studied in class with hands-on experience.

6.127 Practical Descriptive Geometry 1 2 2

The use of graphic principles in the solution of simple and complex mathematical problems involving space, angular and geometric relationships. The use of the auxiliary view in point, line and plant problems is stressed.

***6.261 Technical Mathematics 4 0 4**

An applied course covering algebraic operations of polynomial and fractional expressions, solutions of linear equations in one and two variable, ratio and proportion, exponents, radicals, functional notation and introduction to graphs.

Prerequisite: One year of high school algebra or consent of instructor.

***6.262 Technical Mathematics 4 0 4**

The basic topics of trigonometry, exponents and logarithms including the study of the definitions of trigonometric functions and the relationships between them, the solution of right and oblique triangle problems, powers and radicals, the definition of the log function and computations utilizing it and the use of tables of trigonometry and logarithms.

Prerequisite: Technical Mathematics, 6.261 or consent of instructor.

***6.266 Technical Mathematics 4 0 4**

An applied course in mathematics on the technical level including quadratic equations, exponential functions, vector algebra, complex notation and introduction to calculus.

Prerequisite: Technical Math, 6.262 or consent of instructor.

***6.918 Applied Business Math 3 0 3**

Applications of arithmetic to the world of business and commerce. Included are problems from fields such as insurance, depreciation, taxes, stock and bonds.

Prerequisite: Mathematics, 4.201.

MECHANICAL DESIGN, see also DRAFTING

***4.175 Industrial Control Systems 2 3 3**

The operation and function of control devices and systems. The lab applications will allow the student to become familiar with control devices and systems by actual work in the areas of hydraulic, pneumatic and electronic controls. A continuation of Industrial Control Systems Design Lab offering the opportunity for application of systems detailed and designed there.

Prerequisite: Industrial Control Systems Design Lab or consent of instructor.

***4.178 Industrial Control Systems Design Lab 0 8 3**

The general design of industrial controls including hydraulic, pneumatic and electronic systems. The application of these controls to flow and mechanical systems will be stressed as will the use of truth tables and logic diagrams.

Prerequisite: Second-year standing in mechanical design or consent of instructor and Machine Drafting 4.222.

***4.220 Tool Design Lab II 0 8 3**

A continuation of Tool Design Lab, 4.231 including advanced problems from the area of jig and fixture design and detailing. The application of tooling materials and components is stressed and a brief introduction into die design is included. A study of the numerical control of machine tools will complete this course.

Prerequisite: Tool Design Lab, 4.231 or consent of instructor.

4.231 Tool Design Lab I 0 8 3

An introductory course in modern principles of tool design. Major areas of study include gaging, locating, clamping, drill jigs and fixtures. Limit dimensioning and tolerancing will be stressed.

Prerequisite: Machine Drafting, 4.222 and Machine Tool Processes, 4.802 or consent of instructor.

***4.232 Machine Design Lab 0 8 3**

Practical design situations as they relate to the drafting room. The design project(s) selected lead to a comprehensive study of parts relationships, materials application and product design. Duo dimensioning (English-metric),

geometric tolerancing and welding applications are an integral part of this course.

Prerequisite: Machine Drafting, 4.222 and Descriptive Geometry, 4.115 or consent of instructor.

***4.233 Machine Design Lab 0 8 3**

A continuation of Machine Design Lab 4.232. The team approach to a more complex design problem is utilized. The application of standard manufactured parts and components to an over-all design situation is stressed and mechanical power and control systems are introduced.

Prerequisite: Machine Design Lab, 4.232 or consent of instructor.

***4.603 Machine Design 3 2 4**

A study of the traditional concepts of the fundamental practices and theories of machine design. Materials, manufacturing, stress analysis, failures, shafts, bearings, gearing, drives, brakes, etc. are covered. Problems are chosen to allow the student to draw from his/her background of related and major area classes.

Prerequisite: Sixth-term standing in the mechanical design curriculum or consent of the instructor.

4.605 Design Problems 2 6 4

Opportunities in advanced drafting room practice. The student applies his/her knowledge of mathematics, science and drawing to practical problems while designing complete machines or component parts machines. Includes analyzing the problem, gathering data, sketching ideas on paper, doing all necessary mathematical calculations, making working drawings and checking the work.

MEDICAL ASSISTING

***2.566 Medical Secretary Practicum 2 2 3**

Techniques, methods and procedures used in the medical office. Reception of patients, appointment making, filing and processing medical and health insurance records and forms.

Prerequisite: Office Procedures, 2.641 or consent of instructor.

***2.569 Medical Machine Transcription 3 0 3**

Typing from a transcribing machine to build speed, accuracy and understanding of medical case histories, clinical reports, pathological reports, medical correspondence and research materials.

Prerequisite: Basic knowledge of typing techniques, typing speed of approximately 40 WPM minimum, or consent of instructor.

***5.600 Medical Terminology I 3 0 3**

Analysis of anatomical terms, roots, prefixes and suffixes, as

well as Greek and Latin verbs and adjectives in building a medical vocabulary. Examination of representative anatomical structures, diseases, operations, tumors and descriptive terms by simple analysis of a word.

Prerequisite: Consent of associate director.

***5.602 Medical Assisting, Basic Procedures 2 2 3**
A survey of the requirements and qualities for success as a medical assistant. Techniques, methods and procedures including assisting the physician with examinations, medical and surgical aseptic procedures, obtaining vital signs, care of equipment and supplies as well as drugs and solutions.

Prerequisite: Admission to medical assisting program.

***5.603 Medical Transcription 1 2 2**
Introduction to the techniques of transcribing from the recorded voice to the typewriter. Operation of the transcriber and transcribing mailable copy with speed and efficiency. Practice includes transcribing letters, case histories, pathological reports and other medical records.
Prerequisite: Typing II, 2.607 and Medical Terminology I, 5.600 or consent of associate director.

***5.604 Medical Office Procedures 3 0 3**
Techniques and procedures used in the medical office, reception of patients, use of the telephone, appointment making and filing. Includes techniques, methods, procedures of processing medical and health records, forms, insurance claims and travel arrangements.
Prerequisite: Typing II 2.607 or consent of associate director.

***5.606 Medical Assisting, Advanced Procedures 2 2 3**
Theory and practice of basic diagnostic and treatment procedures, collection, preparation and preservation of specimens for diagnostic studies.
Prerequisite: Medical Assisting Basic Procedures, 5.602, Medical Terminology I, 5.600 or consent of associate director.

***5.607 Medical Office Management 3 0 3**
A course designed to prepare the medical assistant to handle finances and records with accuracy and efficiency and to provide an understanding of accounting, credits and collections that will facilitate working with accountants, auditors and collection agencies in maintenance of good records. It will also include training in the use of transcribing machines and practice in transcription of letters and medical reports.

Prerequisite: Basic Typing, Business Mathematics, or consent of instructor.

***5.609 Medical Office Practice 1 16 6**
Practice in clinical situations of medical assisting methods,

procedures and techniques.

Prerequisite: Current enrollment in medical assisting program and satisfactory completion of all medical assisting courses before spring term or consent of associate director.

***5.610 Medical Terminology II 3 0 3**
A continuation of Medical Terminology I, 5.600.

Prerequisite: Medical Terminology I, 5.600.

***5.611 Medical Law and Ethics 3 0 3**
A survey of the manner in which the law affects the practice of medicine and the codes of behavior the medical profession has set for itself and an introduction to medical economics and the history of medicine.

Prerequisite: Consent of associate director.

MEDICAL SCIENCE

5.601 Basic Sciences for Health Occupations 3 3 4

Introductory concepts of physics, chemistry and microbiology. Includes practical application of problem solving, scientific observation and measurement, use of equipment and basic laboratory techniques.

***5.605 Introduction to Medical Science 3 0 3**
A survey of disease conditions, types of treatment and medical and surgical specialties.

Prerequisite: Consent of associate director.

5.615, 5.616 Body Structure and Function I and II 3 1 3

An overview of the normal structure and function of the human body, chemical principles, characteristics of the cell as basis for life, organization of tissues, organs and systems and the structure and function of body systems. Must be taken in sequence.

Merchandising, see MARKETING

Microbiology, see BIOLOGY

MUSIC

†Mus111, 112, 113 Musicianship I 3 0 3

The study of the disciplines of hearing, performing, analyzing, improvising and composing different kinds of music, terminology and concepts and the development of aural-visual acuity.

†Mus50 Basic Piano 0 2 1

Classroom instruction for students who receive a low rating on test for keyboard proficiency required for admission to Mus214, 215, 216 and for others ineligible for piano instruction at the level of Mus190.

†Mus51 Basic Voice 0 2 1

Classroom instruction for students ineligible for voice instruction at the level of Mus190.

NURSING

***Nur101 Nursing 4 12 8**

A study of concepts, skills and values basic to contemporary nursing. Emphasis is placed on meeting physio-psycho-social needs of people for health, including nursing skills, communications, nursing as an interpersonal helping process, growth and development and beginning skills in problem solving in a variety of nursing situations. Beginning roles in nursing careers are brought into focus. Theory, skills development and clinical experiences in nursing, including care of all age groups, are correlated for each course in the nursing major.

Prerequisite: Enrollment in the nursing program.

***Nur102 Nursing 4 12 8**

A continuation of the study of concepts, skills and values basic to nursing practice. An emphasis is placed on problem solving in a variety of nursing situations including growth and developmental patterns in maternal-child-family health and the affects of hospitalization on people through the life cycle with physical and mental illness. Nursing role differentiations are brought into focus.

Prerequisite: Nursing 101 or its equivalency.

***Nur103 Nursing 5 15 10**

Further study of the concepts, skills and values basic to nursing practice. Emphasis is placed on problem solving in nursing situations in common conditions of illness and the assisting role of nursing personnel in complex nursing situations, including intergration of mental health concepts.

Prerequisite: Nursing 101, 102 or its equivalency.

***Nur201 Nursing 4 12 8**

A study of the concepts, skills and values basic to nursing continued. The role and responsibilities of the registered nurse are brought into focus. Emphasis is placed on the nursing process and the management of the patient care with priority setting of nursing needs of children and adults. A problem solving approach is used and greater depth of understanding of the nursing process is made throughout the sequence of study. Nursing 201 compares chronicity and acuity of illness, stress and adaptation and a holistic approach to basic needs of people in illness.

Prerequisite: Nursing 101, 102, 103 or equivalent.

***Nur202 Nursing 5 15 10**

A continuation of the nursing sequence. Nursing 202 focuses on increasingly more complex nursing situations

and the complexity of the RN role.

Prerequisite: Nursing 101, 102, 103, 201 or equivalent.

***Nur203 Nursing 5 15 10**

A continuation of the nursing sequence. Nursing 203 emphasizes the care of groups of children and adults with multiple problems in crises and emergency situations and the leadership responsibilities of the RN in the management of patient care.

Prerequisite: Nursing 101, 102, 103, 201, 202 or equivalent.

Nur207 The Nurse at Work 3 0 3

A study of trends and practice in the nursing profession including organizational and structural elements and the social-cultural factors influencing the role of the new graduate as a member of a nursing and health team.

5.435 Nursing Assistant 5 25 14

A one-term course that prepares the individual for basic health care duties. Open to both men and women in satisfactory health as the nursing assistant works in close contact with patients. Students gain practical experience in nursing assistant methods, procedures and techniques. Students who successfully complete the nursing assistant program earn a basic certificate.

Nutrition, see HEALTH

Office Machines, see BUSINESS MACHINES

Office Procedures, see SECRETARIAL SCIENCE

Painting, see ART

PHILOSOPHY

†Phil201 Problems of Philosophy 3 0 3

An introduction to the study of reasoning. How to recognize, analyze, criticize and construct the main types of argument and proof.

†Phil202 Problems of Philosophy 3 0 3

An introduction to the study of some of the persistent problems of philosophy.

†Phil203 Elementary Ethics 3 0 3

An introduction to the philosophical study of morality; e.g., right and wrong, free will and determinism, morals and society, etc.

Photography, see ART, VISUAL COMMUNICATIONS

PHYSICAL EDUCATION

†PE131 Introduction to Health, Physical Education and Recreation 3 0 3

Professional orientation, basic philosophy and objectives, professional opportunities and qualifications.

†PE180BN Basketball—Women's Varsity 0 3 1

†PE180CL Women's Cross Country—Varsity 0 3 1

†PE180VN Women's Volleyball—Varsity 0 3 1

†PE185AJ, 185AK, 185AL Archery—Beginning, Intermediate, Advanced 0 3 1

Basic fundamentals of archery including safety, history, care and use of equipment, basic rules and skills technique. Application of fundamentals to target shooting with emphasis on self-testing and improvement. Class competition in regulation and novelty shoots. Intermediate and advanced include more emphasis on shooting perfection, self-improvement and analysis of errors through more competition at varied distances and targets.

†PE185BA, 185BB, 185BC Badminton—Beginning, Intermediate, Advanced 0 3 1

Beginning instruction in fundamental skills of serving, clears, drop, smash, backhand, singles and doubles play, terminology and rules. Intermediate includes practice in the "overhead clear." Advanced covers perfection of techniques, skills and strategies through sophisticated drills and routines. Competitive play patterns emphasized.

†PE185BE, 185BF, 185BG Baseball—Beginning, Intermediate, Advanced 0 3 1

Fundamental techniques of offensive and defensive play, rules, strategy and team play.

†PE185BJ, 185BK, 185BL Basketball—Beginning, Intermediate, Advanced 0 3 1

Fundamental skills and techniques of offensive and defensive play, rules, team play and competition. Increased skills and strategy levels in intermediate and advanced.

†PE185BP, BQ, BR Billiards—Beginning, Intermediate, Advanced 0 3 1

Fundamental skills, strategy and application of rules, etiquette and competitive play.

†PE185BS, 185BT, 185BU Body Building—Beginning, Intermediate, Advanced 0 3 1

Exercises to increase muscularity, muscular definition and muscular power. Primary objective is to develop the physique.

†PE185BV, 185BW, 185BX Bowling—

Beginning, Intermediate, Advanced 0 3 1

Beginning—basic fundamentals, techniques, rules, scoring and social etiquette of bowling. Intermediate—perfection of straight ball delivery, introduction to hook and curve ball delivery and tournament plan.

†PE185CA, 185CB, 185CC Conditioning—Beginning, Intermediate, Advanced 0 3 1

Programs designed to meet individual needs. Circuit training and use of apparatus are included. Concern is given to cardiovascular development and special programs of exercise for all ages.

†PE185CD, 185CE, 185CF Correctives—Beginning, Intermediate, Advanced 0 3 1

Exercise programs of fitness or physical therapy for students with physical injuries, disabilities or handicaps. The corrective class is offered many times each day to accommodate the student.

†PE185CM, 185CN, 185CP Cross Country Skiing—Beginning, Intermediate, Advanced 0 3 1

Fundamental skills and techniques, types of equipment, first aid, orienteering, survival, leadership and route finding.

†PE185CW, 185CX, 185CY Cycling—Beginning, Intermediate, Advanced 0 3 1

Cycling techniques including fitting bicycle to the individual, pedaling correctly, safety, maintenance and touring. Special emphasis on physical fitness through cycling.

†PE185DE, 185DF, 185DG Dance, Folk—Beginning, Intermediate, Advanced 0 3 1

Basic steps, skills and training in dances reflecting cultural traditions. Schottische, polka, etc.

†PE185DJ, 185DK, 185DL Dance, Modern—Beginning, Intermediate, Advanced 0 3 1

Fundamentals of movement, techniques and use of axial and locomotor movements. Experience in dance composition to various media.

†PE185DR, DS, DT Dance, Social—Beginning, Intermediate, Advanced 0 3 1

Basic steps for dances such as the fox trot, tango, rhumba, mambo and current popular "fad" dances.

†PE185DV, DW, DX Dance, Square—Beginning, Intermediate, Advanced 0 3 1

Basic square dance formation, singing calls, simple figures and invigorating activity.

†PE185FA, 185FB, 185FC Fencing—Beginning, Intermediate, Advanced 0 3 1

Initial position, on guard, salute, lunge and recovery, basic

parries, basic attack and defensive movements, fencing bouts and scoring.

†PE185FD, 185FE, 185FF Soccer—
Beginning, Intermediate, Advanced 0 3 1
Fundamental soccer skills, position play, team formations, offensive and defensive team play and rules of the game.

†PE185FM, 185FN, 185FP Fitness Appreciation—
Beginning, Intermediate, Advanced 0 3 1
Circuit training, jogging, running and exercise programs designed for lifetime activity with regard to fitness. Basic instruction in diet and nutrition as aids to physical and mental fitness.

†PE185FQ, 185FR, 185FS Football—
Beginning, Intermediate, Advanced 0 3 1
Fundamentals, rules and strategy and team play.

†PE185GJ, GK, GL Golf—
Beginning, Intermediate, Advanced 0 3 1
Basic fundamentals of golf such as grip, stance and mechanics of the swing. Use of irons, long irons, woods and putting. Rules of the game, social etiquette and actual playing of the game are included.

†PE185GN Golf—
Men and Women's Varsity 0 3 1

†PE185GP, 185GQ, 185GR Gymnastics—
Beginning, Intermediate, Advanced 0 3 1
Instruction and practice of gymnastic skills. Men's events include tumbling and floor exercise, vaulting, horizontal bar, parallel bars, still rings and side horse. Women's events include floor exercise, balance beam, vaulting and uneven bars. Conditioning exercises and mastery in routines are stressed.

†PE185HA, 185HB, 185HC Handball—
Beginning, Intermediate, Advanced 0 3 1
Basic fundamental techniques and rules, etiquette and singles and doubles play. Perfection of techniques, strategy, singles and doubles competition.

†PE185JJ, JK, JL Jogging—
Beginning, Intermediate, Advanced 0 3 1
Instruction and practice in the techniques of jogging. Development of cardiovascular endurance is stressed. Various systems of training are incorporated into the class. Students work according to their own abilities and physical condition.

†PE185JQ, 185JR, 185JS Judo—
Beginning, Intermediate, Advanced 0 3 1
Instruction in fundamental personal defense skills, precautionary measures to insure one's safety, countering attacks, etc.

†PE185KA, 185KB, 185KC Karate—
Beginning, Intermediate, Advanced 0 3 1
Basic fundamentals of karate including basic stances, inside and outside blocks, straight punch, rising block, kick block, front, side and back kicks, basic throws, come-alongs and techniques of detaining and restraining subjects.

†PE185LJ Lifesaving 0 3 1
A wide range of elementary and advanced lifesaving skills based on a high level of correct swimming techniques and physical conditioning. Based on Red Cross senior lifesaving.

†PE185PA, 185PB, 185PC Personal Defense—
Beginning, Intermediate, Advanced 0 3 1
Instruction in fundamental personal defense skills, precautionary measures to insure one's safety, countering attacks whereby various types of weapons are employed and development of a skill level that promotes self-assurance to reduce panic.

†PE185PD-PO, †PE185RD-RF Semi-automatic and Small Bore Pistol and Rifle Marksmanship—
Beginning, Intermediate, Advanced 0 3 1
Basic indoor small bore shooting, safety procedures, equipment and rules. Introduction to national and range shooting, start of a shooting record, target and silhouette hitting and right and left barricades.

†PE185RA, RB, RC Racquetball—
Beginning, Intermediate, Advanced 0 3 1
Paddleball, or racketball as it is sometimes called, is an activity that is similar to handball or squash but requires less skill to master. The activity is played on handball courts with a racket and a rubber ball about the same size as a tennis ball.

†PE185 RC, 185RH, 185RJ Roller Skating—
Beginning, Intermediate, Advanced 0 3 1
Fundamental skills and techniques including forward skating, backward skating and two-foot turns.

†PE185RW, 185RX, 185RY Running for Fitness—
Beginning, Intermediate, Advanced 0 3 1
Running and circuit training techniques designed to improve the overall physical condition of the body.

†PE185SA, 185SB, 185SC Scuba Diving—
Beginning, Intermediate, Advanced 0 3 1
Skills and techniques necessary for proper and safe performance of underwater swimming and diving. Acquaints the student with diving equipment and its proper use and care, dangers involved in underwater swimming and diving and procedures to avoid these dangers.

†PE185SD, 185SE, 185SF Swim for Fitness—
Beginning, Intermediate, Advanced 0 3 1
Open to students who have mastered the front and back crawl, sidestroke, breaststroke and elementary backstroke. The student works to develop endurance and strength and swim for aerobic fitness.

†PE185SG, 185SW, 185SX Skiing Conditioning—
Beginning, Intermediate, Advanced 0 3 1
A program designed to prepare students for winter skiing. Conditioning is achieved through the use of the universal gym machine, running, soccer skills, volleyball and coordination exercises.

†PE185SH, 185SJ, 185SK Skiing—
Beginning, Intermediate, Advanced 0 3 1
Fundamental skills and techniques including snowplow turns, traverse-stem turns, sideslip, uphill christie, beginning parallel and parallel turn. Advanced includes free skiing, powder, phase II, etc.

†PE185SL, 185SM, 185SN Slimnastics—
Beginning, Intermediate, Advanced 0 3 1
Calisthenics and jogging to achieve toning and total fitness. These exercises, when combined with a reduction in intake, result in loss of inches and pounds. Nutritional information also is included.

†PE185SP, 185SQ, 185SR Softball—
Beginning, Intermediate, Advanced 0 3 1
Fundamental skills and rules taught through participation in team play.

†PE185SS Swimming—Beginning 0 3 1
This course follows the Red Cross beginner and advanced beginner programs. Students should master floating, back and prone glides, survival floating, human stroke, front crawl, elementary backstroke, jump and dive into deep water.

†PE185ST Swimming—Intermediate 0 3 1
This course follows the Red Cross intermediate swimming program. Students master beginner skills before enrolling. Skills to be mastered by the end of this course include front crawl, back crawl, side stroke, breast stroke, surface dive, underwater swim and standing front dive. Swimming for fitness is encouraged.

†PE185SU Swimming—Advanced 0 3 1
Students should master intermediate skills before enrolling. Emphasis is placed on swimming for fitness and improving basic skills. At the completion of this course, students should have the skill necessary to progress to senior lifesaving.

†PE185TA, 185TB, 185TC **Table Tennis—**
Beginning, Intermediate, Advanced 0 3 1
 Beginning—fundamental skills including serve and practice strategy and application of rules and etiquette. Intermediate—perfection of table tennis skills and strategy in singles and doubles play. Advanced—continued practice in skills and strategy with emphasis on competitive play.

†PE185TF, 185TG, 185TH **Tennis—**
Beginning, Intermediate, Advanced 0 3 1
 Beginning—fundamental skills including forehand, backhand and serve and strategy and applications of rules and etiquette. Intermediate—perfection of skills and strategy in singles and doubles play. Advanced—continued practice in skills and strategy with emphasis on competitive play.

†PE185TL, 185TM, 185TN **Track and Field—**
Beginning, Intermediate, Advanced 0 3 1
 Fundamentals, rules, theories and training in track and field events.

†PE185TS, 185TU, 185TV **Trap Shooting—**
Beginning, Intermediate, Advanced 0 3 1
 Safety procedures, rules, clay shooting and advancement on qualifications.

†PE185VJ, 185VK, 185VL **Volleyball—**
Beginning, Intermediate, Advanced 0 3 1
 Instruction and practice in skills, rules and strategy through individual and team play.

†PE185WA **Water Safety Instruction** 0 3 1
 A course covering all phases of water safety, basic swimming strokes, related aquatic skills, diving, lifesaving skills, water safety and teaching guidelines.

†PE185WD, 185WE, 185WF **Weight Training—**
Beginning, Intermediate, Advanced 0 3 1
 Instruction in fundamental safety procedures, preconditioning for weight training and progressive resistance to fit lifetime needs regarding physical fitness. An activity for students of all ages.

†PE185WJ, 185WK, 185WL **Figure Control—**
Beginning, Intermediate, Advanced 0 3 1
 Activities designed to improve human body form and function through the universal gym machine and calisthenics. Emphasis on cardiovascular fitness through aerobic exercise.

†PE185YA, 185YB, 185YC **Yoga—**
Beginning, Intermediate, Advanced 0 3 1
 Background, safety precautions and values of yoga. Stretching and limbering up exercises, proper breathing techniques and exercise positions.

†PE190BI **Baseball—Varsity** 0 3 1

†PE190BN **Basketball—Men's Varsity** 0 3 1

†PE190CL **Cross Country—Men's Varsity** 0 3 1

†PE190TK **Tennis—Men's Varsity** 0 3 1

†PE190TQ **Track and Field—Men's Varsity** 0 3 1

†PE190WS **Wrestling—Men's Varsity** 0 3 1

†PE194BY **Basic Rhythms—Professional** 0 3 2

†PE194FW **Fundamentals of Movement—Professional** 0 3 1

†PE194GR **Games and Relays—Professional** 0 3 2

†PE194TF **Track and Field—Professional** 0 3 2

†PE294BD **Badminton—Professional** 0 3 2

†PE294BO **Basketball—Professional** 0 3 1

†PE294FH **Field Sports—Professional** 0 3 1

†PE294VM **Volleyball—Professional** 0 3 2

PHYSICAL SCIENCE/PHYSICS

*†GS104, 105, 106 **Physical Science** 3 2 4
 Fundamental principles of physics, chemistry, astronomy and geology and man's relation to them. Development and application of the scientific methods. Three lectures; one two-hour laboratory period. Students are advised to complete one year of high school algebra, or equivalent, as prerequisite to this course. May not be taken for credit if a student has completed six or more hours in a college-level course in chemistry or physics.

*†Ph201, 202, 203 **General Physics** 3 3 4
 Mechanics, sound, heat, light, electricity, magnetism and modern physics. Two lectures; one two-hour discussion session; one two-hour laboratory period with outside assignments.
Prerequisite: Mth101, College Algebra previously or concurrent with Ph201.

4.300 **Practical Physics** 3 2 4
 Practical physics for skilled workers, covering heat, light and sound. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.

*4.302 **Practical Physics** 3 2 4
 Practical physics for skilled workers covering matter, measurements, mechanics and machines. Laboratory time is provided for demonstrations and experiments to help

clarify the principles and procedures covered in class.
Prerequisite: Math, 4.202, previously or concurrent with 4.302 or consent of instructor.

6.339 **Glass Blowing** 0 3 1
 A laboratory course dealing with the elementary techniques of glass blowing, different types of glass and the various uses. Laboratory time will be spent on learning how to work glass to make useful laboratory equipment.

6.345 **Radiation Measurement** 2 3 3
 Basic theories of nuclear chemistry. The problems of safety in handling, storage and other aspects of radioactive materials are studied in detail. Laboratory time will be used to allow the student to become familiar with instruments and laboratory techniques dealing with radionuclides.

6.366 **Applied Physics** 3 2 4
 A course in applied physics covering magnetism and electricity on the post-high school level. Basic electric currents, sources and effects of electric current, alternating current, generators, motors, distribution of electric power and introduction to electronics and atomic energy in industry are covered. Laboratory time is provided for demonstration and experiments to help clarify principles and procedures covered in class.

6.370 **Applied Physics** 3 2 4
 Applied physics on the post-high school level covering mechanics of measurement, structure of matter, heat energy, heat engines, sound and light. Laboratory time is provided for demonstrations and experiments to clarify principles and procedures covered in lecture.

6.371 **Applied Physics** 3 2 4
 The fundamental principles, concepts and applications of work energy and power, basic machines and straight line and rotary motion. Problems are analyzed and solved through the use of vectors.

6.372 **Physical Science** 3 2 4
 A survey of the scientific methods, numbers and number systems, make-up of matter, heat energy, light energy and geology basics. Laboratory time is provided as are field trips to investigate the principles and concepts of these areas.

6.373 **Physical Science** 3 2 4
 A study of electricity, chemistry and nuclear energy. Electricity includes sources, transportation and use in such appliances as meters, motors, solenoids, radio and television, heating and lighting. Chemistry includes chemical properties and bonds, crystals, ions, solutions and reactions as they relate to organic and biochemistry. Nuclear energy studies include radioactivity, radioactive decay, fusion and fission, atomic pile and critical mass, waste disposal problems and possible pollution such as leaking or

radioactive materials and heat pollution. This is a survey course and the above topics are not treated in depth. The subjects will relate to man and man's environment and there will be laboratory time to enhance the lecture ideas.

6.374 Physical Science 3 2 4

An overview of meteorology, ecology, mechanics and astronomy. Ecology includes sources of pollution, types of pollution, what is technology doing to combat pollution and what people can do. Meteorology looks at air, ocean, land forms, water forms and geographic locations effect on weather and principles of forecasting weather. Astronomy covers the solar system, our galaxy, life and death of stars and the universe. Mechanics deals with force, motion, mass, acceleration, velocity, centrifugal and centripetal forces, gravity and simple machines.

Physiology, see BIOLOGY

Police Science, see CRIMINAL JUSTICE

POLITICAL SCIENCE

†PS100 Constitutional Government 3 0 3

A study of the constitution of the United States and its meaning to the individual through government. Designed to develop an understanding of the meaning of the constitution's provisions and an appreciation of its contemporary relevance. In the treatment employed, the historic roots of the document are studied to establish the precedents for particular institutional arrangements, e.g., bicameral legislatures.

PS199 Political Power and Political Action 3 0 3

A survey of political processes with specific emphasis on the government and politics of Oregon. Strategies, laws and concerns of groups attempting to effect the political process will be identified.

PS201 American Government 3 0 3

An examination of the American political system, the aims of the founding fathers as expressed in the constitution, the growth of government, political philosophy, democratic ideology, capitalism, the mass media and voter participation. Focuses on the politics of involvement—citizens and special interest—and looks at the issues of today including inflation, unemployment, poverty, job scarcity and the rising cost of living. Discusses the problem—how does the individual affect the system?

***†PS202 American Governments 3 0 3**

A survey of the American political process in terms of who governs. Examines congress, the presidency, the judiciary, the pentagon, a military economy, the CIA and foreign policy, the role of corporations, bureaucracies and the

growth of government. Focuses on the politics of health care, taxes and the federal budget. Discusses democratic responsibility and the effect of institutions on our daily lives.

Prerequisite: PS201 recommended but not required.

†PS203 State and Local Governments 3 0 3

The role of regional state and local government in Oregon. Special attention is given to the nature of federalism, the role of interest groups, political parties and interlocking directorates as they impact on Oregon's political process. Discussion of democratic responsibilities and individual opportunities for political involvement are stressed.

†PS205 International Relations 3 0 3

An introduction to international politics, detente, foreign policy, multinational corporations and imperialism, revolution and counterrevolution, the arms race and mechanisms for conflict resolution. Examines current global crises and the future of world order.

†PS207 Introduction to Political Science 4 0 4

Theories, concepts and research methods appropriate to understanding conflicts among people. Political analysis in the context of the behavioral sciences, conflict resolution, institutions and organizations which operate to resolve conflict.

PSYCHOLOGY

Psy100 Introduction to Psychology 3 0 3

An introductory course with emphasis on the application of the basic concepts and methods of psychology to one's vocational and life situations. Covers motivation, learning, perception, emotion, personality and mental health.

Psy101 Psychology of Human Relations 3 0 3

An introductory course that will assist in understanding the interpersonal relations on the job and in everyday activity. Topics considered include self-actualization, marriage and family relationships, social interaction, job satisfaction and relations with both supervisors and subordinates.

Psy199 Processes in Living 3 0 3

Self-understanding through an exploration of values, attitudes, interests, beliefs and abilities and how these personal factors influence learning, educational and vocational decision-making and interpersonal relationships.

†Psy201 General Psychology 3 0 3

Psychology as a science. Stresses the biological foundations of humans, motivation and emotion, sensation and perception.

***†Psy202 General Psychology 3 0 3**

The second of three introductory psychology courses. Includes principles of learning, memory, cognitive man, as well as creativity and problem solving.

Prerequisite: Psy201.

***†Psy203 General Psychology 3 0 3**

The third of three introductory courses in psychology. Includes personality theory, psychopathology and psychotherapy, development and socialization and social psychology.

Prerequisite: Psy201.

Psy206 Introduction to Social Psychology 3 0 3

Some of the problems, theories and methods of social psychology. Includes the interrelationships between the individual and his/her social environment, the social influences upon motivation, perception and behavior and the development and change of attitudes and opinions. Small groups, social stratification and mass phenomena also are included.

Psy299 Growth and Development 3 0 3

An introductory course in human growth and development from conception through death. Birth through middle adulthood is covered in depth.

Purchasing, see MARKETING

RADIO-TELEVISION,

see also, ELECTRICITY/ELECTRONICS

4.264 Radio Servicing 2 0 2

A study of overall radio circuits and the problems of these circuits. Service techniques, procedures and case histories are studied. The radios are separated into basic types for study and each type analyzed according to its peculiar characteristics.

4.265 Radio Servicing Laboratory 0 6 2

An application of the materials covered in the radio servicing theory class. Some circuits are breadboarded for analysis. The remaining time is spent on actual receivers doing voltage measurements, resistance measurements, circuit tracing, alignment and general circuit analysis. Trouble is installed in radios to simulate actual field conditions.

4.266 Television Principles 3 0 3

An introduction to the principles of television theory and circuits. A study of underlying principles of television transmission, the makeup of the television signal and the receiver circuits. Each receiver circuit is analyzed individually as to the principle of operation and possible trouble causes.

- 4.267 Television Principles Laboratory 0 8 3**
A laboratory study of the principles of the television principles theory class. Receiver circuits are traced and analyzed and trouble shooting procedures are practiced. Time is spent on reading and interpreting schematics. Closed circuit TV is used to demonstrate signal origination.
- 4.268 Television Servicing 3 0 3**
A study of the overall television receiver and the problems of television receiver circuits. Service techniques, service procedures and case histories are studied.
- 4.269 Television Servicing Laboratory 0 8 3**
A study of television receivers, both within the receivers and with the use of breadboards. Some of the breadboard models are substituted within the receiver for the like section of the receiver. Voltage readings, oscilloscope patterns, resistance readings and other testing procedures are used and results analyzed. Troubles are installed in TV receivers and practice gained in analyzing, determining and correcting troubles. Black and white sets are given complete audio and video alignment including tuners.
- 4.270 FM and HI-FI Theory 3 0 3**
A study of the principles of FM receivers, different kinds of FM detectors, principles of multiplexing, principles of HI-FI, operation of stereo sets, HI-FI amplifiers and speaker systems.
- 4.271 FM and HI-FI Lab 0 3 1**
Application of the principles studied in theory and the maintenance of FM and HI-FI equipment. Basic record player units will be set up and checked out, serviced and lubricated and the cartridges studied and checked out.
- 4.272 Solid State Servicing 3 3 4**
A study of the principles of trouble shooting solid state circuits. The student circuit traces and trouble shoots solid state circuits. Commercial units are worked on with emphasis on how the circuits operate and the effects of problems within these circuits.
- 4.273 Color Television Servicing 3 6 5**
A practical approach to color television with both theory and practical techniques being studied and applied. Both solid state and tube type are analyzed.
- 4.274 Logical Trouble Shooting 3 3 4**
A course designed for the gaining of knowledge necessary to deal with a logical approach to trouble shooting. Emphasis is placed on the approach, finding and solving of problems. The use of equipment for servicing is stressed.

READING,

see also STUDY SKILLS, COMMUNICATION SKILLS

- 1.110 Basic Reading Tactics 3 0 3**
Basic reading skills. Emphasis on an orderly mastery of habits and skills with application of appropriate techniques and materials. After appraising student needs, each phase of basic reading is upgraded.
- 1.112 Accelerated Reading 3 0 3**
Designed for the community college student. Assists students in deciphering ancient-redes information to improve reading skills and experiences to practice those skills.

REAL ESTATE

- BA260 or 2.400 Real Estate Principles I 3 0 3**
A study of the nature, importance and character of real property, the real estate business, the real estate market, the real estate brokerage, taxes and assessment and contracts and ownership.
- BA261 or 2.414 Real Estate Principles II 3 0 3**
A continuation of BA260, this course deals with land use, taxation, valuation, planning, zoning and development with emphasis on their relationships to economic and social problems. Deals with the role of real estate in the economy.
- BA262 or 2.427 Real Estate Practices 3 0 3**
A sheltered insight into the workings of real estate transactions. Students are expected to become conversant with various contracts, deeds, mortgages and other documents and forms commonly used in the transfer of ownership of real property. It is expected that some field work will involve public records and title plant data.
- BA263 or 2.402 Real Estate Law 3 0 3**
The complexities of Oregon real estate law presented to enable the student to identify when he is dealing in a problem area with a client and recognize the necessity of and services available from a competent attorney specializing in real property. The agent's role in the agency relationship between broker and client.
- *BA264 or 2.406 Real Estate Finance 3 0 3**
The operation of real estate mortgage market and its ability to compete with other desired products purchased on credit. Forces that modify the operation of the mortgage market, the availability of funds, and methods of financing real property.
Prerequisite: One course in real estate principles or practices.

- 2.405 Applied Mathematics in Real Estate 3 0 3**
Fundamentals of the real estate industry. Includes the fundamental mathematics necessary for performing real estate transactions, computing taxation, real property assessments, percentage relationship and ratios of values, finance, leverage, appreciation, depreciation and equity ownership.
- 2.408 Real Estate Appraisal I 3 0 3**
Theories, functions and purposes of appraisal. Residential, income property and land appraisal—principles of valuation, including cost, market and income approach—techniques for determining condemnation, insurance, loan, purchase and sales values.
- *2.409 Real Estate Appraisal II 3 0 3**
A continuation of Real Estate Appraisal, 2.408, with emphasis on specific problem areas such as commercial appraisals, farm appraisals and industrial appraisals.
Prerequisite: Real Estate Appraisal I, 2.408.
- *2.411 Real Estate Appraisal III 3 0 3**
Continuation of Real Estate Appraisal, 2.409, with emphasis on real estate assessment and the ad valorem tax. Techniques for county assessment, tax computation and ratios used in government computation are emphasized.
Prerequisite: Real Estate Appraisal, 2.409.
- 2.419 Real Estate Investment Analysis I —Principles 3 0 3**
A study providing an emphasis on the traditional analysis commonly employed by most investors. Designed to assist the student in becoming a more knowledgeable and potentially more successful investor. Features such important real estate investment concepts as leverage, cash flow and real estate investment trusts, syndication, subordination and annual constants.
- *2.416 Real Estate Investment Analysis II —Taxation 3 0 3**
An advanced and intensive study of tax principles governing the acquisition, ownership, operation and disposition of real property with emphasis on tax planning and integration of tax concepts with procedural aspects.
Prerequisite: Accounting, 6.293 and Real Estate Principles I, 2.400 or BA260.
- *2.417 Real Estate Investment Analysis III—Sales and Exchanges 3 0 3**
The alternative methods of property disposal including contract sales and exchanging and the tax implications of each.
Prerequisite: Real Estate Investment Analysis II.
- 2.418 Elements of Design and Construction 2 3 3**
A comprehensive course designed for real estate majors to

introduce design and construction terminology, architectural styles and building designs, material and labor requirements, building codes and cost estimating. For the term project each student selects a house plan and adapts it to a given site. Making estimates of materials and labor quantities and costs for representative types of construction for site preparation is included. Emphasis will be placed on the unit-in-place methods of estimating.

2.422 Property Management 2 0 2

An intensive study of real property management factors. Special emphasis is centered around investment analysis from the management standpoint—analysis of hotels, multiple units, shopping centers and businesses is included.

***2.423 Escrow Procedures I 3 0 3**

The use of ordinary work sheets of the escrow agent to learn his function. The significance of the third party to real estate transactions is emphasized. The types of documents required to be held on deposit between the seller and buyer until the terms of the contract are completely executed are included.

Prerequisite: Fourth-term standing and Real Estate Principles I and II, 2.400, 2.414, or BA260, 261.

2.424 Escrow Procedures II 3 0 3

The obligations of the escrow department and title insurance company in real estate transactions. Defects of title and abstract of title as a chain of statements is dealt with to indicate the value of title insurance. The ramifications of title insurance are emphasized.

***2.425 Subdividing and Community Planning 3 0 3**

A practical study emphasizing the aspects of subdivision, zoning ordinances, tax aspects, use, ownership and transferability as encountered by developers and brokers who deal within this capacity. Emphasis will be placed on comprehensive planning, steps needed to file a subdivision and current zoning laws.

Prerequisite: Escrow Procedures I.

***2.426 Escrow Procedures III 3 0 3**

A presentation of the theory and practice of real estate exchanges and sales of businesses, the ordinary exchange, tax-free exchanges, multiple exchanges and, in the sale of businesses, bulk sales affidavits, security agreements, assignments of leases, leasehold interests and other ramifications of this phase of the escrow business. Includes review of theory and practices of Escrow I and II.

Prerequisite: Escrow Procedures II.

2.428 Real Estate Seminar 3 0 3

Contemporary real estate problems from the various viewpoints within the real estate industry.

2.437 Legal Descriptions, Platting and Map Reading 1 2 2

Locating properties, sites and points and mastering the reading and writing of legal descriptions using metes and bounds, lot and block and governmental rectangular survey systems and graphically depicting such descriptions by drafting plats, plot plans and maps. Land measurements, areas and dimensions will be studied. Emphasis will be placed on functional skills rather than cartographic methods.

RELIGION

R201 Great Religions 3 0 3

The study of religion, religious practices in pre-history and the major oriental religions. Discussion and film media will relate the intellectual and the aesthetic, the ancient and modern. The student is encouraged to do individual research.

***R202 Great Religions 3 0 3**

The second course in the sequence will add a survey of the thought, scriptures and practices of Judaism, Christianity and Islam. Discussions, papers and film will stimulate a critical appreciative approach to these religions.

Prerequisites: R201 and/or instructor's consent.

R203 Judeo-Christian Religious Beliefs and Institutions 3 0 3

A survey of the richness and diversity of American religious thought and practice. Emphasis on useful information for the believer and/or questioner. Discussion and individualized research projects will aid the student in interpreting religious practices more knowledgeably.

Restaurant Management, see COMMERCIAL FOOD PRODUCTION

Salesmanship, see MARKETING

Savings and Loan, see BANKING AND FINANCE

Science, see BIOLOGY, BOTANY, CHEMISTRY,

GEOLOGY, PHYSICAL SCIENCE/PHYSICS, ZOOLOGY

SECRETARIAL/CLERICAL, see also TYPING, STENOGRAPHY

SS101 Office Careers Survey 3 0 3

An overview of the organization and climate of business and professional offices, which will include investigation of

the various job possibilities available to persons with secretarial/clerical training. Includes guest speakers and field trips to provide current picture of office occupations.

2.515 Filing 3 0 3

A study of the basic principles involved in the systematic planning for the classification, arrangement, storage and retrieval of business papers. Emphasis is placed on practice in alphabetic, numeric, subject and geographic filing systems of correspondence and non-correspondence papers.

***2.580 The Receptionist 3 0 3**

A course designed to provide an awareness of the significance of the role of the receptionist and his/her vital place within a company. The student receives instruction and training opportunities in the responsibilities involved in this role to prepare him/her to be a competent office receptionist.

Prerequisite: Recommended as a first-year course only.

***2.641 Office Procedures 2 2 3**

An introduction to different types of administrative support activities including telephone usage, mailing and shipping, meetings and conferences, appointments and meeting the public, working with arrangements, word processing, sources of business information, job careers in offices and job interviewing. Simulated job activities are included.

Prerequisite: Typing 2.606/SS121 or consent of instructor.

2.642 Records Management 3 0 3

Principles of efficient control of business records including criteria for determining storage, disposition or retention. Includes guidelines for selection of equipment and supplies. Instruction in records management systems is presented through lecture, reading and practical application.

2.648 Payroll Procedures 3 0 3

An examination of the federal and state laws which determine what records need to be kept on each employee's earning, what reports need to be prepared for state and federal governments and what guidelines need to be followed in assigning pay scales to employees. Practice in the procedures used in computing the amounts of wages and salaries, paying these amounts and classifying payments charging the amounts to appropriate expense accounts.

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2.652 Bookkeeping 3 0 3

A study of basic accounting principles and procedures to provide a familiarity with financial records and accounting terminology used in business today. Training in processing techniques for handling information, special journals, controlling accounts and work sheets used in preparation of account statements.

***2.710 Secretarial Practicum 2 2 3**

An advanced course in secretarial procedures, utilizing all previous training plus addition of other areas of specialization. Decision making and quality production are stressed. **Prerequisite:** Office Procedures, 2.641 and second-year standing or consent of instructor.

9.746 Office Occupations

A class for persons who want to develop or brush up on clerical skills in order to get into office work. Basic skills necessary for jobs as receptionists, file clerks, stenographers, typists or general office clerks. Independent study and individualized instruction are used. A comprehensive review is available in typing, shorthand skill building/machine transcription, filing, business English, records management and office machines. Students may enroll on any Monday when vacancies are available.

Security Systems Management,
see **CRIMINAL JUSTICE**

Sewing, see HOME AND FAMILY LIVING

Shorthand, see STENOGRAPHY

**Social Science, see HISTORY, GEOGRAPHY,
PSYCHOLOGY, POLITICAL SCIENCE,
SOCIOLOGY, WOMEN'S STUDIES**

SOCIOLOGY

Soc100 Sociology 3 0 3

A study of people and the history of problems of living

together and the development and organization of the various groups and structures that make up the inter-related facets of modern society. Contemporary problems particularly evident in the United States such as racial disorders, campus demonstrations and the hippie movement are included.

Soc101 American Institutions 3 0 3

A study of the effect of American social, economic and political institutions upon the individual as a citizen and as a worker in business and industry. The inter-relationship of freedom and control is utilized as a common denominator in considering culture, its functions and changes, social groups in relation to problems of urban living, the family and social classes, the American economic system and its concepts and organization, public opinion, the American political system and international relations.

†Soc204 General Sociology 3 0 3

Basic issues and findings regarding the biological, symbolic and social nature of man. The foundations for social interaction including patterns of social structure, culture, socialization, primary relationships, social differentiation, organizations, deviance and collective behavior are presented. Principles of the scientific method and major sociological theorists are included.

***†Soc205 General Sociology, Institutions 3 0 3**

An analysis of American social institutions with special emphasis on family, religion, education, economy and politics. Factors contributing to institutional stability and change are examined with reference to potential consequences. Some cross-cultural comparisons are presented. **Prerequisite:** Soc204 or consent of instructor.

***†Soc206 General Sociology 3 0 3**

A sociological approach to major social problems in contemporary American society. Organizational theme will be population with emphasis upon such concepts as aging, health care, law, leisure, minorities, pollution, poverty, technology, urbanization, work and youth. Potential alleviation and prevention will be stressed. **Prerequisite:** Soc204 or consent of instructor.

Soc221 Juvenile Delinquency 3 0 3

The nature, extent, causes, control, reactions, treatment and rehabilitation of juvenile delinquency in contemporary American society from a sociological perspective.

Soc222 Marriage Relationships 3 0 3

A sociological approach to the institution of marriage including preparation for marriage, mate selection, adjustment to marriage, marital problems to expect and solve and the changing styles of family relationships.

Soc291 Introduction to Data Collection and Interpretation 3 0 3

A basic survey of concepts, techniques and approaches used in collecting information from a scientific perspective. The varieties of procedures and strategies used in decision making and the reporting of information. Some emphasis is given to the analysis of data.

Soc295, 296 Problem Solving I and II 3 0 3

An opportunity for the student to apply basic social science methodology to a logical problem utilizing Salem and outlying areas as the framework for problem identification, problem formation and problem solution.

Spanish, see FOREIGN LANGUAGE

SPEECH

†Sp111, 112, 113 Fundamentals of Speech 3 0 3

Projects in extemporaneous speaking. Primary emphasis on content and organization, with attention also to the student's adjustment to the speaking situation, effective delivery, audience motivation and language of speech.

Sp125 Interpersonal Communication 3 0 3

An orientation to the dynamics of speech communication, including verbal and non-verbal elements which influence effective speaking and listening. Theory is introduced through oral communication activities in face-to-face, small group and public speaking contexts. Emphasis on interpersonal communication.

†Sp229 Interpretation 3 0 3

The application of the principles of oral reading to literature.

1.610 Public Speaking 3 0 3

A course designed to improve speech efficiency, self-confidence and skill in organization and delivery of the type of speeches encountered in business and social activities through practical application of actual speech situations.

STENOGRAPHY

†SS111 or 2.620 Stenography 2 3 3

A beginning course in Gregg Diamond Jubilee shorthand. A study of simplified principles which should enable the student to take simple dictation and transcribe in longhand in the early part of the course. Students who have had previous training in shorthand are given the opportunity to complete these requirements in a short period of time. Other elements studied are proper recording habits, spelling, vocabulary and punctuation.

***†SS112 or 2.621 Stenography** 2 3 3
 A continuation and review of shorthand theory plus transcription, including special forms, abbreviated forms, punctuation and expanded vocabulary. Emphasis is on shorthand writing from dictation to build speed and skill and transcribing from shorthand notes on a typewriter.
Prerequisite: Stenography 2.620/SS111 or equivalent.

***†SS113 or 2.622 Stenography** 2 3 3
 Advanced vocabulary, phrase-building and work-building principles based on the basic Gregg shorthand principles learned in Stenography 2.620 and 2.621.
Prerequisite: Stenography, 2.621 or equivalent or consent of instructor.

SS114 or 2.700 Briefhand I 2 3 3
 A simplified note taking system. Beneficial for students for vocational application, for taking lecture notes and for personal use.

***2.701 Briefhand II** 2 3 3
 A continuation of Briefhand I. The emphasis in this course will be on speed development. Some transcription techniques will be introduced.
Prerequisite: Briefhand I or consent of instructor.

***2.702 Briefhand III** 2 3 3
 A continuation of Briefhand I and II. Special emphasis on transcription skills, review of theory and speed building.
Prerequisite: Briefhand I and II or consent of instructor.

***†SS211 or 2.537, SS212 or 2.538 Applied Stenography** 2 3 3
 Review of shorthand including advanced principles, phrases and shortcuts. Further development of shorthand, typewriting and English into effective skills with emphasis on vocabulary of different business areas.
Prerequisite: For SS211 or 2.537, SS113 or 2.622; for SS212 or 2.538, SS211 or 2.537.

***†SS213 or 2.549 Speedbuilding** 2 3 3
 A thorough and extensive review of shorthand including advanced principles, phrases and shortcuts. Emphasis on speed development in dictation and transcription, vocabulary development, efficient and correct procedure for preparation of business correspondence.
Prerequisite: SS212 or 2.538.

***2.668 Business Executive Dictation** 3 0 3
 Development of executive skill dictating interoffice memorandums, letters, reports and other written communications. Mechanical operation of the dictating machine is included as is the set-up of the various business forms mentioned above.
Prerequisite: Business English, 2.673 and Business Communication, BA214/2.672 or consent of instructor.

2.704 Machine Shorthand I 2 3 3
 A beginning course in machine shorthand as taken on the stenograph. Includes the study of basic letter and word-forming principles and the taking of dictation in the latter part of the term.

***2.705 Machine Shorthand II** 2 3 3
 A continuation of Machine Shorthand I. The student should improve in knowledge of the theory of word formation, build up dictation speed and become familiar with transcription techniques.
Prerequisite: Machine Shorthand I, 2.704.

***2.706 Machine Shorthand III** 2 3 3
 Further refinement of the theory of machine shorthand as learned in Machine Shorthand I and II to build speed. The course also includes study and practice in transcribing material taken from dictation.
Prerequisite: Machine Shorthand I, 2.704, and II, 2.705.

Study Skills, see READING, COMMUNICATION SKILLS, WRITING, SPEECH

Surveying, see CADASTRAL SURVEYING

Television, see RADIO-TELEVISION

Textiles, see HOME AND FAMILY LIVING

THEATER

see also FILM PRODUCTION

TA111 Fundamentals of Acting 0 6 3
 Introduction to the principles of acting, development of body control, investigation of body skills and use of improvisation in dramatic expression.

TA112 Fundamentals of Acting 0 6 3
 The use of the voice in dramatic roles, its production and control. An introduction to dialects and accents.

TA113 Fundamentals of Acting 0 6 3
 Study of the problems in the analysis and presentation of characters in dramatic literature.

TA249 Stagecraft 2 3 3
 Construction, painting and shifting techniques for stage scenery and properties. Study of backstage procedures and stage management literature.

TA249 Stagecraft 2 3 3
 Construction, painting and shifting techniques for stage scenery and properties. Study of backstage procedures and stage management.

TA250 Theater Workshop variable
 Principles of dramatic production demonstrated through practical production experiences or special laboratory projects.

TA252 Makeup 1 2 1
 Theory and practical applications of theatrical makeup. The use of makeup in the various theatrical media and the use of different types of makeup.

TA261 Theater Principles 2 0 2
 Developments of the physical theater.

TA262 Theater Principles 2 0 2
 Basic principles of stage lighting.

TA263 Theater Principles 2 0 2
 The mechanics of the theater's stage and shops. Planning and construction of stage settings and principles of stage lighting.

TA263 Theater Principles 2 0 2
 The mechanics of the theater's stage and shops. Planning and construction of stage settings and properties.

TYPING

†SS121 or 2.606 Typing I 1 4 3
 The basic parts of the IBM selectric typewriter. Instruction in the typewriter keyboard utilizing the touch system and basic centering techniques. The student should attain a typing speed of at least 30 words per minute. Basic letter, table, memo and manuscript format are studied. Students with previous typing experience may work through this course in a minimum period of time or take the challenge examination.

***†SS122 or 2.607 Typing II** 1 4 3
 A continuation of Typing, 2.606, with emphasis on increasing the typing speed and accuracy to at least 40 words per minute for a grade of "C." Mastery of various forms of business communications along with application of editorial skills and technical procedures.
Prerequisite: Typing, SS121, 2.606 or equivalent plus entry speed of 30 WPM.

***†SS123 or 2.608 Typing III** 1 4 3
 Corrective and acceleration drills to develop a minimum typing speed of 50 words per minute. Emphasis on production of various papers encountered in a business office.
Prerequisite: Typing, SS122 or 2.607 or equivalent or consent of instructor.

2.709 Typing, Skill Building 1 4 3
 A course designed to improve typing skill (keyboard proficiency, typing speed and accuracy). May be taken at

any time after a person has learned the keyboard. Excellent preparation for students who feel their skill is not at a level high enough for advanced work in typing or who want to strengthen their skill.

Prerequisite: Typing, 2.606 or consent of instructor.

VISUAL COMMUNICATIONS

*6.163 Basic Technical Photography 3 6 5

Basic fundamentals and technical aspects of photography including types of cameras, f/systems, shutter speeds, film types and specification, developing, basic enlarging, composition, familiarity with basic materials and processing, career opportunities, vocabulary, equipment and display techniques. Intended for students interested in photographic careers. Directed photographic assignments and photo lab work are included.

Prerequisite: Acceptance into program.

*6.164 Intermediate Technical Photography 2 9 6

A mixture of professional and graphic arts photography which incorporates light measuring, gammas, densitometry, sensitometry, interpretation and uses of technical data, technical aspects of photographic design, microfilm, color processing and career opportunities. Technical mastery of the photographic processes is intended so the student may then use photography as a communication design tool. Students will use color analysers and densitometers.

Prerequisite: Basic Technical Photography 6.163.

*6.166 Graphic Design and Character Generation 3 6 5

Graphic arts topics such as paste-up, character generation, art techniques, design principles, layout, proof reading, copy classification, photo composition and typography.

Prerequisite: Acceptance into program.

*6.167 Advanced Graphic Design 3 9 6

Practice and experience in visual communication and graphic technology relating to information design, multiple paste-up, register controls and systems, typographic design, display and tabular composition, proofing procedures, career opportunities, symbology and audience analysis.

Prerequisite: Graphic Design, 6.166.

*6.168 Process Photography, Stripping and Platemaking 3 9 6

Technical competency will be developed in production methods and knowledge of process photography, line copy, halftones, development methods, stripping (including multiple exposures), scribing, register systems, exposure computers, platemaking and elementary densitometry. Consideration is given to practical applications

of the theoretical basis of process photography.

Prerequisite: Acceptance into program.

*6.169 Image Conversion and Image Carriers for Offset Lithography 3 9 6

Image conversion, posterization, knockouts, chokes, spreads, duotones, densitometry, multiple color stripping, specialized films, photographic materials, plates and other image carriers. Quality controls including graphic design, design element conversion into reproducible elements, assembly of the reproducible elements into an image carrier and transfer of the image carrier to a transport.

Prerequisite: Process Photography, 6.168.

6.170 Presswork and Reproduction Systems 3 12 7

Image transfer systems, press designs, feeders, printing units, dampening units, inking systems, delivery systems, office duplication, pH control and career opportunities.

Prerequisite: Acceptance into program.

*6.171 Advanced Presswork 3 9 6

Practical experience relating to papers and inks, rollers and cylinder adjustments, multiple color runs, registration controls, pH control and outside plant observations.

Prerequisite: Presswork, 6.170.

*6.172, 6.173, 6.174, 6.175 Special Problems in Graphic Communication variable

A communication problem is identified and a contract written by student-instructor. The contracts set forth a proposal to solve the problem and identified objectives, procedures and equipment needed, together with key check points for student instructor conferences. This is intended as a "final" course for student in both graphic arts and photography. Potential areas of consideration also include color separation, plant management and quality control. Consideration and encouragement will be given for an interdisciplinary team of students working on a common problem. Variable amounts of credit, ranging from three term units to seven term units, are available.

Prerequisite: Departmental approval.

WELDING

4.150 Welding 1 3 2

An introductory survey of welding technology correlating technical information with actual practice to provide an understanding of the composition of various metals and methods of fabrication used in construction, maintenance and repair. Includes set-up and operation of oxyacetylene and arc welding equipment, demonstrations and practice in welding and brazing and soldering ferrous and non-ferrous metals and their alloys.

4.153 Welding 1 3 2

Fundamentals and application of arc welding, oxyacetylene welding, brazing and cutting pertaining to the automotive industry.

4.155 Fabrication Practices I 2 3 3

Practices in the fabrication of metals and metal finishing including change of shape, change of physical characteristics and joining of metals.

*4.156 Fabrication Practices II 2 3 3

Study and application of fabricated metal technology. Recognition of pattern and jig material and positioning of fabricated sections for rapid completion. Automated equipment can be utilized in the elimination of distortion problems.

Prerequisite: Fabrication Practices I or associate director approval.

4.157 Fabrication Practices III 1 4 3

A continuation of fabrication practices, with emphasis on fabrication of structural and ornamental iron machinery frames and bases.

Prerequisite: Fabrication Practices II or associate director approval.

*4.158 Fabrication Practices IV 2 6 4

Instruction and experience in production-type welding with the use of jigs, fixtures and positioners.

Prerequisite: Fabrication Practices III or associate director approval.

4.159 Blueprint Reading for Construction 2 3 3

The relationship of various drawings in a set of plans to basic drawing principles, recognition of detail in job prints related to the construction industries, prints of construction jobs, large-scale detailing of portions of construction and material take off. Fabrication, construction and assembly. Commercial buildings and bridge or dam construction prints typify the type of plans used for study.

4.160 Electric Arc Welding 2 6 4

Fundamentals of electrical arc welding. Includes machine setting and electrode manipulation.

4.161 Basic Oxy-Acetylene Welding 2 6 4

Fundamentals of oxy-acetylene welding introducing brazing and cutting processes.

4.162 Electric Arc Welding II 2 9 5

A continuation of Electric Arc Welding, 4.160. Provides the necessary class and laboratory time to allow the student to become proficient in all position welding, electrode selection and machine setting.

4.165 Production MIG Welding 1 6 3

Students set up and weld under production situations. Instruction in the proper selection of the MIG process to use

in different production instances.

Prerequisite: Advanced MIG Welding, 4.252 or associate director approval.

***4.167 Welding for Certification** 1 9 4

A continued laboratory course designed to train certified welders. Extensive practice on simulated tests required for certification in plate and pipe welding is followed by the test and certification by the state if the student qualifies. A study of welding procedures, previously covered, as they apply to heavy gauge welding is included.

Prerequisite: Successful completion of basic and intermediate welding courses. Certification test fee is determined by the number of students involved and the type of test. The fee must be paid at least one week prior to the test date.

***4.168 Fabrication Shop Problems** 1 4 3

An application of drafting and math courses to problems in fabrication of structural members, bins, hoppers, pipe fittings, chutes, etc. Principles and practices of pattern development for typical shapes and fittings are included.

Prerequisite: Blueprint Reading and Sketching, 4.244, Drafting, 4.101, Mathematics, 4.202 or approval of associate director.

***4.169 Fabrication Problems** 0 8 3

A continuation of Fabrication Shop Problems, 4.168 with emphasis on quality control (x-ray, ultrasonic, magnaflux and sharpie vee testing).

Prerequisite: Fabrication Shop Problems, 4.168 or associate director approval.

4.240 Basic Arc Welding 2 9 5

Arc welding equipment, materials and procedures used in industry. Designed to develop basic techniques in flat, horizontal, vertical and overhead welding by demonstration and supervised practice. Basic technical and related information concerning processes and metallurgy is included.

***4.241 Intermediate Arc Welding** 2 12 6

A continuation of basic arc welding covering ferrous and non-ferrous alloys and welding procedures. Demonstration and supervised practice of techniques on various metals applied in fabrication and repair concurrently with related information concerning the use and structure of these metals.

Prerequisite: Welding, 4.240 or 4.150 or approval of associate director.

***4.166 Advanced Arc Welding** 1 6 3

A laboratory course designed to train certified welders. Extensive practice on simulated tests required for certification in plate and pipe welding is followed by the test and

certification by the state if the student qualifies. A study of welding procedures previously covered as they apply to heavy gauge welding is included.

Prerequisite: Third-term standing and successful completion of basic and intermediate welding courses. Certification test fee is determined by the number of students involved and the type of test. The fee must be paid at least one week prior to the test date.

***4.242 Oxygen-Acetylene Cutting** 0 2 1

The use and care of oxy-acetylene cutting equipment.

Prerequisite: Current enrollment in the one-year welding curriculum or approval of associate director.

***4.243 Fabrication Procedures** 3 8 6

Instruction in methods and application in layout and template design for structural shapes and pipe.

Prerequisite: Blueprint Reading and Sketching, 4.244 or associate director approval.

4.244 Blueprint Reading and Sketching 1 3 2

Basic sketching techniques and reading of three-view drawings for welders. Includes dimensioning practices, scaling, line alphabet notes and symbols. Emphasis is placed on developing an ability in reading detail and weldment drawings.

4.245 Layout Practices 2 3 3

A study of layout tools and their use in fabricating structural members, bins, hoppers, pipe fittings, chutes, etc. Principles and practices of pattern development for typical forms and fittings will be included.

***4.247 Welding Metallurgy I** 2 0 2

The fundamentals of metallurgy pertaining to welders. Covers identification of ferrous metals, distortion, stress relieving, flame straightening and hardening plus various metallurgical problems.

Prerequisite: Successful completion of term one of the one-year welding curriculum or approval of associate director.

***4.247 Welding Metallurgy I** 2 0 2

The fundamentals of metallurgy pertaining to welders. Covers identification of ferrous metals, distortion, stress relieving, flame straightening and hardening plus various metallurgical problems.

Prerequisite: Successful completion of term one of the one-year welding curriculum or approval of associate director.

4.248 Welding Metallurgy II 2 0 2

A continuation of Welding Metallurgy I covering the common nonferrous metals and chromium alloys.

***4.249 Weld Shop Problems** 2 12 6

A review and application of the welding, layout and

fabrication processes covered during the year. Study and practice of production welding methods, electrode consumption and method selection are included. Fabrication and assembly projects are selected to present typical layout, fabrication and production problems.

Prerequisite: Satisfactory completion of first- and second-term welding.

***4.250 Basic MIG Welding** 1 4 2

Basic skills in semiautomatic MIG welding processes. A study of the principles involved in the equipment, material and procedures is combined with demonstrations and supervised practice using standard industrial equipment. Solid and flux-cored wire will be used in typical industrial applications.

Prerequisite: Basic Arc Welding and Oxy-acetylene courses or approval of associate director.

***4.251 Basic TIG Welding** 1 3 2

A practical course in the fundamentals of TIG welding processes, machine setting and application and development of inert gas welding skills. Includes welding of mild steel, aluminum, aluminum alloys, stainless steel metals and magnesium.

Prerequisite: Basic Arc Welding and Basic Oxyacetylene courses or approval of associate director.

***4.252 Advanced MIG Welding** 1 6 3

A continuation of Basic MIG Welding, 4.250. Study and practice includes mild steel, aluminum, stainless steel and pipe welding techniques. An opportunity is provided at the end of the course to take the Oregon State Department of Labor certification test at extra cost.

Prerequisite: Basic MIG Welding or approval of associate director.

***4.238 Advanced TIG Welding** 1 3 2

A continuation of the basic course including extensive welding on mild steel plate in all positions.

Prerequisite: TIG Welding, 4.250 or department approval.

4.253 Shop Safety 1 0 1

A survey of principles of safety for industry. Includes the use of films and case studies to develop an awareness of hazards and positive attitudes toward prevention of accidents.

***4.254 Shop Projects** 1 2 2

Practical experience in maintenance and repair of weld shop machines, accessories and fixtures. Selected fabrication and repair projects are used to develop resourcefulness and confidence in the application of skills and knowledge developed in concurrent courses.

Prerequisite: Concurrent registration as a full-time student in the welding program or approval of associate director.

WELL DRILLING

- *4.152 Oxy-Acetylene for Drillers** 1 4 2
The use and care of oxy-acetylene welding and cutting equipment with special applications for well drillers in maintenance and repair of equipment and tools.
Prerequisite: Current enrollment in the well drilling program or approval of welding department.
- 4.154 Intermediate Arc Welding for Drillers** 2 6 4
A continuation of basic arc welding covering ferrous and nonferrous alloys and welding procedures.
- 4.290 Drilling Operations I** 3 2 4
A comprehensive introduction to the water well drilling industry. A study of drilling methods, equipment, tools and terminology, through current literature, lecture, demonstration, practice and field trips. Includes an introduction to well construction standards, specifications, contracts and safety.
- *4.292 Drilling Operations II** 2 4 3
A further development in drilling operations with emphasis on a variety of setups and operation under varied conditions providing an introduction to and practice in well design development, sampling operations and well sanitation.
Prerequisite: Third-term standing in the well drilling program or approval of the associate director.
- *4.295 Drilling Operations III** 3 6 5
A continuation of the drilling operations sequence, with review and application of previous subject matter with emphasis on sampling operations and well design and development.
Prerequisite: Drilling Operations II or approval of associate director.
- *4.296 Drilling Operations IV** 3 6 5
A continuation of the drilling operations sequence with emphasis on maintenance and repair of drilling equipment and tools. Introduces water analysis and well rehabilitation. Troubleshooting and preventive maintenance are emphasized.
Prerequisite: Second-year standing in the well drilling program or departmental approval.
- *4.297 Drilling Operations V** 5 12 8
The final course in the drilling operations sequence, summarizing and applying skills and knowledge developed. Emphasis is on development of the water supply with pump selection installation, testing, controls, seals and interpretation and reports of the results.
Prerequisite: Drilling Operations III and IV or departmental approval.

- 4.293 State Drilling and Standards and Record Keeping** 3 0 3
State standards for the water well drilling industry in terms of health and sanitation, fair practices, ethics and standard drilling procedures. Required record keeping and record study is also included.
- 4.294 Hydrology for Drillers** 3 2 4
A study of hydraulics pertaining to water wells, including water table studies, cones of depression and areas of influence. Factors affecting quality flow and well size and development will also be studied.
- 4.298 Well Drillers Operating Lab** 0 4 1
A supplement to existing lab hours as needed, providing practical application of knowledge and skills learned in previous and current well drilling and related subjects. Included are drilling operations, well development, installation and maintenance and repair of equipment.

WOMEN'S STUDIES, see also HISTORY

- WS101 Introduction to Women's Studies** 3 0 3
A survey of women as a minority group, examining the role of women from a variety of social science perspectives. The position of women in the family, participation in the labor force and the political psychology of women. A look at women cross-culturally and in history and literature. Classical and contemporary materials on women's role in society.
- *WS102 Introduction to Women's Studies** 3 0 3
The historical development of women from the 1920's through the 1960's with major emphasis on women cross-culturally—women in the developing third world countries as well as in modern industrial societies. Looks at where women are today.
Prerequisite: WS101 or consent of instructor.
- *WS103 Introduction to Women's Studies** 3 0 3
Women as social beings moving toward the year 2000 A.D. Emphasis on the theoretical changes occurring in anthropological, psychological and other social areas which have major implications on future behavioral trends. Includes development of changes in labor, law and social institutions with an eye toward future patterns. Research and evaluation of theories and data are the prime focus.
Prerequisites: WS101 and 102 or consent of instructor.
- 1.609 New Directions for Women** 3 0 3
Development of a better understanding of the various roles people fulfill in society. An opportunity to examine

realistic alternatives in terms of careers, education, volunteerism and personal creativity.

Work Experience, see COOPERATIVE WORK EXPERIENCE

WRITING

- Wr10 Basic Writing** 1 0 1
Mini course in writing¹ skills taught on an individual and small group basis concentrating on sentences and paragraphs. One to three weeks.
- Wr11 Basic Writing** 2 0 2
Mini course in writing skills taught on an individual and small group basis concentrating on research techniques. Four to six weeks.
- †Wr121 English Composition** 3 0 3
Fundamentals of English composition. Frequent written themes. Special attention to correctness in fundamentals.
- *†Wr122 English Composition** 3 0 3
The research paper—with emphasis on clarity and depth in writing. Includes an examination of bias, prejudice, reliability, opinion, etc.
Prerequisite: Wr121 or consent of instructor.
- *†Wr123 English Composition** 3 0 3
Examination of literature and ideas with emphasis on style in expository writing and the research paper.
Prerequisite: Wr121 or consent of instructor.
- *Wr227 Technical Writing** 3 0 3
Principles of composition and basic forms of writing reports. Emphasizes correct grammatical usage, types and makeup of reports, effectiveness of writing styles, gathering and planning of facts for a report and general improvement of report writing ability.
Prerequisite: Wr 121, 122 or approval of associate director.
- †Wr241, 242, 243 Imaginative Writing** 3 0 3
A course designed to help the writer in three genres (short or long fiction, drama and poetry). Primarily a workshop class, with daily discussion of student writings. The course also includes some textual explorations with student and instructor presentations. Some individual and group projects will be assigned, but for most of the term students will be free to pursue their own projects, turning in at least one new or revised piece or portion of a work each week.
- *1.106 Technical Report Writing** 3 0 3
The principles of writing reports. Subjects covered include the why of reports, types of reports, makeup, effectiveness of writing styles, gathering facts, planning reports.

documentation, methods of writing, layout and typing and visual aids.

Prerequisite: Communication Skills 1.101 or consent of instructor.

1.118, 1.119, 1.120 Writing Skills variable

A course designed to help the student with weakness in writing, research, vocabulary and spelling. Emphasis is placed on sentence and paragraph writing. The student

contracts to work on areas of weakness for the specific number of credits desired. Credits will be contingent on amount of work, quality of work and time. These courses may be repeated for a maximum of six credits.

ZOOLOGY

***Zoo201, 202, 203 General Zoology 3 3 4**

An introductory study of animal life dealing with the prin-

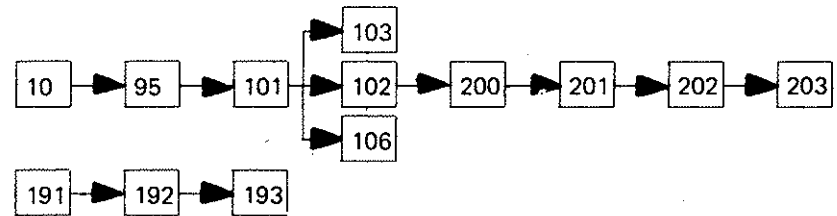
ciples and theories and applications of animal biology. Includes comparative study of the morphology, anatomy, life history, physiology, development and ecology of both vertebrates and invertebrates. Zoo202 emphasizes invertebrates, Zoo203 emphasizes vertebrates.

Prerequisites: High school chemistry and biology or one quarter college biology.

Selection of Courses in Transfer Mathematics

Mathematics Completed	Quality of Work in High School Mathematics			
	High	Better than Average	Average	Low
One year of general math	Mth 10	Mth 10	Mth 10	Mth 10
One year of college-prep algebra	Mth 95	Mth 95	Mth 10 or 95	Mth 10
Two years of college-prep algebra (with or without geometry)	Mth 101	Mth 101	Mth 95 or 101	Mth 95
Four years of college-prep math (not including trigonometry)	Mth 102	Mth 102	Mth 101 or 102	Mth 101
Four years of college-prep math (with ½ year of trigonometry)	Mth 200	Mth 200	Mth 101 or 102	Mth 101

Flow Chart For Lower Division Courses In Mathematics



Instead of these required Math sequences:

Business Math Sequence

4.200
4.201
6.918

Vocational Math Sequence

4.200
4.202
4.204

Tech Math Sequence

6.261
6.262
6.266

Drafting Curriculum

4.202
6.261
6.262

You may elect to substitute these or higher math sequences:

Mth 95
(Only one LDC course required)

Mth 10
Mth 95 (as many courses as required)
Mth 101

Mth 95
Mth 101
Mth 102 or 106

Mth 95
Mth 101
Mth 102

Students transferring for a four-year degree in a business, life science, social science, humanities or liberal arts area should be encouraged to take Mth 101, 103 and 106.

Students transferring for a four-year degree in engineering, pre-medical, science or mathematics should be encouraged to take Mth 200-203.

CHEMEKETA BOARD OF EDUCATION

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J. Earl Cook	Salem
Michael E. Holland	Salem
Glenn W. Middleton	Salem
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COLLEGE STAFF

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Asher, Gregory	Instructor, Social Science
Barnes, Nancy	Diagnostician, Study Skills
Barrett, Arthur	Instructor, Electronics/Radio TV
Bates, Mary	Counselor
Bay, Brian	Instructor, Fire Science
Beckerman, Cecile	Instructor, Secretarial/Clerical
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Blodget, Kristine	Instructor, Science
Bodtker, Diana	Instructor, Science
Bodtker, Egon	Cluster Director, Community & Social Services
Bothwell, Bruce	Instructor, Electronics/Radio TV
Boyington, Gary	Instructor, Electronics/Radio TV
Briedwell, John	Director, Outreach Programs
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Cockrell, James	Instructor, Insurance
Cole, Tom	Cluster Director, Trade & Industry
Connor, Marilyn	Instructor, Communication Skills
Cook, Conrad	Director, Automated Management Information
Cooper, Aaron	Associate Director, Welding, Machine Mechanical, Automotive, Well Drilling
Cooter, Stephan	Instructor, English and Humanities
Cornutt, Delvin	Instructor, Social Science
Coskey, Jack	Instructor, Cadastral Surveying/Forestry
Couse, Lyle	Instructor, Accounting/Management
Cox, Drexel	Director, Personnel Services
Cresser, Hap	Cluster Director, Learning Resource Center
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Davey, Stan	Director, Facilities Operations & Development
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Davis, L. Anne	Counselor
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Dill, Cecil	Associate Director, Fire Science
Dixon, Robert	Instructor, Welding/Machine Mechanical
Dodge, Thomas	Instructor, Welding/Machine Mechanical
Doeneka, Molly	Instructor, Social Science
Durinski, Fred	Manager, Commercial Food Production

Edelbrock, Gary	Interim President, 1976-1977, Dean, Student Personnel Services	Judd, Roger	Instructor, Mathematics
Ekeruo, Jeannette	Associate Director, Social Sciences, Early Childhood Education	Kaffun, Karen	Instructor, Early Childhood Education
Elling, Kay	Instructor, Science	Keesee, Raymond	Instructor, Automotive
Emerson, Willard	Instructor, Fire Science	Kelley, Janette	Counselor
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Fitzgerald, George	Instructor, Science	Koch, Alan	Instructor, Journalism
Forcier, Suzanne	Instructor, Human Resource Technology	Koontz, Everett	Media Production Specialist
Ford, Ed	Instructor, Physical Education	Lane, Donna	Director, Adult Learning Center
Ford, Lowell	Director, Student Activities & Services	Larkin, Hugh	Instructor, Commercial Food Production
Forest, Jacques	Instructor, Accounting/Management	Latham, Bob	Associate Director, Drafting, Graphics & Electronics
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Frank, R. Bruce	Instructor, Civil Engineering	Leavitt, Judy	Bookstore Manager
Galbraith, Joan	Coordinator, Senior Programs	Lee, Roberta	Assistant to the Dean of Community Services
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Gill, Tom	Associate Director, English, Communication Skills and Humanities	Lytle, Pat	Coordinator, South Salem Programs
Gillette, David	Instructor, Mathematics	Machunze, Diane	Instructor, Criminal Justice
Gollersrud, David	Instructor, Well Drilling	Marckx, Elaine	Instructor, Nursing
Green, Constance	Cooperative Work Experience	Maguren, Janet	Instructor, Nursing
Gustafson, Jean	Head Librarian	Martin, Mike	Coordinator, Corrections
Hale, Robert	Instructor, Physical Education	Mathews, Carl	Purchasing Manager
Hanby, Steve	Instructor, Welding/Machine Mechanical	McCue, Ray	Dean of Instructional Services
Hardin, Brian	Accounting Manager	McDonough, Thomas	Planetarium Coordinator
Hargreaves, Hal	Instructor, English and Humanities	McHargue, Ruth	Instructor, Nursing
Harris, Lois	Instructor, Nursing	McLain, Roger	Instructor, Criminal Justice
Harris, Ralph	Instructor, Mathematics	McNicholas, Mike	Associate Director, Science & Chemical Technology
Hatfield, Gladys	Cluster Director, Allied Health	Merola, Joe	Instructor, Drafting & Graphics
Heater, Charles	Instructor, Welding/Machine Mechanical	Miller, Maryann	Affirmative Action Officer
Held, Leonard	Instructor, English & Humanities	Miller, Robert	Instructor, Small Business Management
Henry, Max	Cluster Director, Science & Mathematics	Mills, Keith	Instructor, Accounting/Management
Hessman, Bob	Plant Supervisor	Mock, John	Instructor, English & Humanities
Hickock, Nell	Instructor, Nursing	Moehlman, Jean	Reference Librarian
Hilgeman, Vickie	Instructor, English & Humanities	Moore, George	Coordinator, Institutional/Instructional Development
Hodges, Gary	Instructor, Automotive	Myers, James	Instructor, Social Science
Hofmann, Ron	Director, Metro Department	Mylan, Irene	Assistant to the President/Coordinator Community Events
Hoobler, James	Instructor, Science	Nagle, Priscilla	Instructor, ABE/GED
Houck-Lowery, Midge	Cluster Director, Work Related Experience	Nava, Andy	Supervisor, Security, Traffic & Transportation
Hurlbut, Marjorie	Instructor, ESL	Nichols, Van	Instructor, Drafting & Graphics
Jackson, Lynn	Instructor, Machine Mechanical	Nordal, Dorothy	Instructor, Nursing
Jaworsky, John	Instructor, Forestry	Nunnolley, Lewis	Instructor, Science
Jepsen, Leland	Instructor, Mathematics	O'Harra, Kris	Instructor, Communication Skills
Johnson, Donald	Instructor, Drafting & Graphics	Owens, Chris	Instructor, Health
Johnson, Linda	Catalog Librarian	Owings, Colleen	Instructor, High School Completion
Johnston, Neil	Cooperative Work Experience	Paldanius, Ward	Associate Director, Physical Education
Jones, Ben	Counselor	Panusuk, Eugene	Instructor, Adult Farm Management
Jones, Lee	Instructor, Mathematics	Pinckney, Dale	Instructor, Social Science
Judd, Connie	Instructor, ABE/GED	Pohl, Leslie	Instructor, Machine Mechanical
		Portlock, Patrick	Instructor, Criminal Justice
		Reagan, Lucille	Instructor, Secretarial/Clerical

Reed, Donald L.	Instructor, Study Skills	Steiner, Jerry	Instructor, Mathematics
Rice, Leonard	Instructor, Drafting & Mechanical Design	Stocker, Gary	Instructor, Automotive
Ringo, Al	Dean, Administrative Services	Stone, Frank	Instructor, Drafting & Mechanical Design
Rollings, Ron	Instructor, Electronics, Automotive TV	Stoneman (Grant), Linda	Instructor, Early Childhood Education
Roner, Bennie	Instructor, Electronics/Radio TV	Stobbs, Hazel	Instructor, Nursing
Ross, Gertrude	Instructor, Drafting & Mechanical Design	Suter, Paul	Instructor, Communication Skills
Rude, John	Coordinator, Project Development	Tabor, Patrick	Instructor, Social Science
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Ryan, Jim	Director, Financial Aid	Tigner, Neal	Instructor, Speech
Salsbery, Leila	Instructor, Medical Assisting	Toman, William	Associate Director, Medical Assisting, Dental Assisting, Human Resource Technology
Salter, Merlin	Instructor, Mathematics	Traxler, Mary	Instructor, Nursing
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Slosser, Joe	Instructor, Social Science	White, Howard	Assistant for Apprenticeship, WRE
Smith, Donald	Instructor, Early Childhood Education	White, Roger	Instructor, Electronics/Radio TV
Smith, Joe	Associate Director, Civil Engineering, Cadastral Surveying, Forestry	White, Vernon	Instructor, Forestry
Smith, Warren	Instructor, English & Humanities	Wigginton, Barbara	Instructor, English & Humanities
Soderstrom, Duayne	Counselor	Wilkins, Karen	Instructor, Medical Assisting
Spurgeon, Roy	Instructor, ABE/GED	Wintermeyer, Larry	Instructor, Accounting/Management
Stafford, Sandra	Instructor, Early Childhood Education	Wright, Larry	Instructor, Accounting/Management
Stam, Bruce	Instructor, Early Childhood Education	Zach, William	Instructor, Cadastral Surveying & Forestry

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