

Salem Technical Vocational School



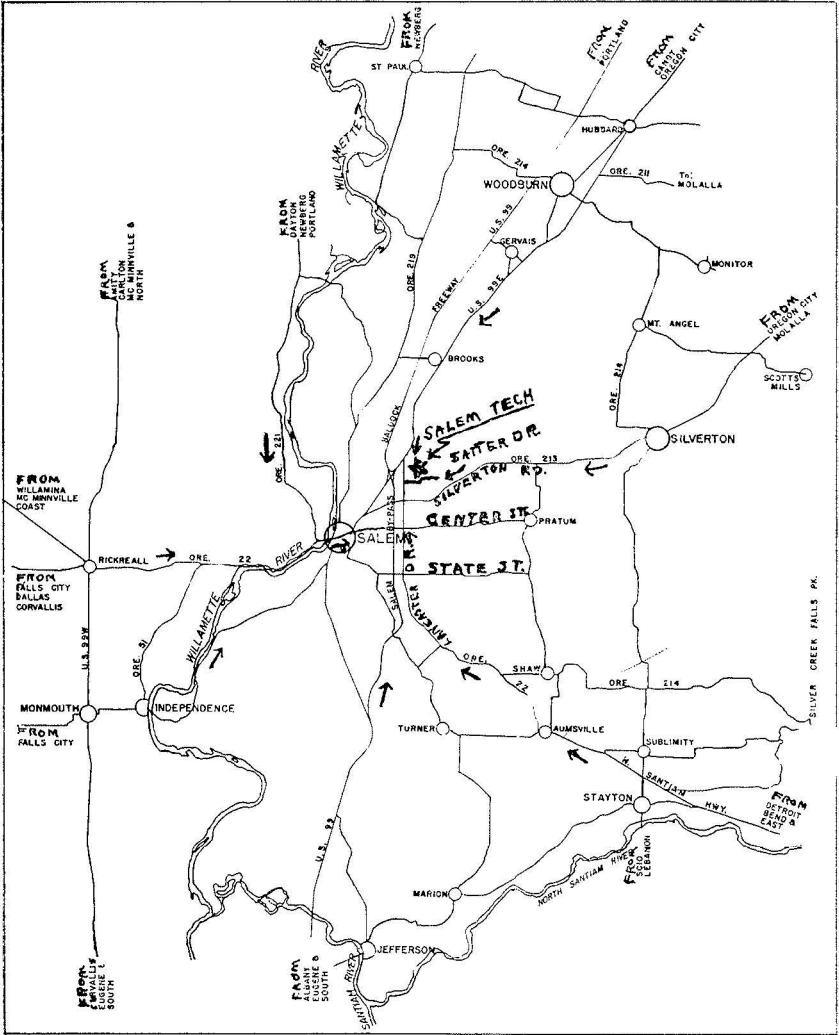
OREGON STATE CAPITOL

COURTESY STATE HIGHWAY DEPT.

CATALOG 1963-1964

4389 Satter Dr., N.E.

Salem, Oregon



SALEM
TECHNICAL VOCATIONAL
SCHOOL

4389 Satter Dr., N.E.

Salem, Oregon



CATALOG 1963 - 1964

A Public Area Education Center Serving
MARION, LINN, and POLK COUNTIES

School District 24 J

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Technical Vocational Education

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Academic Calendar

FALL TERM - 1963-64 ✓

Sept.	18-20	(Wed.-Friday)	New Student Orientation
Sept.	18-20	(Wed.-Friday)	.....	Registration
Sept.	23	(Mon.)	.....	Classes in regular session
Sept.	24	(Tues.)	.....	Last day to register without penalty
Oct.	2	(Wed.)	.....	Last day to register
Nov.	4-5	(Thurs.-Fri.)	.....	Mid term tests
Nov.	8	(Wed.)	.....	Last day to drop courses. See grading system
Nov.	21-24	(Thurs.Sun)	.....	Thanksgiving Vacation
Dec.	9-11	(Mon.-Wed.)	.....	Pre-Registration - Winter Term
Dec.	17	(Tues.)	.....	Last day of classes
Dec.	18-19	(Wed.-Thurs.)	.....	Final Examinations
Dec.	20	(Fri.)	.....	Last day of Fall Term

WINTER TERM - 1963-64 ✓

Jan.	2	(Thurs.)	.....	Registration
Jan.	2	(Thurs.)	.....	Classes in regular session
Jan.	10	(Fri.)	.....	Last day to register without penalty
Jan.	17	(Fri.)	.....	Last day to register
Feb.	4-5	(Tues.-Wed.)	.....	Mid Term tests
Feb.	7	(Fri.)	.....	Last day to drop courses. See grading system
Mar.	9-10	(Mon.-Tues.)	.....	Pre-Registration for Spring Term
Mar.	16-17	(Mon.-Tues.)	.....	Final Examination
Mar.	17	(Tues.)	.....	Winter Term ends
Mar.	18-22	(Wed.-Sun.)	.....	Spring Vacation

SPRING TERM - 1963-64 ✓

Mar.	23	(Mon.)	.....	Registration
Mar.	23	(Mon.)	.....	Classes in regular session
Mar.	31	(Tues.)	.....	Last day to register without penalty
Apr.	10	(Fri.)	.....	Last day to register
Apr.	27-28	(Mon.-Tues.)	.....	Mid Term tests
Apr.	30	(Thurs.)	.....	Last day to drop courses. See grading system
June	3-4	(Wed.-Thurs.)	.....	Final Examination
June	5	(Fri.)	.....	Spring Term ends
June	5	(Fri.)	.....	Graduation Exercises

FALL TERM - 1964-65 ✓

Sept.	17-22	(Wed.-Fri.)	.....	New Student Orientation
Sept.	17-22	(Wed.-Fri.)	.....	Registration
Sept.	23	(Wed.)	.....	Classes in regular session
Sept.	24	(Thurs.)	.....	Last day to register without penalty
Oct.	2	(Fri.)	.....	Last day to register
Nov.	2-3	(Mon.-Tues.)	.....	Mid Term tests
Nov.	6	(Fri.)	.....	Last day to drop courses. See grading system
Nov.	26-29	(Thurs.-Sun.)	.....	Thanksgiving Vacation
Dec.	9-11	(Wed.-Fri.)	.....	Pre-Registration - Winter Term
Dec.	16	(Tues.)	.....	Last day of classes
Dec.	17-18	(Thurs.-Fri.)	.....	Final Examinations
Dec.	21	(Mon.)	.....	Last day of Fall Term

Faculty

BERSTECHER, Erna, R. N. (Miss) (1960)

Diploma, Evangelical Deaconess Hospital, Chicago. Experience in pediatrics, Mental health and Public Health. Marion County Public Health Instructor.

BISHOP, Billy O. (1962)

Specialized training in Data Processing: Endicott, New York; Los Angeles, California; Portland, Oregon; Salem, Oregon. Experience: Oregon Farm Bureau Insurance Company, Public Utilities Commission, Department of Motor Vehicles, and Department of Finance and Administration.

BLANK, Franklin W., Jr. (1961)

B.A. Business Administration, Willamette University 1953. Nine years experience Business and Personnel Management.

BOONE, J. H. (1958)

Santa Monica City College, UCLA, Oregon State University. Three years industrial experience in drafting and two years in instrumentation engineering. Member Pi Mu Epsilon, National Mathematics Honorary.

BRADSHAW, James C. (1961)

B.A. Economics, Willamette University, 1953. Seven years experience as auditor, State Tax Commission; two years experience as Management Analyst, State Board of Control.

CHADWICK, Patricia (1960)

Diploma, Providence Hospital School of Nursing, Portland, Oregon, 1956. Two years nursing experience, and four years hospital teaching.

CIRCLE, Melvin W. (1957)

Sacramento Junior College, Capitol Radio Engineering Institute, Oregon State University. 10 years experience in radio-TV service, 8 years experience in Electronics and six years experience as instructor in Electronics.

LARK, Robert R. (1961)

B.S. Business Administration, Oregon State University. Experience with Public Utility Commissioner of Oregon in Transportation and Utility Auditing, Cost Accounting, Finance and Economic Research.

COLE, Harry T. (1963)

Oregon State University, B.S. (1959) (Ed. M. 1961 O.S.U.) Twelve years industrial experience, mechanical and manufacturing.

CROSSLAND, Ronald (1959)

B.A. Economics and Business Administration, Willamette University, 1937. Twenty-five years experience in business as Division Office Manager, Portland General Electric.

DAVEY, Stanley (1963)

Oregon State University; Lower Columbia Jr. College, Seven years experience as Civil Engineer Technician. Three years Chief Inspector for an Engineering Consulting firm. Experience as Resident Engineer on various construction projects.

DILL, Cecil L. (1962)

Oregon State University; Oregon College of Education. Firemen Training Supervisor for State of Oregon six years. Ten years of experience in Industry.

KREIG, Helen, R. N. (Mrs.) (1959)

B. S. Education and Science Major, Oregon State University. R.N. at Stanford University School of Nursing. Experience as office nurse, general and private duty, industrial nursing, and instructor of nursing. Oregon State TB Hospital; TB In Service Instructor.

LISTELLA, Guido (1960)

B. A. and M. A. University of Akron, Akron, Ohio. Psychology, 1954. Seven years experience as Staff psychologist.

NICHOLS, Victor (1962)

University of Washington. Seven years experience in machinist field, thirteen years boat building foreman, purchasing agent, and engineering. Three years instructor.

PEER, Donald F. (1962)

B.A. Political Science, Public Administration, University of Oregon, 1958. Four years industrial experience; two years Personnel Analyst, and one year Assistant Classification Supervisor with Oregon State Civil Service Commission.

POMEROY, Vivian, R.N. (Mrs.) (1950)

Diploma, Charity Hospital School of Nursing, New Orleans, Louisiana. Experience as Associate Instructor Nursing Arts, Superintendent of Nurses, and Instructor Supervisor. Salem General Hospital In Service Instructor.

REYNOLDSON, Harold (1961)

B.A. Linfield College, 1951 Education, Mathematics, and Science. Ten years experience with State Highway Department.

RICE, Leonard (1960)

B. S. Industrial Art Education, Oregon State University, 1959. Four years industrial experience, three years as Senior Draftsman.

SHATTUCK, F. Gordon (1959)

B.S. Mechanical Engineering, Oregon State University, 1933. Twenty-three years in State Service, with Department of Employment, Public Utility Commission.

SHEPHERD, Robert M. (1959)

B. A. Business Administration, major in labor relations, 1946, University of Washington; one year employee relations supervisor, ten years classification Supervisor in State Civil Service.

SIMPSON, James A. (1962)

B. S. in Civil Engineering, University of New Mexico, 1950; Registered Professional Engineer in New Mexico, 1954; Oregon 1961. Thirteen years in consulting engineering, including seven years in private practice of engineering.

SLONECKER, William (1963)

University of Washington, AA degree. Ten years experience as electronic technician working on microwaves and telemetering installations.

TEBEAU, William H. (1957)

B. E. Chemical Engineering, Oregon State University, 1948. Registered Professional Engineer, 1956. Twelve years experience highway construction and design.

TRENT, Richard W. (1958)

Oregon State University. Ten years industrial experience in machine and metal fields.

WEBER, Paul R. (1963)

El Camino College, UCLA. Large scale computer experience, North American Aviation. Computer operation supervision, EDPM Programming, Oregon Public Welfare Commission. Data Processing Systems and Programming, Oregon Finance and Administration.

WILLBRECHT, Lloyd C. (1963)

North Dakota State School of Science (A.A.) Purdue University; Mississippi Southern University; selected Air Force schools (U. S. Air Force, retired)

WILMETH, Paul F. (1952)

B. E. Oregon State University, 1957. M. E. Oregon State University, 1960. Eight years industrial experience, four years teaching, twelve years in Technical Vocational Education.

ZARKOWSKI, Frank (1961)

B.S. Oregon State University, 1958; M.E. Oregon State University, 1960. Four years Flight Engineering USAF. Five years Instructor.

Advisory Committees of Salem Technical School

CIVIL & STRUCTURAL, HIGHWAY & DRAFTING TECHNOLOGY

Anderson, John
Baker, George (City Engineer's Office)
Dockham, Dave (City)
Morrow, Robert (Contractor)
Richardson, Don (Architect)

DATA PROCESSING TECHNOLOGY

Giroux, Joe (State Farm)
LaDuke, Tom (Western Paper)
Peer, Donald (Civil Service)
Rice, Roy (U. S. National Bank)
Wilson, Edward (Allstate)

DENTAL ASSISTANTS

Bickler, Dr. Gordon
Foster, Sally
Lindsey, Dr. Robert
O'Brien, Dr. John
Siddoway, Dr. Robert
Wipf, Dr. Albert

ELECTRONICS ENGINEERING TECHNOLOGY

Berg, Norman (Consumers Power-Corvallis)
Christensen, Robert (IBM)
Fields, Gene (Electric Corp.)
VanMeter, Joe (Pac. N. W. Bell)

MECHANICAL & MACHINE TECHNOLOGY

Butler, Roger (Ore. Met.)
Cummings, Truman (Job Shop)
Day, L. B. (Cannery Workers Union)
Gerlinger, Carl (Production Maint.)
Henken, George (Blue Lake)
Walker, Bill (WaChang)

PRACTICAL NURSING

Branson, A. C.
Brooks, Dean (Dr.)
Doucette, Betty, R.N. (Mrs.)
Gaver, Kenneth (Dr.)
Jones, Jacqueline, R. N. (Miss)
LeFor, Faye, R. N. (Mrs.)
McIntosh, Elizabeth, R. N. (Miss)
Seamster, Esther, L. P. N. (Mrs.)
Wedel, Irwin
Yearl, Bernice, R. N. (Mrs.)

General Information

HISTORY

In 1955 the Salem Technical Vocational School was established as a post high school institution to meet the increasing technical and vocational needs of Marion County and parts of Linn and Polk Counties. The school's first curriculum, February 1955, was in Machine Shop Practice. Ten full time students were enrolled. In June of 1957 the program of Practical Nursing for Licensure was opened. The Electronics Engineering Technician Curriculum was started in October of 1957 with the Civil Structural Engineering Technician program being opened in November of the same year. In September, 1958, General and Technical Drafting programs were added. March of 1959 saw the first class of Highway Engineering Technician students enrolled. The fall of 1961 a Business Data Processing program was established and the following fall of 1962 saw a program for Mechanical Technicians instituted. A Dental Assistant and Forestry Technology program were begun the fall of 1963.

The enrollment has grown from a total of 10 students in 1955, to 340 during the year 1962-63; from one program to a total of eleven curricula with allied and supporting courses for each.

Salem Technical-Vocational School is financially supported by funds from the State Department of Education, local School District and by student tuition. The State Board of Education determines the amount of money which is allowed to the school each year.

The fall term of 1963 witnessed the completion of new facilities in northeast Salem for the expanding Technical School, and the subsequent removal of classes from the old site in West Salem to the new quarters on N. E. Satter Drive. The new site has adequate space for future expansion as deemed necessary by the local District and Business and Industrial Advisory Committees.

DEFINITION AND PHILOSOPHY

One of today's most rapidly growing demands on education is for technical and vocational training to support business and industry and its required skilled manpower needs. The Salem Technical Vocational School's purpose is to supply these demands through its one and two year post high school programs. The Salem Technical Vocational School anticipates and provides local needs with well planned and well organized occupation centered curricula in the field of technical and vocational education.

Instructors at Salem Tech are selected primarily for their proven competency in the occupational or subject area in which they will teach, educational background, and ability to impart this knowledge to others. The Technical-Vocational instructors retain contact with their occupational areas through close cooperation with advisory committees and summer employment in the field or area in which they teach.

The underlying philosophy of Salem Technical-Vocational School is to develop and instruct youth and adults for useful employment as skilled and/or highly skilled individuals in recognized occupations. The development of skills, abilities, attitudes, working habits and appreciations are all coordinated so that the graduate will enter and advance in his chosen occupation and participate in the social and civic life of the community.

Academic Regulations

ADMISSION

Admittance to Salem Technical Vocational School will be granted to any person 16 years of age or older, who has completed High School requirements for a diploma or its equivalent (equivalency may be established by evaluation of experience and/or training, or by testing) ; and those who are able to benefit from specific courses.

To be admitted to a program a student must submit an application for admittance (available at the Technical Vocational School) and an official transcript of all high school and college records. Upon acceptance of enrollment application, a registration fee of \$10.00 will be due which will apply to the student's tuition.

ENTRANCE EXAMINATIONS

All persons applying for entrance into the Salem Technical Vocational School are required to take the entrance exam which will be scheduled at the earliest possible date after the application is submitted. These examinations indicate ability to do the work required and form a basis for counseling and guidance. Remedial programs may be required to overcome deficiencies, before entrance into certain programs will be permitted.

TUITION AND FEES

Tuition and fees are payable in full at time of registration. In certain instances, a partial payment of tuition will be accepted with payment of balance at a later time during the term. In all cases fees and tuitions are established and maintained as low as possible in keeping with the type and scope of the program. All fees and tuitions are collected and deposited with the Clerk of District 24J.

TUITION

Full time students (includes \$10.00 registration fee)	\$ 90.00 per term
Part time students \$6.00 per term unit (theory) and \$8.00 per term unit (Lab.)	
Out of State tuition	\$625.00 per year

FEES

Machine Shop and Mechanical Tech lab fee	\$12.00 per year
Registration fee (paid as part of tuition)	\$10.00 per term

BOOKS and SUPPLIES

Books and Supplies may be purchased at the Technical School book store. The cost of books and needed supplies will vary, depending on the program. For example, in the Electronics program, a full time student can expect to purchase, during the first year, approximately \$60.00 worth of texts and roughly a like amount for necessary supplies.

TUITION REFUND

Students who withdraw from the school and who have complied with the regulations governing withdrawals are entitled to a partial refund of tuition paid, depending on the time of withdrawal. The refund schedule is obtainable at the time of registration. All refunds are subject to the following regulations. Any claims for refund must be in writing and submitted at the time of withdrawal. Refunds in all cases are

calculated from the date of application for refund and not from the date when the student ceased to attend classes.

The following is the refund schedule adopted by the School District and is followed by the Tech School. The registration fee will be deducted before applying the below refund schedule in all cases of withdrawal from school, both in day and evening, part and full time.

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

GRADING SYSTEMS

Grades will be issued at the close of each term as indicated by the calendar. The letters, A, B, C, D, F, W, and Inc. will be used to designate relative standing in the class; *A* denotes outstanding performance; *B* of lesser excellence, but above average; *C* as average work; *D* as below average, but still passing; *W* indicates withdrawal; *F* as failure; and *Inc.* as incomplete. Withdrawal from a course may be accomplished before the date indicated on the calendar, and *W* awarded. After that date, a withdrawal becomes an *F*. Incompletes may be made up within three months after close of the term and a grade earned. If this is not done in the specified time, the *Inc.* becomes an *F*.

All work that is graded is assigned a numerical point value as follows: *A*, 4 points per term unit; *B*, 3 points per term unit; *C*, 2 points per term unit; *D*, 1 point per term unit; *F*, 0 points per term unit. The grade-point average (GPA) is the quotient of total points divided by total term units for which grades are issued. Incompletes and withdrawals are disregarded in the computation of grade-point averages.

SCHOLARSHIP REGULATIONS

All students are required to maintain a GPA in accordance with their ultimate objective, whether it be a Certificate of Completion or Associate of Science Degree. Any term in which the GPA is less than that stated in the requirements would mean the student will be placed on probation and will be subject to dismissal (See requirements for A.A. and Certificate of Completion). A GPA of less than stated in requirements would definitely be looked upon as unsatisfactory performance.

GRADUATION REQUIREMENTS

On or before the end of the third week of the student's final term, a written application must be submitted to the office for the Associate of Science Degree or Certificate, whichever is applicable. The Associate Degree is given for satisfactory completion of the following two year Technical Curricula; Electronics Engineering, Civil and Structural Engineering, Highway Engineering, Machine Shop, Technical Drafting, Mechanical Technology, and Data Processing Technology Programs. Approval for awarding the Associate of Science Degree was given the Salem Technical Vocational School by the State Board of Education.

REQUIREMENTS FOR ASSOCIATE OF SCIENCE DEGREE

The Associate of Science Degree is awarded after the following requirements are met:

1. A minimum of 90 term hours of planned course work within a technology.
2. Cumulative grade point average (GPA) of 2.00 or above.
3. A minimum of 18 term hours of selected general education course or an approved equivalent.

REQUIREMENTS FOR CERTIFICATE OF COMPLETION

The Certificate of Completion is awarded to those individuals who have satisfactorily completed the required courses within a curriculum. A standard of performance for all course work will be required of candidates for the certificates, as determined by the major instructors or department heads.

SCHOLARSHIPS

The School District has authorized a scholarship for graduates of the District High Schools. This scholarship is awarded on the basis of scholastic ability, financial need, and citizenship. Information can be obtained at the Tech School general office.

Several working scholarships are available to students of Salem Tech. Further information can be obtained through the Tech School office.

PRACTICAL NURSING SCHOLARSHIP

A fund has been established by a foundation composed of interested agencies and institutions for the purpose of providing scholarships to individuals selected into the Practical Nurse Program at Salem Tech. The scholarship will cover expenses such as tuition, books, and needed supplies.

The individual selected into the Practical Nursing program will become eligible to receive the scholarship.

CREDIT

The specific subject matter areas in the technical programs carry weight designated in **TERM UNITS** of credit. A term unit represents one hour of the student's time each week for one term in a theory class or three hours in a Lab. The number of class/laboratory hours per week for any course may be found in the sequence of courses for each program of studies and in the section on course descriptions.

PLACEMENT

An active placement policy is maintained by the school for the benefit of the graduates of our programs. Instructors in each program are in close touch with employers and job opportunities in the area. Every possible assistance will be given students completing programs and who are seeking jobs in the occupation for which they have been training.

Salem Technical School coordinates and plans employer recruitment visitations to the school for the convenience of its graduates each spring.

EVALUATION

Certain courses within the curriculum may be waived if, upon evaluation of student's past experience by the Faculty Committee, it is felt that he has covered this area. When formal credit is desired after such evaluation, an examination over the content of the waived courses would be required by complying with procedures already established for such.

Transcripts from other Post High School Institutions showing subject matter completed that compares with our offerings will be honored and credit automatically given, upon evaluation of such courses by the Faculty Committee.

COUNSELING AND GUIDANCE

A counseling and testing service is available to each interested individual in the community, without obligation. The service is offered by Salem Tech to assist individuals with selecting and planning their educational futures in areas commensurate with their abilities and interests.

This service is especially helpful to young people who experience difficulty in choosing an occupation or an area of training.

EVENING PROGRAM

The evening classes at Salem Tech consist of both full and part time students, persons just out of high school and employed workers who have been out of school for some time. The evening student may elect to take up an entirely new occupation, for example, study for his Electronic Engineering Technician degree, or enroll in a Math or Science class for refresher purposes.

The requirements for entrance into the evening program are that the individual be 16 years of age or over and be capable of profiting from the instruction. Tuition for the classes will vary depending on the number and type of courses. Generally the cost is \$6.00 per term unit of theory and \$8.00 per term unit of lab.

The classes normally are held between the hours of 6 P.M. and 11 P.M. Further information on the evening program such as cost, time, and availability of various classes can be obtained by calling or writing Salem Tech, 4389 Satter Drive, N.E., Salem, Oregon. Phone 363-4171, Extension 341-342.

OCCUPATIONAL EXTENSION

The Occupational Extension classes are offered by Salem Tech to interested persons who are already experienced in a trade or craft. The classes are planned so that the participants may increase their performance skills and related technical information in order that they may become more valuable employees.

Classes may be arranged for any interested group of 10 or more individuals in most industrial occupations, skilled or semi-skilled trade or craft, and in any service or business occupation. Some examples of classes which have been conducted in the past are: Firemen Training; Oil Burner Service; Welding;

Inside and Outside Wiring; Supervisory training, and specialized courses for the food processing industry. The cost of these classes will vary depending on the circumstances, however, in general the fee will range from \$8.00 to \$15.00 per course.

FEDERAL MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS

The following programs are offered in conjunction with the Employment Service of Oregon through the Federal Manpower Training Act. Under the Act, the Employment Service makes the initial selection of the individuals for training in the programs.

FORESTRY TECHNICIAN PROGRAM

The forestry Technician program requires one year of studies. The objective of the program is to prepare individuals for entry into the occupation as a forestry technician or aide. The program consists of courses such as tree identification, surveying, drafting, silviculture, general forestry, communication skills and sciences.

PSYCHIATRIC AIDE PROGRAM

The psychiatric aide program requires three months of study. The objective of the program is to prepare individuals for entry into the occupation as psychiatric aides for the Oregon State Hospital System. The program consists of training in handling large groups of mentally deficient patients, and performing duties not requiring professional nursing training. Applicants for this program must be referred to Salem Technical Vocational school by the Oregon State Employment Service in cooperation with the Oregon State Hospital System.

HOMEMAKING EDUCATION

Classes are offered for the benefit of family members who wish to improve or obtain initial training in the art of homemaking.

These classes offer instruction in the areas of selecting, purchasing, and renovating clothing. Courses are available in techniques and methods of storage and conservation of food, care of the house and its furnishings, and others.

More information can be obtained by calling or writing to Salem Technical Vocational School.

VETERANS

All courses listed are approved by the Veterans Administration and the State Department of Veterans Affairs for the payment of educational benefits to eligible veterans. Thirty hours per week of class time, lab time and supervised study is considered a full load for a veteran. The veteran is responsible for paying the cost of the tuition, fees, books, etc., directly to the school regardless of whether subsistence checks have been received or not. Dates for payments of costs cannot be waived because of delay in receiving benefits. Prospective veteran students may receive help in submitting applications for edu-

cational benefits from either the State Department of Veterans Affairs, at 12th and Ferry Street, S.E., or County Veterans Service Officer in the Marion County Court House, Salem, Oregon.

TO ENROLL IN THESE PROGRAMS OR OBTAIN ADDITIONAL INFORMATION TELEPHONE OR WRITE TO

SALEM TECHNICAL VOCATIONAL SCHOOL
4389 Satter Drive, N.E.
Salem, Oregon
Telephone: 363-4171, Ext. 342
Evenings: 363-4176

Data Processing Technology

The objective of the Data Processing Program is to provide training for individuals preparing for positions in the various fields of Data Processing and for those persons already engaged in the field who desire further training. The occupation-centered curriculum is designed to prepare individuals for entrance into fields such as management centers, engineering departments, and research and development areas. The technician in these areas perform many tasks; process masses of statistical data; uses computers to solve problems; writes detailed instruction for electronic devices; processes machine tool 'numerical control' data, etc.

The student receives training which is both comprehensive and of sufficient depth to meet the requirements for the many opportunities in the broad and varied field of data processing. A thorough grounding in accounting, automatic data processing, programming, and management procedures are coupled with a comprehensive practical work on the data processing machines themselves, such as the key punch, tabulating machine, automatic accounting equipment, etc.

Upon satisfactory completion of the requirements in the Data Processing Program, an Associate in Science degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of the Data Processing Field.

Examples of opportunities are listed here:

Coders	EDPM Console Operator
EDPM Programmer Trainee (CS)	Scheduling Supervisor
Machine Operator-Peripheral	Technical Editor
Tabulating Machine Operator 1 (CS)	EDPM Programmer 2 (CS)
System and Procedures Trainee	Master Programmer
EDP Clerk and Librarian	Tabulating Machine Supervisor
EDPM Programmer 1 (CS)	Computer Unit Director
Peripheral Equipment Supervisor	EDPM System Analyst 1 (CS)
Tabulating Machine Operator 2 (CS)	Supervisor, Data Processing Machines
Tabulating Machine Operator 3 (CS)	Unit (CS)
Tabulating Machine Operator 1 (CS)	EDPM System Analyst 2 (CS)
Machine Operators — Computer	Senior EDPM System Analyst
Procedures Writer	

Associate of Science Degree: Suggested 101 Term Units

Data Processing Technology Curriculum

FIRST YEAR

Term 1

Hours Class	Work Lab.	Course Title	Course No.	Term Units
3	3	Accounting	6.920	4
3		Introduction to Bus. and Public Administration	2.502	3
1	3	Records and Reports	2.517	2
3		Mathematics	4.203	3
3		Communication Skills	1.100	3

Term 2

3		Communication Skills	1.102	3
3	3	Accounting	6.921	4
3	2	Practical Physics	6.919	4
3		Mathematics	4.204	3

Term 3

5		Mathematics for Automatic Data Processing	6.916	5
3	3	Accounting	6.922	4
3	2	Introduction to Automatic Data Processing	6.900	4
3	3	Business Statistics	6.912	4

SECOND YEAR

Term 4

3		Introduction to Psychology	1.606	3
3		Cost Accounting	2.576	3
3	3	Introduction to Programming	6.903	4
3	3	Introduction to Electric Accounting Machines	6.913	4
3		Introduction to Systems and Procedures	6.902	3

Term 5

3		American Institutions	1.600	3
2	6	Electric Accounting Machine Operations	6.915	4
3		Automated Systems and Procedures	6.904	3
3	2	Electronic Data Processing Machine Applications	6.917	3
2	6	Intermediate Programming	6.905	3

Term 6

3		Psychology of Human Relations	1.608	3
3	2	Electric Accounting Machine Applications	6.917	4
3	3	Business Management	6.908	4
2	6	Advanced Programming	6.907	3
		Approved Electives		6

*See back, pg. 33
- descriptions*

Civil and Structural Engineering Technology

The first year (initial three terms) of the following curricula are common: Civil and Structural Engineering Technology, Highway Engineering Technology*, and Civil and Structural Drafting Technology**. The student thus has a choice of a major technology at the beginning of the fourth term or second year.

The objective of the Civil and Structural Program is to prepare students to meet the requirements for entrance into the various branches of employment in Civil and Structural Engineering field and for advancement in the chosen field. Graduates will find excellent opportunities for careers in the wide areas of highway, bridge, dam, and factory development and construction. Comprehensive practical training in areas of surveying, strength of materials and construction activities provide application of the theoretical and mathematical courses which are taken concurrently.

The training is sufficiently broad so that the student can use the program as a base for further study in general Civil Engineering and related work. Together with further study and sufficient experience, the graduate would have opportunity to advance to a Civil Engineering Rating while in the employ of certain federal, state, or city organizations.

On a construction project that is being planned, Civil and Structural Technicians may help in estimating costs, preparing specifications for materials, or participating in surveying, drafting, or designing work. Once the actual construction work has begun, they may assist the contractors or engineers in scheduling construction activities and inspecting the work for conformance with blueprints and specifications.

Upon satisfactory completion of the requirements in the Civil and Structural Program an Associate of Science Degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of Civil and Structural Engineering.

Examples of opportunities are listed here:

Construction Foreman	Structural Designer	Contractor's Assistant
Assistant Engineer	Supt. of Construction	Technical Writer
Senior Draftsman	Inspector	Computer
Surveyor	Construction Estimator	Engineering Aide
Civil Engineering Technician	Cost Estimator	Instrument Man, Survey

Associate of Science Degree; Suggested 103 Term Units.

Civil & Structural Engineering Technology Curriculum

FIRST YEAR

Term 1

Hours	Work	Course	Term
Class	Lab.	No.	Units
3	2	Applied Physics	4
1	6	Plane Surveying	3
	4	Drafting	2
3		Technical Mathematics	3
	2	Engineering Problems	1
3		Communication Skills	3

Term 2

2		Engineering Problems	6.136	1
3	2	Applied Physics	6.371	4
3		Communication Skills	1.102	3
	4	Drafting	4.105	2
1	6	Plane Surveying	6.103	3
3		Technical Mathematics	6.262	3

Term 3

2	3	Applied Mechanics	6.109	3
	4	Descriptive Geometry	6.927	2
1	6	Surveying Computations	6.500	3
2		Strength of Materials	6.107T	2
	3	Strength of Materials Lab.	6.107	1
3		Technical Mathematics	6.266	3
3		Technical Report Writing	6.126	3

SECOND YEAR

Term 4

4		Mapping and Computing	1.506	2
2	3	Strength of Materials	6.128	3
2	3	Applied Mechanics	6.111	3
2		Earthwork Computations & Estimates	6.528	2
1	6	Route Surveying	6.507	3
3		Introduction to Psychology	1.606	3

Term 5

3		Hydraulics	6.122	3
	6	Mapping and Computing	6.133	3
2	3	Soil Mechanics	6.124	3
1	3	Structural Analysis and Design	6.130	2
3	3	Timber and Steel Construction	6.125	4
3		American Institutions	1.600	3

Term 6

2	5	Concrete Construction and Design	6.123	4
3		Hydraulics	6.144	3
	4	Structural Drafting	4.111	2
3		Contracts and Specifications	6.118	3
2		Construction Estimating	6.110	2
3		Psychology of Human Relations	1.608	3

Civil & Structural Drafting Technology

** (Optional upon the completion of the first year Civil program)

The objective of this program is to provide proficiency and understanding in the technical requirements for a career as a design draftsman in the field of civil and structural engineering. The courses within the program were specifically selected to train technicians to qualify for the detailing and designing of the plans of construction and engineering in the civil-structural area. Practical elements of engineering, drafting, mathematics, physics, strength of materials, structural analysis, and design analysis serve to constitute a broad curriculum, without sacrificing depth of instruction. The curriculum is centered around occupational elements that normally cannot be obtained through experience alone, elements such as: Principles of Structural Design, Strength of Materials, and certain other specialized areas.

Upon satisfactory completion of the requirements in the Civil and Structural Drafting Program an Associate of Science Degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of Civil and Structural Engineering Technology.

Examples of opportunities are listed here:

- Structural Design Technician
- Technical Layout Draftsman
- Topographical and Mapping Draftsman
- Construction Inspector
- Technical Writer
- Cost Estimator
- Construction Estimator

Associate of Science Degree: Suggested 104 Term Units.

Civil & Structural Drafting Technology Curriculum SECOND YEAR

Term 4

Hours	Work	Course	Term
Class	Lab.	Title	Units
3		Introduction to Psychology	3
2		Construction Standards	2
3		Introduction to Specifications	3
3		Industrial Safety	3
1	6	Road and Highway Drafting	3
1	7	Mapping and Platting	3

Term 5

3		American Institutions	3
2		Health Education	2
3	2	Production Planning and Practices	4
2	3	Metals Application Treatment and Testing	3
2	6	Industrial Construction Drafting	2
2		Construction Cost Computations	2
	5	Construction Cost Computations Lab.	2

Term 6

3		Psychology of Human Relations	3
3	4	Photo Interpretation and Mapping	5
	4	Structural Drafting	2
2	6	Industrial Construction Drafting	4
	4	Technical Illustration	2

Highway Engineering Technology

*(Optional upon the completion of the first year Civil program)

The graduates of this area become surveyors, design draftsmen or specialists in other well established technical jobs. Those working as surveyors determine the locations and measurements of land areas, buildings for construction, and other purposes; using the transit, level and other surveying instruments. Those employed in other technical jobs include estimators who prepare estimates of costs, materials, and terms necessary in the construction or repair of various highways and structures; highway inspectors who usually supervise the clearing rights of way and preparation of roads for surfacing.

The training is sufficiently broad so that the student can use the program as a base for further study in general Civil Engineering and related work. Together with further study and sufficient experience, the graduate would have an opportunity to advance to a civil engineering rating while in the employ of certain federal, state, or city organizations.

Upon satisfactory completion of the requirements in the Highway Engineering Technology Program, an Associate of Science Degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of Civil and Structural Engineering.

Examples of opportunities are listed here:

Junior Construction Inspector	Surveyor
Map Draftsman	Instrumentman
Photogrammetric Aide	Engineering Office Technician
Supervising Technician	Cartographer-Photogrammetrist
Estimator	Claims Investigator

Associate of Science Degree: Suggested 101 Term Units

Highway Engineering Technology Curriculum

SECOND YEAR

Term 4

Hours	Work	Course	Term
Class	Lab.	Title No.	Units
	4	Mapping and Computing	2
2	3	Strength of Materials	2
2		Earthwork Computation	2
1	6	Route Surveying	3
3		Introduction to Psychology	3
2	3	Applied Mechanics	3

Term 5

3		Hydraulics	3
	6	Mapping and Computing	3
2	3	Soil Mechanics	3
1	3	Structural Analysis and Design	2
3		Practical Hydrology	3

Term 6

1	6	Route Surveying	4
3		Traffic Engineering	3
3		Contracts and Specifications	3
2	2	Asphalt Paving	3
2		Concrete Practice	2
3		Psychology of Human Relations	3

Electronic Engineering Technology

The first year (initial three terms) of the following curricula are common: Electronic Technician and *Electronic-Electrical Drafting Technology. The student thus has a choice of a major technology at the beginning of the fourth term or second year.

The objective of the Electronic Technician Program is to prepare individuals for careers in the broad field of Electronics. The program was especially designed and planned to give the graduate a broad and comprehensive understanding and practical know-how, without sacrificing depth and some specialization for entrance into such areas of the electronic industry as: research and development; radio and television; micro-wave station operations and maintenance; and in commercial and domestic maintenance and many other areas using vacuum tubes and semi-conductors circuits.

The student is given a strong background in Electronics Theory, Mathematics, and Physics to enable him to handle complex technical work. The student spends the major portion of his school time gaining proficiency in the practical application of the theory; analyzing circuits; development of elementary electronic units; working with modern test and measuring equipment; trouble shooting, and evaluating operating characteristics of electronic equipment.

Graduate Electronic Technicians employed in research and development activities usually assist physical scientists or engineers in designing, testing, and modifying experimental electronic devices. They may be called upon to devise practical solutions to problems of design, select suitable materials, determine the best method of building a piece of equipment, and test and evaluate the operating characteristics of the electronic device. They also may be called upon to make necessary modifications in the experimental equipment.

Upon satisfactory completion of the requirements in the Electronic Technician Program an Associate of Science Degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of the Electronic Technology.

Examples of opportunities are listed here:

Radio Communications Technician (Aircraft, etc.)	Electronic Computer Technician
Radio Operator and Dispatcher	Microwave Radio Technician
Electronics Technician	Electronic Instrument Service Technician
Laboratory Technician (Electronic)	Industrial Electronic Technician
Electronic Instrument Technician (Mfg.)	Supervisor
Guided Missile Technician	Electronic Equipment Designer
	Electronic Engineering Technician

Associate of Science Degree: Suggested 99 Term Units

Electronic Engineering Technology Curriculum

Term 1

FIRST YEAR

Hours Class	Work Lab.	Course Title	Course No.	Term Units
3	2	Electrical Theory DC	6.200R	4
	2	Engineering Problems	6.135	1
3		Technical Mathematics	6.261	3
3	2	Applied Physics	6.370	4
	4	Drafting	4.101	2
3		Communication Skills	1.100	3

Term 2

2	2	Electrical Theory AC	6.202R	4
	2	Engineering Problems	6.136	1
3		Technical Mathematics	6.262	3
3	2	Applied Physics	6.371	4
	4	Electronic Drafting	4.103	2
3		Communication Skills	1.102	3

Term 3

3		Electrical Circuits	6.204R	2
	6	Electrical Circuits (Lab.)	6.205R	2
3		Vacuum Tube and Transistor Analysis	6.210R	3
	3	Vacuum Tube and Analysis Lab.	6.211R	1
3		Technical Report Writing	6.126	3
	4	Practical Descriptive Geometry	6.127	2
3		Technical Mathematics	6.266	3

SECOND YEAR

Term 4

3		Electrical Mathematics	6.115	3
2		Oscillator Circuits and Design	6.212R	2
	6	Oscillator Circuits and Design Lab.	6.213R	2
3		Automation Systems	6.244	3
2	3	Wave Generation and Shaping	6.234R	3
2		Semi-Conductors	6.234	2

Term 5

3		Amplifier Circuits and Design	6.214R	3
	6	Amplifier Circuits and Design Lab.	6.215R	2
2	3	Industrial Electronics	6.218R	3
2	3	Industrial Television	6.228	3
3		Electronic Data Processing	6.240	3
3		American Institutions	1.600	3

Term 6

2	3	Advanced Electronic Circuits	6.216	3
1	3	Servo Systems	6.236R	2
1	2	Industrial Television	6.235	1
3		Industrial Electronics	6.246	3
	3	Industrial Electronics Lab.	6.247	1
2	3	Microwaves	6.242	3

Electronic-Electrical Drafting Technology

*(Optional upon completion of first year Electronic Engineering Technology)
The objective of the Electronic-Electrical Drafting Program is to prepare individuals to meet the requirements for entrance into electronic and electrical drafting fields. The courses within the curriculum were especially planned and selected to qualify the technician for detailing and drawing of electronic and electrical plans and layouts. Practical elements of the engineering, designing, drafting, mathematics, physics, electrical-electronic theory and design analysis, serve to constitute a broad program, but at the same time depth is emphasized in special areas. The program of study is centered around occupational elements that normally cannot be obtained through experience alone, elements such as; principles of electronic-electrical design, electronic-electrical theory and other specialized areas.

Upon satisfactory completion of the requirements in the Electronic-Electrical Drafting Program, an Associate in Science Degree will be awarded signifying that the student is prepared to effectively function and advance in the many job areas of the Electronic-Electrical Field.

Examples of opportunities are listed below:

- Electronic-Electrical Production Draftsman
- Electronic-Detail Draftsman
- Electronic Research Draftsman
- Electronic Statistical Draftsman
- Production Layout Draftsman
- Electro-Mechanical Draftsman

Associate of Science Degree: Suggested 102 Term Units

Electronic-Electrical Drafting Technology Curriculum

SECOND YEAR

Term 4

Hours Class	Work Lab.	Course Title	Course No.	Term Units
3		Introduction to Specifications	4.102	3
3		Introduction to Psychology	1.606	3
3		Industrial Safety	4.108	3
2	6	Introduction to Fabrication Practices	4.100	4
3		Electronic-Electrical Standards	4.114	3
	6	Scales and Graphs	4.139	2

Term 5

3		American Institutions	1.600	3
3	2	Production Planning and Practices	4.104	4
2	3	Metals Application Treatment and Testing	4.106	3
1	6	Control Layout Systems	4.143	3
2		Cost Computations	4.140	2
	6	Cost Computations Lab.	4.141	2
2		Health Education	1.605	2

Term 6

3		Psychology of Human Relations	1.608	3
	4	Technical Illustrations	4.127	2
1	8	Project Drafting	4.145	4
	6	Light Sheet Metal Drafting	4.147	2
	3	Pictorial Drafting	4.149	1

Mechanical Technology

This curriculum is designed to provide depth of understanding in the technical requirements of occupations in modern mechanical design and production. This program provides the educational background necessary for many functions in such jobs as design draftsmen, tool designer, research assistant, or engineering assistant. The curriculum is designed to provide a broad technical competence needed for these jobs rather than the specific skills or techniques required for a single skill occupation. The instruction centers around occupational elements that normally cannot be obtained through experience alone; elements such as physical metallurgy, materials, and processes and principles of machine design. The program of study is designed and arranged to provide the student with an understanding of the materials and processes commonly used in the technology; and extensive knowledge of a field of specialization with an understanding of the engineering and scientific activities that distinguish the field; a facility with mathematics and proficiency in the application of physical science processes that are pertinent to the individual's field of technology.

The graduate may enter the field of manufacturing, experimental shops, and development labs, performing such tasks as re-designing tools for efficiency, making cutting tools, jigs, and special fixtures.

Graduating technicians trained in this technology may assist engineers in design and development work by making free hand sketches, rough layouts of machinery and other equipment, using engineering data and specifications. They help in determining whether a proposed design change is practical and how much it will cost to produce. They may be called upon to apply their knowledge of elementary mechanical engineering principals to solve particular design problems such as those involving tolerances, stresses, strain, friction, and vibration.

Upon satisfactory completion of the requirements in Mechanical Technology Program, an Associate in Science Degree will be awarded, signifying that the student will be prepared to effectively function and advance in the many job areas of the technology.

Examples of opportunities are listed here:

Junior Mechanical Engineer	Junior Engineering (Drafting)
Production Technician	Safety Technician
(Planning - Control)	Tool, Jig, and Fixture Technician
Metallurgy Technician	Instrumentation Technician
Technical Writer	Production Inspector
Method Analyst	Time Study Technician
Process Technician	

Associate in Science Degree: Suggested 107 Term Units

Mechanical Technology Curriculum

Term 1

Hours	Work	Course	Term
2	3	Metallurgy	3
	2	Engineering Problems	1
3		Technical Mathematics	3
3	2	Applied Physics	4
	4	Drafting	2
3		Communication Skills	3

Term 2

2	3	Metallurgy	3
2	3	Manufacturing Processes	3
	2	Engineering Problems	1
3		Technical Mathematics	3
3	2	Applied Physics	4
	4	Drafting	2
3		Communication Skills	3

Term 3

2	3	Manufacturing Processes	3
2	3	Strength of Materials	3
1	3	Welding	2
3		Technical Mathematics	3
3		Technical Report Writing	3
2	3	Applied Mechanics	3

SECOND YEAR

Term 4

3	3	Mechanisms	4
2	3	Strength of Materials	3
3		Introduction to Psychology	3
3	2	Machine Design	4
2	3	Applied Mechanics	3

Term 5

3	3	Mechanisms	4
2	2	Hydraulics	3
2	6	Design Problems	4
1	6	Basic Tool Design	3
3		American Institutions	3

Term 6

2	9	Design Problems	5
2	2	Hydraulics	3
1	6	Basic Tool Design	3
3		Psychology of Human Relations	3
1	6	Drafting Projects	3

Machine Shop Technology

The purpose of this course is to give instruction on the standard machine shop tools and equipment found in the industrial shops in our area. Students are taught to operate drill presses, engine lathes, milling machines, grinders, shapers, welders, power saws, presses, and correct procedures for bench and layout work. The curriculum reflects the needs expressed in the machine field for persons efficient in the handling of both power and hand tools, along with a command of mathematics, blueprints, and layout work.

Graduates of Machine Shop Technology usually are placed in apprenticeship positions or as machine tool operators. As they become more proficient they are assigned to more complex machinery and jobs which require more planning and initiative. Some mechanics continue their employment as machine tool operators, limiting their activities to one or two machines. Others are capable of using all types of machines in an expert manner and are capable of carrying a job through from the planning stage to completion. This involves laying out the job, setting up the machines, tooling, and making the final assembly.

Upon satisfactory completion of the requirements in the Machine Shop Program, an Associate in Science Degree will be awarded, signifying that the student is prepared to effectively function and advance in the many job areas of the machinists field.

Job opportunities for the graduate of this program are found in job shops, specialty shops, general machine shops, production shops, and maintenance departments of large manufacturing plants such as the paper industry, or others of similar nature.

Some of the job opportunities in the machinist field include:

Bench Hand	Heat Treater
Machinist Helper	Machinist
Welding Helper	Inspector
Tracer	Machinery Erector
Machine Tool Operator	Setup Man, Machine Tools
Machinist Apprentice	Foreman
Layout Man	Tool Maker
Tool Grinder	Leadman
Maintenance Man	Department Supervisor

Associate of Science Degree: Suggested 101 Term Units

Machine Shop Technology Curriculum

FIRST YEAR

Term 1

Hours Class	Work Lab.	Course Title	Course No.	Term Units
2	3	Bench & Layout Practices	4.821	3
2	3	Shaper Practices	4.825	3
2	3	Drill Press Practices	4.827	3
3		Communication Skills	1.100	3
3		Mathematics	4.200	3
3	2	Practical Physics	4.300	4
	2	Blueprint Reading	4.853	1

Term 2

1	3	Welding	4.150	2
1	3	Bench & Pedestal Grinding Practices	4.829	2
2	4	Lathe Practices	4.831	3
2	4	Milling Machine Practices	4.835	3
3		Communication Skills	1.102	3
3		Mathematics	4.202	3

Term 3

3		Machine Shop Problems	4.820	3
2	3	Heat Treatment of Steel	4.849	3
1	2	Advanced Drill Press & Shaper Practices	4.828	2
2	4	Advanced Lathe Practices	4.833	3
2	4	Advanced Milling Machine Practices	4.837	3

SECOND YEAR

Term 4

2	3	Advanced Grinding Practices	4.839	3
3	6	Machine Shop Practices	4.841	5
1	3	Welding	4.151	2
3		Introduction to Psychology	1.606	3

Term 5

3		American Institutions	1.600	3
	4	Machine Shop Project Drafting	4.823	2
3	6	Machine Repair and Reconditioning	4.851	5
3	6	Machine Shop Practices	4.843	5
2		Health Education	1.605	2

Term 6

3		Psychology of Human Relations	1.608	3
2		Machine Shop Automation	4.824	2
2	4	Tool and Fixture Design and Application	4.847	3
3	12	Job Machining Practices	4.845	7

Technical Drafting

The objective of the Technical Drafting Program is to prepare individuals for positions in engineering departments, in the areas of mechanical drafting, design, or technical illustration and design. The courses within the program are specifically selected and planned to train technicians to qualify for tasks such as drawing preliminary sketches, making layouts from technical information, rendering drawings in pencil and ink, making overlays and paste ups and detailed drawing of complete and final plans.

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

Upon the satisfactory completion of the requirements in the Technical Drafting Program, an Associate in Science Degree will be awarded, signifying that the student will be prepared to effectively function and advance in the many job areas of the technical drafting field.

Examples of opportunities are listed below:

Technical Illustrator

Sheetmetal Layout Draftsman

Machine Drafting Technician

Structural Drafting Technician

Aeronautical Draftsman

Electronics and Electrical Drafting
Technician

Topographical and Mapping Draftsman

Engineering Graphics Drafting Technician

Associate in Science Degree: Suggested 112 Term Units.

Technical Drafting Curriculum

FIRST YEAR

Term 1			Course	Term
Hours	Work		No.	Units
Class	Lab.	Course Title		
	4	Drafting	4.101	2
2	6	Introduction to Fabrication Practices	4.100	4
3		Communication Skills	1.100	3
3		Mathematics	4.200	3
3	2	Practical Physics	4.300	4
Term 2				
	4	Drafting	4.105	2
1	9	Project Drafting	4.119	4
3		Communication Skills	1.102	3
3		Mathematics	4.202	3
3	2	Practical Physics	4.302	4
Term 3				
	4	Mechanical Drafting	4.109	2
3		Advanced Drafting Problems	4.115	3
	8	Project Drafting	4.121	3
3	2	Practical Physics	4.304	4
3		Technical Report Writing	6.126	3
3		Technical Mathematics	4.204	3

SECOND YEAR

Term 4				
	4	Electrical Drafting	4.103	2
	5	Advanced Machine Drafting	4.117	2
3		Introduction to Specifications	4.102	3
3		Industrial Safety	4.108	3
3		Introduction to Psychology	1.606	3
	2	Engineering Problems	6.135	1
3		Technical Mathematics	6.261	3
3	2	Applied Physics	6.370	4
Term 5				
3	2	Production Planning and Practices	4.104	4
2	3	Metals Application Treatment and Testing	4.106	3
	5	Advanced Machine Drafting	4.123	2
3		American Institutions	1.600	3
2		Health Education	1.605	2
	2	Engineering Problems	6.136	1
3		Technical Mathematics	6.262	3
3	2	Applied Physics	6.371	4
Term 6				
3		Psychology of Human Relations	1.608	3
	4	Architectural Drawing	4.107	2
	4	Structural Drafting	4.111	2
	5	Advanced Machine Drafting	4.125	2
	4	Technical Illustration	4.127	2
3		Technical Mathematics	6.266	3
3	2	Applied Physics	6.366	4

General Drafting Program

The objectives of the General Drafting Curriculum is to prepare students for employment in drafting jobs that require a broad knowledge of the fundamental aspects of drafting and a minimum of specialization. The program is designed to give the student a supporting background in basic mathematics, physical sciences, and communication skills which, along with the drafting work, serve to prepare a proficient general draftsman.

After successful completion of the General Drafting Program the student may elect to enroll in the Technical Drafting Technology which will allow the individual to gain more depth and specialization in areas such as electrical, mechanical, structural drafting and technical illustration.

After satisfactory completion of the requirements of General Drafting Program, the student will be awarded a certificate and will be prepared to effectively function and advance in many drafting areas.

Examples of opportunities are listed below:

Machine Draftsman
Structural Draftsman
Architectural Draftsman
Welding Draftsman
Pipe & Flow System Draftsman
Engineering Graphics Draftsman

General Drafting Curriculum

Term 1

Hours	Work	Course	Term
Class	Lab.	No.	Units
	4	Drafting	2
2	6	Introduction to Fabrication Practices	4
3		Mathematics	3
3		Communication Skills	3
3	2	Practical Physics	4

Term 2

	4	Drafting	2
1	9	Project Drafting	4
3		Communication Skills	3
3		Mathematics	3
3	2	Practical Physics	4

Term 3

	4	Mechanical Drafting	2
3		Advanced Drafting Problems	3
	8	Project Drafting	3
3		Technical Report Writing	3
3	2	Practical Physics	4
3		Mathematics	4.204

Practical Nursing Program

The need for Practical Nurses has increased a great deal over the past few years because of the expansion of the Public Health Program, extreme growth in Hospital Insurance, the increase in life expectancy, our growing population, higher income levels, insufficient professional nurses to care for the sick and aged, rapid advances in the medical field, and our growing older age group.

The Practical Nurse is a person prepared by an approved educational program to share in the care of the sick, in the rehabilitation program and in the prevention of illness, under the supervision of a licensed physician and/or a registered nurse. She may provide nursing service in private homes, be employed in hospitals or health agencies, in public institutions or industrial establishments.

The program prepares selected people for a career in practical nursing, to perform the functions of a practical nurse and help fulfill the need of the health services in Oregon, and to prepare the student for the examination given by the State Board of Nurse examiners for Licensed Practical Nurses.

Applicants for the Practical Nurse course must be at least 17 years of age, be a graduate of an accredited high school or the equivalent as determined by test, be in good health as determined by an examination, and have suitable personal traits and character as to be accepted in such an important occupation. Persons interested in this course should check the front of catalogue for further information on the steps to become enrolled. Special requirements, if any, will be explained if requested.

A foundation fund has been established by interested agencies and institutions for the purpose of providing scholarships to individuals selected into the Practical Nurse program at Salem Tech. The scholarship will cover expenses such as tuition, books, and needed supplies.

The individual selected into the Practical Nursing program will become eligible to receive the scholarship.

Practical Nursing Program Curriculum

Term	Units		Course Title	Hours	
	Class	Lab.		Class	Lab.
7			Normal Health Growth and Development	104	
8	1		Nursing Care in Conditions of Illness	100	36
9	2		Nursing Skills	108	72
10			Personal and Vocational Relationships	138	
	7		Maternal and Child Health (Clinical Practice)		760
	12		Medical and Surgical Nursing (Clinical Practice)		590
	5		Psychiatric Nursing (Clinical Practice)		215
<hr/>				<hr/>	
34**	27*			450	1273

*48 hrs Clinical Practice for One Term Unit

*36 hrs Class Room Labs for One Term Unit

**12 hrs for One Term Unit of Theory

Dental Assistant

The objective of this program is to prepare individuals for employment in dental offices, laboratories, and clinics, and also to provide opportunities to those already working in this field to further their knowledge and skill. The program is designed to provide training in the specialized skills necessary in dental chair assisting and in business practice ability.

The program is sufficiently comprehensive in nature so that the student acquires proficiency in assisting the dentist in a variety of capacities in the private office or in a dental health clinic. The program of study includes such activities as mixing of filling materials, instruments and their uses, preparation of patient, sterilization, and other general and specialized courses in dental science. Dental office management is an integral part of the program and includes instruction in areas such as reception of patients, office records, fees and other business practices.

Upon completion of the course of study, the graduate will be ably qualified to assist in a dental office or clinic with a minimum of familiarization and orientation from the dentist.

Typical duties will include preparation of the patients for treatment, mixing filling materials and dental cement, checks and sterilizes equipment, and inventories and orders supplies. Laboratory duties include studying models of teeth, casting inlays and taking and developing X-ray films. In the capacity of office manager she acts as receptionist, schedules appointments, keeps accounts and records, sends out bills and is responsible for the general appearance of the office.

Applicants for the dental assistant program must be a minimum of 16 years of age, and be a graduate of an accredited high school or the equivalent. The assistant should be neat, clean, and in good health. A pleasant personality is essential in dealing with dentist's patients. She should be able to meet people and put them at ease and be able to express herself clearly and pleasantly.

Dental Assistant Curriculum

Term 1			
Hours	Work	Course Title	Term
Class	Lab.		Units
5		Introduction to Dental Assisting	5
2	3	Basic Chairside Procedures	3
3		Communication Skills I	3
3		Introduction to Psychology	3
3		Mathematics I	3
	5	Typing I	2
Term 2			
2	3	Chairside Assisting and Basic Lab Procedures	3
2		Roentgenology I	2
5		Dental Sciences	5
3		Communication Skills II	3
2	3	Office Management	3
2		Employer-Employee Relations	2
Term 3			
2	3	Advanced Lab and Chairside Procedures	3
2	3	Rontgenology II	3
	12	In Service Training	1
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Industrial Supervisory Program

This program is a planned series of courses in Supervisory Methods and Techniques. The courses are available to individuals who are currently involved in supervisory duties or personnel which will assume supervisory duties eventually.

An interested individual may elect to follow one of three planned programs, depending upon his ultimate needs, culminating in a Certificate or an Associate Degree.

Instructors for these courses are selected from industry. These instructors are selected on the basis of experience in industry and special competence in the course to be taught. The instructor also must have a State teaching certificate in Industrial Supervision as the result of 60 hours of teacher training which is provided in cooperation with Oregon State University, School of Education.

The following gives an example of a suggested planned program of study.

TYPICAL COURSE SEQUENCE

I.	FOR CERTIFICATE IN BASIC SUPERVISORY PRACTICES (Limited Certificate)	*Term Units
	Elements of Supervision	3
	Basic Psychology for Supervisors	3
	Developing the Employee Through Training	3
	Written Communications, or Oral Communications	3
	(Restricted elective from Supervisory Courses)	3
	Elective, or credit evaluation for supervisory experience	3
	Total.....	18
II.	FOR CERTIFICATE IN PRINCIPLES AND PRACTICES (Special Certificate) (Courses required beyond those included in Limited Certificate)	
	Human Relations	3
	Labor Management Relations	3
	Oral Communications, or Written Communications	3
	(Restricted elective from General Education courses)	3
	(Occupational elective course)	3
	(Occupational elective course)	3
	(Occupational elective course)	3
	Electives or credit evaluation for supervisory experience	6
	Cumulative Total.....	45
III.	FOR DIPLOMA or ASSOCIATE DEGREE (Courses required beyond Limited and Special Certification)	
	Methods of Improvement for Supervisors	3
	Cost Control for Supervisors	3
	Industrial Economics	3
	(Restricted elective from Supervision courses)	3
	(Restricted elective from General Education courses)	3
	(Restricted elective from General Education courses)	3
	(Restricted elective from General Education courses)	3
	(Occupational elective course)	3
	(Occupational elective course)	3
	Electives, or credit for supervisory experience	18
	Cumulative Total.....	90

(*A term unit represents 10 clock hours in class)

ALLOWANCE OF CREDIT FOR SUPERVISORY EXPERIENCE

Supervisory experience may be credited for General Elective courses up to a maximum of 24 hours.

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COURSE DESCRIPTIONS

General Education Courses

		LEC.	LAB.	TERM UNITS
AMERICAN INSTITUTIONS	1.600	3	0	3
<p>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.</p>				
BUSINESS ECONOMICS	1.524	3	0	3
<p>Business Economics 1.524 deals with the underlying principles by which business is influenced. Production, income, management, prices, values, markets, money, wastes, interest, and profits are examples of subjects studied with illustrations of how they affect current business situations. The course is designed to help the student understand the problems of business and thus have a deeper insight into his personal responsibilities to his firm.</p>				
COMMUNICATION SKILLS	1.100	3	0	3
<p>This course is designed to improve the student's speaking and writing skills by covering the four basic communication skills—reading, speaking, writing, and listening. The practical phase of communication problems is kept in the foreground. Cultivating the student's powers of analysis and evaluation of contemporary communication is an important objective in this course. Problems in outlining, notemaking, summarizing, report making, and in conventional usages in mechanics and grammar are considered.</p>				
COMMUNICATION SKILLS	1.102	3	0	3
<p>This course is a continuation of the process of improving the student's speaking, reading, writing, and listening skills. Practice is provided for the student in developing reports; giving talks; taking part in conferences; reading, analyzing, and discussing both general and technical periodicals; and handling representative forms of business writing. Prerequisite: Communication Skills 1.100 or equivalent.</p>				
EMPLOYER-EMPLOYEE RELATIONS	4.500	2	0	2
<p>The objective of this course is to provide an understanding of the rights and responsibilities of employees. As a guide to making adequate decisions a study of population, economic and employment trends, and hours and working conditions is included. The development of and the role played by labor organizations, how labor representatives and management bargain, government laws and regulations covering collective bargaining, other state and federal labor laws, and how labor disputes are negotiated are given consideration.</p>				

		TERM
		LEC. LAB. UNITS
HEALTH EDUCATION	1.605	2 0 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.		
INDUSTRIAL ECONOMICS	1.506	2 0 2
Industrial Economics deals with the principles involved in the operation of the American economics 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 association, labor-management relations, labor legislation, and social and private security.		
INTRODUCTION TO PSYCHOLOGY	1.606	3 0 3
This course is designed for the student who desires an introductory course in psychology. It explains the scope, methods, basic concepts, and facts of psychology. Some of the subjects covered are motivation, learning, thinking, perception, emotion, personality, mental health, animal behavior, and applied psychology.		
PSYCHOLOGY AND HUMAN RELATIONS	1.546	3 0 3
Psychological principles and fundamentals of individual behavior involved in understanding the relationship of the individual and his reactions to the social framework with emphasis on business situations.		
PSYCHOLOGY OF HUMAN RELATIONS	1.608	3 0 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 their application to the 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 and 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.		
PUBLIC SPEAKING	1.610	2 2 3
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.		
TECHNICAL REPORT WRITING	6.126	3 0 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

THE PHYSICAL WORLD 1.616 2 2 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 and chemistry to provide an understanding of the scientific method and the role it has played in the intellectual history of mankind.

THE PHYSICAL WORLD 1.617 2 2 3

This is a continuation of The Physical World 1.616 with emphasis on the basic principles of astronomy, meteorology, and geology.

Mathematics Courses

ELECTRICAL MATHEMATICS 6.115 3 0 3

An applied course in mathematics for electronic engineering technicians. Includes an introduction to calculus covering graphical methods, differentiation, and integration with direct application to electronic and electrical circuitry.

Prerequisite: Technical Mathematics 6.266 or equivalent.

ENGINEERING PROBLEMS 6.135 0 2 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.

Prerequisite: One year High School Algebra or Equivalent.

ENGINEERING PROBLEMS 6.136 0 2 1

This course aims to develop the skill of gathering together and sorting research results and problem solving records into logical summation. Mathematical and graphical analysis of data will be emphasized in the presentation of information in the report.

MATHEMATICS 4.200 3 0 3

This is a course in practical mathematics including problems composed of whole numbers, fractions, measurements, formulas, graphs, and roots.

Prerequisite: Ability to profit from instruction.

MATHEMATICS 4.202 3 0 3

This is a course in practical mathematics for skilled workers, including the fundamentals of applied algebra and applied geometry, including symbols, equations, ratios and proportion, exponents, radicals, formulas, geometric lines and shapes, common geometric constructions, and introductory applied trigonometry.

MATHEMATICS 4.204 3 0 3

This course concentrates on actual problems encountered by machinists, precision inspectors, tool-and-dyemakers, draftsmen, tool designers, and other workers in related industrial occupations. It applies arithmetic, algebra, geometry, trigonometry, and their various phases to jobs encountered in every day industry. The emphasis is on the actual problem

solving aspects growing out of various jobs. It is a continuous and more thorough coverage of many areas studied in the prerequisite Math. 4.202.

MATHEMATICS FOR AUTOMATIC DATA PROCESSING

6.916 **5** **0** **5**

Basic logic, numbering systems, algebra with emphasis on problem solving, computation with logarithms and with numbers in bases other than ten, and Boolean Algebra. This is a prescribed course for the Automatic Data Processing Curriculum.

Prerequisite: Mathematics 4.204 or its equivalent.

PRACTICAL DESCRIPTIVE GEOMETRY

6.127 **0** **4** **2**

This course gives a brief review of advanced drafting problems and takes the student further into the field of descriptive geometry principles. In the introduction of detailed drawing from assembly drawing the principles of Descriptive Geometry are necessary to the draftsman.

Prerequisite: Third Term standing or approval of dept. head.

TECHNICAL MATHEMATICS

6.261 **3** **0** **3**

This course covers algebraic operations including the study of first and second degree equation solutions by analytic and graphical means, exponents and radicals, and their respective applications to technologies. Concurrent with the above, a review of plane geometric principles and introduction to the fundamental trigonometry operations will be offered. Note: The algebra portion will be covered on Monday, Wednesday, and Friday during the week, while the plane geometry and introduction to trigonometry will be given on Tuesday and Thursday.

TECHNICAL MATHEMATICS

6.262 **3** **0** **3**

This is an applied course in mathematics on the technician level including logarithms, right and oblique triangle problem solving, trigonometric applications, and graphs of trigonometric formulas, identities and equations, and graphs of trigonometric functions.

Prerequisites: Technical Mathematics 6.216 or equivalent.

TECHNICAL MATHEMATICS

6.266 **3** **0** **3**

This is an applied course in mathematics on the technician level covering simultaneous quadratic equations, ratio and proportion, binomial theorem, arithmetic and geometric progressions, exponential functions, complex notation and vector algebra.

Prerequisite: Technical Mathematics 6.262 or equivalent

Science Courses

APPLIED PHYSICS

6.370 **3** **2** **4**

A course in applied physics on the post high school level. Covers mechanics of measurement, structure of matter, heat, energy, heat engines, and sound and light. Laboratory time is provided for demonstrations and experiments to clarify principles and procedures covered in class.

Prerequisites: Tech Math 6.261 or equivalent or approval of dept. head.

		LEC.	LAB.	TERM UNITS
APPLIED PHYSICS	6.371	3	2	4
A course in applied physics on the post high school level. Covers the principles of vectors, kinematics, work-power-energy, machines, and angular velocity. Laboratory time is provided for demonstration and experiments to clarify principles and procedures covered in class.				
Prerequisites: Applied physics 6.370 or approval of dept. head.				
APPLIED PHYSICS	6.366	3	2	4
A course in applied physics covering magnetism and electricity on the post high school level. Basic electronic currents, sources and effects of electric current, alternating current, generators, motors, distribution of electric power, and introduction to electronics and atomic energy in industry are covered. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.				
Prerequisites: Applied Physics 6.371				
MODERN PHYSICS	6.520	2	2	3
This course is designed to provide a working knowledge of the common theories and nomenclatures of the molecular, atomic, and nuclear sciences. Common physical phenomena relating to the molecular, crystalline, atomic states are studied. <i>Radiation detection and measurement</i> comprise the major areas of study in order that the student gain knowledge in the operation of equipment commonly used in the detection of nuclear radiation.				
Prerequisite: Applied Physics 6.370 and 6.371				
PRACTICAL PHYSICS	4.300	3	2	4
This course in practical physics is designed for skilled workers, covering matter, measurements, mechanics, and machines. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.				
PRACTICAL PHYSICS	4.302	3	2	4
This course in practical physics is designed for skilled workers, covering heat, light, and sound. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.				
Prerequisite: Mathematics 4.200 or equivalent				
PRACTICAL PHYSICS	4.304	3	2	4
This course in practical physics is designed for skilled workers, covering magnetism and electricity. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.				
Prerequisites: Practical Physics 4.302				
PRACTICAL PHYSICS	6.919	3	2	4
This course is designed to offer a broad introduction on the study of magnetism, electricity, and electronics. Laboratory time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.				
Prerequisite: Mathematics 4.202 or approval of dept. head.				

Technical Vocational Courses

		LEC.	LAB.	TERM UNITS
ACCOUNTING	6.920	3	3	4
An introduction to the basic procedures of accounting and the preparation of financial statements. The methods of recording business transactions, the books commonly used, and the techniques of closing the books periodically.				
ACCOUNTING	6.921	3	3	4
Accounting problems arising in different types of business, such as the corporation, partnerships, and individual proprietorship, together with their financing. Introduction to analysis and interpretation of financial statements.				
Prerequisite: Accounting 6.920				
ACCOUNTING	6.922	3	3	4
Methods of accounting for the corporate organization including capital stock, earnings, bonds, and intangibles. An introduction to accounting for manufacturing operations.				
Prerequisites: Accounting 6.921				
ADVANCED DRAFTING PROBLEMS	4.115	3	0	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.				
Prerequisites: Drafting 4.105 and Math 4.204				
ADVANCED DRILL PRESS AND SHAPER PRACTICES	4.828	1	2	2
This is an advanced course in machine shop practices. Angular shaping; contour shaping; tongue and groove cuts; slotting work; and dovetails are the shaper areas covered. Drill press practices include: reamers and reaming; counter-boring and counter sinking; boring on the drill press; and power tapping. Laboratory time is provided for individual students to perform the various operations.				
ADVANCED ELECTRONIC CIRCUITS	6.216R	2	3	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 performance of assigned circuits.				
ADVANCED GRINDING PRACTICES	4.839	2	3	3
This is an advanced course covering precision grinding methods. Studies include: work and wheel speeds; wheel wear analysis; roughing and finishing cuts; arc and area of wheel contact; cylindrical grinding; internal grinding; surface grinding; and phase grinding.				

		LEC.	LAB.	TERM UNITS
ADVANCED LATHE PRACTICES	4.833	2	4	3
A continuation of the lathe series of classes. Studies include: internal boring; threading, and taper turning; external threading taper turning and angular turning; and machine reaming. Laboratory time is provided for student operation of equipment.				
ADVANCED MACHINE DRAFTING	4.117	0	5	2
This course extends background in the area of machine drafting. It will include technical sketching and shape description, multi-view projections, sectional views, and revolutions.				
ADVANCED MACHINE DRAFTING	4.123	0	5	2
This course presents advanced studies in the major areas of machine drafting. The areas covered will include threads and fasteners, assembly drawings, pictorial drawings, and engineering graphics. Prerequisite: Advanced Machine Drafting 4.117				
ADVANCED MACHINE DRAFTING	4.125	0	5	2
This course presents practical drafting problems requiring the application of previously learned principles of machine drafting. This will include advanced work on cams, gears, and the relationships of drafting to shop processes. Prerequisite: Advanced Machine Drafting 4.123				
ADVANCED MILLING MACHINE PRACTICES	4.837	2	4	3
A continuation of the milling machine series. Studies include: straddle milling; rotary table work; dividing head construction and indexing; gear cutting and gear terminology; and boring work on milling machines. Laboratory time is provided for student operation of milling machines.				
ADVANCED PROGRAMMING	6.907	2	6	3
A continuation of Intermediate Programming 6.905 with emphasis on automatic programming systems such as COBOL, algebraic compilers; floating point arithmetic, introduction to scientific programming. Prerequisite: Intermediate Programming 6.905 or approval of dept. head.				
AMPLIFIER CIRCUITS & DESIGN	6.214R	3	0	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 considerations. 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.				
AMPLIFIER CIRCUITS & DESIGN LAB.	6.215R	0	6	2
The application of theory studied in Amplifier Circuits and Design.				

		LEC.	LAB.	TERM UNITS
APPLIED MECHANICS	6.109	2	3	3
<p>This course deals with forces and the effect of forces acting upon rigid bodies at rest. This includes resolution of forces, equilibrium and resultants of force systems, friction and centroids. Laboratory time is provided for the conducting of experiments to clarify the principles and procedures covered in class.</p> <p>Prerequisites: Third Term standing or approval of dept. head.</p>				
APPLIED MECHANICS	6.111	2	3	3
<p>This course deals with the motion of rigid bodies and with the forces that produce or change their motion. The principles of rectilinear motion, curvilinear motion, rotation, and plane motion are covered in the course. Laboratory time is provided for the conducting of experiments to clarify the principles and procedures covered in class.</p> <p>Prerequisite: Fourth Term standing or approval of dept. head.</p>				
ARCHITECTURAL DRAWING	4.107	0	4	2
<p>An advanced course emphasizing architectural drawing techniques. The course will cover methods and procedures in architectural drawings, lettering, layout and design of the standard drawings (construction and display), and rendering the display drawing. Carpentry and masonry principles and construction drawings are included. Design principles such as standard stock sizes, strength of joints, maximum loads and spans, and material weights will be discussed. Application consists of drawing complete sets of working drawings of residential and commercial buildings.</p>				
ASPHALT PAVING	6.551	2	2	3
<p>A study of asphalt paving including types of asphalt pavements, petroleum asphalts, aggregates, design of hot mix asphaltic concrete, plant construction, liquid asphalt mixes, seal coats, surface treatment, reconstruction of old pavements, design of flexible pavements, and testing procedures. Laboratory work will consist of field trips, testing of mixes, surfaces and aggregates, design of mixes, and application of a patch.</p> <p>Prerequisites: Sixth Term standing or approval of dept. head.</p>				
AUTOMATED SYSTEMS & PROCEDURES	6.904	3	0	3
<p>Fundamentals of automated data systems and procedures. Techniques and principles of systems analysis, forms design and control, systems economics, feasibility studies, and the installation of electronic data processing systems.</p>				
AUTOMATION SYSTEMS	6.244	3	0	3
<p>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, press working of metals, metal cutting operations, heat treating of metals, metal joining operations, and inspection and quality control.</p>				

		TERM		
		LEC.	LAB.	UNITS
BASIC TOOL DESIGN	4.608	1	6	3
Lectures, classroom discussion, and actual drawing board work are combined to help the student gain knowledge and experience necessary to design tools commonly used in modern manufacturing. The work consists of designing and laying out cutting tools, gauges, simple jigs, fixtures, and dies. Mass production methods are discussed so that the student may apply the information gained in the practical work of tool designing.				
BASIC TOOL DESIGN	4.609	1	6	3
This course is a continuation of Basic Tool Design I. Lectures, classroom discussion, and actual drawing board work are combined to help the student gain knowledge and experience necessary to design tools commonly used in modern manufacturing. The work consists of designing and laying out cutting tools, gauges, simple jigs, fixtures, and dies. Mass production methods are discussed so that the student may apply the information gained in the practical work of tool designing.				
BENCH & LAYOUT PRACTICES	4.821	2	3	3
This is a course on bench tools and their use, with layout principles and applications. The bench tools studied will include hand tools such as: hammers; screwdrivers; files; chisels; wrenches; hand taps and reamers; hacksaws and threading dies. Layout work will consist of the use of tools, measurements, coating materials, and applications of bench and surface plate layout.				
BENCH & PEDESTAL GRINDING PRACTICES	4.829	1	3	2
This course considers the bench and pedestal grinder. Wheel construction, selection, mounting, and dressing methods are studied. The grinding of single and multiple point tools is undertaken. Care and maintenance of grinders and safety precautions receive attention. Laboratory time is utilized for grinding practice demonstrations and individual student operation of grinders.				
Prerequisites: Bench and Layout Practices 4.821				
BLUEPRINT READING & SKETCHING	4.853	0	2	1
This is the first in a series of blueprint reading courses. Common machine shop terms, abbreviations, decimal equivalents, tap drill sizes, dimensions, notes, three view drawings, line alphabet, notes and symbols are discussed.				
Prerequisites: Curriculum entrance requirements.				
BLUEPRINT READING & SKETCHING	4.855	0	2	1
A continuation of the blueprint reading series. Areas discussed are: scaling and scaling dimensions, holes; fillets; radii; title block; bill of materials; alterations and revisions: section and auxiliary views.				
Prerequisites: Blueprint Reading and Sketching 4.853				
BLUEPRINT READING & SKETCHING	4.857	0	2	1
A continuation of the Blueprint Reading Sequence. This course covers a study of gears, gear terminology, and gearing principles. Industrial blueprints are given attention, with the emphasis on reading and accurate interpretation of complex drawings.				
Prerequisite: Blueprint Reading and Sketching 4.855				

				TERM
				LEC. LAB. UNITS
BUSINESS MANAGEMENT	6.908	3	3	4

The over-all picture of how industry is organized and how it functions, including the history of American industry, organization of the industrial enterprise, industrial risk and forecasting, financing the enterprise, building the internal organization, developing the product, constructing the physical facilities, planning and controlling the manufacture of the product, principles of industrial relations, and managing the office.

Prerequisite: Introduction to Business and Public Administration 2.502

BUSINESS STATISTICS	6.912	3	3	4
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A practical course in the use and interpretation of statistics, incorporating elementary statistical concepts, frequency distribution analysis; trends and seasonal business cycles.

Prerequisites: Introduction to Business and Public Administration; Math 4.204 and Accounting 6.920

CONCRETE CONSTRUCTION & DESIGN	6.123	2	5	4
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A study of concrete materials, shear and bending calculations, shear and bending stresses and design calculations. Coverage is given to rectangular, tee, and reinforced beams; reinforced floor systems and columns, foundations, retaining walls and miscellaneous members. Laboratory work will consist of problem solving.

Prerequisites: Sixth Term standing or approval of dept. head.

CONCRETE PRACTICES	6.555	2	0	2
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A study of the producing, placing, finishing, and curing of concrete; the composition of various grades of concrete and their application to construction projects, forms, inspection, properties of concrete, and related factors.

Prerequisites: Sixth Term standing or approval of dept. head.

CONSTRUCTION CODES	6.122	2	0	2
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This course is designed to familiarize the student with the various codes which specify the standards of construction and the installation of electrical and plumbing fixtures. Students study the Pacific Coast Uniform Building Code, The National Electrical Code and the Oregon State Plumbing Laws, and the Regulations governing Plumbing and Water supply. The function of Government units (state and local) charged with the administration and inspection of building construction will be covered.

Prerequisites: Approval of dept. head.

CONSTRUCTION COSTS COMPUTATION	4.134	2	0	2
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Introduction to the basic principles of estimating the amount and cost of materials required and the attendant labor cost involved in various types of construction projects.

Prerequisites: Fifth Term standing or approval of dept. head.

		TERM
		LEC. LAB. UNITS
CONSTRUCTION COSTS COMPUTATION LAB.	4.135	0 5 2
<p>The student applies the principles of estimation to drawing assignment. Examples of local job estimates, and observation of the job site will be used to illustrate the principles whenever practicable. Prerequisites: Fifth Term standing or approval of dept. head.</p>		
CONSTRUCTION ESTIMATING	6.110	2 0 2
<p>Designed to develop skills in estimating the amount and cost of materials required, and labor cost involved in various types of construction. An opportunity is provided for the application of these skills by requiring the student to make estimates of material and labor quantities and costs for representative type of construction. Prerequisites: Fifth Term standing or approval of dept. head.</p>		
CONSTRUCTION STANDARDS	4.110	2 0 2
<p>A study of the required practices covered in local, state, and federal construction standards. Prerequisites: Fourth Term standing or approval of dept. head.</p>		
CONTRACTS & SPECIFICATIONS	6.118	3 0 3
<p>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. Prerequisites: Second Year Standing or approval of dept. head.</p>		
CONTROL LAYOUT SYSTEMS	4.143	1 6 3
<p>Introduction of time and methods study for increased production, efficiency, and safety. Methods of equipment layout and production routing, and personnel and lighting requirements will be discussed. Laboratory time will be used in applying these principles to layout drawings. Prerequisites: Fifth Term standing or approval of dept. head.</p>		
COST ACCOUNTING	2.576	3 0 3
<p>Introduction to the analysis and control of material, labor, and overhead costs in manufacturing, with emphasis on process and job-order cost systems. Prerequisite: Accounting 6.921</p>		
COST COMPUTATIONS	4.140	2 0 2
<p>An introduction to the principles of time and cost computations for electronic-electrical device fabrication and installation. Prerequisites: Fifth Term standing or approval of dept. head.</p>		
COST COMPUTATIONS LAB.	4.141	0 6 2
<p>The student will apply the principles of estimating to find the cost and time allowances for simulated problems. Prerequisites: Fifth Term standing or approval of dept. head.</p>		

		LEC.	LAB.	TERM UNITS
DESIGN PROBLEMS	4.605	2	6	4
Opportunities in advanced drafting room practice are offered in this course. The student applies his knowledge of mathematics, science, and drawing to practical problems while he is designing complete machines or component parts machines. He analyzes the problem, gathers data, sketches ideas on paper, does all necessary mathematical calculations, makes working drawings, and finally checks his work. Throughout the course he is encouraged to use his judgement and work on his initiative.				
DESIGN PROBLEMS	4.606	2	9	5
This is a continuation of Design Problems I Opportunities in advanced drafting room practice are offered in this course. The student applies his knowledge of mathematics, science, and drawing to practical problems while he is designing complete machines or component parts machines. He analyzes the problem, gathers data, sketches ideas on paper, does all necessary mathematical calculations, makes working drawings, and finally checks his work. Throughout the course he is encouraged to use his own judgement and work on his own initiative. Prerequisite: Design Problems I				
DRAFTING	4.101	0	4	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, heads, and standard dimensioning practices will be covered.				
DRAFTING	4.105	0	4	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.				
DRILL PRESS PRACTICES	4.827	2	3	3
This course is an introduction to the construction, care, function and operation of drill presses. Studies of the sensitive, radial, and gang drill presses will be made. Speeds and feed for drilling will be discussed and applied. Different types of drill bits, methods of mounting the work, and drilling procedures will receive attention. Operations will be performed on the drill press during scheduled laboratory periods. Prerequisite: Curriculum entrance requirements.				
EARTHWORK COMPUTATIONS & ESTIMATES	6.528	1	3	2
Problems in computing cuts and fills in highway work, mass diagrams, borrow pits, are worked out in detail. Estimating is limited to computations of quantities and costs on highway, bridge and heavy construction work. Prerequisites: Fourth Term Standing or approval of dept. head.				

	TERM LEC. LAB. UNITS
ELECTRIC ACCOUNTING MACHINE APPLICATIONS	
6.917	3 2 4

Theory and practice in the application of electric accounting machines to the solution of business problems. Examples of currently operating punch card systems in basic industries.

	TERM LEC. LAB. UNITS
ELECTRIC ACCOUNTING MACHINE OPERATIONS	
6.915	2 6 4

Intensive study and practice on punch card equipment studied in Introduction to Electronic Accounting Machines 6.913. Functional wiring principles of basic punch card data processing machines.

	TERM LEC. LAB. UNITS
ELECTRICAL CIRCUITS	
6.204R	3 0 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 wave forms, complex waveform analysis of simple circuits, waveform analysis of series R-C circuits, waveform analysis of series R-L circuits and waveform analysis of combined networks.

	TERM LEC. LAB. UNITS
ELECTRICAL CIRCUITS LAB.	
6.205R	0 6 2

Practical application of the theory studied in Electrical Circuits 6.204R.

	TERM LEC. LAB. UNITS
ELECTRICAL DRAFTING	
4.103	0 4 2

A course covering the techniques and inventions used in the electronic-electrical industry. It includes symbols, wiring diagrams, introduction to pictorial drawings, chassis layout schematic diagrams, power distribution diagrams and charts, graphs, and ASA and EEIA approved symbols.

Prerequisite: Drafting 4.101 or approval of dept. head.

	TERM LEC. LAB. UNITS
ELECTRICAL THEORY DC	
6.200R	3 2 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, complex unidirectional-current circuits the phenomena of magnetism and electromagnetism, inductance and its characteristics, characteristics of capacitance, and electrical measurement instruments.

	TERM LEC. LAB. UNITS
ELECTRICAL THEORY AC	
6.202R	3 2 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 principles of electron physics, unidirectional current, and factors affecting its magnitude, series-circuit analysis, parallel-circuit analysis, complex unidirectional-current circuits, the phenomena of magnetism and electromagnetism, inductance and its characteristics, characteristics of capacitance, and electrical measurement instruments.

		TERM	
ELECTRONIC DATA PROCESSING	6.240	LEC. LAB.	UNITS
		3 0	4

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.

ELECTRONIC DATA PROCESSING MACHINE APPLICATIONS

6.911 **3 2 4**

The applications of electronic computers to the solution of data processing problems in such areas as inventory control, sales analysis, payroll, production scheduling, etc., in basic industries. The function of Electronic Data Processing machines in banking, insurance, utilities, government, and manufacturing.

Prerequisites: Introduction to Programming; Automated Systems and Procedures.

ELECTRONIC-ELECTRICAL STANDARDS

4.114 **3 0 3**

A study of the industrial standards published by the ASA, AIEE, and the NEMA. Also includes a survey of typical state, federal, and military electronic-electrical practices as they affect the draftsman.

Prerequisite: Fourth term standing or approval of dept. head.

FOUNDATIONS OF STRUCTURES **6.120** **3 0 3**

A study of various materials, devices, and designs used in structural foundations such as footings, cofferdams, caissons, abutments, piers, and underpinnings.

Prerequisites: Applied Mech. 6.111 and Tech Math 6.266

HEAT TREATMENT OF STEEL **4.849** **2 3 3**

A study of methods and procedures for improving the characteristics of steel by hardening and tempering. Process of heat treating include: Furnace and flame hardening; case hardening; tempering, annealing, and normalizing; and hardness and tensile testing. Laboratory time is provided for hardening, tempering and testing demonstrations and experiments.

Prerequisites: Practical Physics 4.300

HYDRAULICS **6.112** **3 0 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 in class.

Prerequisite: 5th Term Standing or approval of dept. head.

HYDRAULICS	6.114	LEC. LAB.		TERM
		3	0	UNITS 3

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, Reynolds 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 in class.
Prerequisite: Hydraulics 6.112 or equivalent.

INDUSTRIAL CONSTRUCTION DRAFTING 4.133	2	6	4
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Introduction to the steps of construction for commercial and industrial building. Discussion of modern construction techniques; materials; drawing requirements; inter-relationship of architectural, civil, mechanical, and electrical professions in industrial construction; labor trends as they affect building design; and elements of industrial electrical drawing. Laboratory time is used to develop typical drawings requiring application of principles discussed.
Prerequisite: Fifth term standing or approval of dept. head.

INDUSTRIAL CONSTRUCTION DRAFTING 4.137	2	6	4
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Continuation of the industrial construction processes with emphasis on bridge and tower construction, plant layout, field drawings, revisions, and piping drawings. Laboratory time is used to develop typical drawings requiring application of principles discussed.
Prerequisite: Fifth term standing or approval of department head.

INDUSTRIAL ELECTRONICS	6.218R	2	3	3
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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 amplidyne; and electronic control of welding.
Prerequisite: Amplifier Circuit and Design Lab.

INDUSTRIAL ELECTRONICS	6.246	3	0	3
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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.
Prerequisite: Industrial Electronics 6.218R

		LEC.	LAB.	TERM UNITS
INDUSTRIAL ELECTRONICS LAB.	6.247	0	3	1
The practical application of the theory studied in Industrial Electronics 6.246.				
INDUSTRIAL SAFETY	4.108	3	0	3
A survey of the principles of safety for industry. Includes safety codes, personnel considerations, and safety practices relating to design work, materials handling, and equipment.				
INDUSTRIAL TELEVISION	6.228	2	3	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 detection automatic gain-control and sync-separation, and deflection oscillator and amplifier circuits.				
INDUSTRIAL TELEVISION	6.235	1	2	1
A theory and lab 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.				
INTERMEDIATE PROGRAMMING	6.905	2	6	3
Practice in programming with emphasis on methods of generalized programs; sorting, report generating, table look-up, and program testing. Prerequisites: Introduction to Programming 6.903 and Mathematics for Automatic Data Processing 6.916 or approval of dept. head.				
INTRODUCTION TO AUTOMATIC DATA PROCESSING	6.900	3	2	4
A basic orientation to the field of Automatic Data Processing. Emphasis on the growing technology in the field of processing business data and how this growth in business, industry, and government has necessitated the automation of business routines. Applications of input-output preparation, manipulation of data in automated systems, communication with data processing machines, and computer languages.				
INTRODUCTION TO BUSINESS & PUBLIC ADMINISTRATION	2.502	3	0	3
A basic background course in the general fields of business aimed at developing an awareness of the nature of the business in the capitalist system. Included are problems of ownership, organization, personnel, finance, marketing, and managerial and governmental control. This course or its equivalent is prerequisite to all professional courses in Automatic Data Processing. The nature of public administration, its rules, trends, and functions. Study of government corporation; finances and controls.				
INTRODUCTION TO ELECTRIC ACCOUNTING MACHINES	6.913	3	3	4
The nature and purpose of electro-mechanical machine operation. Principles and practice of punch card operations including key punches, interpreters, verifiers, sorters, collators, reproducers, accounting machines, and calculating punches. Prerequisite: Accounting 6.920				

		TERM
		LEC. LAB. UNITS
INTRODUCTION TO FABRICATION PRACTICES	4.100	2 6 4
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.		
INTRODUCTION TO PROGRAMMING	6.903	3 3 4
Theory and practice in solving business data processing problems on modern digital computers. Principles of problem analysis, block diagramming, coding and checkout of programs.		
INTRODUCTION TO SPECIFICATIONS	4.102	3 0 3
This is a course designed to acquaint the student with the common usage and practice in preparation and interpretation of specifications. Examinations of existing specifications covering current subjects will be used whenever possible with practical problems to teach the application of theory learned.		
INTRODUCTION TO SYSTEMS AND PROCEDURES	6.902	3 0 3
Procedures as a basic administrative technique. The principles of organizing, planning and administering a procedure program. Methods of carrying out individual systems and procedures studies. Procedures analysis and improvement techniques, the role of systems and procedures in business management, systems charting, working simplification and measurement.		
JOB MACHINING PRACTICES	4.845	3 12 7
This course covers typical job shop applications. Students repair and manufacture a variety of machines, equipment, parts, and tools. Typical job shop sequence will be followed with emphasis on speed and quality of finished product.		
LATHE PRACTICES	4.831	2 4 3
This is a course which introduces engine lathe work and practices. Studies of lathe construction, function, operation and care of lathes are included. Operations such as facing, drilling, turning, and parting are performed by students during laboratory periods.		
LIGHT SHEET METAL DRAFTING	4.147	0 6 2
A study of pattern development, basic die development techniques, and steps of fabrication for light sheet metal construction as applied to the electronic-electrical industry. Production design and layout for chassis, raceways, ducts, and metal cabinets are included. Prerequisites: Sixth term standing or approval of dept. head.		

		TERM		
		LEC.	LAB.	UNITS
MACHINE DESIGN	4.603	3	2	4
A course in which the design principles of machine elements are taken up and calculations are made in determining the size and shape of various machine parts. It includes factors which influence the selection of the materials to be used in designing such elements as beams, bearings, clutches, brakes, shafts, bushings, screws, rivets, gears, belts, and fly-wheels. Attention is given to various types of loading conditions, stresses, deformations, fits, finishes, and other factors which must be considered in the design of machine elements.				
Prerequisite: Fourth Term standing or consent of Instructor.				
MACHINERY REPAIR & RECONDITIONING	4.851	3	6	5
This course is a study and application of theories and methods of machine tool repair. The student will utilize laboratory time for reconditioning and repair practices. Included in the course are such areas as: the hand scraper; spotting tools; levels and leveling; gibs; grooves; frosting techniques; slides and ways; power transmission; construction studies; etc.				
Prerequisite: Fifth Term standing or approval of dept. head.				
MACHINE SHOP AUTOMATION	4.824	2	0	2
A study of theory and practices of automation. Mechanical, numerical card and tape controls will be studied. History, theories, trends and applications of automated machines will be given attention. Field trips will be scheduled to supplement classroom activities.				
MACHINE SHOP PRACTICES	4.841	3	6	5
This course stresses the working conditions of a typical machine shop. Students will be assigned projects that will require the related technical information and shop skills previously acquired. Instruction will include advanced theory application and extended machine operations. Speed and accuracy will be considered of paramount importance.				
MACHINE SHOP PRACTICES	4.843	3	6	5
A continuation of the emphasis on industrial working conditions. Advanced projects requiring the utilization of previously acquired skill and knowledge. Theory classes will be devoted to problem solving and further applications of machine shop theories. Laboratory hours will be spent in machine tool operations with speed and accuracy of prime importance.				
MACHINE SHOP PROBLEMS	4.820	3	0	3
An applied mathematics course. Typical machine shop problems are solved with the aid of mathematics. Sections covered include powers and roots of numbers; segments of circles; transportation of various formulae; practical trigonometry; geometrical figures; practical application of logarithms; figuring tapers; tolerances and allowances; and gearing problems.				
MACHINE SHOP PROJECT DRAFTING	4.823	0	4	2
This course combines machine shop knowledge with drafting procedures. Students will design selected projects for fabrication in the shop. The development of working drawings and the use of these drawings in manufacturing industries are studied. The development of perspective views and isometric projection is also included.				

		LEC.	LAB.	TERM UNITS
MACHINE TOOL OPERATIONS	4.801	2	3	3
A basic machine shop course for technicians. Class time is devoted to theories of: measuring tools and measurement; cutting speeds and feeds of various materials; bench tools and use; function and design of machine tools; decimal equivalents, etc. Laboratory time is provided to acquaint the student with basic operations such as: straight turning; shoulder turning; facing and shoulder facing; boring; reaming; shaping; flat surfaces; drill press work and milling machine fundamentals.				
MACHINE TOOL OPERATIONS	4.803	2	3	3
A continuation of the Machine Operation series. Class hours are spent on subjects such as: cutting tools and use; thread forms; tapers, grinding wheel structure; simple indexing, etc. Laboratory time will be devoted to operations on lathe, shaper, milling machine, drill press and grinder. The operations included will be threading; taper turning, serrating and slotting; slab and face milling, spot facing, counterboring and offhand grinding.				
MACHINE TOOL OPERATIONS	4.805	2	3	3
The course will cover such subjects as compound indexing, machine grinding (surface and cylindrical) gears and gearing; multi lead screws; fits; splines and splining, etc. Shop practices include advanced machine tool operations such as: surface grinding, cylindrical grinding; jig boring; angular and contour milling; advanced shaper work and other areas.				
MANUFACTURING PROCESSES	6.606	2	3	3
This course is designed to provide a background of knowledge covering the various manufacturing materials and fundamental types of manufacturing methods as employed in cold working processes. Through lecture, demonstrations and practical applications, the student is given opportunity to become familiar with the various types of machine tools, tooling, measuring, and inspection procedures. Automation is introduced and information is presented to acquaint the student with modern practice of numerical control for machine tools.				
MANUFACTURING PROCESSES	6.608	2	3	3
This course is designed to provide a background of knowledge covering the various manufacturing materials and fundamental types of manufacturing methods as employed in hot working processes. Through lecture, demonstration, and practical applications, the student becomes familiar with various types of welding processes and their applications. Certain special machine operations such as ultrasonic electrical discharge, electro-arc, and chemical milling are studied. Prerequisite: Manufacturing Processes 6.606 or approval of dept. head.				
MANUFACTURING PROCESSES	6.610	2	3	3
This course is designed to provide a background of knowledge covering the various casting and foundry practices. Through lectures, demonstrations and discussions the student becomes familiar with the production of simple molds, cores and castings and in basic heat treatment, inspection and testing using both destructive and non destructive methods.				

		LEC.	LAB.	TERM UNITS
MAPPING AND COMPUTING	6.131	0	4	2
Advanced map plotting, earthwork computation, field surveying from maps; legal description; subdivision planning and simulated problems of construction are used.				
Prerequisite: Fourth Term standing or approval of dept head.				
MAPPING AND COMPUTING	6.133	0	6	2
A study of surveying laws, public land survey procedures, professional surveyor practices, earth work computations and map projections. The student will lay out a highway section, prepare a zone, change map, retrace a government survey, compute earth quantities from a topographic map. Students will perform related operations such as verification of ownership and conformance with zoning laws or similar projects.				
Prerequisite: Mapping and Computing 6.131 or equivalent.				
MAPPING AND PLATTING	4.131	1	7	3
Principles of map platting using field survey data. Office procedure: basic earthwork computation, legal description, and subdivision planning. Simulated problems are used for application of principles.				
Prerequisite: Fourth term standing or approval of dept. head.				
MATERIALS OF CONSTRUCTION	6.108	2	0	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.				
Prerequisite: Approval of dept. head.				
MECHANICAL DRAFTING	4.109	0	4	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 dept. head.				
MECHANISMS	6.612	3	3	4
A course dealing with the analysis of the motion characteristics of mechanism of existing design and the applications of this study in the design of a mechanism to provide desired motion characteristics. In the motion study, absolute and relative velocities, accelerations and the use of instant centers are discussed. Centroides are studied as they apply to mechanism. The use of belts and linkages are illustrated by problems. Cam layout is taken up in detail and appropriate problems are solved.				
Prerequisites: Tech Math 6.266, Physics 6.370 or Approval of dept. head.				
MECHANISMS	6.613	3	3	4
Second in a series of two courses dealing with basic mechanisms. This course deals with an analysis of the characteristics of gearing. The design and application of various gearing employed in modern industry are included. Practical problems are used in the study of gearing. Attention is also given to such mechanics as ratchets, pantographs, valves, clutches, and universal joints.				
Prerequisite: Mechanisms 6.612				

		TERM
		LEC. LAB. UNITS
METALLURGY	6.602	2 2 3
This course covers principles relating to ferrous metals; their formation and production; properties of metals; uses of metals; hardening and temperings and hardness testing. Laboratory time is provided for demonstrations and experiments to aid classroom studies.		
METALLURGY	6.604	2 2 3
A continuation of Metallurgy I with introduction of non-ferrous metals. Formation, uses, production, heat treating and hardness testing. Laboratory time is provided for demonstrations and experiments to aid class room studies.		
Prerequisite: Metallurgy 6.602		
METALS APPLICATION TREATMENT & TESTING	4.106	2 3 3
A survey course in metallurgy covering the common materials of fabrication, metals coding systems, characteristics, methods of refining and alloying, and methods of treating. The goal of the course is to acquaint the student with the various types and the working of metals used by industry.		
MICROWAVES	6.242	2 3 3
A theory and laboratory course designed as an introduction to microwaves. Covers UHF transmission lines, the application of quarter-wave lines, matching stubs, and standing wave measurements. Transmission of microwave energy through wave guides 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.		
Prerequisite: Sixth term standing or approval of dept. head.		
MILLING MACHINE PRACTICES	4.835	2 4 3
A course in fundamental milling machine work, studies of construction, types, attachments, and operation of milling machines. Laboratory time is provided for demonstrations and for individual student operation of equipment.		
OFFICE MACHINES	2.521	1 3 2
This course covers the principles and functional applications of office machines used in the mathematical accounting field, such as adding machines, calculators, comptometers, and bookkeeping posting machines		
OSCILLATOR CIRCUITS & DESIGN	6.212R	2 0 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 the Colpitts 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: Vacuum Tube and Transistor Analysis 6.210R and Vacuum Tube and Transistor Analysis Lab. 6.211R and Technical Math. 6.261		

		LEC.	LAB.	TERM UNITS
OSCILLATOR CIRCUITS & DESIGN LAB.	6.213R	0	6	2
Practical application of the theory studied in Oscillator Circuits and Design 6.212R.				
PHOTO INTERPRETATION & MAPPING 4.112		3	4	4
Principles of preparing maps and charts from aerial photographs by ground surveying and stereoscopic methods using standard computational forms. Prerequisite: Sixth term standing or approval of dept. head.				
PICTORIAL DRAFTING	4.149	0	3	1
A concentrated study of the development of pictorial wiring diagrams for instructional, demonstration, or sales purposes. Use of drafting template and instrumental drawings will be emphasized. Prerequisite: Sixth term standing or approval of dept. head.				
PLANE SURVEYING	6.101	1	6	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.				
PLANE SURVEYING	6.103R	1	6	3
A continuation of Plane Surveying 6.101 designed to familiarize the student with the engineer's transit and its uses and an introduction to stadia surveying and leveling. Prerequisite: Plane Surveying 6.101 and Tech Math 1.260R or equivalent.				
PRACTICAL HYDROLOGY	6.535	3	0	3
A study of hydrology including Introduction to Geology, ground waters, stream flow or runoff, variations in runoff or stream discharge, floods and flood flows, and applications of hydrology. Prerequisite: Fifth term standing or approval of dept. head.				
PRODUCTION PLANNING & PRACTICES	4.104	3	2	4
This course will introduce elements of production control and planning such as: machine routing, steps of fabrication, efficient shop layout, materials handling, storage problems, and production records. Prerequisite: Second year standing or approval of dept. head.				
PROJECT DRAFTING	4.119	1	9	4
This course emphasized 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 takeoffs. 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.				

		TERM LEC. LAB. UNITS
PROJECT DRAFTING	4.121	0 8 3
<p>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 takeoffs. Drafting room standards of various industries will be discussed. Speed and accuracy will be considered of paramount importance. Prerequisite: Project Drafting 4.119 or equivalent.</p>		
PROJECT DRAFTING	4.145	1 9 4
<p>A project drafting course emphasizing actual working conditions and drawing requirements. Diversified drawing project assignments will require the application of all previously acquired skills. Instruction will include speed dimensioning (co-ordinate dimensioning) use of drawing index, drafting room administration, co-ordination of specification and design, checking and backchecking methods, revisions, material take-offs, and different methods representing circuits and circuit components. Prerequisite: Sixth term standing or approval of dept. head.</p>		
PROPERTY SURVEYING	6.511	1 3 2
<p>An introduction to property surveying including description, study of rights, property transfer, location of metes and bounds, locating subdivisions and conveyances lacking senior rights; claims, sectionalized land, deeds, and duties of the surveyors are also covered. Laboratory work includes use of public records to trace titles, surveys and preparation of descriptions. Prerequisite: Second term standing or approval of dept. head.</p>		
RECORDS AND REPORTS	2.517	1 3 2
<p>This is a specialized treatment of records and has as its purpose developing the students' ability to prepare the many kinds of management data needed to guide a business operation other than the financial data furnished by the bookkeeping system. Reports, legal records, insurance records, personnel records, equipment records, sales and production records, visual reports, and assembly of data receive emphasis.</p>		
ROAD & HIGHWAY DRAFTING	4.129	1 6 3
<p>Advanced course in drafting including profiles, grades, beds, routes, cross-sections and details of bridge constructions, and hard-and-dirt-surfaced roads. Emphasis is placed on drafting requirements for roads built by government agencies and private companies. Prerequisite: Fourth term standing or approval of dept. head.</p>		
ROUTE SURVEYING	6.507	1 6 3
<p>An introduction to route survey problems including plans and profiles, distances, curves and grades, and circular curves. Laboratory work includes road layout on simple terrain, preparation of preliminary maps, and layout of road curves. Prerequisite: Fifth term standing or approval of dept. head.</p>		

		TERM	LEC.	LAB.	UNITS
SCALES & GRAPHS	4.139	0	6	2	
An advanced course covering the techniques of design and layout of meter scales and graphs. Instruction includes methods of calculating the layouts for square root, logarithmic, semi-logarithmic, meter scales, etc. Layout and drawing techniques for co-ordinate, logarithmic, and polar graphs are also covered. Skills in inking procedures, use of the French curves and adjustable splines will be developed.					
Prerequisite: Fourth term standing or approval of dept. head.					
SEMI-CONDUCTORS	6.234	2	0	2	
This course covers the physical principles underlying the behavior of semi-conductors, transistors, and other solid state devices, as well as their application to various electronic circuits. The physics pertinent to transistors and semi-conductors is discussed as are their characteristics and the ways in which they operate. The use of transistors in various amplifiers, oscillators, and switching circuits is covered with emphasis on developing concepts and knowledges basic to transistor and semi-conductor theory and practice.					
Prerequisite: Electronics 6.214 and Electronics Lab 6.215 or equivalent.					
SERVO SYSTEMS	6.236R	1	3	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 elements, electronic and magnetic amplifiers, direct current servomotors, performance improvers methods for servos and measurement, and examples of servos and servo systems.					
Prerequisite: Industrial Electronics 6.218R					
SHAPER PRACTICES	4.825	2	3	3	
This is a course devoted to the introduction, care, and function of the metal-working shaper. The various parts and attachments, feeds, speeds, and adjustments, and tooling will be discussed. Laboratory time is provided for supervised operation of the shaper.					
Prerequisite: Curriculum entrance requirements.					
SOIL MECHANICS	6.124	2	3	3	
A study of index of properties of soil, hydraulic and mechanical properties, soil drainage and plastic equilibrium. Laboratory experiments and projects cover each phase of study.					
Prerequisite: Second year standing or approval of dept. head.					
SOIL MECHANICS	6.526	3	0	3	
Soil exploration, earth pressure and stability of slopes, foundations and causes of settlement are covered with the use of demonstrations and other training aids wherever practical.					
Prerequisite: Sixth term standing or approval of dept. head.					
STRENGTH OF MATERIALS	6.107T	2	0	2	
A study of the stresses and strains that occur in bodies when subjected to tensile, compressive and shearing forces, including the common theory of beams. The distribution and magnitude of stresses are examined in welded and riveted joints, thin wall cylinders, torsional members and beams. Practice problems emphasize the materials studied.					
Prerequisite: Applied Mechanics 6.109 and Tech Math 6.266 or equivalent					

		TERM
		LEC. LAB. UNITS
STRENGTH OF MATERIALS LAB. 6.107		0 3 1
Principles of materials testing and loads measurement. Experiments including application of testing equipment to structural materials and calibration of testing equipment.		
Prerequisite: To be taken concurrently with Strength of Materials 6.107T		
STRENGTH OF MATERIALS II 6.128		2 3 3
A study of the design and deflection of beams and a study of the combination of forces and their effects upon various structural members. This course includes a study of failure of structural connection and laboratory tests of materials.		
Prerequisite: Strength of Materials 6.107 and 6.107T or equivalent.		
STRUCTURAL ANALYSIS & DESIGN 6.130		1 3 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.		
Prerequisite: Applied Mechanics 6.109; Strength of Materials 6.107 and 6.107T.		
STRUCTURAL DRAFTING 4.111		0 4 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: bridges, dam, and earthwork constructions.		
Prerequisite: Sixth term standing or approval of dept. head.		
SURVEYING COMPUTATIONS 6.500		1 6 3
A study of trigonometric and geometric formulas, logarithms, mechanical computers and integrating instruments, area computations, traverse calculations, leveling, plotting surveys. Field trips and problems will be used as needed.		
Prerequisite: Third term standing or approval of dept. head.		
TECHNICAL ILLUSTRATIONS 4.127		0 4 2
This course will introduce the techniques required for modern technical illustrations and drawings such as those found in catalogues, published presentations or exploded drawings. Both freehand drawing and template drawing will be covered. Balance, surface rendering, kinds of drawing implements, pencils, brush and techniques of light and shadow will be discussed.		
Prerequisite: Second year standing or approval of dept. head.		
TIMBER & STEEL CONSTRUCTION 6.125		3 3 4
A study of steel and wood fasteners and connections, timber beams and columns. Structural members will be analyzed for design features. Field trips will be used to visualize application. Laboratory time will be used for testing.		
Prerequisite: Structural Analysis and Design 6.130 or equivalent.		

		TERM
		LEC. LAB. UNITS
TOOL & FIXTURE DESIGN AND APPLICATION	4.847	2 4 3
An overview of design and machining of tool fixtures and jigs. Applications of drill jigs, special work holding devices, indexing work holders, templates for form turning and other applications. Class time is devoted to design and theory of design with laboratory time spent on the fabrication and machining of special fixtures for production runs.		
TOPOGRAPHICAL SURVEYING	6.517	1 6 3
A course in preparation of topographical maps including filling in detail and plotting and finishing maps. Topographical surveying problems are included. Laboratory work includes making surveys and preparation of maps from notes gathered.		
Prerequisite: Fourth term standing or approval of dept. head.		
TRAFFIC ENGINEERING	6.553	3 0 3
A study of traffic engineering and controls. Such topics as traffic characteristics, controls, illumination, regulation, design, surveys, route analysis, and planning are covered.		
Prerequisite: Sixth term standing or approval of dept. head.		
VACUUM TUBE & TRANSISTOR ANALYSIS	6.210R	3 0 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 emission and fundamental transistor theory. Covers two element 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.		
Prerequisite: Third term standing or approval of dept. head.		
VACUUM TUBE & TRANSISTOR ANALYSIS LAB.	6.211R	0 3 1
Practical application of the theory studied in Vacuum Tube and Transistor Analysis 6.210R.		
WAVE GENERATION & SHAPING	6.234R	2 3 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 principle of operation, and application.		
Prerequisite: Fourth term standing or approval of dept. head.		

		TERM
		LEC. LAB. UNITS
WELDING	4.150	1 3 2
<p>This course may be taken in two terms of 1 class and 3 laboratory hours per week as Welding 4.150 (2 Term Units) and Welding 4.151 (2 Term Units). Set-up 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.</p>		
WELDING	4.151	1 3 2
<p>This course may be taken in two terms of 1 class and 3 laboratory hours per week as Welding 4.150 (2 Term Units) and Welding 4.151 (2 Term Units). Set-up 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.</p>		

Practical Nursing Courses

CLINICAL ROTATIONS

This time is spent in the affiliated hospitals and institutions for the purpose of developing skills in regard to maternal and child health, medical and surgical nursing, and psychiatric nursing. Affiliated hospital and institutions are Salem Memorial Hospital, Salem General Hospital, Oregon State Tuberculosis Hospital, Oregon State Hospital, and Marion County Health Department.

NORMAL HEALTH GROWTH AND DEVELOPMENT 7 0 7

A course to familiarize the student with the growth and development structure and function of the human body; the classification, requirements, and preparation of food both for healthy and ill persons; specific nursing care for the "Senior Citizens"; and the role and function of the LPN (Licensed Practical Nurse) in the rehabilitation of the patient.

NURSING CARE IN CONDITIONS OF ILLNESS 8 1 9

A unit of study to assist the student to acquire knowledge and understanding of the basic principles associated with the nursing care of the patient with common medical and surgical conditions; the mother during normal and abnormal phases of pregnancy; labor and delivery as well as care of the newborn; and child care in relation to prevention of illness and special conditions of children; and the person with psychiatric conditions as seen in the community general or mental hospital.

NURSING SKILLS 9 2 11

A study of the basic and advanced nursing procedures and skills necessary for the LPN to perform good, individual nursing care of the patient in the home, hospital or emergency situation. This course will include time spent on disaster nursing, First Aid, fundamentals of nursing, advanced nursing procedures and simple medications.

PERSONAL AND VOCATIONAL RELATIONSHIPS	<table border="0"> <tr> <td style="text-align: center;">LEC.</td> <td style="text-align: center;">LAB.</td> <td style="text-align: center;">TERM</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">0</td> <td style="text-align: center;">UNITS 10</td> </tr> </table>	LEC.	LAB.	TERM	10	0	UNITS 10
LEC.	LAB.	TERM					
10	0	UNITS 10					

This is a combination of both nursing and vocational courses designed to orient the student to the role of the student practical nurse and LPN with special emphasis on appearance, attitude, communications, legal aspects of nursing, mental hygiene, professional organizations and literature.

Dental Assistant Course

ADVANCED CHAIRSIDE & LABORATORY PROCEDURES

2 3 3

Here the student receives instruction and practical experience in assisting in specialized fields of dentistry as well as her role in emergency treatments. She will be able to invest and cast inlays and assist in other advanced lab procedures.

BASIC CHAIRSIDE PROCEDURES

2 3 3

This course is designed to give the student basic knowledge and practical experience in all of the general dental office procedures, including seating and dismissing patients, charting cavities, and making basic set-ups for general operative procedures.

CHAIRSIDE ASSISTING & BASIC LAB PROCEDURES

2 3 3

A continuation of Basic Chairside Procedures including, mixing filling materials, preparing impression materials for use and processing the impressions. The course also provides practical dental laboratory experience in pouring models and making base plates; safety and maintenance of equipment are also covered.

DENTAL OFFICE BOOKKEEPING

2 2 3

Recommended preparation: High school courses in business and mathematics are desirable. A course designed to create an awareness of, and give practice in, keeping accurate and neat records. A study of patient record cards, appointment books, record filing, banking, collections and budget financing.

DENTAL OFFICE MANAGEMENT

2 3 3

This course is designed to help the student with personal and vocational relationships including the telephone, reception procedures, business office procedures, purchase, storage, and care of supplies, and maintenance of office and equipment.

DENTAL SCIENCES AND THE SPECIALIZED FIELDS

5 0 5

A study of the various fields of specialized dentistry recognized by the American Dental Association and the sciences connected with them. The student will study such subjects as diseases of the mouth, oral hygiene, bacteriology, sterilization, drugs, and diet and nutrition with instruction as to their application in her role as a dental assistant.

IN-SERVICE TRAINING

0 12 1

Practical experience in dental office routine in a selected practice office. The student will assist the in service office staff with routine duties for a minimum of 12 hours per week.

	TERM
	LEC. LAB. UNITS
INTRODUCTION TO DENTAL ASSISTING	4 0 4
Recommended preparaton: High school course in biology and physiology. An exploratory course to acquaint the student with the one year Dental Assisting curriculum and the qualifications necessary for success in the Dental Assisting field. This class further prepares the student for subsequent courses by an introduction to elementary head and anatomy, dental vocabulary, oral pathology, and dental medicines.	
ROENTGENOLOGY I	2 0 2
Roentgenology I is an introduction to x-ray including the discovery and history of x-ray, properties and types of x-ray, the principles of proper developing, and the properties of processing solutions, and principles of x-radiation protection.	
ROENTGENOLOGY II	2 3 3
A continuation of Roentgenology I including instructions in the use of x-ray equipment and materials, placement of film in the mouth, and experience in taking x-rays and dark room procedures.	
TYPING I	0 5 2
Stresses keyboard mastery and fundamentals of good typing techniques necessary for maximum skill in copy work. Problems include centering, business letters, simple tabulation and manuscript.	

Industrial Supervisory Program Courses

	Term Units
BASIC PSYCHOLOGY FOR SUPERVISORS 9.502	3
Course to assist the supervisor in understanding the people with whom he works, with emphasis on the psychological aspects, perceptions, learning processes, emotions, attitudes and personalities, etc.	
COST CONTROL FOR SUPERVISORS 9.514	3
How costs are determined in industry. Cost control and its functions. The supervisor's responsibility for costs. Factors in cost control: costs, materials, waste, salvage, quality control, quantity control, control of time.	
DEVELOPING THE EMPLOYEES THROUGH TRAINING (Teacher Training) 9.504	3
The supervisor's responsibility for developing employees through training. Orientation and induction. Vestibule and on-the-job techniques. Job instruction principles. Apprenticeship training. Technical training. Supervisory training and management development. Use of outside agencies. Advisory committees.	
ELEMENTS OF SUPERVISION 9.500	1
A basic introductory course covering in general terms the total responsibilities of a supervisor in industry such as organization, duties and responsibilities, human relations, grievances, training, rating, promotion, quality-quantity control, management-employee relations, etc.	
HUMAN RELATIONS (Developing Supervisory Leadership) 9.506	3
To show the practical application of basic psychology in building better employer-employee relationships by studying human relations techniques. Prerequisite: Basic Psychology for Supervisors.	

INDUSTRIAL ECONOMICS 1.590 **3**

Significant economic facts. Development of a critical attitude toward industrial economics. Institutions and practices that determine our social environment. Management-supervisory-employee relationships to economics and local industry.

JOB ANALYSIS FOR WAGE ADMINISTRATION 9.520 **3**

The history of wages. Inequalities in rates of pay. Management and union movement toward a "fair wage" plan. The supervisor and job descriptions, job specifications, job evaluations, and job classifications. The wage plan laid down by the department of Labor. The Federal Employment Service. Wage administration and the line organization.

LABOR-MANAGEMENT RELATIONS 9.508 **3**

The history and development of the Labor Movement-Development of the National Labor Relations Acts, the Wagner Act, the Taft-Hartley Act. The supervisor's responsibility for good labor relations. The union contract and grievance procedure.

MANAGEMENT CONTROLS AND THE SUPERVISOR 9.524 **3**

Basic principles of controls. Delegation of responsibility through the use of controls. The purpose and objectives of controls, manufacturing costs, quality control, quantity control, production control, control over materials, control over personnel organization, etc.

METHODS IMPROVEMENT FOR SUPERVISORS (Work

Simplification) 9.512 **3**

The supervisor's responsibility for job methods improvement. The basic principles of work simplification. Administration and the problems involved. Motion study fundamentals for supervisors. Time study techniques.

ORAL COMMUNICATIONS FOR SUPERVISORS 9.503 **3**

How we communicate. Effective speaking and listening. Kinds of supervisory communications. Saying what we mean, which covers oral versus written communications. Understanding what is communicated as related to intent and effect. Conference leading and practice for supervisors.

ORGANIZATION AND MANAGEMENT 9.518 **3**

The supervisor's responsibility for planning, organizing, directing, controlling, and coordinating. Acquaints the supervisor with these basic functions of an organization and his responsibility in carrying them out in accordance with the organization's plan. Establishing lines of authority, functions of departments or units, duties and responsibilities, policies and procedures, rules and regulations, etc.

READING IMPROVEMENT FOR SUPERVISORS 9.507 **3**

General approach to better reading through the proper use of text material, reading films, tachistoscope, and practice. Benefits of better reading, primary considerations in reading, evaluating and analyzing what is read, vocabulary improvement, advanced reading tips.

REPORT WRITING FOR SUPERVISORS 9.505**3**

Types of reports: statistical, financial, narrative, technical. Steps in preparing the report. Gathering and sorting information. Designing and organizing the report. Parts of the report. Techniques of writing. Format, style, and organization. Illustrating the report. Practice in writing and evaluating reports in the occupational field of the individual enrollees. Prerequisite: Written Communications for Supervisors or equivalent.

SAFETY TRAINING AND FIRE PREVENTION 9.522**3**

Problems of accidents and fire in industry. Management and supervisory responsibility for fire and accident prevention. Accident reports and the supervisor. Good housekeeping and fire prevention. Machine guarding and personnel protective equipment. State Industrial Accident Code and fire regulations. The First Aid department and the line supervisors's responsibility. Job instruction and safety instruction. Company rules and enforcement. Use of safety committees. Your insurance carrier and the Insurance Rating Bureau, Advertising and promoting a good safety and fire prevention program.

SUPERVISOR'S RESPONSIBILITY FOR MANAGEMENT OF PERSONNEL 9.516**3**

Personnel techniques for which the supervisor is partially responsible and for which he should have some training in carrying out his responsibility. Selection, placement, testing, orientation, training, counseling, merit rating, promotion, transfer, and training for responsibility.

WRITTEN COMMUNICATIONS FOR SUPERVISORS 9.501**3**

Review of writing mechanics covering grammar, punctuation, sentence structure, and paragraph structure. Business letterwriting involving the principles, planning, and dictating of letters. Memorandum and bulletin writing with emphasis on format, content, structure, tone, and style. Manual writing covering format, content, and structure.

Sale Technical Vocational School

4389 Satter Drive, N.E.

Salem, Oregon

To

