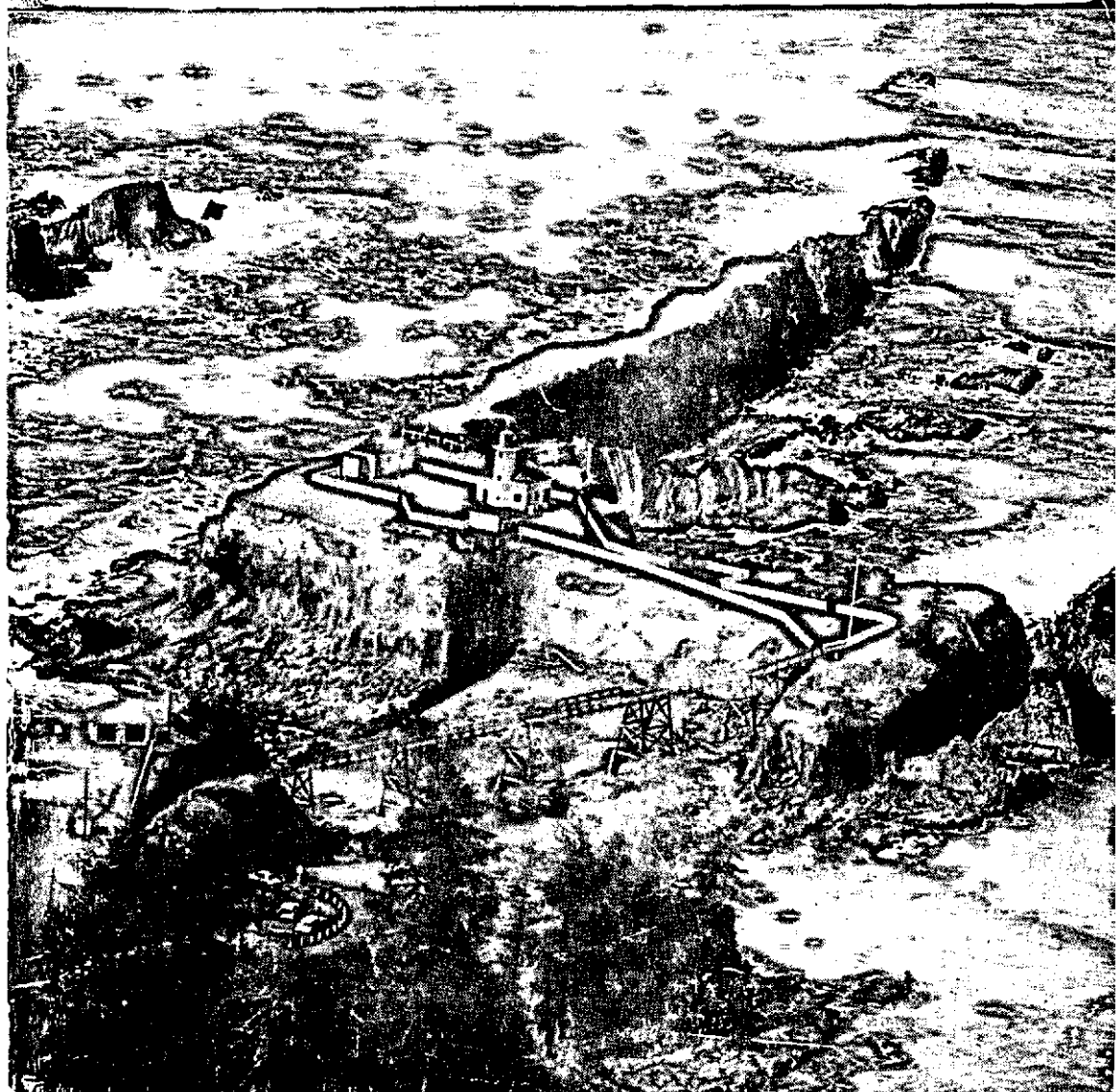


SOUTH WESTERN

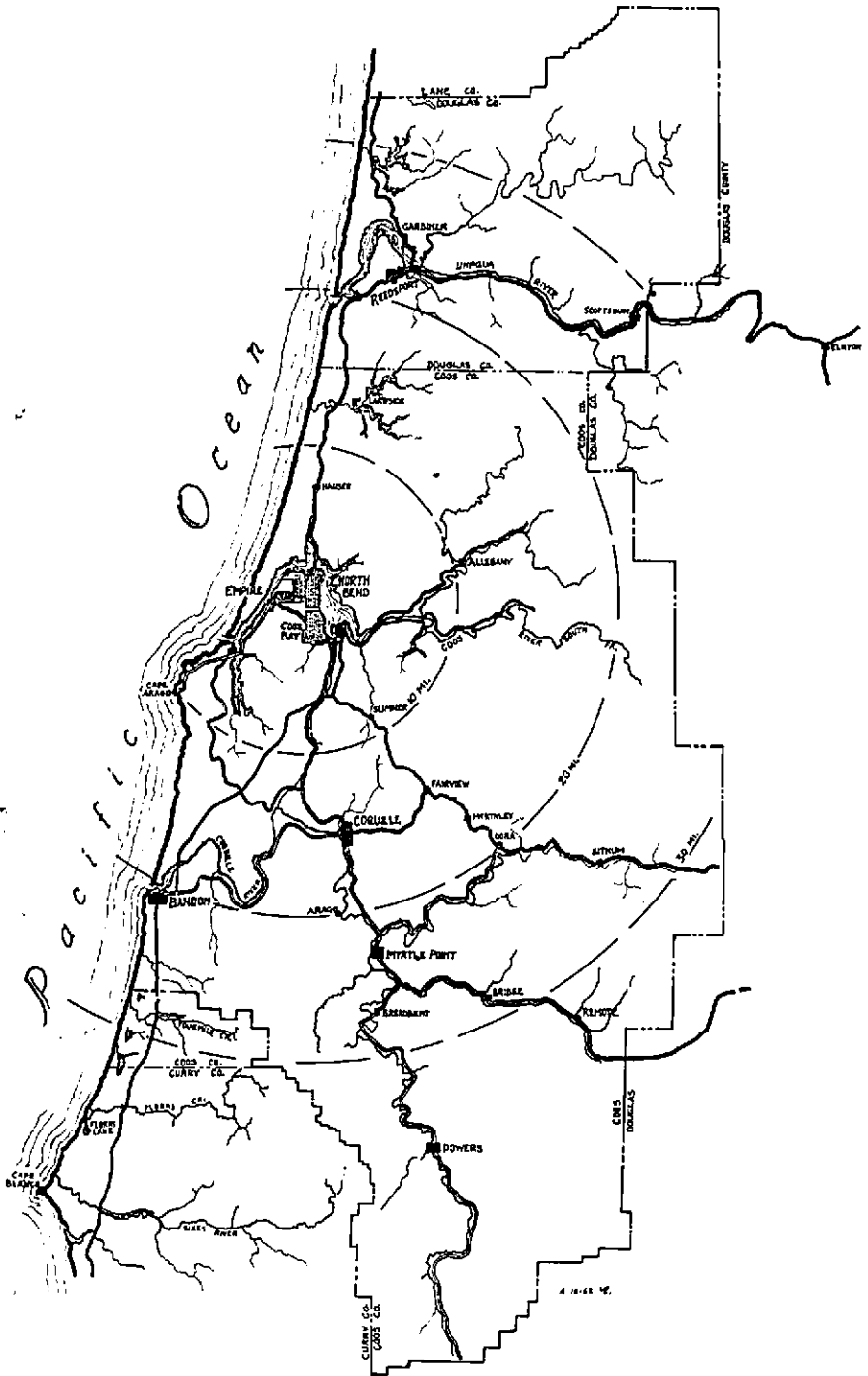
OREGON

COLLEGE

CATALOG
1963-1964



SOUTHWESTERN OREGON AREA EDUCATION DISTRICT



South Western Oregon College

GENERAL CATALOG

1963 - 1964

A
PUBLIC
TWO-YEAR
COEDUCATIONAL
COMMUNITY
COLLEGE

BOX 509
2750 COLORADO STREET
NORTH BEND, OREGON

- *Ferguson, Helen W.; Instructor, Business and Commerce. Certified Vocational Instructor.
- *Fietz, Roy L., B.A.; Instructor, Business Administration. B.A. (1949) University of Washington; CPA (Oregon) 1959.
- *Gamble, William; Instructor, Carpenter Apprentice. Certified Vocational Instructor.
- Gearhart, John B., B.S.; Instructor, Civil-Structural Engineering Technology. B.S. (1946) Oregon State University; Registered Civil Engineer. Certified Vocational Instructor.
- *Godard, Harold; Instructor, Industrial Electrician Apprentice. Certified Vocational Instructor.
- *Gross, Charles; Instructor, Plumber Apprentice. Certified Vocational Instructor.
- *Hale, Anita; Instructor, Business and Commerce. Certified Vocational Instructor.
- *Harris, Edwin D.; Coordinator-Instructor, Fireman Training. Certified Vocational Instructor.
- Hepler, Earl, Ed.D.; Dean of Technical-Vocational and General Education. B.S. (1953); M.S. (1954) Kansas State Teachers College; Ed.D. (1957) University of Missouri.
- Holmes, William J., M.S.; Assistant Professor, Physical Education. B.S. (1958) Kansas State Teachers College; M.S. (1959) University of Colorado.
- Hootman, Warren, B.S.; Instructor, Forestry Technology. B.S. (1958) Iowa State College.
- Humphrey, Thomas, M.S.; Assistant Professor, English and Literature. B.S. (1959); M.S. (1961) University of Oregon.
- *Karl, Maggie, B.A.; Instructor, Art. B.A. (1943) Kansas State College.
- *Kilby, James; Instructor, Lumber Manufacturing. Certified Vocational Instructor.
- D.Ed.* Kozuma, Harold K., M.S.; Assistant Professor, Psychology and Counseling. B.S. (1951) University of Hawaii; M.S. (1958) University of Oregon.
- *Kruse, Una Lee, M.A.; Instructor, English. B.A. (1938) Augsburg College; M.A. (1939) Northwestern University.
- LaFond, Isabelle, R.N.; Instructor, Practical Nurse Training. St. Barnabas Hospital School of Nursing (1931); University of Oregon School of Nursing, Nursing Education B.S. (1962).
- LeFebre, Charlene, M.A.; Instructor, Anthropology and Sociology. B.S. (1945); M.A. (1948) Radcliffe College.
- LeFebre, Charles, M.A.; Assistant Professor; College Librarian. B.A. (1940) University of Alaska; M.A. (1963) University of Oregon.
- *Leegard, Ellsworth J.; Instructor, Welding. Certified Vocational Instructor.
- M.S.* Lilienthal, Ronald, B.S.; Instructor, Science. B.S. (1958) University of Oregon.
- *McCormick, Christine B., M.S.; Instructor, Business and Commerce. B.B.A. (1949); M.S. (1956) University of Oregon; Graduate study at University of Southampton, England, and American University, Washington, D.C.
- *McCormick, E. J.; Instructor, Welding. Certified Vocational Instructor.

Meacham, Bernell, M.S.; Instructor, English and Journalism. B.S. (1941) Utah State University; M.S. (1943) Northwestern University.

delete ~~Meacham, Malcolm R., B.A.; Assistant Professor, Speech and Literature. B.A. (1937) University of Utah.~~

Moffitt, Donald R., B.S.; Assistant Professor. Chairman of Business and Commerce Department. B.S. in Commerce (1960) Ferris Institute; Certified Vocational Instructor.

*Morse, Don; Instructor, Mechanical Technology. Certified Vocational Instructor.

*Nelson, Beverly J., M.A.; Instructor, Art. B.S. (1947) University of Oregon; M.A. (1952) Reed College.

Popp, Janice, B.S.; Instructor, Physical Education. B.S. (1948) University of Oregon.

Romig, Maurice M., Ed.M.; Associate Professor. Registrar and Director of Admissions. B.S. (1929); Ed.M. (1960) Oregon State University.

*Shibley, Lyle, M.S.; Instructor, Driver Training. B.S. (1950); M.S. (1952) University of Oregon.

Sorensen, Vernon C., B.A.; Assistant Professor, Modern Languages. B.A. (1947) University of Utah; Graduate study at University of Zurich.

Spaugh, Roger; Assistant Professor, Electronics Technology. Certified Vocational Instructor.

*Stender, Veneita, B.S.; Instructor, Home Economics. B.S. (1955) University of Idaho. Certified Vocational Instructor.

*Stoll, Richard; Instructor, Mechanical Technology. Certified Vocational Instructor.

*Strassburg, Margaret, B.S.; Instructor, Home Economics. B.S. (1954) Iowa State College.

*Thom, Cameron C., LL.B.; Instructor, Business Administration. B.S. (1950); LL.B. (1956) University of Oregon.

Thompson, Sydney D., B.S.; Assistant Professor, Business and Commerce. B.S. (1949) Babson Institute; Certified Vocational Instructor.

Trussell, Margaret E., M.A.; Assistant Professor, Geography and History. A.B. (1949) University of California; M.A. (1957) Long Beach State College; M.A. (1960) University of California.

*Ulett, Gerald, B.S.; Instructor, Technical Education. B.S. (1961) Oregon State University.

Van Loan, Lillian S., Ed.D.; Professor, Psychology and Counseling. B.A. (1950) Oregon College of Education. E.M. (1951); Ed.D. (1959) Oregon State University.

Van Loan, Wendell L., Ed.D.; President of South Western Oregon College. B.S. (1928); M.S. (1933) University of Oregon; Ed.D. (1942) Stanford University.

*Warnock, Ralph; Instructor, Painting Apprentice. Certified Vocational Instructor.

Whitney, Larry, M.S.; Assistant Professor, Technical-Vocational Division. B.S. (1958); M.S. (1963) Oregon State University.

*Worth, Wayne T.; Instructor, Public Service Training. Certified Vocational Instructor.

Yorks, Samuel A., Ph.D.; Professor of English; Dean of Liberal Arts and Sciences. B.A. (1949); Ph.D. (1956) University of Washington.

* Part-time instructors.

GENERAL INFORMATION

LOCATION

South Western Oregon College is located in the urban area on Coos Bay in Coos County, Oregon. This is comprised of the municipalities of Empire, North Bend, Coos Bay and Eastside and several unincorporated communities. Airline service is available at the North Bend Airport. U.S. Highway 101 traverses the area.

ORGANIZATION

South Western Oregon College was established in 1961 in accordance with the provisions in the Oregon Community College Act, Chapter 602, Oregon Laws. The college is operated by the Board of Education of the Southwestern Oregon Area Education District. The college is a public, two-year, coeducational community college with two main divisions: "Liberal Arts and Sciences" and "Technical-Vocational and General Education."

The curricula and standards of S.W.O.C. are approved by the Oregon State Department of Education. All "transfer" courses offered by the Division of Liberal Arts and Sciences applicable to a Baccalaureate (four year) degree are approved by the Oregon State Board of Higher Education, and credit for them can be transferred to the institutions comprising the State System of Higher Education.

PURPOSES

The instructional program of the college is designed to provide all citizens within the area with the best possible opportunity to develop their capabilities and their interests. In order to achieve this aim, the college provides the following types of programs:

1. Liberal Arts and Sciences (lower division)

The college offers the first two years of college work for those who plan to transfer to a four-year college or university. (See requirements for the Associate in Arts Degree under the Liberal Arts and Sciences Division.) A student may, however, pursue a program of liberal education suited to the particular needs of the student and not necessarily applicable to a four-year college degree.

2. Occupational Education

The Technical-Vocational Division of the college offers training in vocational skills. In order to qualify a student for entering or advancing in his chosen occupation, one and two-year curricular programs are available. (See Associate in Science Degree.) These courses may not be transferred to a college or university program leading to a Baccalaureate degree. They are planned to provide not only shop and laboratory practice but also to give essential, basic, related courses in communication skills, mathematics, sciences, socio-economics, and related technical courses essential for greater employment possibilities.

Occupational extension training for updating and improvement of skilled workers, technicians and supervisors is offered where there is sufficient demand.

3. General Adult Education

The college offers to all members of the community education designed to enrich the individual and help him to function effectively as a member of his family and as a citizen in his community, his state and his nation.

LIBERAL ARTS AND SCIENCE

The college encourages all of its general collegiate students to choose those courses and to participate in those campus activities which will help most to develop understandings and skills essential to the students' most

effective performance as whole persons. Two courses are considered so fundamental that they are required of all Liberal Arts graduates: English Composition and Physical Education. On the other hand, a relatively wide offering of elective courses helps to give breadth and scope to the instructional program. Participation in the extracurricular activities program is also recommended to each student, as a necessary part of a liberal education.

Students at the college study in classrooms and laboratories designed and equipped to provide the most effective environment for learning. The latest in audio and visual aids is used widely. Classes are kept small and maximum attention is given to the individual student.

TECHNICAL-VOCATIONAL

To the students who wish training in vocational skills to qualify for entering or advancing in a chosen profession the college offers a variety of occupational programs. The courses in these programs are selected because they will adequately qualify the student in a period of one or two years. In certain cases the Associate in Science Degree may be earned during the period of study. The college develops its occupational curricula in close cooperation with representatives of the business and industrial interests of the area, with whose guidance and counsel new programs are added as the need for them becomes apparent. Occupational curricula now offered include the following:

- | | |
|----------------------------|----------------------------|
| (1) Electronics | (5) Stenography |
| (2) Engineering Technology | (6) General Office Science |
| (3) General Drafting | (7) Mechanical Technology |
| (4) Practical Nursing | (8) Retail Business |

GENERAL EDUCATION

Much of the effort of the college is directed to providing a wide variety of informal, or semi-formal, educational opportunities to the adult community of Southwestern Oregon. The college cooperates with other community and educational agencies and offers its full facilities, leadership, and staff to the community. Opportunities are provided for experience and other education leading toward increased personal, vocational and civic adequacy. The program may include classes, forums, lectures, workshops, and on-the-job training, in all liberal and vocational fields. Any group of interested persons may request the assistance of the college in establishing such a course or program. If there is an organized body of knowledge, and if an instructor can be found, the college will cooperate enthusiastically in the activity.

GENERAL ADMISSIONS

The college accepts students of good moral character who provide evidence of suitable preparation for work at college level. The law provides that a student may enroll at the college if he (or she) is (1) a high school graduate, or (2) a mature person, at least 18 years of age, who is prepared to undertake college work as evidenced by satisfactory completion of educational equivalency tests, or (3) is, in the judgment of the administrator of the college, capable of profiting from the instruction offered.

REGULAR STUDENTS

Regular students are those who enter, part-time or full-time, in an organized program of curricular studies of six class hours or more per week. Applicants for regular admission must submit, well in advance of registration day, (1) a formal application, and (2) an official record of all high school credits or evidence of having satisfactorily passed educational equivalency tests, and (3) submitted evidence of College Board Aptitude and Achievement Examinations. (Note: In the absence of such tests result, students may be scheduled to take special tests given by the counseling center of South Western Oregon College.)

SPECIAL STUDENTS

Persons qualifying by maturity and ability to do satisfactory college work, but who fail (1) to meet the requirements of regular standing, or (2) do not desire to enter regular curricular programs may be admitted without making formal application. Special students may not become candidates for degrees or have their credits transferred to another institution without first qualifying as regular students.

Employed persons enrolling in "Trade Extension" classes are classified as special students.

Persons registered under the Oregon State Apprenticeship program are admitted to apprenticeship related training classes and classified as special students.

Housewives and others enrolling in home economics classes for adults are classified as special students.

PRACTICAL NURSING

The Practical Nursing Program covers a one-year curriculum of class work and clinical practice. While the students are classified as regular students, their application and registration are handled in a different manner than those entering the regular 36-week program of the college.

Applicants for the Practical Nurse training program must submit their written application approximately three months in advance of the start of the program.

ADMISSION TO SUMMER SESSION

The only requirement for admission to summer session is the ability to do the work. Those persons who wish to earn degrees and those who expect to attend regular sessions at South Western Oregon College must meet standard admission requirements. Persons transferring from other post-high school educational institutions as "special students" need not file a formal application but must report to the registrar the name of the institution last attended. Transcripts of their academic record will be accepted but are not specifically required.

REGISTRATION

PROCEDURE

All students should register in person and should complete registration on the days assigned and before the opening day of each term. Registration dates for the three regular academic terms are listed in the college calendar and should be observed. A fee for late registration is charged.

Each new student is assigned a faculty adviser who assists him in planning a program. Detailed registration instructions are contained in the schedule of classes; students should not proceed with registration without a copy of the schedule.

Returning students are expected to informally pre-register in advance of the beginning of each term by consulting with their faculty advisers.

Students are completely registered and entitled to attend classes for credit only when they have completed prescribed procedures including the payment of term fees.

A student may enter the college at the beginning of any term, but is advised to enter fall term when at all possible because of course sequence requirements.

Test results are required of all South Western Oregon College regular (curricular) students. If entering students have taken the College Entrance Examination Boards and have scored above 400, no further tests are required if the student is entering Liberal Arts and Sciences.

Students enrolling in Technical-Vocational curriculum programs will usually be given special aptitude tests other than the College Board Tests.

Placement tests for fall term will be given by the South Western Oregon College Counseling Center on September 9, 10, 11, 1963 and just prior to other terms. For appointment call 756-4121, Extension 35.

AUDITORS

Students who do not wish college credit may register as auditors in any of the courses offered. Auditors are not required to meet any specific academic requirements but should expect to participate fully in the activities of the class. If audit is desired, it should be so indicated at the time of registration. Auditors pay regular fees.

COURSE CHANGES

After initial registration, any student desiring to make course changes—such as changing from credit to audit, audit to credit, dropping courses, or adding courses—must do so by means of a formal request on a form secured from the college office. Students are encouraged to check the academic calendar for regulations governing course changes. See schedule of fees.

WITHDRAWALS

Students may withdraw from courses within certain periods without prejudice, but only by filing official withdrawal forms with the Registrar. A student who registers for a course is considered to be in attendance; if he discontinues without filing official withdrawal forms, he may receive a grade of F in the course. Students are encouraged to check the academic calendar for regulations.

Students who wish to withdraw completely from the college during the term should effect this through the Registrar. Students are expected to process their withdrawals in person, but under exceptional circumstances may do so in writing.

Proper withdrawal is reflected on the student's transcript and protects his academic record.

GRADING SYSTEM

The grading system consists of four passing grades: A, B, C, D; failure, F; incomplete, Inc. Students ordinarily receive one of the four passing grades or failure. Exceptional accomplishment is denoted by the grade of A, superior by B, average by C, inferior by D, unsatisfactory by F. When the quality of the work is satisfactory but the course has not been completed for reasons acceptable to the instructor, a record of incomplete, (Inc.) is made and additional time is granted. Incompletes must be made up within one academic year. Students are officially withdrawn (W) from a course on filing the proper completed forms with the college office.

NO-GRADE COURSES

Certain courses are designated no-grade courses. Students in these courses are rated "S" (satisfactory) or "U" (unsatisfactory) in the term grade reports.

GRADE POINTS

Grade points are computed on the basis of 4 points for each term hour of A grade, 3 for each term hour of B, 2 for each term hour of C, 1 for each term hour of D, and 0 for each term hour of F. Marks of Inc. and W are disregarded in the computation of points. The grade-point average (GPA) is the quotient of total points divided by total term hours in which grades A, B, C, D, and F are received.

ACADEMIC STANDING

A student's work is considered satisfactory or he is considered in good standing when he maintains an average of "C" (GPA of 2.00) on both his term and cumulative grade record.

HONOR ROLL

Recognition will be given each term to those students who are taking a minimum of twelve term hours of Liberal Arts work or 15 clock hours of Technical-Vocational Curricular work whose grade point average (GPA) is 3.5 or better.

Honorable mention may be made of those students registered for a part-time program whose GPA is 3.5 or better.

CREDIT HOUR LOAD

A full-time student in the Liberal Arts and Sciences should enroll for an average of 16 term hours of credit. A minimum of 93 term hours meets the college requirement for an Associate in Arts Degree.

Students may not register for more than 19 term hours without the specific approval of the Dean of Liberal Arts and Sciences. Special permission from the dean is also required before a student may register for more than a single course per term in any given sequence.

A full-time student in the Technical-Vocational Division of the college should enroll for an average of 15 units (20 to 30 clock hours) per term. A minimum of 90 units is required for an Associate in Science Degree.

Employed students should be aware of the fact that these class hours involve about 50 clock hours of scholastic productivity each week during the term. Students who must work, therefore, are advised to fit their job schedules into the term-hour equation and to plan on a period in excess of six terms in which to complete two years, if necessary.

DEGREES AND CERTIFICATES

Specific requirements for degrees and certificates awarded by the South Western Oregon College are listed in this catalog under the appropriate division. Students expecting to graduate must apply to their dean prior to the beginning of their final term. Candidates must apply for degrees and certificates in writing at the registrar's office at least one month prior to the June graduation date.

Diplomas will be granted students completing specific programs which do not qualify them for degrees.

TUITION AND FEES

Fees are payable in full at the time of registration. The right is reserved to make changes in any and all fees at any time, except that fees announced for any given term may not be increased after the date announced for the registration in such term. This does not effect the right of the president of the college to levy special charges at any time should conditions make them necessary.

Payment of the stipulated fees entitles all students registered for academic credit, full-time and part-time, to all services maintained by the college for the benefit of students. These services include use of the library, use of laboratory and course equipment and materials in connection with courses for which the student is registered, subscription to the student newspaper, and admission to special events sponsored by the college. No reduction in fees is made to students who do not intend to avail themselves of these services.

REGULAR FEES

per term

Full-time curriculum students. This applies to a program of eight or more term hours (15 or more clock hours of Technical-Vocational work)	\$90.00
Matriculation Fee: To be paid by regular full-time students at time of original application for admission; non-refundable but will be applied on regular fee if registration is completed	5.00
Out-of-district resident. In addition to regular fee	45.00
Part-time-students:	
Students registered for less than eight term hours in Liberal Arts subjects or less than 15 clock hours in Technical-Vocational or general education will pay individual course fees as listed in the college schedule of classes each term.	
Liberal Arts and Sciences courses. Per term hour.	12.00

SPECIAL FEES

Laboratory Fees for certain courses are assessed by the office in varying amounts and are payable at time of registration.	
Fees for special courses and programs not falling into the regular college pattern will have their fees determined by the administration of the college.	
Staff Fee: Liberal Arts Division—per credit hour	\$3.00
Technical-Vocational and General Education	25% of Reg. Fee
All full-time employees, with the approval of the president, may be admitted to one course each term. Part-time employees, if employed half-time or more, may register at the staff fee rate.	
Late Registration Fee (\$5.00 maximum)	\$1.00 per class session or school day
See College Calendar for date a charge for late registration begins. For part-time students the charge will begin on the school day following the first session of the class.	
Check Irregularity Fee	per day \$1.00
If institutional charges are met by a check which is returned because of any irregularity—NSF, illegible signature, etc. — a fine of \$1.00 per day will be charged, maximum \$5.00.	
Change of Program Fee	per change \$1.00
Assessed after scheduled last day for changing courses.	
Reinstatement Fee	\$2.00
If for any reason a student has his registration canceled during a term but is later allowed to re-enter, he must pay the reinstatement fee.	
Transcript Fee	\$.50 and \$1.00
Each student is entitled to his first transcript free. Subsequent copies will be furnished at the rate of \$1.00, first copy and \$.50 additional copies furnished simultaneously.	
Graduation Fee—paid 30 days prior to graduation	\$5.00
Audit Fee—same as regular fee.	
Special Examination Fee	\$2.00 per credit hour
Students making application to take an examination for the purpose of obtaining credit will be assessed this fee.	

FEE REFUNDS

Students who withdraw from the college or drop courses may be entitled to refunds if they comply with regulations governing withdrawals:

1. Any claim for a refund must be made in writing to the Controller before the end of the term in which the claim originates.
2. The amount of any refund is calculated from the date the written application is received and not from the date the student ceased attending classes. An exception to this rule may be allowed if it can be shown that filing of the withdrawal application was delayed for reasons beyond the student's control.
3. The refund scheduled: During the first week of the term 90%
second week of the term 70%
third week of the term 50%
fourth week of the term 40%
4. No refunds after the third class session of "General Education" courses which meet only once per week (approximately one-third of the course).

SCHOLARSHIPS AND LOANS

The Scholarship and Loan program of South Western Oregon College is coordinated by the Scholarship and Loan Committee. Most scholarships require evidence of financial need, scholastic ability and general good citizenship.

Application blanks are available from the college office or from any high school principal in the college district. Applications, including a transcript of all academic work to the date of the application, should be forwarded to the Registrar's office by May 1st.

DISTRICT SCHOLARSHIPS

The Board of Education of the South Western Oregon Area Education District has authorized two scholarships for full time students residing in each high school district in the Area District. These scholarships are awarded on the basis of financial need, scholastic ability and citizenship. Applications must be filed on the application blanks available at the office of high school principals or the business office at South Western Oregon College.

WEST COAST TELEPHONE COMPANY SCHOLARSHIP

An annual \$100 scholarship is provided by the West Coast Telephone Company for a worthy student of South Western Oregon College. This scholarship is administered by the Scholarship and Loan Committee of the college. The criteria includes financial need, scholastic ability and citizenship. Application blanks are available through the business office.

CENTRAL LABOR COUNCIL SCHOLARSHIPS

The Central Labor Council offers two scholarships to high school graduates of the South Western Oregon College district. These scholarships may be used in either the Technical-Vocational Division or the Liberal Arts and Sciences Division of South Western Oregon College. They are awarded on the basis of financial need, ability to do the required work, and good citizenship. Interested young people should contact their high school principal.

ZONTA SCHOLARSHIPS

Zonta Scholarships shall be for teacher training or nurses' training. Other qualifications being equal, scholarships will preferably be awarded to students who will receive their preliminary training at South Western Oregon College, North Bend, Oregon. However, students may attend one of the Oregon State supported colleges or universities.

FACULTY ASSOCIATION

The Faculty Association of South Western Oregon College annually provides a \$25 book order for each of two outstanding members of the graduating class. One candidate is selected from the Liberal Arts and Sciences Division and one from the Technical-Vocational Division; the awards are based solely upon scholastic achievement.

FACULTY WOMEN'S CLUB

The Faculty Women's Club of South Western Oregon College provides money to be used at the discretion of the Scholarship and Loan Committee for loans or grants-in-aid.

OTHER SCHOLARSHIPS

Several organizations are in the process of setting up scholarships for students attending South Western Oregon College. Information concerning these may be obtained through the College Counseling Center.

DISTRICT LOAN FUNDS

A loan fund has been established at South Western Oregon College to aid students in financing part of their college work. Students are eligible to borrow on a short term loan basis after they have attended this college for one term. This fund is administered by the Scholarship and Loan Committee. Interested individuals and organizations who have contributed to this fund include:

Coast Guard Auxiliary
Coos Bay Kiwanis Club
North Bend Business and
Professional Women's Club
Myrtle Point Women's Club
Pioneer School PTA, Reedsport
Mrs. Johnson F. Kutch
Dr. and Mrs. W. L. Van Loan
Zenith Club of North Bend
Ladies of Elks
Xi Beta Iota
Soroptomist Club, Coos Bay
Soroptomist Club, Coquille
Coos County Licensed
Practical Nurse Association
Coos Head Garden Club
Coosqua Education Association
North Bend Women's Club
Judge and Mrs. Dal M. King

Mrs. Marion Wilson
Mrs. Stanley R. Knight
Hazel Rountree
Irma Pajari
Helen Wolfrehr
Mrs. John G. Nelson
Mrs. George Eckholm
Mrs. Frankie M. Ballah
Mr. Wayne A. Culver
Mrs. Anna Beckham
Hazel Hanna Loan Fund
P.E.O., Chapter AS, Coos Bay
P.E.O., Chapter CC, Coquille
M. E. Ulett
John and Dorothea Mullen
Mabel Shriver
Bangor P.T.A.
Mrs. M. J. Monson
O.C.E. Alumni Association

P.E.O. EDUCATIONAL FUND

Women students in good standing may be eligible for P.E.O. loans at an interest rate of 3%. The College Counseling Center has information on this loan fund.

COLLEGE ASSURED LOAN PLAN

The United States National Bank has the College Loan Plan which is available to any college student whose family resides in Oregon. Under this plan the bank carries life insurance on the student and parent and allows the student to borrow necessary funds to attend college. The loan provides for repayment within one to six years after college completion. An applicant could gain further information at any branch of the United States National Bank in this college district.

HIGH SCHOOL LOAN FUNDS

Loan funds are also available through the principal's office of several high schools in the district. Further information may be obtained through the College Counseling Center.

GRANTS-IN-AID

Individuals and organizations have made financial aid possible to several worthy students. Funds have been provided by:

Empire-Charleston Business and Professional Women's Club
Kiwanis Club of Coquille
Scott Paper Company
North Bend High School Girls' League
P.E.O. Sisterhood, Chapter CS
Mr. Zaki El-Wattar

NATIONAL DEFENSE EDUCATIONAL LOAN

South Western Oregon College is an approved participant in the National Defense Educational Loan fund. Information regarding these loans may be secured by contacting the Scholarship and Loan Committee or the business office.

JOB OPPORTUNITIES

The college employs students in campus positions whenever possible and works closely with the Oregon State Department of Employment in assisting students to obtain part-time employment while attending school. The college does not encourage students to attempt more than 15 clock hours of Technical-Vocational or 9 term hours of Liberal Arts while employed full time.

The college will assist graduating students to obtain information about permanent employment opportunities in the local area, in the state, or in the nation.

LIBRARY

Convinced that a school can be no better than the limitations of its library, the college has an expanding, well-selected collection of materials to inform, excite and challenge the mind. The library is designed to house a balanced collection of the latest books in the business, liberal arts and technical fields as well as a complete set of basic reference material. It contains, in addition, an extensive selection of current popular and professional periodicals. It subscribes to a representative selection of metropolitan newspapers. Reserve shelves are regularly established by the librarian at instructor request to facilitate student reading and research, in the reserve room for easy access.

COUNSELING AND GUIDANCE

The college offers counseling and guidance services to every student to assist him in planning an academic and occupational future commensurate with his abilities and interests. These services, including testing programs, are also made available to the community at large. High school juniors and seniors who anticipate registering at South Western Oregon College should take the College Board Aptitude and Achievement Examinations. Information about these tests may be obtained from any high school principal or advisor, the college admissions officer, or the College Counseling Center.

After completing formal application for admission, each student is assigned a permanent program advisor. Although the student is ultimately responsible for his program of courses, the advisor will assist the student in selecting a program which will lead to the student's professional or occupational objectives.

South Western Oregon College has been designated as the official testing agency for the administration of the General Educational Development Testing Program (G.E.D.). This test provides an opportunity for adults who have not graduated from high school to qualify for entrance into the college and is classed as equivalent to a high school diploma for most purposes.

Students who have special difficulty in choosing a major and/or who have serious educational or personal problems may seek assistance from the college counselor. This assistance consists of individual testing beyond that provided for all students, counseling, and referral to community agencies. The college also makes available to students a library of occupational, educational and vocational information, as well as catalogs from many senior educational institutions.

STUDENT SERVICES

HOUSING ASSISTANCE

The college assists those students who must live away from home in finding suitable living accommodations at reasonable rates.

The college administration does not, however, set up an approved list of homes and does not operate a dormitory. Parents of out-of-town students must assume full final responsibility for approval of any housing arrangements.

TRANSPORTATION ALLOWANCE

Students whose legally established residence is more than 30 miles from the college campus may be reimbursed at the rate of five cents a mile for all mileage beyond the 30 mile radius. Mileage is calculated from the nearest direct main travel route. Students must make application at the office of the Registrar early in the term for transportation allowance. Such applications will not be accepted after the last day of any given term.

Students must be registered for a full-time program and complete the term satisfactorily (with regular attendance) to be eligible for the transportation reimbursement.

BOOKSTORE

The bookstore is located at the administration building, providing textbooks, workbooks, and other required class supplies as a service to the students.

STUDENT ACTIVITIES

STUDENT GOVERNMENT

The students of the college are organized for self-government into the Associated Students of South Western Oregon College. Practical experiences in leadership and cooperative effort are highlighted by the student government, with faculty counseling, which follows democratic procedures. The governing body, Executive Council, of the Associated Students of South Western Oregon College, elected by the student body, consists of: president, vice-president, secretary, treasurer, and one student representative from each of the two college divisions.

Any member of the Associated Students is welcome at Council meetings and is entitled to bring matters of importance to the attention of the Executive Council.

The Associated Students sponsor and coordinate all activities such as assemblies, dances, social activities, and organizations which are directly related to the student body as a whole. Participation in these activities is recognized as a vital part of a college education. The individual and group development brought about by this participation enhances personal responsibilities, cultural appreciation, social confidence, and a cooperative atmosphere between students and faculty.

All students attending S.W.O.C. are automatically members of the Associated Students. Activities are financed by a stipulated part of the regular college fees as authorized by the College Board of Directors.

INTRAMURALS AND ATHLETICS

An intensive intramural program is provided for all students in college. This program includes regular schedules or tournaments in most activities. Students have the opportunity to participate in sports activities which are planned so that the student may become better acquainted with games which may be used in adult life and provide enjoyment and worthy use of leisure time.

South Western Oregon College is a member of the National Junior College Athletic Association. At the present the college is not affiliated with an intercollegiate athletic conference. Competition in various major and minor sports is arranged with comparable colleges, or with junior varsity teams from the larger schools.

PUBLICATIONS

The Associated Students publish a newspaper, The Southwester, and an annual, La Custrian. Staff positions on these publications are open to students who register for the journalism sequence.

CLUBS

Clubs may be organized with the approval of the administration for any special group activities. Examples are the Associated Women Students and the Geographer's Club.

SOCIAL EVENTS

The Associated Students sponsor mixers, dances and other social events.

SCHOLASTIC STANDARDS FOR STUDENT ACTIVITIES

Students who choose to participate in extracurricular activities must maintain the following academic standards:

1. Carry an academic program of at least ten credit hours in Liberal Arts and Sciences or 15 clock hours in a Technical-Vocational program during the term immediately preceding the activity and during these terms of participation in such activity. High school graduates may participate during their first term at S.W.O.C.
2. Maintain a satisfactory 2.00 grade point average each term or be placed on probation until the 2.00 is achieved. (Note: This probation status applies only to participation in extracurricular activities.)
3. Students on probation will be permitted to participate in activities only so long as their accumulative G.P.A. is maintained as follows:

Completion of two (2) terms—Accumulated G.P.A.	1.50
Completion of three (3) terms—Accumulated G.P.A.	1.75
Completion of four (4) terms—Accumulated G.P.A.	1.90
Completion of five (5) terms—Accumulated G.P.A.	2.00
4. Failure to pass at least ten (10) credit hours in Liberal Arts and Sciences or 15 clock hours in Technical-Vocational and attain a 1.50 G.P.A. in any one term will result in immediate suspension from participation.
5. Students entering S.W.O.C. via "transfer" may participate during their first term of attendance if they qualify according to the previously stated academic standards.

LIBERAL ARTS AND SCIENCES DIVISION

The Liberal Arts and Sciences Division and its courses represent the ancient and continuing effort of men to extend the range of their experience beyond the narrow limits of the time and place in which they find themselves at birth. To enjoy such a freedom, men must know all they can about themselves and their environment, both physical and social. The liberal arts and sciences are a group of studies designed to assist and direct the exploration of man's nature and his position in the world around him.

By the help of some of these studies, Western man is able to compare his own experiences with those of men in other times, places, and circumstances, and thus share in the inherited wisdom and satisfaction of mankind. Through others, we deepen and extend our knowledge of our physical environment. Knowledge—scientific, historical, and literary—is the indispensable condition of the good life of free men, of "the good society."

ENTRANCE REQUIREMENTS

There are no official entrance requirements, beyond the general entrance requirements of the college, for students intending to choose a major field of study within the Liberal Arts and Sciences Division.

Students intending to major in any of the natural sciences are, however, advised to present at least two units of high school mathematics and two units of high school science. Experience has proved that students who lack this preparation are handicapped in college work in science.

TRANSFER EDUCATION

Transfer (lower-division) courses parallel freshman and sophomore courses offered by major Oregon universities and four-year colleges. Students normally transfer to upper division (junior) standing at the end of the sophomore year, at whatever school they choose to continue. Students may arrange a general education program in the liberal arts, or they may plan a special course of study to meet particular needs.

South Western Oregon College's lower-division collegiate program offers credits transferable within the Oregon State System of Higher Education. The student planning to seek a degree in these institutions should familiarize himself with the catalog of the institution of his choice and with the specific requirements of his proposed major program. The faculty advisors of South Western Oregon College will gladly assist him in this planning. Certain professional course requirements may be met only on the campus of the institution offering the advanced program. Students in art, music, business and education curricula should be aware of these requirements.

The several institutions of the Oregon State System of Higher Education require that the student offer credit hours in each of the major academic divisions: the Humanities (language, literature and the arts); the Social Sciences; and the Sciences, in addition to the requirements of the major. A student at the South Western Oregon College can satisfy the state-wide health and physical education and English composition requirements and also elect to do work in each of these major divisions to meet the general institutional requirements. He may also satisfy the language requirements that certain degree programs demand. Students enrolling in elementary and secondary education and in general liberal arts curriculums will find most of the courses they need for lower division credit. They should, however, familiarize themselves with the catalog of the four-year institution they plan to attend.

Courses now offered by South Western Oregon College include the following:

Anthropology	History
Art	Journalism
Biology	Literature
Business Administration	Mathematics
Chemistry	Physics
Economics	Political Science
English	Psychology
Foreign Languages	Sociology
Geography	Speech
Health and Physical Education	

ASSOCIATE IN ARTS DEGREE

The Associate in Arts Degree is a nationally recognized award that is conferred upon those who complete the general requirements of the lower-division liberal arts program.

General requirements for the Associate in Arts Degree:

1. Not less than 93 term hours of transferable credit.
2. Grade point average minimum of 2.00 (C average).
3. English Composition: 9 term hours.
4. Health Education: HE 151, 2 term hours for men; HE 250, 3 term hours for women.
5. Physical Education: 5 term hours are required. Not more than one hour of credit may be earned in these courses in any one term.
6. Required year sequence in each of the following groups: Language and literature, science, and social science. A second year sequence must be chosen in one of the three groups. For a list of sequences that satisfy these requirements, see "Group Requirements" below.
7. At least one of the sequences must be numbered 200 to 210. *In the series?* *Rejects*
8. At least one sequence in language and literature must be in literature.
9. The second sequence in either science or social science must be taken in a different department.
10. A student must attend South Western Oregon College at least two terms (including the final term) before the Associate in Arts Degree is awarded, and must have completed 24 term hours at the college.

COURSE NUMBERING

Liberal Arts courses in the college catalog are numbered in accordance with courses throughout the State System of Higher Education.

- 1- 49 Courses which carry no credit toward a degree, or terminal courses that may not be used as transfer credits.
- 50- 99 Courses in the first year of foreign language, elementary algebra, and remedial courses.
- 100-110 Survey or foundation courses that satisfy group requirements in
- 200-210 the language and literature, science, and social science groups.
- 111-199 Other courses offered at first-year and second-year level. Normally, 100-199 numbers are considered freshman courses and 200-299 are considered sophomore.

GROUP REQUIREMENTS

A complete list of sequences approved for the satisfaction of requirements 6 through 9 above are listed below. These may be taken as electives also.

Language and Literature		
English		
Eng 101, 102, 103	Survey of English Literature, or	3 hrs. each
Eng 107, 108, 109	World Literature	3 hrs. each
Eng 201, 202, 203	Shakespeare	3 hrs. each
Languages (Applicable as a second literature sequence)		
RL 101, 102, 103	Second-Year French	4 hrs. each
GL 101, 102, 103	Second-Year German	4 hrs. each
Science		
General Science		
GS 104, 105, 106	Physical Science Survey	4 hrs. each
Biology		
Bi 101, 102, 103	General Biology	4 hrs. each
Chemistry		
Ch 101, 102, 103	Elementary Chemistry	4 hrs. each
Ch 201, 202, 203	General Chemistry	3 hrs. each
Ch 204, 205, 206	General Chemistry Laboratory	2 hrs. each
Mathematics		
Mth 100	Intermediate Algebra	4 hrs.
Mth 101	College Algebra	4 hrs.
Mth 102	Trigonometry	4 hrs.
Mth 200, 201, 202, 203	Calculus with Analytic Geometry (any three of this group)	4 hrs. each
Physics		
Ph 101, 102, 103	Essentials of Physics	3 hrs. each
Ph 201, 202, 203	General Physics	4 hrs. each
Social Science		
General Social Science		
SSc 101, 102, 103	Survey of the Social Sciences	3 hrs. each
Anthropology		
Anth 101, 102, 103	General Anthropology	3 hrs. each
Anth 207, 208, 209	Introduction to Cultural Anthropology	3 hrs. each
Economics		
Ec 201, 202, 203	Principles of Economics	3 hrs. each
Geography		
Geog 105, 106, 107	Introductory Geography	3 hrs. each
History		
Hst 101, 102, 103	History of Western Civilization	3 hrs. each
Hst 201, 202, 203	History of the United States	3 hrs. each
Political Science		
PS 201, 202, 203	American Government	3 hrs. each
Psychology		
Psy 201, 202	General Psychology	3 hrs. each
Psy 204	Psychology of Adjustment	3 hrs. each
Psy 205	Applied Psychology	3 hrs. each
Sociology		
Soc 204, 205, 206	General Sociology	3 hrs. each

LOWER-DIVISION GENERAL EDUCATION

This curriculum is intended to be broad and general in scope. Students completing two years' work and fulfilling all requirements normally select a major in a specialized field only at the end of the sophomore year when they transfer to a school which is authorized to grant a baccalaureate degree.

For students who plan to complete work for a bachelor's degree, the two lower-division years provide a general education and a foundation for specialization during the junior and senior years in some field in the liberal arts and sciences or in a professional or technical curriculum.

For students uncertain about their educational or professional goals, the lower-division offers the opportunity to explore several fields of study to help determine special interests and aptitudes. The college offers such students the opportunity of taking the Standard Aptitude Test administered by the Counseling Center.

For students who plan to complete no more than two years of college, the lower-division offers a terminal program suited to the needs of the individual, balancing cultural and vocational courses as preparation for intelligent and useful citizenship.

COURSE DESCRIPTIONS

BUSINESS ADMINISTRATION

BA 211, 212, 213 Constructive Accounting 3 hours each term

Techniques of accounting construction; preparation of financial statements. Application of accounting principles to practical business problems. A prerequisite to advanced work in business.

BA 254, 255 Business Law 3 hours each term

Application of fundamental legal principles to typical business situations, illustrated by selected cases. Emphasis is placed on legal principles as they relate to agency, contracts, partnerships, corporations. Required of all business administration majors.

MIM 125, 126 Business Environment 3 hours each term

The social, political and economic environment within which business functions in the United States; emphasis on the groups confronting business, their attitudes and behavior, and on the social, political, and economic responsibilities of business.

FINE ARTS

AA 201, 202, 203 Survey of Visual Arts 3 hours each term

Cultivation of understanding and intelligent enjoyment of the visual arts through a study of historical and contemporary works; consideration of motives, media, and forms.

Mus 201, 202, 203 Introduction to Music and Its Literature 3 hours each term

Cultivation of understanding and intelligent enjoyment of music through a study of its elements, forms, and historical styles.

HEALTH AND PHYSICAL EDUCATION

HE 151 Personal Hygiene (Men) 2 hours any term

Study of personal health problems which confront the college student; the basic scientific principles of healthful living. Meets the health-education requirement for men.

HE 250 Health Education (Women) 3 hours any term

Study of the personal health problems of college men and women, with emphasis on implications for family life. Mental health, communicable diseases, degenerative diseases, nutrition. Satisfies the college requirement in health education for women.

HE 252 First Aid 3 hours winter or spring

Study of first aid and safety procedures—for the individual, schools, athletics, and civilian defense; meets standard and advanced certification of the American Red Cross.

PE 180 Physical Education (Women) 1 hour each term, 5 terms
A variety of activities taught for physiological and recreational values. Special sections for restricted and corrective work. A total of five terms required for all lower-division women students. 3 hours a week.

PE 190 Physical Education (Men) 1 hour each term, 5 terms
A variety of activities taught for physiological and recreational values. Special sections for restricted and corrective work. A total of five terms required for all lower-division men students. 3 hours a week.

LANGUAGE AND LITERATURE

Eng 101, 102, 103 Survey of English Literature 3 hours each term*
Study of the principal works of English literature based on reading selected to represent great writers, literary forms, and significant currents of thought. Provides both an introduction to literature and a background that will be useful in the study of other literatures and other fields of cultural history. Fall: Anglo-Saxon beginnings to the Renaissance; Winter: Milton to Wordsworth; Spring: Byron to present.

Eng 107, 108, 109 World Literature 3 hours each term*
Study of the literary and cultural foundations of the Western world through the analysis of a selection of masterpieces of literature, ancient and modern, read in chronological order. The readings include continental, English, and American works.

Eng 201, 202, 203 Shakespeare 3 hours each term
Study of important plays—comedies, histories, and tragedies. Recommended for majors.

Eng 253, 254, 255 Survey of American Literature 3 hours each term
American literature from its beginning to the present day.

Wr 50 Corrective English (See description and note on page 25.)

Wr 111, 112, 113 English Composition 3 hours each term
The fundamentals of English composition; frequent written themes. Special attention to correctness in fundamentals and to the organization of papers.

Wr 218 Creative Writing 3 hours
Opportunity and encouragement for those who wish to express themselves through literary mediums. Models of essays, short stories, and poetry are studied and original work is done in each of these branches of writing. Prerequisite: demonstrated skill in writing; Wr 111, 112.

GL 50, 51, 52 First-Year German 4 hours each term
Designed to provide a thorough grammatical foundation and an elementary reading knowledge of German, as well as an understanding of the spoken language.

GL 101, 102, 103 Second-Year German 4 hours each term
Review of grammar and composition; reading selections from representative authors; conversation.

J 211, 212, 213 Introduction to Journalism 2 hours each term
Required of prejournalism majors; open to non-majors. Survey of journalistic fields; instruction in the fundamentals of reporting, copyediting, advertising, and technical processes. The terms need not be taken in sequence. Required of all students participating in student publications.

RL 50, 51, 52 First-Year French 4 hours each term
An introduction to French, stressing reading and speaking. Exercises in elementary composition and grammar.

RL 101, 102, 103 Second-Year French 4 hours each term
Study of selections from representative authors; review of grammar; considerable attention to oral use of the language.

RL 60, 61, 62 First-Year Spanish 4 hours each term
An introduction to Spanish, stressing speaking and reading. Exercises in elementary composition.

Sp 111, 112, 113 Extempore Speaking 3 hours each
Original speeches; analysis and synthesis of material, adaptation to audience, outline construction; development of confidence and release on platform; voice, enunciation, gesture, and bearing in delivery; speeches for special occasions; the extended address. Must be taken in sequence.

* A student may register for only one of these sequences.

change designation

- Sp 232 Group Discussion** **3 hours**
 Preparing for, leading and participating in types of discussions used in various groups led by extension workers, technical and professional people, and teachers, in conferences, panels, lecture-forums, and symposiums; strong emphasis on problem-solving and interpersonal relations. Prerequisite: Sp111 or instructor's consent.
- Sp 237 Argumentation** **3 hours**
 Analysis; brief-drawing; collection and use of evidence; deductive and inductive reasoning; types of argument; fallacies; construction of speeches. Prerequisite: Sp 111 or instructor's consent.
- Sp 238 Persuasion** **3 hours**
 Study of models; composition exercises; writing a term speech; mastery of audience psychology and effective style. Prerequisite: Sp 111 or instructor's consent.

SCIENCE AND MATHEMATICS

- BI 101, 102, 103 General Biology** **4 hours each term**
 Principles of life science, illustrated by studies of selected organisms. 3 lectures; 1 three hour laboratory period.
- Ch 101, 102, 103 Elementary Chemistry** **4 hours each term**
 A basic sequence covering fundamentals of chemistry and applications in industry, medicine, agriculture, etc. Primarily intended as a terminal course, but the first quarter may serve in lieu of high school chemistry for those not adequately prepared to begin Ch 201. 2 lectures; 1 two-hour laboratory period; 1 quiz period.
- Ch 201, 202, 203 General Chemistry** **3 hours each term**
 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 further study of chemistry. 3 lectures. Prerequisite: Mth 10 or equivalent.
- Ch 204, 205, 206 General Chemistry Laboratory** **2 hours each term**
 Planned to accompany Ch 201, 202, 203. Required for chemistry majors and for premedical and pre dental students. 1 three-hour laboratory period; 1 quiz period.
- Ch 226, 227 Elements of Organic Chemistry** **4 hours each**
 Chemistry of the carbon compounds; the aliphatics, aromatics, and derivatives. Prerequisite: Ch 206.
- Ch 234 Quantitative Analysis** **5 hours**
 Principles of gravimetric analysis and volumetric analysis. Prerequisite: Ch 206.
- GS 104, 105, 106 Physical Science Survey** **4 hours each term**
 General introduction to the physical sciences; principles of physics and chemistry, geologic processes, and man's relation to them. Special emphasis on scientific method. 3 lectures; 1 quiz period.
- Mth 10 Elements of Algebra** (See description and note on page 25.)
- Mth 100 Intermediate Algebra** **4 hours**
 Functions and graphs, linear equations in two unknowns, quadratic equations, negative and fractional exponents, radicals, progressions, binomial theorem, logarithmic computation. Prerequisite: Math 10 or equivalent.
- Mth 101 College Algebra** **4 hours**
 Review of high school algebra emphasizing number system, logarithms, progressions, binomial series, theory of equations, determinants. Prerequisite: Mth 100 or equivalent.
- Mth 102 Trigonometry** **4 hours**
 Trigonometric functions for general angles, solution of triangles, addition formulas, trigonometric equations, graphs, complex numbers, and De Moivre's theorem. Prerequisite: Mth 101 or equivalent.
- Mth 111, 112 Mathematics for Elementary Teachers** **3 hours each**
 Basic concepts of arithmetic, elementary algebra, and plane geometry; applications to statistics and mathematics of finance. For prospective elementary teachers; not open to other students.
- Mth 200, 201, 202, 203 Calculus with Analytic Geometry** **4 hours each**
 Mth 200: Differentiation and integration: applications to rates, area, volumes. Mth 201: Applications in mechanics; plane analytic geometry, elementary transcendental functions. Mth 202: Techniques of integration, vectors, solid analytic geometry. Mth 203: Partial differentiation, multiple integration, infinite series. Prerequisite: Mth 102.

Ph 101, 102, 103 Essentials of Physics 3 hours each term
 Fundamental principles of physics for students not majoring in science. Pre-requisite: Mth 10 or equivalent. Two lectures; one 3-hour laboratory period.

Ph 201, 202, 203 General Physics 4 hours each term
 Standard college physics. Prerequisite: Mth 102, or consent of instructor. Three lectures; one 3-hour laboratory period.

SOCIAL SCIENCE

Anth 101, 102, 103 General Anthropology 3 hours each term
 Man as a living organism; biological evolution; nature and problems of race; the human life cycle; fossil man and prehistoric cultures; development and organization of culture; man, participant and observer of culture.

Anth 207, 208, 209 Introduction to Cultural Anthropology 3 hrs each term
 The meaning of culture; its significance for human beings; its diverse forms and degrees of elaboration among different groups of men; its processes of growth and expansion.

Ec 201, 202, 203 Principles of Economics 3 hours each term
 Principles that underlie production, exchange, distribution, etc. Must be taken in sequence.

Geog 105, 106, 107 Introductory Geography 3 hours each term
 A general introduction to the field of geography, in sequence as follows: Geog 105, physical geography; Geog 106, regional survey of the world; Geog 107, cultural geography.

Hst 101, 102, 103 History of Western Civilization 3 hours each term
 Origins and development of Western Civilization from ancient times to the present.

Hst 201, 202, 203 History of the United States 3 hours each term
 From colonial times to the present.

PS 201, 202, 203 American Government 3 hours each term
 Fall and winter: introduction to national government and politics; spring: state and local governments.

PS 205 International Relations 3 hours
 Analysis of the nature of relations among states, with particular reference to the contemporary international issues; a study of motivating factors, including nationalism, imperialism, economic rivalries, quest for security, etc.; study of the problem of national sovereignty and its relation to international cooperation.

Psy 111 Personality and Development 3 hours
 Self-understanding and development; emphasis upon habits, attitudes, emotional problems, and efficient learning techniques.

Psy 201, 202, 203 General Psychology 3 hours each
 Introductory study of behavior and conscious processes. Survey of experimental studies of motivation, learning, thinking, perceiving, and individual difference.

Psy 204 Psychology of Adjustment 3 hours
 The nature and origins of differences in personality; means of making desired changes.

Psy 205 Applied Psychology 3 hours
 Applications of psychology in personnel selection and training; the planning and design of environmental situations for optimal human functioning. Prerequisite: Psy 201, 202.

~~delete~~ **Psy 208, 209, 210 General Psychology Laboratory** 1 hour each term
 Introduction to research methods. Designed to familiarize the student with scientific approaches to problems in psychology. 1 laboratory period.

Soc 204, 205, 206 General Sociology 3 hours each term
 The basic findings of sociology concerning the individual, culture, group life, social institutions, and factors of social change. Prerequisite: sophomore standing or consent of instructor.

SSc 101, 102, 103 Background of Social Science 3 hours each term
 Orientation in social sciences emphasizing the integration of all the social sciences into a discipline of learning; general influences on human behavior; scientific method in social sciences.

The courses indicated below may or may not receive transfer credit from the four-year institutions of the Oregon State System of Higher Education. Programs vary among these institutions and the student who plans to transfer into them from S.W.O.C. should determine from the registrar of the respective institutions whether or not the courses will be accepted for transfer credit.

NOTE: The three credit hours indicated do not count towards the Associate in Arts Degree.

- AA 290 Painting** **2 to 3 hours any term**
 Instruction in the use of oil color, water color, and other media. Registration permitted any term, but it is desirable that the work be started in the fall.
- AA 291 Drawing** **1 to 3 hours any term**
 Training in observation and selection of significant elements. Registration permitted any term, but it is desirable that the work be started in the fall.
- AA 292 Water Color** **2 to 3 hours**
 The technique and use of water color, with special attention to its characteristics as a painting medium. Emphasis on landscape material.
- AA 295 Basic Design** **2 hours each term**
 No-grade course. Studio participation exercises involving the basic principles of design; a three-term introductory sequence.
- AA 298 Sketching** **1 hour any term**
 Sketching from costumed models, to develop ability to observe clearly and record accurately.
- Mth 10 Elements of Algebra** **3 hours**
 A remedial course intended primarily for students entering with less than one year of elementary algebra. Four class meetings a week. Transfer credits not granted.
- Mus 111, 112, 113 Music Theory I** **4 hours each term**
 Theory I and II are basic courses. They provide a thorough groundwork in the elements of music science — melodic, harmonic and rhythmic — taught through analysis of the styles of Bach, Haydn, Mozart, Beethoven, and other eighteenth and nineteenth century composers.
- Mus 211, 212, 213 Music Theory II** **3 hours each term**
 For description, see Mus 111, 112, 113. Prerequisite: Mus 111, 112, 113.
- Wr 50 Corrective English** **3 hours any term**
 One term course in the mechanics of English, required of freshmen who receive low ratings in an entrance placement examination. For such students, Wr 50 is a prerequisite for any other course in written English. Transfer credit not granted.

TECHNICAL-VOCATIONAL AND GENERAL EDUCATION

Technical-Vocational Curricula	Practical Nurse Training
Occupational Extension	Business Education
Apprentice Training	General Cultural (Adult)

TECHNICAL EDUCATION

Technical-Vocational education includes selected and organized experiences which will prepare an individual for satisfying and effective employment and for membership in a community, according to his capacity. This preparation involves related technical education together with the specific training necessary for entry into an occupational field. It also includes additional training for qualified persons already employed who wish to improve their competency.

Since the majority of American youth do not continue formal education beyond the secondary school, technical-vocational education attempts to meet the demands of this group by centering education around the immediate needs of the individual.

This plan of technical education assures the young person the means of supporting himself and prepares him for making a contribution to the world's work. It enables him to obtain through his own efforts the higher standard of living possible in a democratic society.

Technical-Vocational Education curricula are all post high school and are terminal. Associate in Science Degrees and Certificates of Completion will be issued for satisfactory completion of these programs or parts thereof.

The college is one of several school systems giving technical training in Oregon. This will enable students to transfer to other localities and continue their education with a minimum of transfer problems.

Technical-Vocational credits are not transferable to four-year baccalaureate degree-granting colleges and universities.

ENTRANCE REQUIREMENTS

There are no entrance requirements beyond the general entrance requirements of the college for students intending to choose a course of study within the Technical-Vocational Division. Eligibility may be established through an evaluation of previous education, work experience, and appropriate testing.

DEGREE AND CERTIFICATE REQUIREMENTS

The Associate in Science Degree is offered by many technical schools in all parts of the United States. It is attaining status in higher education and recognition in business and industry.

General requirements for the Associate in Science Degree:

1. Minimum of 90 units of specified courses (see particular curriculum).
2. Grade-point average minimum of 2.00 (C average).
3. Complete the required courses as listed in the specific curricula. This must include 18 term units of approved General Education subjects unless this requirement is specifically reduced by the State Department of Education.
4. Must attend S.W.O.C. at least two terms (including the last term) before degree is awarded, and must have completed 24 units at S.W.O.C. Technical units are not necessarily equivalent to collegiate term hours.

Certificates of attainment may be issued on request for individual courses completed, and these may be credited toward obtaining a curriculum diploma.

Previous training or work experience will be evaluated for credit toward receiving a diploma by tests covering the training involved, upon request by the individual.

BUSINESS AND COMMERCE

It is the purpose of business education to assist the student to prepare himself to take advantage of the opportunities that are available to him. A full-time day school is scheduled. Certain courses will also be offered in the evening school.

The courses in the curriculum are designed to meet the needs of persons preparing for employment in the business field and to provide opportunities for those already engaged in these occupations to obtain further training that will help them advance in their employment.

ENTRANCE REQUIREMENTS

The entrance requirements for admission to the business day school are the same as those of the college. No requirements for admission to the evening courses except minimum age and ability to do the work.

PROGRAMS IN BUSINESS

Business programs offered by the Technical-Vocational Division of South Western Oregon College are of four general types:

1. Two-year programs in various phases of business leading to the Associate in Science Degree.
2. One-year programs in general office and stenographic studies leading to a Certificate in General Office and a Certificate in Stenography.
3. Evening pre-employment business courses designed to meet the needs of area residents.
4. Evening business courses designed to up-grade persons presently employed.

Practical business training is provided for men and women desiring to enter business directly upon finishing their education. The programs provide specific training which will enable the graduate to obtain employment and to advance on the job. Equally important is the emphasis given to providing breadth of understanding essential to personal and civic effectiveness.

The curricula offered in Business and Commerce resulted from investigation of the needs and interests of high school graduates and citizens of the community. Businessmen and employees of this area serving on various advisory committees cooperated in developing these programs.

ASSOCIATE IN SCIENCE DEGREE PROGRAM IN BUSINESS TECHNOLOGY

Candidates for the Associate in Science Degree must complete a minimum of 90 units of approved courses plus review courses which may be specified in order to correct any deficiencies apparent when the advisor prepares the student's program or that are determined in the process of counseling and testing. The Business Technology Curriculum requirements are listed below. General requirements for the Associate in Science Degree are shown on page 26.

ONE-YEAR CERTIFICATE PROGRAMS

Students planning to obtain a one-year certificate must complete a minimum of 48 units of approved courses. A student's accomplishments will be evaluated by counselors and where preparation or progress are unsatisfactory, review courses may be required in addition to the 48 units.

PLACEMENT IN SHORTHAND CLASSES

Entering students who have had:

1. No shorthand or one semester of high school shorthand and an average grade of C in high school English and one semester of typewriting should enroll in Shorthand 2.541. Typewriting may be taken concurrently.
2. One or one and one-half years of high school shorthand or have earned a recent three-minute certificate at 80 words a minute should enter Shorthand 2.543.
3. Two years of high school shorthand or have earned a recent three-minute certificate at 100 words a minute should enter Shorthand 2.545.

PLACEMENT IN TYPEWRITING CLASSES

Entering students who have had:

1. One semester of high school typewriting with a one year lapse of time should enter Typing 2.501.
2. One year of high school typewriting should enroll in Typing 2.503.
3. One and one-half years of high school typewriting with one year lapse of time should enroll in Typing 2.503; less than one year lapse of time should enroll in Typing 2.505.
4. Two years or more of high school typewriting, should enroll in Typing 2.505.

When advisable, students will be tested and reassigned without loss of units.

CURRICULA**BUSINESS TECHNOLOGY**

Minimum Requirements for the Associate in Science Degree

First Year

	Units
General Education (1.100, 1.102, 1.506, 1.600, 1.605, 1.608)	17
Mathematics (2.250, 2.252)	6
Accounting (2.766, 2.767)	8
Marketing (2.304, 2.330)	6
Communications (2.504, 1.610)	5
Electives (as approved)	3

Second Year

General Education (1.620)	3
General Business (2.320, 2.321, 2.322, 2.256, 2.301, 2.327, 2.258, 2.326, 2.260)	28
Marketing (2.264, 2.305)	6
Electives (as approved)	8

STENOGRAPHY

Minimum Requirements for the One-year Certificate

General Education (1.100, 1.102, 1.506, 1.608)	12
Mathematics (2.250)	3
Secretarial (2.541, 2.543, 2.545)	12
General Office (2.501, 2.503, 2.504, 2.505, 2.519, 2.521, 2.258, 2.755)	24

GENERAL OFFICE**Minimum Requirements for the One-year Certificate**

General Education (1.100, 1.102, 1.506, 1.608)	12
Mathematics (2.250, 2.252)	6
Accounting (2.766, 2.767)	8
General Office (2.501, 2.503, 2.504, 2.505, 2.519, 2.521, 2.258, 2.755)	24

EVENING BUSINESS COURSES

The evening program in the Technical-Vocational Business and Commerce Department is designed to further four major purposes.

1. To provide management training to area businessmen and women. (Refer to the description of the Management Program.)
2. To provide opportunities for pre-employment and occupational training in the general office and stenographic fields. Courses available include typing, shorthand, office machines, bookkeeping, accounting and others.
3. To provide an opportunity for students to complete requirements for certificates and Associate in Science Degrees by making electives and other courses available for evening study. (Refer to the list of courses available for evening study and to the list of course descriptions for courses offered in the Business Technology Curricula.)
4. To provide a degree of specialized training in the general areas of merchandising, management, real estate and insurance, small business operation, accounting, fashion and other areas for regular business students and interested residents. (Refer to the descriptions of Specialized Programs in Business.)

MANAGEMENT PROGRAM

The Administrative Management Programs offered by South Western Oregon College provide owners and managers of smaller businesses with an opportunity to increase their management skills.

The college cooperates with the Small Business Administration in co-sponsoring programs which will provide for management and technical assistance to business. Over 300 educational institutions in the United States work with this federal agency.

Some subjects suggested for the Administrative Management Program include:

1. Meaning of administrative management in small business.
2. Planning and policy making.
3. Marketing and credit management.
4. Personnel and industrial relations management.
5. Accounting and statistical management.
6. Inventory management.
7. Legal aspects of management.
8. Buying and purchasing management.
9. Human relations.
10. Public and community relations.
11. Leadership and motivation.
12. Business ethics.

Specific programs offered in this area are arranged on the basis of interest, advice from businessmen, and cooperation with the Small Business Administration. Lectures, group discussions, case studies, and work groups are used as methods of instruction.

SPECIALIZED PROGRAMS IN BUSINESS

Students wishing to obtain a degree of specialization in the field of business can, by taking advantage of certain courses place emphasis in their studies on accounting, merchandising, real estate, insurance, and advanced secretarial studies. These programs are arranged on the basis of interest and local, state, and national needs. The valuable experience of business and labor leaders is used to provide the best possible instruction.

ACCOUNTING

Accounting I, II, III, IV
 Cost Accounting I, II
 Auditing
 Payroll Accounting
 Income Tax Law
 Analyzing Financial Statements
 Business Statistics

MERCHANDISING

Fundamentals of Marketing
 Principles of Retailing
 Salesmanship
 Advertising
 Buying
 Color and Design
 Visual Merchandising
 Fashion Fundamentals
 Textiles

REAL ESTATE

Accounting I, II
 Analyzing Financial Statements
 Business Statistics
 Salesmanship
 Principles of Real Estate
 Real Estate Practices and Problems
 Foundation of Oregon Real Estate

INSURANCE

Accounting I, II
 Analyzing Financial Statements
 Business Statistics
 Salesmanship
 Principles of Insurance
 Property and Casualty Insurance
 Life and Disability Insurance

EXECUTIVE SECRETARIAL

Advanced training in shorthand and typing, legal and medical terminology, business law, marketing, and general business sequence.

CERTIFIED PROFESSIONAL SECRETARY

Secretarial students interested in preparing themselves to complete the requirements for Certified Professional Secretary (C.P.S.) can make special arrangements to select business courses in law, management, and other areas covered in the comprehensive C.P.S. examinations. A Certified Professional Secretary in the business department of South Western Oregon College is available for counseling.

CIVIL AND STRUCTURAL ENGINEERING TECHNOLOGY

(2-Year Program)

This program of courses is aimed at providing the fundamental background and training to prepare the student for positions in entry classifications leading to civil engineering technician, surveyor, construction estimator, inspector, contractor assistant, cost estimator and related jobs.

Opportunities for employment in this field are available with construction contractors, engineering firms and consultants, and local, county, state and federal agencies.

Applicants should have completed one year of high school algebra.

Minimum Requirements for the Associate in Science Degree

First Year

	Units
Applied Physics (6.370, 6.371)	8
Communication Skills (1.100, 1.102)	6
Drafting (4.101, 4.105, 6.127)	6
Engineering Problems (6.135, 6.136)	2
Surveying (6.101, 6.103, 6.500)	9
Technical Mathematics (6.261, 6.262, 6.266)	12
Applied Mechanics and Strength of Materials (6.107, 6.109)	6

Second Year

Mapping (6.131, 6.133)	4
Applied Mechanics and Strength of Materials (6.111, 6.128)	5
Hydraulics (6.112, 6.114)	6
Construction Practices (6.108, 6.120, 6.123, 6.125, 6.130)	14
Estimating Codes and Contracts (6.110, 6.118, 6.122)	7
Structural Drafting (4.111)	2
Soil Mechanics (6.124)	3
General Education Electives	3

GENERAL DRAFTING

The one-year General Drafting Curriculum is designed to prepare students for employment in drafting jobs that require a broad knowledge of the fundamental aspects of drafting with a minimum of specialization. Such subjects as Mathematics, Practical Physics, Communication Skills, and Industrial Economics are included in the curriculum in order to provide the student with supporting background which will enable him to work intelligently with engineers. The draftsman's function is to interpret the engineer's designs to the machinist, the builder, and the operator. An efficient, young draftsman has many potential positions to which he may advance.

South Western Oregon College plans to add a two-year curriculum in Technical Drafting Technology in the near future. A student who has completed the General Drafting Program of one year will have met most of the first-year requirements for the Technology curriculum.

Minimum Requirement for Graduation

	Units
Drafting (4.100, 4.101, 4.105, 4.109, 4.115, 4.119)	18
Mathematics (4.202, 4.204)	8
Practical Physics (4.300, 4.302, 4.304)	12
Communication Skills and Report Writing (1.100, 1.102, 6.126)	9
Labor-Management Relations (2.256)	3
General Education Elective	3

ELECTRONIC TECHNOLOGY

(2-Year Program)

This program of courses is planned to provide the basic principles, theory and laboratory work in the practical phases of electronics that a technician needs to know. This training is such as to prepare the beginning technician for understanding and knowledge of a highly skilled aspect of electronics, so that he can work under the supervision of an engineer or the engineering departments where this technical competence is needed.

Satisfactory completion of the two-year program qualifies the person for employment as an electronic engineering technician, electronic instrument technician, electronic lab technician, guided missile technician, industrial electronic technician, microwave radio technician and radio technician. The rapid expansion of the electronic industry in this "Space Age" has created a great demand for engineering technicians in electronics.

Opportunities and demand for employment in this field are greater than the supply of trained personnel and will continue at this rate because of the unusual expansion of the electronics industry. Job opportunities are available in government agencies involved in missile programs and space exploration. Automation developments in business and industry offer opportunities for trained technicians.

Applicants must have completed high school or the equivalent and should have successfully completed a course in algebra. An entrance test must be passed to be admitted.

ELECTRONIC ENGINEERING TECHNICIAN

Minimum Requirements for the Associate in Science Degree

	Units
First Year	
Applied Physics (6.370, 6.371)	8
Drafting (4.101, 4.103, 6.127)	6
Engineering Problems (6.135, 6.136)	2
Electrical Theory (6.200, 6.202, 6.204, 6.205)	13
Mathematics (6.261, 6.262, 6.266)	12
Vacuum Tubes and Transistor Analysis	4
Communication Skills (1.100, 1.102)	6
Second Year	
Advanced Electronic Systems (6.212, 6.213, 6.214, 6.215, 6.216, 6.234)	15
Industrial Electronics and Automation (6.218, 6.236, 6.244, 6.246, 6.247)	12
Industrial Television (6.228, 6.235)	4
Data Processing (6.240)	3
Microwaves (6.242)	3
Mathematics (6.115)	4
General Education Electives	3

RADIO AND TELEVISION SERVICING OPTION

Minimum Requirements for Graduation

Electrical Theory (4.922)	8
Electronic Systems (4.900, 4.901, 4.912, 4.913, 6.201)	7
Radio and Television Servicing (4.923, 4.924, 4.925, 4.926, 4.928)	23
Communication Skills (1.100, 1.102)	6
Mathematics (4.202, 4.204)	8
Small Business Operation (2.310)	3

FORESTRY TECHNOLOGY

The college anticipates introducing a program of Wood Industries Technology within the next three years. At the present time, South Western Oregon College is offering a program for the training of Forester Aides in cooperation with the United States Government under the Manpower Development and Training Act and with the cooperation of the Oregon State Department of Employment. Enrollment in this course is not now open to anyone other than those selected by the Department of Employment. The expenses of the program are borne by the United States Government and administered through the Oregon State Department of Education.

The program consists of courses in forestry, such as Tree Identification, Surveying, Drafting, Silviculture, General Forestry, Mathematics, Scaling, Fire Control and Suppression, etc.

The employment possibilities are in state and federal forests and in private lumbering, logging, and tree farm operations.

MECHANICAL DEPARTMENT

AUTOMOTIVE MECHANICS

The automotive mechanics curriculum offers broad basic instruction and shop practice in the fundamental principles of automotive service. This training can lead to employment in entrance occupations in the automotive service field. The method of instruction used at South Western Oregon College stresses the laboratory approach. Various components of the automobile are used for demonstration and practice. In the second year, greater emphasis is given work on customer automobiles with emphasis on diagnosis and correction of mechanical faults. The curriculum includes some general courses which aim to assist the student in his development as a citizen. The aim of the course goes beyond the primary purpose of gaining, for the student, the knowledge and skill needed for immediate employment and tries to provide for the knowledge and habits of work which will lead to broad occupational opportunities.

Entrance Requirements: There are no special requirements other than the general requirements of the college and mechanical aptitude tests.

DIESEL

The first year of the Diesel Mechanics Option is the same as Automotive. In the second year there are some specialized courses included which apply to the special design and operation of diesel engines and equipment. These special courses will not be offered during the 1963-64 school year.

LIGHT POWER EQUIPMENT MECHANICS

This course is designed to give students an understanding of the construction, operation and the maintenance of small air-cooled engines, both four-cycle and two-cycle types. There has been a great increase in the use of these engines in all types of machines, both industrial and for personal and home use. The maintenance of this equipment is becoming a major occupation. The student will study the application of the power units in many different machines, such as industrial conveyors, concrete mixers, and personal vehicles. The uses extending to the home will include such things as lawn mowers, outboard motors for boats, garden tractors and many others.

The first term is the same as the automotive course. This will provide the students with some basic background information. In the second and third terms, special courses are introduced in addition to the general subjects of Communication Skills, Labor-Management Relations, Practical Physics. In the shop, students will be given practical experience in disassembly and assembly of small engines, including the diagnosis of trouble and the procedures for testing and repair.

AUTOMOTIVE MECHANICS**Minimum Requirement for the Associate in Science Degree
First Year**

	Units
Chassis and Brake Systems (3.300, 3.302, 3.534, 3.535)	6
Internal Combustion Engines (3.304, 3.305, 3.306, 3.307)	7
Welding (4.150)	2
Practical Physics (4.300, 4.302, 4.304)	12
Mathematics (4.202)	4
Fuel Systems and Carburetion (3.310, 3.311, 3.312, 3.313)	6
Power Trains (3.316, 3.317)	4
Electrical Systems (3.308, 3.309)	4
General Education Electives	6

Second Year

Electrical Systems (3.322, 3.323)	4
Front-end Alignment (3.318, 3.319)	3
Mechanical Methods Lab (3.329, 3.331, 3.333)	9
Fluid Mechanics and Fuels (3.545)	2
Automatic Transmissions (3.326, 3.327)	4
Power Steering (3.314)	2
Tune-up and Diagnosis (3.324, 3.325)	4
Repair Estimating (3.338)	2
Service Management (3.332)	2
Communication Skills (1.100, 1.102)	6
Labor-Management Relations (2.256)	3
General Education Electives	6

DIESEL MECHANICS OPTION**Second Year**

Fluid Mechanics and Fuels (3.545)	2
Front-end Alignment (3.318, 3.319)	3
Fuel Injection Systems (3.804, 3.805, 3.806, 3.807)	7
Diesel Engines (3.800, 3.801, 3.802, 3.803, 3.811)	11
Auxiliary Systems (3.812, 3.813)	3
Diesel Tune-up and Diagnosis (3.808, 3.809)	4
Service Management (3.332)	2
Welding (4.151)	2
Power Steering (3.314)	2
Labor-Management Relations (2.256)	3
Communication Skills (1.100, 1.102)	6
General Education Electives	6

LIGHT POWER EQUIPMENT OPTION**Minimum Requirements for Graduation**

Auto Chassis (3.300, 3.534)	3
Internal Combustion Engines (3.304, 3.305, 3.536, 3.537, 3.538, 3.539)	9
Mathematics (4.202)	4
Practical Physics (4.300, 4.302, 4.304)	12
Welding (4.150, 4.151)	4
Fuel Systems and Carburetion (3.310, 3.311)	3

Light Power Equipment (3.540, 3.541)	3
Advanced Repair Service (3.542)	1
Blueprint Reading (3.339)	1
Small Business Operation (2.310)	3
Labor-Management Relations (2.256)	3
Communication Skills (1.100, 1.102)	6

PRACTICAL NURSING

The purpose of this program is to prepare suitable applicants to give nursing care to patients who do not need the constant attention of the professional nurse.

The student is taught to assist in the care of medical and surgical patients, care of mothers and newborn babies, care of children, care of the chronically ill and convalescent patient. The instruction and hospital experience stress good standards of nursing service and are under the supervision of a professional registered nurse or licensed physician.

The program meets the requirements of the Oregon State Board of Nursing. Graduates are eligible to take the examination given by the Board of Nursing and those who pass this examination become licensed practical nurses (LPN) and are eligible for licensing by endorsement in states other than Oregon.

The classroom work totals 596 hours, 380 of which are concentrated in the first twelve weeks. The Keizer Memorial Hospital in North Bend provides the major portion of the clinical experience of 1,152 hours. The Mercy Home, also in North Bend, is available for some supplementary experience.

The class work covers the practical nurses relationship to co-workers and patients, nursing ethics, legal implications, relations to community health agencies, problems dealing with emergency situations. Study also includes such subjects as Nursing Care in Conditions of Illness, Normal Nutrition, Anatomy and Physiology, Pharmacology, Pediatrics, First Aid, Hospital Housekeeping, Charting and Reports.

Applicants for practical nurse training must submit their formal applications to the college at least one term in advance of the start of the annual nurses training program. The 1963-64 starting date is September 3, 1963. This allows time for testing and personal interviews. Specific closure dates for acceptance of applications can be obtained at the college administration office. Students pay the full-time tuition for three terms and receive an hourly stipend from the hospital during part of the clinical practice period.

OCCUPATIONAL EXTENSION

Under this general classification are grouped a number of specific programs designed to provide opportunities for adult citizens to receive training which will assist them to improve their general cultural background. Many of these courses are given in the evening, but some are scheduled in the daytime. The convenience of the students is the determining factor. Persons interested in any particular course should make their wants known to the college administration. Term schedules of classes are available in September, December, March and May (Summer Session).

APPRENTICESHIP

Related technical information classes are offered to those registered as apprentices with the Oregon State Apprenticeship Council. They are not open to others. Classes are available for Apprenticed Carpenters, Inside Wiremen, Plumbers, Maintenance Electricians, Sheetmetal Workers, Power Linemen and others.

BUSINESS AND DISTRIBUTIVE EDUCATION

For details of these courses see "Evening Business Courses" under the section on Business and Commerce.

HOME ECONOMICS EDUCATION

Daytime and evening classes are available to aid the homemaker in improving conditions in the home.

There are no special requirements for admission other than interest and ability to do the work. Students are registered as "special" students and are not required to submit a formal application. Specific courses are listed below in the group from 9.900 to 9.949.

GENERAL ADULT EDUCATION

Various courses are offered such as foreign languages for conversational purposes, driver training for adults, English for foreign born, etc.

See the course listings between 0.100 to 0.999.

- 0.100 Adult Driver Training (6 Class, 7 Lab Hrs./Term)
- 0.110 Wood Working Practices (Shop) (3 Hrs/Wk)
- 0.200 Fire Training Instruction Methods
- 0.500 Pre-Technical Mathematics (PT) (4 Class Hrs/Wk)
- 0.501 Essentials of English (2 Class Hrs/Wk)
- 0.516 Methods of Study (Remedial) (3 Class Hrs/Wk)
- 0.541 Beginning Drawing (3 Lab Hrs/Wk)
- 0.543 Water Color and Color Theory II (2 Class, 4 Lab Hrs/Wk)
- 0.545 Painting, Oil, Etc. III (3 Lab Hrs/Wk)

- 0.600 Conversational Spanish (2 Class Hrs/Wk)
- 0.601 Conversational Spanish (2 Class Hrs/Wk)
- 0.602 Conversational Spanish (2 Class Hrs/Wk)
- 0.606 Conversational French (2 Class Hrs/Wk)
- 0.607 Conversational French (2 Class Hrs/Wk)
- 0.608 Conversational French (2 Class Hrs/Wk)
- 0.612 Conversational German (2 Class Hrs/Wk)
- 0.613 Conversational German (2 Class Hrs/Wk)
- 0.614 Conversational German (2 Class Hrs/Wk)

- 9.100 Blue Print Reading for Maintenance Personnel
- 9.110 Carburetion for Auto Mechanics (1½ Class, 1½ Lab Hrs/Wk)
- 9.111 Auto Electrical Systems (2 Class, 1 Lab Hrs/Wk)
- 9.112 Automotive Tune-up for Mechanics (2 Class, 1 Lab Hrs/Wk)
- 9.115 Machine Science - Maintenance (3 Class Hrs/Wk)
- 9.120 Mathematics for Maintenance Personnel (3 Class Hrs/Wk)
- 9.121 Planing Mill Operations (2 Class Hrs/Wk)
- 9.122 Plywood Manufacturing (2½ Hrs/Wk)
- 9.130 Electronics for Electricians I (3 Class Hrs/Wk)
- 9.131 Electronics for Electricians II (3 Class Hrs/Wk)
- 9.132 Electronics for Electricians III (2 Class, 1 Lab Hrs/Wk)
- 9.136 Electronics for Telephone Personnel I (3 Class Hrs/Wk)
- 9.137 Electronics for Telephone Personnel II (3 Class Hrs/Wk)
- 9.138 Electronics for Telephone Personnel III (3 Class Hrs/Wk)
- 9.142 Radio and Television Servicing I (2 Class, 2 Lab Hrs/Wk)
- 9.143 Radio and Television Servicing II (2 Class, 2 Lab Hrs/Wk)

- 9.160 Welding I-A (Beginning) (2 Class, 6 Lab Hrs/Wk)
- 9.161 Welding I-B (Advanced) (1 Class, 3 Lab Hrs/Wk)
- 9.162 Welding II-A (2 Class, 6 Lab Hrs/Wk)
- 9.163 Welding II-B (1 Class, 3 Lab Hrs/Wk)
- 9.170 Fire Training—Basic A
- 9.171 Fire Training—Basic B
- 9.172 Fire Training—Basic C

- 9.175 School Custodial Training
- 9.176 Floors and Floor Maintenance
- 9.177 Custodial
- 9.178 Heating III—Elect. Maintenance
- 9.181 Basic Menu Planning (3 Class Hrs/Wk)

- 9.186 Carpenter Apprentice Related
- 9.187 Industrial Electrician Apprentice Related
- 9.188 Inside Wireman Apprentice Related
- 9.189 Power Lineman Apprentice Related
- 9.190 Plumber Apprentice Related
- 9.191 Sheetmetal Apprentice Related
- 9.192 Painter and Decorator Apprentice Related

- 9.700 Typing—First Term (2 Class, 4 Lab Hrs/Wk)
- 9.701 Typing—Second Term (2 Class, 4 Lab Hrs/Wk)
- 9.702 Typing—Third Term (2 Class, 4 Lab Hrs/Wk)
- 9.703 Typing—Fourth Term (2 Class, 4 Lab Hrs/Wk)
- 9.705 Office Machines—First Term (2 Class, 2 Lab Hrs/Wk)
- 9.706 Office Machines—Second Term (2 Class, 2 Lab Hrs/Wk)
- 9.707 Office Machines—Third Term (2 Class, 2 Lab Hrs/Wk)
- 9.710 Office Procedures—First Term (2 Class, 4 Lab Hrs/Wk)
- 9.711 Office Procedures—Second Term (3 Class, 3 Lab Hrs/Wk)
- 9.712 Office Procedures—Third Term (4 Class, 2 Lab Hrs/Wk)
- 9.715 Bookkeeping—First Term (3 Class, 3 Lab Hrs/Wk)
- 9.716 Bookkeeping—Second Term (3 Class, 3 Lab Hrs/Wk)
- 9.720 Shorthand—First Term (2 Class, 4 Lab Hrs/Wk)
- 9.721 Shorthand—Second Term (2 Class, 4 Lab Hrs/Wk)
- 9.722 Shorthand—Third Term (2 Class, 4 Lab Hrs/Wk)
- 9.728 Accounting I (3 Class, 3 Lab Hrs/Wk)
- 9.730 Essentials of English, General—First Term (2 Class Hrs/Wk)
- 9.731 Essentials of English—Second Term (2 Class Hrs/Wk)

- 9.900 Furniture Re-upholstery Lab. (3 Lab Hrs/Wk)
- 9.920 Basic Clothing Construction (Bishop I) (3 Lab Hrs/Wk)
- 9.922 Basic Fitting and Shirmaking (Bishop II) (3 Lab Hrs/Wk)
- 9.923 Children's Clothing Construction (3 Lab Hrs/Wk)
- 9.924 Tailoring A Coat (Bishop III) (3 Lab Hrs/Wk)
- 9.925 Tailoring A Suit (Bishop IV) (3 Lab Hrs/Wk)
- 9.936 Child Care I (2 Class Hrs/Wk)
- 9.940 Family Financial Counseling (2 Class Hrs/Wk)
- 9.941 Family Finance and Resource Management (2 Hr Lecture)
- 9.942 Home Furnishings (3 Lab Hrs/Wk)

COURSE DESCRIPTIONS

- 1.100 Communication Skills I (3 Class Hrs/Wk) Term Units 3**
 A course stressing the importance of communications activities. Emphasis is given to improving the student's skills in writing, speaking, reading, and listening. The purposes and organization of many communications are emphasized. Attention is given to the recognition of thinking as a means to effective communications. Prerequisite: High School English or equivalent.
- 1.102 Communication Skills II (3 Class Hrs/Wk) Term Units 3**
 Practice is provided the student in applying the basic communication skills, group discussions, individual speaking situations, written communications, and listening situations receive special emphasis. Attention is given to critical analysis and evaluation of information contained in the mass media. Specific methods of utilizing logical thinking in presenting and evaluating informative and controversial material is emphasized. Prerequisite: Communication Skills 1.100 or equivalent.
- 1.506 Applied Economics (3 Class Hrs/Wk) Term Units 3**
 Economics deals with the principles involved in the operation of the American economic system. The role of business and industry in the total economy is studied. Basic economic principles are applied to the relationship of employer and employee. Topics considered include historic trends, business organization, prices and competition, imperfect competition and monopoly, price levels, business cycles, taxation, labor unions, management associations, labor-management relations, labor legislation, and social and private security.
- 1.508 Economic Geography (3 Class, 1 Lab Hrs/Wk) Term Units 3**
 A study of the economic activities of the world with emphasis upon world activities in relation to United States activities. Geographic influences upon trade, manufacturing, agriculture, and mineral and power resources are covered. Attention is given to the interdependence of countries on economic activities.
- 1.510 Elements of American Government (3 Class Hrs/Wk) Term Units 3**
 A course devoted to the study of American government structure at the national, state, and local levels. An introduction to the principles and problems of government is included in this course.
- 1.600 American Institutions (3 Class Hrs/Wk) Term Units 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 the fundamental principles and processes involved in the development of the basic institutions of our society. Topics considered are: culture, its functions and changes; social groups in relation to problems of urban living, personality formation, the family, and social classes; the American economic system, its concepts and organization; public opinion, the American political system, its constitutional foundations, judicial, executive, and legislative divisions; and international relations.
- 1.605 Health Education (2 Class Hrs/Wk) Term Units 2**
 This course is designed to provide individuals with select health and physical education activities through participation or study for the purpose of adding to their knowledge and appreciation of desirable mental and physical health practices as they relate to the individual and the community.
- 1.608 Psychology of Human Relations (3 Class Hrs/Wk) Term Units 3**
 A study of principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feelings and emotions, and learning are considered with particular reference to the application to on-the-job problems. Other topics investigated are: intelligence and aptitude tests, employee selection, supervision, job satisfaction, and industrial conflict as they relate to the employee and his work situation. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community.
- 1.610 Public Speaking (1 Class, 2 Lab Hrs/Wk) Term Units 2**
 This course is intended to develop speaking skills with emphasis on the dual role of speech as both a speaking and listening skill, and on adjusting the approach to the specific audience. Practice is provided through individual speeches and group discussions with careful attention being given to effective organization and delivery. In addition to the general principles of speech, stress is placed on poise and confidence and on understanding their psychological basis.
- 1.620 The Physical World (3 Class, 1 Lab Hrs/Wk) Term Units 3**
 This course introduces the student to the physical world through an integrated study of everyday applications of physical science principles with emphasis on the basic principles of physics, astronomy, meteorology, geology, and chemistry, to provide an understanding of the scientific method and the role it has played in the intellectual history of mankind.

- 2.250 Business Mathematics (3 Class Hrs/Wk) Term Units 3**
A concentrated course using programmed learning. A rapid rebuilding of fundamentals is accomplished. Problem solving through algebra procedures and equations for solving business and percentage problems is mastered. Prerequisite: High school math.
- 2.252 Business Mathematics II (3 Class Hrs/Wk) Term Units 3**
By programmed learning, interest, discount, negotiable instruments and payroll mathematics are studied. Business mathematics in management decisions including cash and trade discounts, determining profit and loss, depreciation, taxes, securities, and insurance is covered. Prerequisite: Business Mathematics, 2.250.
- 2.254 Money and Banking (3 Class Hrs/Wk) Term Units 3**
A course dealing with the nature and kinds of money and past and present monetary standards. The organization and function of the commercial bank and the Federal Reserve System receive special emphasis. The various specialized lending agencies are covered also. An introduction to international finance is made.
- 2.255 Foreign Trade (3 Class Hrs/Wk) Term Units 3**
This course offers a study of the elementary principles of foreign trade including the balance of international payment. Barriers to international trade, free trade versus protectionism, foreign exchange and exchange control, foreign investment, and other areas are introduced to the student in this course.
- 2.256 Labor-Management Relations (3 Class Hrs/Wk) Term Units 3**
This course traces the development of the unionism in the United States. Attention is given to the roles of labor and management in collective bargaining. A review of labor and management legislation is correlated with the development of unionism. Labor organization disagreement, arbitration, conciliation and problems of labor are also studied.
- 2.258 Office Procedures (1 Class, 4 Lab Hrs/Wk) Term Units 3**
This course is designed to familiarize the student with office jobs. Attention is given to work normally performed in an office such as postal and shipping, telephone, and telegrams and cables. Forms and supplies, office manuals, financial transactions, employer-employee relations, business customs, office systems and routine are discussed also. The student receives an introduction to data processing in this course.
- 2.260 Project Studies (2 Lab, 9 Independent Study Hrs/Wk) Term Units 4**
The student is assigned a project appropriate to his occupational interests which he pursues to completion with the advice and direction of the instructor. Such projects furnish the student with an opportunity to prepare himself with specific information in a particular area just prior to seeking employment. Skills and knowledge developed during the student's college life find practical applications in the project study. Prerequisite: Consent of instructor.
- 2.262 Cooperative Work Experience Term Units 4 to 8**
A work experience program in school or in business establishments. Credit may be granted for work experience under the following conditions: (1) approval of the work situation by the appropriate school authority; (2) completion of a variety of tasks; (3) development of production skills on assigned tasks; (4) satisfactory work reports of the employer and college supervisor. A minimum of 144 clock hours must be completed for each four units of credit granted. Prerequisite: School approval.
- 2.264 Advertising (2 Class, 2 Lab Hrs/Wk) Term Units 3**
This course introduces the student to advertising and the role it plays in business. Planning advertising programs, advertising budgets, media, techniques of merchandising with advertising and types of advertising are covered. Layout and copy-writing as applied to the newspaper and direct mail media are studied.
- 2.301 Credit Procedures (3 Class Hrs/Wk) Term Units 3**
A study of the principles and methods of credit administration in the mercantile and retail field, including sources of information, credit policy, credit control, legal remedies, and collection techniques.
- 2.304 Fundamentals of Marketing (3 Class Hrs/Wk) Term Units 3**
A general survey of the nature, significance, and scope of marketing. Emphasis is placed upon the channels of distribution; the marketing of consumer, shopping, specialty and other goods; service marketing; middlemen, wholesaling, shipping and warehousing; standardization, grading, and pricing; government regulation of competition.
- 2.305 Principles of Retailing (3 Class Hrs/Wk) Term Units 3**
A general survey of the principles of efficient store organization and management. Topics include location and layout, types of store organization, personnel management operating activities, financial and budgetary control, coordinating policies, and store protection.

- 2.310 Small Business Operation (3 Class Hrs/Wk) Term Units 3**
 In this course the student is introduced to the small business in the American economy and advised of recent trends and operations in small business operation. The problems of establishing and operating a business are considered, with emphasis given to the field of retailing.
- 2.311 Fashion Fundamentals (2 Class, 2 Lab Hrs/Wk) Term Units 3**
 This course covers the origin and history of fashion, the laws and principals of fashion, fashion cycles and forecasting, fashion coordination, and fashion illustrating. The student is introduced to the fundamentals of apparel copywriting. A study is made of color, line, and design as they relate to the selection of fashionable clothing and accessories.
- 2.313 Textiles (1 Class, 4 Lab Hrs/Wk) Term Units 3**
 A comparative analysis of natural and man-made fibers, including current blends. Identification of fabrics through a study of the various fibers, weaves, dyeing, and embossing processes. Some emphasis is given to fashion trends and techniques of accessorizing. Throughout the course, emphasis is placed on the the consumer advantages and selling features of each fabric and weave.
- 2.314 Color and Design (2 Class, 4 Lab Hrs/Wk) Term Units 3**
 An introductory study of the factors involved in color, line, and design. Special attention is given to the psychological basis of color, color theory, texture, harmony, shades and tints; the basic concepts of static and dynamic design, the golden mean, proportion, balance, unity, and symmetry.
- 2.315 Buying (3 Class Hrs/Wk) Term Units 3**
 An analysis of retail buying procedure, including the evaluation of consumer demand, technique of merchandise selection, merchandise pricing, resident buying, inventory turnover unit and dollar control, model stock, open-to-buy, markup, and markdown. Prerequisite: Principles of Retailing, 2.305.
- 2.318 Economics of Consumption (3 Class Hrs/Wk) Term Units 3**
 The problems frequently confronting the consumer are studied in this course. Consideration is given to insurance planning, buying of goods and services, consumer credit, inventory, borrowing money, obtaining a home, installment buying, estate planning, wise spending, and others. A recommended course for all students.
- 2.319 Visual Merchandising (2 Class, 3 Lab Hrs/Wk) Term Units 3**
 Instruction in lettering systems, supplementary forms of lettering, the use of templates for show-card design, and the inks and tempera. The use of show-card markers are studied. The types and styles of props and fixtures used in display, store layout, merchandise arrangement, and store traffic are also covered. Application of the principles of line and design to interior and window display, space utilization, seasonal display, and lighting arrangement are emphasized. Prerequisite: Principles of Retailing, 2.305.
- 2.320 Business Law (3 Class Hrs/Wk) Term Units 3**
 A review of the nature of law as necessary. Emphasis is on contractual relationships, the law of sales, bailments, and negotiable instruments. Case studies are used to illustrate the principles involved.
- 2.321 Business Law (3 Class Hrs/Wk) Term Units 3**
 A review of the nature of law as necessary. Emphasis is on agency and employment, union labor contracts, personal property, real property, suretyship and guaranty.
- 2.322 Business Law (3 Class Hrs/Wk) Term Units 3**
 A review of the nature of law as necessary. Emphasis is on risk-bearing devices, partnerships and corporations, bankruptcy, and current social legislation. Prerequisite: One term of Business Law, 2.320 or 2.321 or equivalent.
- 2.326 Analysis of Financial Statements (3 Class Hrs/Wk) Term Units 3**
 In this course the student becomes familiar with financial and operating statements, auditing procedures, auditing reports and ratios commonly used in financial analysis. Special attention is given to Net Worth, Cash Flow, Capital Stock, Surplus, Ratio Analysis and Consolidated Statements.
- 2.327 Business Statistics (3 Class Hrs/Wk) Term Units 3**
 The statistical analysis of business and economic data used in controlling operations and in making sound business decisions. Special attention is given to assembling statistical data, statistical description, sampling, time series, cyclical fluctuations, and the application of statistics in business.
- 2.330 Fundamentals of Salesmanship (2 Class, 2 Lab Hrs/Wk) Term Units 3**
 An analysis and evaluation of the salesman of today and the role he plays in our economic life are made during this course. The principles and techniques of selling constitute the areas covered in this course. Detailed attention is given to both inside and outside selling activities.

- 2.331 Income Tax Procedures (3 Class Hrs/Wk) Term Units 3**
A study of income tax law and the record-keeping necessary for income tax purposes.
- 2.332 Principles of Insurance (3 Class Hrs/Wk) Term Units 3**
A survey of insurance principles, including the study of policy, provisions in the fields of life, property, casualty, and marine insurance.
- 2.333 Property and Casualty Insurance (3 Class Hrs/Wk) Term Units 3**
A study of practices common to property and casualty underwriting, and the contracts, regulations, and principles involved. Prerequisite: Principles of Insurance, 2.332.
- 2.334 Life and Disability Insurance (3 Class Hrs/Wk) Term Units 3**
A study of practices common to life and disability underwriting, and the contracts, regulations, and principles involved. Prerequisite: Principles of Insurance, 2.332.
- 2.335 Principles of Real Estate (3 Class Hrs/Wk) Term Units 3**
A study of the economics of land ownership and use. A survey of legal principles and rules pertaining to real estate property.
- 2.336 Foundations of Oregon Real Estate (3 Class Hrs/Wk) Term Units 3**
A study of Oregon Real Estate law with emphasis on its practical application. Illustrative cases and examples are utilized in class discussions.
- 2.337 Real Estate Practice and Problems (3 Class Hrs/Wk) Term Units 3**
The activities of the broker and salesman in the real estate business; the real estate office, listings, valuation, prospecting, advertising, exchanges, property management and leasing, public relations, and ethics of the real estate business. Prerequisite: Principles of Real Estate, 2.335.
- 2.501 Typing (1 Class, 4 Lab Hrs/Wk) Term Units 3**
This is a beginning course in typing for those with no previous typing instruction. It covers the parts and construction of the more common makes of typewriters, learning of the keyboard, and the basic techniques of the touch system. The student should develop rhythm in his movements and attain an acceptable typing speed. Prerequisite: (See "Placement in Typing Class")
- 2.503 Typing (1 Class, 4 Lab Hrs/Wk) Term Units 3**
This is a continuation of Typing I with emphasis on increasing the typing speed to an acceptable level. Prerequisite: Typing 2.501 or equivalent. (See "Placement in Typing Class")
- 2.504 Business Communications (3 Class Hrs/Wk) Term Units 3**
A study of business communications aimed at learning the purposes and functions of the many different types of communications utilized by the business world today. In addition to learning the purposes and functions, a primary objective of this course is learning to write effective business letters and the less complicated of the informal and formal reports.
- 2.505 Typing (1 Class, 4 Lab Hrs/Wk) Term Units 3**
An intermediate course including corrective and acceleration drills to develop an acceptable typing speed. The student receives instruction in the various business papers encountered in the general office. Prerequisite: Typing 2.503 or equivalent. (See "Placement in Typing Class").
- 2.507 Typing (1 Class, 4 Lab Hrs/Wk) Term Units 3**
An advanced course intended to increase the typing speed to an acceptable minimum while introducing the student to various types of specialized applications in industrial and professional fields such as legal, engineering, medical, sales and public relations communications, etc. Prerequisite: Typing, 2.505 or equivalent.
- 2.519 Office Machines (2 Class, 2 Lab Hrs/Wk) Term Units 3**
This is the first of two terms. Machines are assigned on a rotation basis. Following are some of the machines used: 10 key adding-listing, full key board adding-listing, rotary calculators, key driven calculators, posting machine, printing calculator, dictating machines, and duplicating machines.
- 2.521 Office Machines (2 Class, 2 Lab Hrs/Wk) Term Units 3**
A continuation of Office Machines 2.519. The student is introduced to key punch machine operation. Prerequisite: 2.519.
- 2.541 Shorthand (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Elementary course in shorthand. Theory, abbreviated words, phrasing, dictation and transcription. Aims at minimum speed of 60 words a minute. Prerequisites: Satisfactory grades in high school English or pass qualifying English Test; one semester of typewriting or concurrent enrollment in typewriting.

- 2.543 Shorthand (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Aims at dictation speed of 80 to 100 words a minute and accuracy in dictation and transcription to prepare for employment. Correct letter forms, grammar, spelling, punctuation, and typewriting correlated with shorthand. Prerequisite: Minimum grade of C in Shorthand 2.541 or equivalent. (See "Placement in Shorthand Classes").
- 2.545 Shorthand (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Advanced course; further speed developed in dictation and transcription with material from wide variety of sources. Aims at dictation speed of 100 to 120 words a minute. Prerequisite: Minimum grade of C in Shorthand 2.543 or equivalent.
- 2.547 Shorthand (Advanced) (2 Class, 4 Lab Hrs/Wk) Term Units 4**
An advanced course designed to train the student for stenographic work on a production basis while allowing specialization in professional and industrial fields such as legal, engineering, medical, etc. Dictation of unfamiliar matter should be taken at levels accepted by business. Prerequisite: Shorthand 2.545 or equivalent.
- 2.755 Filing (2 Class Hrs/Wk) Term Units 2**
This course covers the basic rules and procedures of filing. Individual practice filing equipment allows actual practice in arranging records according to alphabetic, geographic, numeric, and subject methods of filing.
- 2.766 Accounting I (3 Class, 2 Lab Hrs/Wk) Term Units 4**
An introduction to accounting and the fundamental principles of accounting as applied to a sole proprietorship; the meaning and purpose of accounting; accounting statement; balance sheet and profit and loss statement; the theory of debits and credits; accounts and the trial balance; accounting for merchandise, cash, retail store, investments, and the personal service enterprise.
- 2.767 Accounting II (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Owners' equity; notes and drafts, purchases, sales, inventory, fixed assets; wholesale business, closing procedures. Major emphasis on partnership. Prerequisite: Accounting 2.766, or the equivalent.
- 2.768 Accounting III (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Corporation accounting for organization, stock, earnings, intangible and wasting assets, manufacturing business, branch operations and analysis of financial statements. Prerequisite: Accounting 2.767 or equivalent.
- 2.769 Accounting IV (3 Class, 1 Lab Hrs/Wk) Term Units 3**
An advanced study of accounting records, merchandising and manufacturing accounts, end-of-year procedures, corrections of profits of prior periods, accounting statements, analysis of working capital, analytical and comparative per cent, analytical ratios. Prerequisite: Accounting 2.768 or equivalent.
- 2.771 Payroll Accounting (3 Class, 1 Lab Hrs/Wk) Term Units 3**
Federal and State old age, unemployment, and disability insurance laws; state and local sales taxes. Accounting records which involve the numerous regulations of governmental bodies. Prerequisite: Accounting, 2.766 or approval of instructor.
- 2.772 Cost Accounting I (3 Class Hrs/Wk) Term Units 3**
The relation of cost accounting to management for control; general principles involved in constructing a cost system; distribution of cost-materials, labor and burden; cost record; operating reports; joint and by-product cost and budgetary control. Prerequisite: Accounting 2.768 or equivalent.
- 2.773 Cost Accounting II (3 Class Hrs/Wk) Term Units 3**
Process cost accounting; costing by-products and joint products; budgeting; estimated cost system; standard cost; cost control and analysis. Prerequisite: Cost Accounting 2.772.
- 2.774 Auditing (4 Class Hrs/Wk) Term Units 4**
The preparation of the audit program, working papers, and reports are considered. In addition, selected programs dealing with various assets, liability, and capital accounts are worked and discussed. Prerequisite: Accounting 2.769 or equivalent.
- 2.780 Medical Shorthand and Transcription (2 Class, 2 Lab Hrs/Wk) Term Units 3**
Theory of medical terminology, outlines of medical terms, dictation of case histories, medical abstracts, scientific articles. Prerequisite: Shorthand 2.545 or equivalent.
- 2.781 Medical Voice Transcription (1 Class, 2 Lab Hrs/Wk) Term Units 2**
Transcribing of business and medical dictation records. Prerequisite: Typing 2.505 or equivalent.

- 2.782 Medical Office Practice (2 Class, 2 Lab Hrs/Wk) Term Units 3**
Telephone courtesy, appointments, discussion of fees, billing, collecting procedures; health insurance and workmen's compensation forms; mailing activities; filing; record keeping. Prerequisite: Typing 2.503 or equivalent.
- 2.783 Legal Transcription (2 Class, 2 Lab Hrs/Wk) Term Units 3**
Transcription from dictation notes with content peculiar to the work of a legal secretary or court stenographer. Special work in preparation of briefs, court testimony, and legal documents of State of Oregon. Prerequisite: Typing 2.505 or equivalent.
- 3.300 Automotive Chassis (2 Class Hrs/Wk) Term Units 2**
This course is designed to give students an understanding of the principles of operation of automotive chassis components. Fundamentals of front suspension and steering geometry, diagnosis of steering and suspension troubles, and overhaul techniques of steering and suspension systems are studied. Prerequisite: Practical Physics 4.300 should be taken concurrently.
- 3.302 Automotive Chassis (2 Class Hrs/Wk) Term Units 2**
The purpose of this course is to familiarize students with the functions and principles of operation used on all major types of automotive brake systems. The student should acquire knowledge of brake trouble shooting, procedures for overhauling both conventional and power brakes, and service techniques. Prerequisite: Automotive Chassis 3.300 and 3.534 or equivalent. Practical Physics 4.302 should be taken concurrently.
- 3.304 Internal Combustion Engines (2 Class Hrs/Wk) Term Units 2**
This course is designed to give the student an understanding of the principles of operation of various types of internal combustion engines. Students should acquire a knowledge of the construction and operation of the automotive engine, all components, and accessories. Prerequisites: Practical Physics 4.300 and Mathematics 4.202 should be taken concurrently.
- 3.305 Internal Combustion Engines Lab. (3 Lab Hrs/Wk) Term Unit 1**
This is the practical application of Internal Combustion Engines 3.304, consisting of basic service and overhaul techniques commonly used on automotive engines. Removal and replacement of all engine and accessory components, with a detailed study of the function of each part, is supervised by the instructor. Prerequisites: Practical Physics 4.300, Mathematics 4.202, and Internal Combustion Engines 3.304 should be taken concurrently.
- 3.306 Internal Combustion Engines (2 Class Hrs/Wk) Term Units 2**
This course is intended to provide the student with knowledge of overhaul methods, trouble shooting, general engine performance and testing, and service techniques covering valve, cylinder, and bearing systems. Prerequisites: Internal Combustion Engines 3.304 and 3.305. Practical Physics 4.302 should be taken concurrently.
- 3.307 Internal Combustion Engines Lab. (6 Lab Hrs/Wk) Term Units 2**
A shop course designed to provide experience in practical engine reconditioning. Diagnosis of troubles directly related to the engine and its performance is practiced with the use of test instruments. A companion course for Internal Combustion Engines 3.306. Prerequisites: Practical Physics 4.300, Internal Combustion Engines 3.306. Practical Physics 4.302 should be taken concurrently.
- 3.308 Automotive Electricity (3 Class Hrs/Wk) Term Units 3**
This course is designed to provide the student with an understanding of the fundamental principles of electricity as used by the auto mechanic. Construction and function of automotive electrical components, including storage batteries, switches, ignition, and cranking systems are studied in detail with the aid of demonstrations, cutaway, and mock-up equipment. Prerequisite: Practical Physics 4.304 should be taken concurrently.
- 3.309 Automotive Electricity Lab. (3 Lab Hrs/Wk) Term Unit 1**
This is the practical application of the theory studied in Automotive Electricity 3.308. Prerequisites: Practical Physics 4.304 and Automotive Electricity 3.308 must be taken concurrently.
- 3.310 Fuel Systems and Carburetion (2 Class Hrs/Wk) Term Units 2**
A course designed to give the students an understanding of the fundamental principles of carburetion, an overview of principles of engine fuel systems and fuels, operation and function of all types of fuel systems, and an understanding of the simple automotive carburetor. The student should acquire a basic knowledge of carburetor circuits. Prerequisites: Internal Combustion Engines 3.306 and 3.307, Practical Physics 4.302 should be taken concurrently.
- 3.311 Fuel Systems and Carburetion Lab. (3 Lab Hrs/Wk) Term Unit 1**
This course is designed to enable the student to develop skill and understanding in overhaul of all types of simple automotive fuel systems and carburetors, analyzing the function of each component and circuit. Diesel and LPG fuel systems are disassembled by the student for study of construction and function of components and reassembled. Prerequisites: Internal Combustion Engines 3.304; Fuel Systems and Carburetion 3.310 should be taken concurrently.

- 3.312 Fuel Systems and Carburetion (2 Class Hrs/Wk) Term Units 2**
 An advanced course in techniques and procedures for overhaul and service of carburetors and carburetion accessories, including all types of single and multiple throat models. Principles of operation and special carburetion equipment, such as supercharger and automotive fuel injection, are studied. Diagnosis and testing procedures involving carburetion systems are covered. Prerequisites: Fuel Systems and Carburetion 3.310 and 3.311.
- 3.313 Fuel Systems and Carburetion Lab. (3 Lab Hrs/Wk) Term Unit 1**
 Developing skills in service and overhaul of all types of single and multiple throat carburetion systems. Detailed servicing procedures on various types of carburetor circuits, using laboratory equipment. Basic trouble-shooting procedures are practiced on operating engine components. Prerequisites: Fuel Systems and Carburetion 3.310 and 3.311. Fuel Systems and Carburetion 3.312 should be taken concurrently.
- 3.314 Power Steering (1 Class, 3 Lab Hrs/Wk) Term Units 2**
 This is a course in practical power steering work covering trouble shooting, dismantling, inspection of parts, reassembly, and adjustments to cover principal repair procedure on those power steering units common to the automotive trade. Principles of operation will be studied in the classroom and applied directly to power steering units in the laboratory. Prerequisite: Second year standing or instructor's approval and Fluid Mechanics and Fuels 3.545.
- 3.316 Power Trains (2 Class Hrs/Wk) Term Units 2**
 This is a course covering all components of the power train, including clutch, standard and overdrive type transmissions, drive line, and final drive. These components will be studied in detail in the classroom, using lecture and visual aids, to determine the function and operation of each unit to form a basis for subsequent overhaul procedures. Prerequisite: Automotive Chassis 3.302 and 3.535 or equivalent.
- 3.317 Power Trains Laboratory (6 Lab Hrs/Wk) Term Units 2**
 This course is designed for building skill and utilizing practical work covering overhaul and trouble shooting all units of the automotive power train. All work is performed on laboratory units in conjunction with concurrent attendance in the Power Trains Course. Prerequisite: Power Trains 3.316 should be taken concurrently.
- 3.318 Front End Alignment (2 Class Hrs/Wk) Term Units 2**
 This course provides a detailed study of wheel alignment. Wheel alignment factors, equipment, and procedures are covered in detail. Wheel balance methods and machines are studied, as well as alignment troubles. Prerequisite: Automotive Chassis 3.300 and 3.534.
- 3.319 Front End Alignment Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 This is a practical application of the theories studied in Front End Alignment. The student should become skilled in the manipulations of different styles of alignment equipment, as well as familiar with the front end systems of various makes of automobiles. Prerequisites: Automotive Chassis 3.300 and 3.534 or equivalent. Front End Alignment 3.318 must be taken concurrently.
- 3.322 Automotive Electricity (3 Class Hrs/Wk) Term Units 3**
 This course is a continuation of Automotive Electricity 3.308 covering automotive lighting, charging, and indicating systems. Students will acquire the ability to diagnose minor troubles in these systems as well as be able to interpret and trace automotive wiring diagrams. Common types of minor electrical accessories are studied. Prerequisite: Automotive Electricity 3.308 and 3.309 or equivalent.
- 3.323 Automotive Electricity Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 This is a practical application of the theory studied in Automotive Electricity 3.322. Prerequisite: Automotive Electricity 3.322 to be taken concurrently.
- 3.324 Tune-Up and Diagnosis (2 Class Hrs/Wk) Term Units 2**
 This course is designed to give students the ability to recognize and diagnose malfunctions in the automotive engine and its accessory systems. Advanced methods of testing electrical and carburetion systems are studied. The students should develop the ability to analyze the operation of all engine accessories directly to engine performance. Prerequisites: Second year standing and Automotive Electricity 3.322 and 3.323.
- 3.325 Tune-Up and Diagnosis Laboratory (6 Lab Hrs/Wk) Term Units 2**
 This course is a practical application of the theory studied in the Tune-Up and Diagnosis course. Live automotive or laboratory equipment will be used by students in diagnosing and correcting troubles. Various types of tune-up equipment are used, enabling the students to develop skill in their use. Prerequisites: Second year standing. Tune-Up and Diagnosis 3.324 should be taken concurrently.
- 3.326 Automatic Transmission (3 Class Hrs/Wk) Term Units 3**
 This course covers automatic transmission work, including principles of operation, trouble shooting and overhaul procedures on hydraulically operated transmissions, torque converters, and fluid couplings used with automatic transmissions common to the automotive field. Prerequisites: Fluid Mechanics and Fuels 3.545 and Power Trains 3.316 and 3.317 or equivalent.

- 3.327 Automatic Transmissions Laboratory (4 Lab Hrs/Wk) Term Unit 1**
 This course is a practical application of the theory studied in Automatic Transmissions 3.326, using the various types of automatic transmissions found in automotive equipment. Prerequisite: Automatic Transmissions 3.326 must be taken concurrently.
- 3.329 Mechanical Methods Laboratory (9 Lab Hrs/Wk) Term Units 3**
 This is a shop course in which the students can develop additional abilities and understanding through diagnosis and repair of operating automotive equipment. Conditions and practices similar to automotive repair shops in industry. It will include overhaul and maintenance procedures and practices on suspension systems, brakes, power trains, and engines. Students will develop skills in analyzing typical problems, outlining job procedures, conservation of working time, and following up with actual overhaul of the defective units. Prerequisites: Second year standing or instructor's approval. Automotive Electricity 3.322 and 3.323 to be taken concurrently.
- 3.331 Mechanical Methods Laboratory (9 Lab Hrs/Wk) Term Units 3**
 This course is a continuation of Mechanical Methods Lab 3.329 in further developing the students' abilities and knowledges. Skills developed in previous courses will be improved, with emphasis on automotive electricity and automatic transmission units. Diagnosis, testing, and overhauling of units will be practiced under industrial conditions. Prerequisites: Mechanical Methods Lab 3.329 or equivalent. Automatic Transmissions 3.326 and 3.327.
- 3.332 Automotive Service Management (2 Class Hrs/Wk) Term Units 2**
 This course outlines the duties and responsibilities of the service manager. The students study methods of organizing service personnel, shop facilities, and an introduction to shop layout and building facilities. Appreciation of good relationship with customers, labor and management groups, and individuals is emphasized. Prerequisite: Second year standing or equivalent.
- 3.333 Mechanical Methods Laboratory (9 Lab Hrs/Wk) Term Units 3**
 This course is a continuation of Mechanical Methods Lab 3.331 to further develop the students' abilities in diagnosis and repair of automotive units with emphasis on power steering and tune-up procedures. Power accessories are serviced as time and availability permit. Prerequisite: Mechanical Methods Lab 3.331 or equivalent.
- 3.338 Automotive Repair Estimating (2 Class Hrs/Wk) Term Units 2**
 This course is designed to give the student an understanding of proper diagnosing and estimating of labor and material costs involved in the repair and service of automotive equipment. Emphasis will be on the use of typical manuals and price lists used in the industry. The students will make practical application of the theories studied in this course on units to be repaired in the shop. Prerequisite: Second year standing or equivalent.
- 3.534 Automotive Chassis Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 A course to develop the ability to use basic hand tools, measuring tools, and shop equipment in the process of overhauling and adjusting various types of suspension and steering systems. It is the practical application of the theory studied in Automotive Chassis 3.300. Prerequisite: Automotive Chassis 3.300 should be taken concurrently.
- 3.535 Automotive Chassis Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 This is the practical application of the theory studied in Automotive Chassis 3.302. Prerequisite: Automotive Chassis 3.302 should be taken concurrently.
- 3.536 Small Engines (2 Class Hrs/Wk) Term Units 2**
 This course is designed to give students an understanding of the construction, operation, and maintenance of small air-cooled engines. Both 2 and 4 cycle types are covered.
- 3.537 Small Engines Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 A shop course wherein students will gain practical experience in disassembly and assembly of small engines, including overhaul procedures and testing.
- 3.538 Small Engines (2 Class Hrs/Wk) Term Units 2**
 A course dealing with small multi-cylinder water cooled engines, with emphasis on outboard motors. The course takes up the special applications of high speed two cycle operation, metallurgy, and special gearing. Prerequisite: Small Engines 3.536.
- 3.539 Small Engines Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 A shop course to provide actual experience in servicing outboard motors and other multi-cylinder engines, also overhaul procedures and tune-up. Prerequisites: Small Engines 3.536, Small Engines Lab 3.537, Light Power Equipment 3.540 and Light Power Equipment Lab 3.541.

- 3.540 Light Power Equipment (2 Class Hrs/Wk) Term Units 2**
A course designed to acquaint students with the different types of machinery powered by small engines. Applications will include types of drives, gear reductions, and efficiency.
- 3.541 Light Power Equipment Laboratory (3 Lab Hrs/Wk) Term Unit 1**
A shop course designed to provide experience in care and servicing of the different machinery units driven by small engines.
- 3.542 Advanced Repair Service (3 Lab Hrs/Wk) Term Unit 1**
This is a shop course in which students can develop additional abilities and understanding through diagnosis and repair of malfunctions in small gas engines and light gas powered equipment. Students will develop skills in analyzing typical programs, outlining on procedures, conservation of working time, and following up with actual overhauling of defective units. Prerequisite: Third term standing and the consent of the instructor.
- 3.545 Fluid Mechanics and Fuels (2 Class Hrs/Wk) Term Units 2**
A study of the practical uses of hydraulic power transmission and application. The fundamental principles are reviewed and the uses of hydraulic pressure and fluid flow in brakes, pumps, power steering units, fluid couplings, torque converters, and power accessories are covered thoroughly. A study of petroleum products as used in fuels and lubricants is also included. Prerequisite: Practical Physics 4.300 and 4.302.
- 3.800 Diesel Engines (2 Class Hrs/Wk) Term Units 2**
This is a beginning course specifically related to diesel engines and is designed to give the student an understanding of the types and construction of these engines with emphasis on the fundamentals, and includes a study of cooling and lubrication systems. Prerequisite: Second year standing in Automotive Mechanical Curriculum or equivalent.
- 3.801 Diesel Engines Laboratory (6 Lab Hrs/Wk) Term Units 2**
Practical application of the principles and information studied in Diesel Engines 3.800 is centered around laboratory or shop-type work consisting of the removing, replacing, inspecting, and adjusting of the various accessories and components studied. Prerequisite: Diesel Engines 3.800 or equivalent.
- 3.802 Diesel Engines (2 Class Hrs/Wk) Term Units 2**
In this course the student studies valve operating mechanism, air intake systems, piston and connecting rod servicing, crankshaft servicing, cylinder and block servicing, engine performance, superchargers and blowers, and mechanical and hydraulic governors. Prerequisite: Diesel Engines 3.800 and 3.801 or equivalent.
- 3.803 Diesel Engines Laboratory (6 Lab Hrs/Wk) Term Units 2**
This is a shop and/or laboratory course designed to provide practical experience in engine reconditioning, and is specifically related to the practices, principles, and technical information studied in Diesel Engines 3.802. Prerequisite: Diesel Engines 3.800 and 3.801 or equivalent. Diesel Engines 3.802 may be taken concurrently.
- 3.804 Fuel Injection Systems (2 Class Hrs/Wk) Term Units 2**
This course is designed to give the students an understanding of diesel fuel systems, fuel-oil transfer pumps, injection systems, fuel injection pumps and nozzles. Prerequisite: Second year standing and Diesel Engines 3.800 and 3.801 or equivalent.
- 3.805 Fuel Injection Systems Laboratory (3 Lab Hrs/Wk) Term Unit 1**
This course is to provide students with practical applications and understandings in the overhaul and servicing of diesel fuel systems and their related components. It is the application of the material studied in Fuel Injection Systems 3.804. Prerequisite: Second year standing in Diesel Engines 3.800 or 3.801 or equivalent. Fuel Injection Systems 3.804 may be taken concurrently.
- 3.806 Fuel Injection Systems (2 Class Hrs/Wk) Term Units 2**
This is a specialized course devoted to the service and repair of injection equipment. In addition it covers the safety and proper handling of fuel injection equipment and the testing equipment used. The principles, specifications, installations, and adjustments of various types of nozzles and their maintenance will be emphasized. Prerequisite: Satisfactory standing in the curriculum or instructor's approval.
- 3.807 Fuel Injection Systems Laboratory (6 Lab Hrs/Wk) Term Units 2**
Practical application of the practices and procedures and technical information studied in Fuel Injection Systems 3.806. Laboratory and/or shop-type work is centered around the removal, disassembly, inspection, servicing, installation and testing of fuel injectors, injector pumps, and fuel transfer pumps of various makes and types. Prerequisite: Fuel Injection Systems 3.806 or equivalent.

3.808 Diesel Tune-Up and Diagnosis (2 Class Hrs/Wk) Term Units 2

A study is made of the various troubles encountered in the tune-up and diagnosis of diesel engines with emphasis on accurate and systematic procedures and principles. Prerequisites: Diesel Engines 3.800 and 3.802, Fuel Injection Systems 3.804 and 3.806 or equivalent.

3.809 Diesel Tune-Up and Diagnosis Lab (6 Lab Hrs/Wk) Term Units 2

This is a course devoted to actual application of the technical information studied in Diesel Tune-Up and Diagnosis 3.808 with emphasis on differences in tune-up procedures and troubleshooting as they relate to various makes and types of diesel engines in operation today. Prerequisite: Diesel Tune-Up and Diagnosis or equivalent, or it may be taken concurrently.

3.811 Diesel Engine Repair (9 Lab Hrs/Wk) Term Units 3

This is a shop and/or laboratory course in which the students can develop additional abilities and understandings through the diagnosis and repair of operating automotive equipment and components. It will include overhaul and maintenance procedures and practices as they relate to the removal, disassembly, repair, reassembly, and testing of typical diesel engines and their components. Prerequisite: Satisfactory standing in the curriculum or instructor's approval.

3.812 Auxiliary Systems (2 Class Hrs/Wk) Term Units 2

This is a specialized study in the areas of the cooling, fuel supply, lubrication, air intake, exhaust, and starting systems of typical diesel engines in use today. Starting aids, blower and superchargers, governors, and air compressors are also covered. Prerequisite: Diesel Engines 3.800 and 3.802 or equivalent.

3.813 Auxiliary Systems Laboratory (3 Lab Hrs/Wk) Term Unit 1

This is the practical application in the shop and/or laboratory of the materials studied in Auxiliary Systems 3.812, and includes experimental and shop-type operations as a means of clarifying the proper procedures and practices found in the Diesel Industry. Prerequisite: Auxiliary Systems 3.812 or equivalent.

4.100 Introduction to Fabrication Prac. (1 Class, 6 Lab Hrs/Wk) Term Units 3

An introductory course of observation and drafting. Students will be assigned drawing projects and will normally view the physical object of the drawing in order to develop their visualization of the subject on the drafting board. Frequent field trips should be made to observe modern methods of manufacturing, casting, forging, construction, and assembly at local industry. Emphasis will be placed on materials, methods of fabrication, glossary, scaling for drawing, and visualization of fabricated objects or assemblies. Prerequisite: Drafting 4.101 may be taken concurrently.

4.101 Drafting (4 Lab Hrs/Wk) Term Units 2

This is a fundamental course in drafting designed to give the student a basic understanding of drawing techniques. Emphasis will be placed on the 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, threads, and standard dimensioning practices will be covered. Prerequisite: High school algebra or approval of department head. Mathematics 4.202 may be taken concurrently.

4.103 Electrical Drafting (4 Lab Hrs/Wk) Term Units 2

This course covers the techniques required for the electrical and electronic fields. It includes charts, graphs, chassis layout, schematic and pictorial wiring diagrams, routing diagrams (power distribution, lighting, conduit and ducts, underground wiring and ducts), and location drawings. Standard Schematics such as motor starters, annunciators, AM receivers, and other typical industrial circuits will be covered. ASA and EEA approved symbols will be used. Prerequisites: Drafting 4.101 or equivalent.

4.105 Drafting (4 Lab Hrs/Wk) Term Units 2

This is an intermediate course designed to prepare students to enter mechanical, structural, civil, and architectural drafting. It includes isometric projection, perspective drawings. Emphasis is placed on the concept, technique of inking, and the development of working drawings as used in industry. Limitations of general shop equipment are discussed. Prerequisite: Drafting 4.101 or equivalent.

4.109 Mechanical Drafting (4 Lab Hrs/Wk) Term Units 2

An advanced course emphasizing mechanical design. It includes sketching, cam and gear layout, isometric drawings, welding drawings, tolerances and allowances, and tool jig drawings. Simplified drawing techniques will be covered and general shop procedures will be discussed. Emphasis will be placed on the industrial requirements of drawings. Prerequisite: Third term standing or approval of department head.

- 4.111 Structural Drafting (6 Lab Hrs/Wk) Term Units 2**
 An advanced course emphasizing civil and structural drafting procedures. It includes the function and design of; the general plan, stress diagrams, shop drawings, foundation or masonry plans, erection diagrams, falsework plans, and sheet metal layout. Also, bill of materials, rivet lists, drawing indexes, design considerations, and strength of joints will be covered. The student will become acquainted with structural shapes, and principles of bridge building, dam and earthwork constructions. Prerequisites: Drafting 4.105 and Applied Physics 6.370 or equivalent.
- 4.115 Advanced Drafting Problems (3 Class Hrs/Wk) Term Units 3**
 Introduction to practical descriptive geometry used by the draftsman. Theory of auxiliary views, true length, shape, angle, and point of intersection developed from point-line-plane through the use of revolution. Introduction to graphical solution of simple vector problems. Emphasis on application of principles to problems commonly encountered by draftsmen. Prerequisite: Drafting 4.105 and Mathematics 4.204.
- 4.119 Project Drafting (9 Lab Hrs/Wk) Term Units 3**
 This course emphasizes working conditions of the industrial drafting room. Students will be assigned projects that will include one or more drawings requiring all of the skills previously acquired. Instruction will include the methods for detail layout, reading specifications, common materials of fabrication, checking and back-checking drawings, and material take-offs. Discussion will cover the administration of the drafting room, issuing drawings, and revisions. Speed and accuracy will be considered of paramount importance. Prerequisite: Drafting 4.105 which may be taken concurrently.
- 4.121 Project Drafting (8 Lab Hrs/Wk) Term Units 3**
 A continuation of the emphasis on industrial working conditions. Students will be assigned projects (requiring use of all previously learned skills and principles) that will familiarize them with many of the specialized fields of drafting. Instruction will include the basic methods for layout and detailing assemblies and sub-assemblies, reading specifications, common materials of fabrication, checking and back-checking drawings, and materials take-offs. Drafting room standards of various local industries will be discussed. Speed and accuracy will be considered of paramount importance. Prerequisite: Project Drafting 4.119 or equivalent.
- 4.150 Welding (1 Class, 3 Lab Hrs/Wk) Term Units 2**
- 4.151 Welding (1 Class, 3 Lab Hrs/Wk) Term Units 2**
 Setup and operation of oxy-acetylene and electric arc welding equipment. Demonstrations and practice in welding, brazing, and soldering ferrous and non-ferrous metals and their alloys. Various types of welds are made and tested. Technical information is correlated with actual practice to provide the student with an understanding of the composition of the various metals and methods of fabrication used in construction, maintenance, and repair industries. This is one course; two consecutive terms.
- 4.202 Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This is a course in practical mathematics including the fundamentals of applied algebra and applied geometry, including symbols, equations, ratio and proportion, exponents, radicals, formulas, geometric lines and shapes, common geometric constructions, and introductory applied trigonometry. Prerequisite: Mathematics, general high school, or equivalent.
- 4.204 Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This course concentrates on problems encountered by workers in industrial occupations. It applies arithmetic, algebra, geometry, trigonometry, and their various phases to jobs encountered. Emphasis on actual problem solving aspects. Prerequisites: Mathematics 4.202 or equivalent.
- 4.300 Practical Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This is an introductory course in practical physics 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: Mathematics 4.202 should be taken concurrently.
- 4.302 Practical Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This is an introductory course in practical physics covering heat, light, and sound. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class. Prerequisite: Mathematics 4.202 or equivalent.
- 4.304 Practical Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This is an introductory course in practical physics covering magnetism and electricity. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class. Prerequisite: Mathematics 4.202 or equivalent.

- 4.900 Electronic Circuits (2 Class Hrs/Wk) Term Units 2**
 A study of the physical and electrical characteristics of vacuum tubes. Characteristic curves will be computed and plotted under different loads and operating conditions to help gain a better understanding of tube operation. Tubes will also be applied to typical operating conditions. Prerequisite: Second term standing or equivalent. Electrical Theory 4.922 and Electronic Circuits Lab 4.901 should be taken concurrently.
- 4.901 Electronic Circuits Laboratory (3 Lab Hrs/Wk) Term Unit 1**
 This is a practical application of the theory studied in Electronic Circuits. Prerequisites: Second term standing or equivalent. Electrical Theory 4.922 and Electronic Circuits 4.900 should be taken concurrently.
- 4.912 Audio Systems (2 Class Hrs/Wk) Term Units 2**
 This is a course covering various audio systems servicing data, hi-fi amplifiers and tuners, loudspeakers, phono pickups, record players and changers and the basics of tape recording. The second section of the course is devoted to intercommunication systems, which includes master station, remote stations and the cable networks used. The student computes cost factors in a bid on a typical project and works out the installation. Servicing techniques are taken up and stressed on all equipment. Prerequisites: Electronic Circuits 4.900, Electronic Circuits Lab 4.901, Radio Servicing 4.922, and Radio Servicing Lab 4.924, and Audio Systems Lab 4.913 should be taken concurrently.
- 4.913 Audio Systems Lab (3 Lab Hrs/Wk) Term Unit 1**
 This is the practical application of the theory studied in Audio Systems 4.912. Prerequisites: Electronic Circuits 4.900, Electronic Circuits Lab 4.901, Radio Servicing 4.922, Radio Servicing Lab 4.924, and Audio Systems should be taken concurrently.
- 4.922 Electrical Theory (6 Class, 4 Lab Hrs/Wk) Term Units 8**
 This course contains the same instruction material as Electrical Theory, DC 6.200 and Electrical Theory, AC 6.202.
- 4.923 Radio Servicing (6 Class Hrs/Wk) Term Units 6**
 This is a theory class to give students an understanding of tube types and construction, AC/DC power supplies, loudspeakers, audio output and amplifier stages, I-F and R-F amplifier, automatic volume controls, converters, mixers and oscillator stages, and radio antennas. Service procedures and problems are covered with an introduction to the field of transistors and other semiconductor devices. Prerequisites: Second term standing or equivalent. Mathematics 4.202, Electrical Theory 4.922, Electronic Circuits 4.900, and Electronic Circuits Lab 4.901.
- 4.924 Radio Servicing Laboratory (12 Lab Hrs/Wk) Term Units 4**
 This is a practical application of the theory studied in Radio Servicing 4.923. Prerequisite: Second term standing or equivalent. Radio Servicing 4.923 should be taken concurrently.
- 4.925 Television Servicing (4 Class Hrs/Wk) Term Units 4**
 This is a course designed for the serviceman with emphasis placed on actual servicing of television receivers. Substitution of parts is covered. The following parts of television servicing are covered. Field servicing which includes the checking of tubes, the location and use of the tube location diagrams, the functional sections and adjusting of the controls; low voltage, power supplies, transformer type and the selenium type; vertical sweep circuits, horizontal output, damper and high voltages, horizontal oscillator, AFC stage and the sync-separator section, video-amplifiers, picture-tube circuits, the picture tube construction and replacement, detector stage, I-F section, AGC systems, tuners, sound section and antenna types, installation and service notes. Prerequisites: Third term standing or equivalent. Television Servicing 4.925 and 4.926 should be taken concurrently.
- 4.926 Television Service Laboratory (12 Lab Hrs/Wk) Term Units 4**
 This is a practical application of the theory studied in Television Service 4.925.
- 4.928 Adv. Radio & Television Servicing (2 Class, 9 Lab Hrs/Wk) Term Units 5**
 This course consists of advanced servicing procedures and techniques. Includes class and laboratory work on more complex equipment and "troubles" with special emphasis on time saving methods.
- 6.101 Plane Surveying (1 Class, 4 Lab Hrs/Wk) Term Units 3**
 A beginning course in surveying techniques designed to give the student an understanding of the fundamentals of chaining and leveling, care and adjustment of surveying instruments and office procedures. Provision is made by appropriate field work for practical application of the techniques learned. Prerequisite: Mathematics 4.202 or equivalent.

- 6.103 Plane Surveying (1. Class, 4 Lab Hrs/Wk) Term Units 3**
 A continuation of Plane Surveying 6.101 designed to familiarize students completely with the engineer's transit. Uses of the transit are considered and practical problems put the theory into practice. Prerequisites: Technical Mathematics 6.261 and Plane Surveying 6.101 or equivalent. Technical Mathematics 6.262 may be taken concurrently.
- 6.107 Strength of Materials (2 Class, 3 Lab Hrs/Wk) Term Units 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. The laboratory phase of this course covers: Testing of principal construction materials; the major testing machines and their calibration. Applied Mechanics 6.266 and Technical Mathematics 6.109 should be taken concurrently.
- 6.108 Materials of Construction (2 Class Hrs/Wk) Term Units 2**
 Comparisons of various materials, their source, method of manufacture, physical and chemical properties; grading under a variety of conditions; soil and terrain as encountered in construction work.
- 6.109 Applied Mechanics (2 Class, 3 Lab Hrs/Wk) Term Units 3**
 The course consists of a study of energy at rest (equilibrium). This includes resolution of forces, equilibrants of forces in one plane, simple machines, and equilibrants of nonconcurrent forces. Time is provided for demonstrations and experiments to help clarify the principles and procedures covered. Prerequisite: Technical Mathematics 6.262 and Applied Physics 6.371 or equivalent.
- 6.110 Construction Estimating (2 Class Hrs/Wk) Term Units 2**
 The student is helped 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 requiring the student to make estimates of material and labor quantities and costs for representative type of construction. Prerequisite: Fifth term standing or permission of instructor.
- 6.111 Applied Mechanics II (2 Class, 3 Lab Hrs/Wk) Term Units 3**
 A study of energy in motion. The course covers the principles of friction, centroids, inertial characteristics, motion and velocity, force and acceleration, curvilinear motion and rotation, and advanced concepts of work, power and energy. Time is provided for demonstrations and experiments to help clarify the principles and procedures covered. Prerequisite: Applied Mechanics 6.109 or the equivalent.
- 6.112 Hydraulics I (3 Class Hrs/Wk) Term Units 3**
 The first course in the study of hydraulics covers the fundamental properties of fluids, principles of hydrostatic pressure—including Pascal's Law, the hydro-static paradox, the Archimede's principle—measurement by manometer, 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. Prerequisites: Applied Physics 6.371 and Technical Mathematics 6.266 or equivalent.
- 6.114 Hydraulics II (3 Class Hrs/Wk) Term Units 3**
 The second course in hydraulics consists of the fundamentals of fluid flow, Bernoulli's theorem, flow profiles, stream restrictions (such as weirs, flumes, metering runs), distribution of energy in the stream, flow through pipe, Reynold's Law, Newton's Laws of hydrodynamics, vector representation, hydraulic similitude, and dimensional analysis. Time is provided for demonstration and experiments to help clarify the principles and procedures covered. Prerequisite: Hydraulics 6.112 or equivalent.
- 6.115 Electrical Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 An applied course in mathematics for electronic engineering technicians. Includes an introduction to calculus, covers graphical methods, differentiation, and integrates with direct application to electronic and electrical circuits. Prerequisites: Technical Mathematics 6.266 or equivalent.
- 6.118 Contracts and Specifications (3 Class Hrs/Wk) Term Units 3**
 This is 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 instructor.
- 6.120 Foundations of Structures (3 Class Hrs/Wk) Term Units 3**
 A study of various materials, devices, and designs used in structural foundations such as footings, cofferdams, caissons, abutments, piers, and underpinnings. Prerequisites: Applied Mechanics 6.111 and Technical Mathematics 6.266 or equivalent.

- 6.122 Construction Codes (2 Class Hrs/Wk) Term Units 2**
A study of the required practices as stated in local, state and federal construction codes.
- 6.123 Concrete Construction & Design (2 Class, 5 Lab Hrs/Wk) Term Units 3**
Theory of designing; retaining walls, combined irregular and pile footings; combined direct stress and bending; short span concrete bridges; ultimate strength design; structural elements of combined steels and concrete. Prerequisite: Applied Mechanics 6.109 and Technical Mathematics 6.266 or equivalent.
- 6.124 Soil Mechanics (2 Class, 3 Lab Hrs/Wk) Term Units 3**
Physical and mechanical properties of soil; specific gravity, grain size distribution, plasticity, shrinkage, permeability, compressibility, consolidation, and shear characteristics. Analysis with respect to stability of slopes, earth pressures, stress distribution, and settlement carrying capacity. Prerequisite: Second year standing or approval of instructor.
- 6.125 Timber and Steel Constr. (3 Class, 3 Lab Hrs/Wk) Term Units 4**
Elementary design principles of steel and wooden structures. The course includes fasteners and connectors, and physical and chemical characteristics of materials. Prerequisites: Structural Analysis and Design 6.130 or equivalent.
- 6.126 Technical Report Writing (3 Class Hrs/Wk) Term Units 3**
This is a course which supplies knowledge of the principles of composition and basic forms of writing reports. The subjects covered are: why reports are written, types of reports, make-up of reports, effectiveness of writing styles, gathering of facts for a report, planning a report, method of writing a report, layout and typing of a report, and visual aids in a report. Prerequisite: Communication Skills 1.100 or equivalent.
- 6.127 Practical Descriptive Geometry (4 Lab Hrs/Wk) Term Units 2**
This course gives a brief view of advanced drafting problems and takes the student further into the field of descriptive geometry principles. In the production of detailed drawing from assembly drawing the principles of Descriptive Geometry are necessary to the skilled draftsman. Prerequisites: Third term standing or approval of department head.
- 6.128 Strength of Materials (2 Class, 3 Lab Hrs/Wk) Term Units 3**
This is a continuation of Strength of Materials I. In addition to advanced theory in the area of materials characteristics, field trips will be taken to enable the student to observe use of different materials in actual installations. A continuation of material testing is included in the laboratory. Prerequisite: Strength of Materials 6.107 or equivalent.
- 6.130 Struct. Analysis & Design (1 Class, 3 Lab Hrs/Wk) Term Units 2**
The course deals with the determination of stresses induced by loads on structures of wood, steel, concrete, selections of appropriate structural members and suitable connections; loading conditions causing compression, tension, shear, torsion, and bending; practical design procedures, relating to various structural members, beams, girders, columns and footings. Prerequisites: Applied Mechanics 6.109 and Technical Mathematics 6.266 or equivalent.
- 6.131 Mapping and Computing (4 Lab Hrs/Wk) Term Units 2**
Advanced map plotting, earthwork computation, field surveying from maps; legal description; subdivision planning and simulated problems of construction are used. Prerequisites: Surveying Computations 6.500 and Technical Mathematics 6.266 or equivalent.
- 6.133 Mapping and Computing (6 Lab Hrs/Wk) Term Units 2**
Advanced earthwork computation; office procedure; government surveys; surveying laws; professional practices. Simulated problems are used. Prerequisite: Mapping and Computing 6.131 or equivalent.
- 6.135 Engineering Problems (2 Lab Hrs/Wk) Term Unit 1**
This course of study in engineering problems is one in which the student is instructed in the development of accurate, effective, and efficient work and study habits. The course is intended to train the student to organize his analysis and record them in clear, concise form so that they can be interpreted. Prerequisites: One year of high school algebra or equivalent.
- 6.136 Engineering Problems (2 Lab Hrs/Wk) Term Unit 1**
This course aims to develop the skill of gathering together and sorting research results and problems solving records into logical summation. Mathematical and graphical analysis of data will be emphasized in the presentation of information in the report. Prerequisite: Engineering Problems 6.135.

- 6.200 Electrical Theory (DC) (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 Presents 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, series-parallel circuit analysis, complex unidirectional-current circuits, the phenomena of magnetism and electro-magnetism, inductance and its characteristics of capacitance, and electrical measurement instruments. Prerequisites: High school algebra or equivalent.
- 6.201 Electrical Diagrams and Drawings (3 Lab Hrs/Wk) Term Unit 1**
 This course is designed to give students the ability to interpret diagrams and drawings. Students are introduced to various electronic-electrical components and their symbols. Students should acquire the ability to sketch various types of diagrams and wiring systems and component parts used in electronic-electrical equipment and the ability to read and interpret the various symbols and parts and to recognize their values. The use of various tables, schematics, and other information supplied by manufacturers are covered.
- 6.202 Electrical Theory (AC) (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 A continuation of electrical theory on the basis of alternating currents with an emphasis on contemporary techniques as a supplement to basic concepts. Covers the analysis of the sine wave, series circuits with a sine wave input, series resonance, parallel circuits with a sine wave input, parallel resonance, the non-resonant and the resonant transformer and attenuators and pads. Prerequisites: Second term standing or approval of the department head.
- 6.204 Electrical Circuits (3 Class Hrs/Wk) Term Units 3**
 A continuation of electrical theory with an emphasis on the analysis of the characteristics of complex waveform circuits. Covers passive filter networks, bi-directional waveforms, complex waveform analysis of series R-C circuits, waveform analysis of series R-L circuits, and waveform analysis of combined networks. Prerequisite: Third term standing or approval of department head.
- 6.205 Electrical Circuits Lab (6 Lab Hrs/Wk) Term Units 2**
 Practical application of the theory studied in Electrical Circuits. Involves the construction and testing of passive filter networks including the constant k, the series m-derived, and the shunt m-derived types. Response of simple circuits involving diodes, resistance, inductance, and capacitance to square-wave, triangular-wave, saw-tooth-wave, and rectangular-wave pulses is analyzed. Various R-L-C combinations are designed and tested for low and high-frequency response, rise and fall times are measured, and integrator and differentiator circuits are constructed and analyzed. Prerequisites: Third term standing or approval of department head.
- 6.210 Vacuum Tube & Transistor Analysis (3 Class Hrs/Wk) Term Units 3**
 An introductory course to the analysis of the electrical characteristics of vacuum tubes and transistors. Includes a review of electron physics with emphasis on electron devices including hot and cold-cathode vacuum and gas diodes and semiconductor diodes; three-element vacuum tubes and transistors; multi-grid tubes including tetrodes, pentodes, and beam-power tubes; special transistors and diodes. Includes a review of auxiliary electronic components including potentiometers, transformers, and relays, and a review of several electronic circuits involving series and parallel resonance, bandwidth, and coupled-circuit theory. Also covers elementary filter design, harmonic analysis, network theorems, and four-terminal networks. Prerequisites: Third term standing or approval of department head.
- 6.211 Vacuum Tube & Transistor Analysis Lab. (3 Lab Hrs/Wk) Term Unit 1**
 Practical application of the theory studied in Vacuum Tubes and Transistor Analysis. Involves the disassembling of diodes, triodes, tetrodes, pentodes, and multigrad tubes, and transistors to observe their construction. Also includes the plotting of the electrical characteristic curves of vacuum tubes and transistors. The plotted curves are used to determine the transconductance, the amplification factor, and the plate-resistance of vacuum tubes and the current-gain of junction transistors in various circuit configurations. The operation of the Thyatron is tested with A-C and D-C plate voltages, using a phase-shifter for grid-control. Includes the testing of Zener and double-based diodes and special transistors such as the PNP. Transformer-coupled theory is verified by testing out under-coupled, optimum-coupled, and over-coupled coils. Gain of amplifiers is computed in decibels and auxiliary audio elements such as microphones, speakers, and tape-recorders are reviewed. Prerequisites: Third term standing or approval of department head.
- 6.212 Oscillator Circuits and Design (2 Class Hrs/Wk) Term Units 2**
 A continuation of vacuum tube and transistor analysis. Involves the study of single-phase rectifier circuits and filters with calculation of the ripple-factor. Introduces the fundamental feedback equation and covers positive and negative feedback. Various types of feedback oscillators including the Hartley and Colpits are analyzed. Covers negative-resistance oscillators, miscellaneous sine-wave oscillators, non-sinusoidal oscillators including various multivibrator circuits. The principles of AM and FM modulation and detection are studied and the theory and application of the cathode-ray oscilloscope is included. Prerequisites: Fourth term standing or approval of department head.

6.213 Oscillator Circuits and Design Lab. (6 Lab Hrs/Wk) Term Units 2

Practical application of the theory studied in Oscillator Circuits and Design. Involves the testing of half-wave and full-wave single-phase rectifier circuits and measurement of the D-C output and ripple-voltage. Includes the construction and testing of Hartley, Colpitts, Armstrong, electron-coupled, crystal, tri-tet, phase-shift, Wein-bridge, and other types of feedback and negative-resistance oscillators. Grid, cathode, screen and plate AM modulation are tested and checked for percentage by means of an oscilloscope. The reactance-tube modulator is constructed and tested for FM modulation. The cathode-ray oscilloscope circuits are analyzed. Frequency-comparisons are made with Lissajous' patterns and Z-axis modulation. Applications and proper techniques for use of the oscilloscope are also included. Prerequisites: Fourth term standing or approval of department head.

6.214 Amplifier Circuits and Design (3 Class Hrs/Wk) Term Units 3

A continuation of oscillator circuits and design. Covers the application of vacuum tubes and transistors in amplifier circuits. Analyzes the vacuum tube amplifier into its basic and equivalent circuit. Includes load-lines, distortion, and pentode and beam-power tube consideration. Analyzes transistor amplifiers in various circuit configurations and covers biasing methods. Also includes transformer analysis, transformer-coupled amplifiers, and R-C coupled amplifiers. Special amplifiers using vacuum tubes and transistors are studied. Includes push-pull circuit analysis and phase inversion; Class-C amplifier analysis, and high-frequency amplifiers. Prerequisite: Fifth term standing or approval of department head.

6.215 Amplifier Circuits and Design Lab. (6 Lab Hrs/Wk) Term Units 2

The application of theory studied in Amplifier Circuits and Design. Involves the design, construction, and testing of various types of vacuum tube and transistor amplifiers employing direct, transformer, and R-C coupling. Several push-pull circuits utilizing different types of phase inverters are built and tested and the principle of complementary symmetry is demonstrated in the operation of transistors in push-pull. Class-C power amplifiers are constructed and adjusted for proper operation and different types of high-frequency amplifiers are also built and tested. Prerequisites: Fifth term standing or approval of department head.

6.216 Advanced Electronic Circuits (2 Class, 3 Lab Hrs/Wk) Term Units 3

A course designed to simulate problems in industry. Covers six electronic areas including computers, communications, industrial controls, electronics, microwaves, and radar. Class meetings involve overview of each area and study of current problems and opportunities. Lab involves construction, testing, and reporting performances of assigned circuits. Prerequisites: Sixth term standing or approval of department head.

6.218 Industrial Electronics (2 Class, 3 Lab Hrs/Wk) Term Units 3

An introductory class and laboratory course covering the principles and applications of electronics in industry. Involves a review of the principles of D-C motors and generators, and covers D-C motor controls with emphasis on electronic controls. Also covers relays and time-delay circuits; industrial photo-electric control and typical applications; electronic power-control with saturable-core reactors and the amplydne; and the electronic control of welding. Prerequisites: Fifth term standing or approval of department head.

6.228 Industrial Television (2 Class, 3 Lab Hrs/Wk) Term Units 3

A theory and lab course designed to cover television systems, scanning and synchronization, composite video signal, frequency-modulation, television receivers and monitors, picture tubes, power supplies, video amplification, practical design of video amplifiers, brightness-control and d-c reinsertion video deflection, automatic gain-control and sync-separation, and deflection oscillator and amplifier circuits. Prerequisites: Fifth term standing or approval of department head.

6.234 Wave Generator and Shaping (2 Class, 3 Lab Hrs/Wk) Term Units 3

A class and laboratory course designed as an 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 the theory and operation of limiter and clipper circuits, differentiating and integrating circuits, and D-C restoration. Various multivibrator circuits, synchronization circuits, and applications of multivibrators are studied. Also covers blocking oscillators of several types, their principles of operation, and application. Prerequisites: Fourth term standing or approval of department head.

6.235 Industrial Television (1 Class, 2 Lab Hrs/Wk) Term Unit 1

A theory and laboratory course covering closed-circuit television systems, picture transmission, scanning process and the composite signal, camera tubes and circuits, camera video amplifier systems, camera sync and deflection generators, and several types of commercial industrial cameras with emphasis on circuit analysis, set-up procedure, operation and adjustment. Prerequisites: Sixth term standing or approval of department head.

- 6.236 Servo Systems (1 Class, 3 Lab Hrs/Wk) Term Units 2**
 Presents the principles of servo and data transmission systems with emphasis on fundamentals. Covers control systems and servo-mechanisms, elementary forms of control systems, servo systems, synchros, servo element, electronic and magnetic amplifier, direct current servomotors, performance improvers, methods for servos and measurement, and examples of servos and servo systems. Prerequisites: Fourth term standing or approval of department head.
- 6.240 Electronic Data Processing (3 Class Hrs/Wk) Term Units 3**
 An introduction to the principles of electronic digital computers. Covers the application and programming of computers in business, industrial, and scientific organizations. Reviews the decimal and binary numbering systems as they relate to computers; analyzes computer circuitry with emphasis on transistor and diode switching circuits; presents the fundamentals of logical design with an introduction to Boolean Algebra and the use of block diagrams; analyzes the major divisions of a digital computer in terms of the arithmetic element, the memory element, input and output devices, and the control element. Prerequisites: Fifth term standing or approval of department head.
- 6.242 Microwaves (2 Class, 3 Lab Hrs/Wk) Term Units 3**
 A theory and laboratory course designed as an introduction to microwaves. Begins with the study of ultra-high frequencies to develop a good foundation for the development of waveguides and microwave circuitry. Covers UHF transmission lines, the application of quarter-wave lines, matching stubs, and standing-wave measurements. Transmission of microwave energy through waveguides is analyzed and the TE and TM modes of transmission are studied. Various types of waveguide plumbing including choke joints, directional couplers, flap-attenuators, horns, guide partitions, and flexible waveguides are studied. Includes also cavity resonators, high-frequency oscillators, magnetron and klystron oscillators, the resonator, traveling wave tubes, and other high-frequency tubes and devices. Various types of UHF and microwave antennas and receiver circuitry are included. Microwave measurements involve the use of thermocouple voltmeters, bolometers, cavity wavemeters, slotted lines, and directional couplers. Prerequisites: Sixth term standing or approval of department head.
- 6.244 Automation Systems (3 Class Hrs/Wk) Term Units 3**
 This course is devoted to the study of the techniques of automation. Introduces the basic concepts of automation and covers automatic controls, pneumatic control devices, hydraulic control devices, and electronic and electric control devices. The application of automation is studied from examples in the areas of materials handling and assembling, production of metals, metal casting processes, mechanical working of metals, pressworking of metals, metal cutting operations, heat treating of metals, metal joining operations, and inspection and quality control. Prerequisite: Sixth term standing or approval of department head.
- 6.246 Industrial Electronics (3 Class Hrs/Wk) Term Units 3**
 A continuation of industrial electronics with emphasis on A-C principles and applications in industry. Covers alternating current characteristics, generation of A-C, vector diagram analysis, properties of electric circuits, and graphical representation of resistance, reactance and impedance. Single-phase circuits are analyzed in terms of power factor, and three-phase wye and delta combinations are studied. Also includes transformers and regulators, alternating-current generators, polyphase induction motors, synchronous motors and self-synchronous devices, single-phase motors, circuit-protective and switching equipment, electrical instruments and electrical measurement. Prerequisites: Sixth term standing or approval of department head.
- 6.247 Industrial Electronics Lab (3 Lab Hrs/Wk) Term Unit 1**
 The practical application of the theory studied in Industrial Electronics 6.246. Alternating-current theory and principles are verified by the construction and testing of circuits involving series resistance, inductance, and capacitance. Phase-angle, reactance, and impedance are calculated and checked, and vector diagrams are drawn to show current and voltage relationships. Three-phase transformers are wired in various delta-wye combinations and output voltages are calculated and verified. Small transformers are designed to deliver specified outputs. Alternating-current generators, poly-phase induction motors, synchronous motors, selsyn transmitters and receivers, and single-phase motors of all types are disassembled and their construction studied. Various circuit-protective and switching equipment are connected from a test panel to motors and tested. All types of electrical measuring equipment are tested by application and a D-C, A-C vacuum tube voltmeter is constructed and tested. Prerequisites: Sixth term standing or approval of department head.
- 6.261 Technical Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
 This is an applied course in mathematics on the technician level, covering the slide rule, tables and interpolation, additional applications in geometry, a review of fundamental algebraic operations, system of linear equations, functions and graphs, advanced applications of exponents and radicals, and quadratic equations in one unknown. Prerequisites: High school algebra or equivalent.

- 6.262 Technical Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
This is an applied course in mathematics on the technician level, including logarithms, right and oblique triangle problem solving, trigonometric applications and review, vectors, trigonometric formulas, identities and equations and graphs of trigonometric functions. Prerequisite: Technical Mathematics 6.261 or equivalent.
- 6.266 Technical Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
This is an applied course in mathematics on the technician level, covering simultaneous quadratic equations, ratio and proportion, binomial theorem, arithmetic and geometric progressions, mathematics of investment, exponential functions, complex notation and vector algebra. Prerequisite: Technical Mathematics 6.262 or equivalent.
- 6.270 Technical Mathematics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
This is an introduction to differential and integral calculus. It is an applied course covering graphical methods, differentiation, and integration. Prerequisite: Technical Mathematics 6.266.
- 6.366 Applied Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Magnetism and electricity, including basic electric currents, sources, electro-magnetism, alternating current, generators, and motors. Lab time is provided for demonstrations and experiments to clarify principles and procedures covered in class. Prerequisite: Technical Mathematics 6.262 or equivalent.
- 6.370 Applied Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Physical laws and theories and mechanical principles, including mechanics of measurement, properties and structure of matter, solids, liquids, and gases, simple machines, work, power, and energy are studied. Laboratory time is provided for demonstrations and experiments to clarify principles and procedures covered in class. Prerequisites: Technical Mathematics 6.261 or equivalent. May be taken concurrently.
- 6.371 Applied Physics (3 Class, 2 Lab Hrs/Wk) Term Units 4**
Covers principles of heat, light, and sound, including the study of temperature and the effects of heat, heat and change of state, heat transfer, heat engines, refrigeration, air conditioning, sound, application of sound, and nature of light. Laboratory time is provided for demonstrations and experiments to clarify principles and procedures covered in class. Prerequisite: Applied Physics 6.370 or equivalent.
- 6.500 Surveying Computations (1 Class, 4 Lab Hrs/Wk) Term Units 3**
A review of trigonometry and logarithms with application to surveying. The course includes: Computing machines, planimeters in application to irregular areas, calculations relating to traverses, subdivision of land and stadia. Survey plotting is also covered. Prerequisites: Plane Surveying 6.101, 6.103 and Technical Mathematics 6.262.

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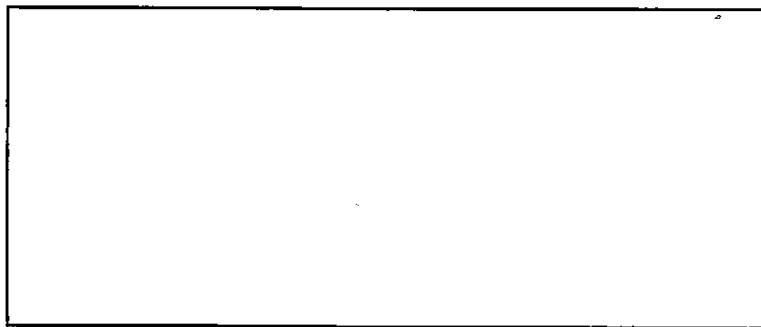
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South Western Oregon College

2750 COLORADO STREET

NORTH BEND, OREGON

TO-

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