plication is made of trigonometry for the solution of alternating current circuits, series and parallel resonance, impedance, reactance, and current-voltage phase angles.

ES-261. BASIC TELEVISION. Twenty hours a week.

The theory—five hours per week—covers fundamentals of the transmission of audio and video signals in the television system. Topics are: safety precautions, the audio portion of the television receiver, the composite video signal, picture carrier modulation, the picture tube, scanning and synchronization, television low and high voltage power supplies, and video amplifier stages.

Laboratory projects include picture tube handling, setting-up and basic adjustments of the television receiver, chassis and picture tube removal and installation, cabinet care, construction, analysis, testing, and simple trouble shooting in the audio section, power supply, picture tube circuits and video amplifier stages. Sound IF alignment is practiced. The erection and installation of antennas including the use of rotors is practiced. Signal strength measurements are made using different types of antennas.

ES-262. TELEVISION CIRCUITS. Twenty-five hours a week.

The theory aspect of this course includes the study of the following: brightness control and d-c reinsertion circuits, video detector stages, automatic gain control circuits, synchronization separator and amplifier stages, deflection oscillator and amplifier stages, automatic frequency control circuits, picture IF amplifier stages, and RF tuner units. Sweep and marker generator applications in the alignment of the IF sections and VHF-UHF tuners are studies. Actual shop work for 20 hours per week is on projects which include construction, analysis, testing, and simple troubleshooting of the stages studied during the theory lecture time. Oscilloscope application for waveform testing and peak to peak measuring in the deflection and video section for troubleshooting purposes is performed. Visual alignment is practiced. Adjustments of horizontal automatic frequency control and automatic gain control circuits are also performed.

ES-263. TELEVISION SERVICE. Twenty-five hours a week.

Troubleshooting the complete television receiver is the major element in this course. The theory lecture is used to study methods of trouble locating and the application and function of the following test instruments: vacuum tube voltmeter, oscilloscope, sweep and marker generators; crosshatch generator, voltage calibrator, isolation transformer, et cetera.

Other subjects are receiver installation problems, picture interference analysis, VHF-UHF antenna and transmission line theory, antenna distribution systems, camera tubes, and studio setups, advanced circuit design in stages like the video amplifier, noise suppressors, remote control units, et cetera. Discussions of service problems are held.

Laboratory work is concentrated on performance checks. Diagnosis and repair of faulty receivers is undertaken on many makes of television receivers. Complete visual alignment procedures including AFC and AGC adjustments are performed. There is home service call practice.

ES-361. COLOR TELEVISION. Twenty-five hours a week.

This is an advanced theory course and is designed to introduce color television to the technician now working in black and white television service or to persons who have completed the six preceding quarters in the Radio-Television Service. program.

The study is centered on the NTSC color television system. Study starts with the basic theory of color transmission followed by the practical chrominance circuit design and includes localizing troubles in the color receiver. Also included is a short section on the latest troubleshooting techniques specially designed for technicians with some experience in black and white television servicing. Twenty hours per week are devoted to installation and adjustment of the color receiver, troubleshooting of chrominance circuits such as: color sync circuits, chrominance bandpass amplifier stages and detector circuits, matrix network, etc. on live program and color generator. Also included is some troubleshooting in black and white television receivers using advanced techniques.

TRANSMITTER SERVICE

TS-263. BASIC TRANSMITTER SERVICE. Twenty-five hours a week.

Five hours per week of theory which includes safety procedures, theory and operation of transmitter circuits such as: oscillators, VFO's, frequency multipliers, buffer amplifiers, voltage amplifiers, power amplifiers, AM and FM modulator circuits, and antenna systems. The laboratory projects include testing, analyzing, and repair of transmitter circuits. Adjustment of stages using different indicating instruments and procedures, frequency measurement and modulation measurement are included.

TS-273. COMMERCIAL RADIO REGULATIONS I. Two hours a week.

This two-hour per week course is concerned with the rules and regulations of the Federal Communications Commission pertaining to commercial radio and television operation. Various regulations are interpreted.

A knowledge of the commercial radio rules and regulations is necessary for FCC license preparation.

TS-361. ADVANCED TRANSMITTERS. Twenty-five hours a week.

The theory class is five hours per week and includes: advanced transmitter circuit servicing techniques and stage adjustments. Radio broadcast transmitters, control boards, transcription turntables, pre-amplifiers, peak limiters, modulation monitors, frequency monitors, television transmitters and antenna systems are studied.

Laboratory projects include advanced techniques of analyzing, testing, servicing, and adjustment of transmitter circuits. Audio distortion tests are performed as well as the numerous operation checks using modern test equipment.

TS-371. ANNOUNCING. Five hours a week.

This five hour per week course deals with the various aspects of radio announcing. Proper news delivery, expressive commercials delivery, and delivery of written script shows are some of the types of announcing that are undertaken. Off-hand delivery and ad-libbing techniques are included.

TS-381. COMMERCIAL RADIO REGULATIONS II. Two hours a week.

A continuation of the course on Federal Rules and Regulations necessary for First Class Commercial Radiotelephone License. This is advanced radiotelephone law.

REFRIGERATION — HEATING, AND AIR CONDITIONING

R-161. BASIC AND DOMESTIC REFRIGERATION. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations, and problems co-ordinated with laboratory operations and tests. The first quarter includes the theory and application of the basic principles of refrigeration, the function and operating characteristics of the various parts of the refrigeration units. Study of the design and theory of condensers, receivers, evaporators, refrigerant controls and the common refrigerants is included; also the use of testing equipment, safety and protective devices. The lecture program is correlated with practical problems presented in the shop.

R-162. REFRIGERATION. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations and problems coordinated with laboratory operations and tests. The second quarter includes theory, application and operation of expansion valve, float valve, and capillary tube systems; thermostats and pressure motor controls. Methods of complete refrigeration overhauling and testing procedures. Charging and discharging systems with refrigerant and oil; testing for refrigerant leaks, testing hermetic units, relays and overload devices; diagnosing troubles, repairing and testing.

R-163. COMMERCIAL REFRIGERATION. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations and problems coordinated with laboratory operations and tests. This course is devoted to disassembling, assembling, adjusting, operating and testing compressors, valves and controls used in commercial refrigeration, as well as troubleshooting, repairing and servicing commercial installations. Operating and testing low and medium temperature, multiple and other systems and the use of hot gas and electric defrost methods. Training is given in layout and estimating complete refrigeration installations, including wall construction, calculating heat gains, selecting and sizing condensing units, evaporative condensers, water towers, cooling coils, valves, controls and lines. Working drawings and reports are made and the slide rule is used for calculations.

R-181. AUTOMOTIVE AIR CONDITIONING. Four hours a week.

A course planned to teach automotive service students the principles of refrigeration. On cars equipped with air-conditioning units it is often necessary to remove the air-conditioning unit in order to service other units of the automobile.

AC-142. SHEET METAL. Four hours a week.

A laboratory lecture course that includes three hours of shop practice and one hour of lecture and discussion. This course is designed for refrigeration, heating and air conditioning students which includes the basic elements of sheet metal work as applied to the design and construction of heating and cooling ductwork.

AC-161. APPLIED ELECTRICITY. Four hours a week.

A lecture course on the fundamentals of electricity with application to the area of refrigeration, heating and air conditioning. This course will include the study of the electron theory, magnetism, DC and AC current, electrical producers, meters, motors, transformers, capacitors and relays. (4+0)

AC-163. TRANSPORTATION, REFRIGERATION AND AIR CONDITIONING. Four hours a week.

Four hours a week of classroom lecture and demonstrations, plus laboratory applications, covering a study of transport compressor construction, drive mechanisms, capacity control and other problems identified with mobile refrigeration, such as various types of safety devices, condensing problems, and equipment locations. Various types of eutectic plates and eutectic solutions for short haul and hold-over service are discussed. Problems concerning comfort air conditioning, as they apply to trucks, bus, aircraft and marine applications are presented. (2+2)

AC-261. AIR CONDITIONING. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations and problems coordinated with laboratory operations and tests. The fourth quarter offers basic principles, practices and operation of air conditioning equipment for cooling. The use of the sling psychrometer, anemometer, and other instruments is applied with the study of the psychrometric chart, air and steam tables. Class work and lecture demonstrations include calculations for heat gains, properties of air, the gas laws, etc. Laboratory work includes operating, testing and troubleshooting the various types of air conditioning equipment.

AC-262. HEATING. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations and problems coordinated with laboratory operations and tests. This program offers basic training in the fundamentals of heating. The course includes a study of the three basic heating systems; warm air, hot water and steam. Also included is the study of stokers, oil burners, filters, registers and heat transfer units. Problems in heat loss calculations for residential and commercial installations together with the selection and sizing of heating systems. Laboratory work includes the installation, operation, testing and trouble-shooting of the various types of heating equipment together with the electric and pneumatic controls needed for operation.

AC-263. ADVANCED HEATING AND AIR CONDITIONING PROBLEMS. Twenty hours a week.

Five hours of classroom lecture; fifteen hours of demonstrations, calculations and problems coordinated with laboratory operations and tests. This course includes the study of air distribution and duct design which covers the requirements of fans, filters, diffusers, ventilation systems, noise control and the necessary electric or pneumatic controls for their operation. Also included is a study of insulation materials; chimneys, flues and fireplaces; other heating and cooling systems; and alternate methods of calculating heat gains and heat losses. Laboratory work includes the use of pitot tube, anemometer, manometer and draft gauge in checking the various duct systems for heating and cooling operations. Other laboratory problems will consist of duct construction, applications of fan performance under various conditions and diagramming and testing various wiring situations.

AC-272. AIR MOVEMENT AND VENTILATION. Four hours a week.

Four hours of classroom lecture and problems covering the areas of air handling for heating, air conditioning and ventilation. Situations concerning air duct design, psychrometric problems, and problems of design and installation of industrial ventilation will be covered. (4+0)

AC-273. ELECTRICAL CIRCUITRY AND CONTROLS. Four hours a week.

This is a four hour lecture-demonstration course designed to provide a background of the theory of operation, application and installation of electrical control circuits and control devices used in the refrigeration, air conditioning and heating industry. Basic control circuits are combined in various ways to produce control of motors, dampers and valves used on heating and air conditioning equipment. (4+0)

WELDING

W-141. BASIC INERT GAS WELDING. Ten hours a week.

This course teaches the fundamentals of inert gas welding with the argon shielded arc. The basic types of joints are covered on different types of metals. The theory of other types of shielded processes is also taught at this time. Two hours of theory and eight hours of laboratory are given weekly.

W-144. SHEET METAL LAYOUT. Four hours a week.

A lecture demonstration course in which the basic elements of sheet metal work are studied. Part of this time is used in the layout of sheet metal problems and a study of sheet metal drafting procedures.

W-161. BASIC OXY-ACETYLENE WELDING. Twenty-two hours a week.

This course is designed to instruct the student in the procedures of oxy-acetylene welding and cutting. Fabrication of gas-welded structures, position welding, and care of gas-welding equipment are included in this phase of the welding course.

Approximately five hours of lecture and 17 hours of laboratory work are given in this course.

W-162. BASIC ARC WELDING. Twenty-five hours a week.

This course enables the welding student to use the arc welding process in fabrication of steel structures. All types of welded joints are discussed and welded in all positions. Care and maintenance of the arc welder are applied in this course. The course will include five hours of lecture and 20 hours of laboratory work per week.

W-163. COMBINED WELDING. Fifteen hours a week.

This is a combined welding course which gives the student experience in varied welding shop projects with oxy-acetylene and arc welding. More time is applied to horizontal, vertical, and overhead welding positions. This course includes five hours of theory and 10 hours of laboratory work per week.

W-183. COMBINED WELDING. Four hours a week.

This is a combined course in gas and arc welding to provide the machinist or other tradesman with enough welding experience to make repairs and to fabricate simple assemblies. Emphasis is placed on the building up of worn parts and the repair of broken parts. The use of low temperature rods is included to make the repair of machine shop tools, such as milling cutters, possible.

W-191. BASIC METALLURGY. Three hours a week.

This is a three hour per week lecture course. The effect of alloys on the weld and welding procedures are the main topics of discussion. Pre-heating, post-heating, and other heat treatment procedures are also covered in this course.

W-192. COMBINED WELDING. Six hours a week.

A combined welding course covering gas and arc theory and practice for students needing more than the offering of W-183, particularly for the auto body and fender students.

W-261. ADVANCED WELDING. Fifteen hours a week.

This course is designed to produce a more experienced welder, for more rapid advancement in the field. It includes non-ferrous welding, tool welding, alloy castings and the more intricate welding procedures and application. Welding of pressures, vessels, and pipe fabrication also is included in this course. This course is five hours of theory and 10 hours of laboratory work per week.

W-271. ADVANCED INERT GAS WELDING. Ten hours a week.

This course gives the student practical work in the fundamentals studied in the former quarter. It includes position welding of non-ferrous alloys, and hard surfacing with inert gas. Two hours of theory and eight hours of welding laboratory are given in this course.

RELATED EDUCATION

Communication Skills 51. COMMUNICATIONS I. Three hours a week.

A course designed to achieve desirable standards of effectiveness in oral and written communication. Assignments are directed to aid the student in his chosen field of interest and help him develop attitudes and abilities which are necessary to formulate his educational goals. The fundamentals of speech are stressed to enable the student to speak with effectiveness.

Communication Skills 52. COMMUNICATIONS II. Three hours a week.

A continuation of Communication Skills 51 with emphasis on the basic rules of punctuation for effective written communication. Compositions dealing with student problems are written, and exercises dealing with vocabulary building, reading comprehension, and logical thinking are utilized. Business correspondence techniques are introduced.

Communication Skills 53. COMMUNICATIONS III. Three hours a week.

Emphasis on the development of communication skills. An increasing variety of exercises dealing with diction, logical thinking, exactness, and the nature and function of language is utilized.

Communication Skills 61. TECHNICAL REPORT WRITING. Three hours a week.

A study of the preparation of industrial technical reports. Emphasis is placed on good writing principles and use of supplementary illustrations as they apply to technical reports. Practice reports are required on topics in the student's major area of interest.

G-100. BASIC MATHEMATICS-REMEDIAL. Five hours a week.

A complete review of arithmetic including the most elementary of fundamentals. Designed for the student who does not have the necessary elementary background and for those who need review before taking more advanced mathematics courses.

G-101. BASIC MATHEMATICS. Five hours a week.

A basic course in mathematics which includes a review of the fundamentals. The mathematics involved in various trade and industrial fields is presented to blend theory and practice so that the student may understand the mathematics covered.

As the student progresses in his shop work the need for mathematics becomes more apparent. Actual shop problems are used to make it possible for the average student to gain enough experience for a good foundation in this field.

G-102. TECHNICAL MATHEMATICS (ALGEBRA). Five hours a week.

The language of algebra, formulas and applications, positive and negative numbers, simple arithmetic with algebraic notation, equations, factoring, fractions, exponents, powers, roots and graphs.

G-103. TECHNICAL MATHEMATICS (GEOMETRY). Three hours a week.

Uses, definitions, constructions, axioms, proofs, rectilinear figures, the circle measurement and elementary space relations. Prerequisite: G-102 or equivalent.

G-104. TECHNICAL MATHEMATICS (TRIGONOMETRY). Five hours a week.

Functions, logarithms, solution of triangles, and graph functions. Prerequisite: Satisfactory completion of G-103 or equivalent.

G-105. TECHNICAL MATHEMATICS (SLIDE RULE). Two hours a week.

A course for students in Trade and Industrial programs in which the use of the slide rule is a decided advantage, as in drafting, refrigeration, etc. Included in the course are problems in: Multiplication, division, combined multiplication and division, square root, areas of circular sections, cubing and cube root.

G-106. TECHNICAL MATHEMATICS (ALGEBRA AND TRIGONOMETRY). Five hours a week.

A course covering the topics of algebra and trigonometry which have practical application in shop subjects. Includes quadratic equations, logarithms, fundamental trigonometric functions and solution of triangles. Designed for the student who does not need all of the topics found in the regular college algebra and trigonometry courses. Prerequisite: G-102 or equivalent.

G-107. TECHNICAL MATHEMATICS (ADVANCED ALGEBRA). Five hours a week.

A course covering the topics of algebra which have practical application in shop subjects. Includes quadratic equations, exponents, radicals, and fractions. Prerequisite: G-102 or equivalent.

G-111. ELECTRICITY, SOUND AND LIGHT. Seven hours a week.

This is a course in physics intended for Trade and Industrial students. These three areas are combined because it meets the needs of certain areas of the Trade and Industrial program. It deals with the laws of electricity, sound and light and is carried on by lectures, lecture-demonstrations and by laboratory work. The course is for three lecture hours and two two-hour laboratory periods.

G-112. MECHANICS AND HEAT. Seven hours a week.

This course follows the same pattern as G-111 in the field of mechanics and heat. By combining these two areas, it makes it possible for students, such as automotive students, who receive their training in electricity in their own program, to secure this vital area of physics. It deals with the laws of mechanics and heat and their practical applications.

G-121. ADVERTISING. Five hours a week.

A course for Trade and Industrial students covering forms of advertising such as newspaper, magazine, outdoor, direct mail, specialty, etc.: Writing of copy, layout, campaigns, appropriations, etc.

G-122. BUSINESS CORRESPONDENCE. Five hours a week.

After a brief review of fundamentals, a complete study is made of letter forms and letter mechanics. A study is made of various types of business letters and report writing with adequate practice in writing applications, sales, adjustment, inquiry, and credit letters.

G-124. SPECIALIZED SELLING. Five hours a week.

To improve and develop more effective methods of selling specific items of merchandise, for example, radios, television sets and automotive accessories. Each student will study and practice as his needs and interests dictate.

G-126. TYPEWRITING I. Five hours a week.

A course for beginners in typewriting. The keyboard is mastered through manual exercises and drills. Business letter forms and simple tabulation problems are introduced.

G-127. TYPEWRITING II. Five hours a week.

Continuation of G-126 with increased emphasis on typing techniques. The various forms of business letters, manuscripts, rough drafts, and other reports are included along with accuracy and production tests.

G-130. FOREMANSHIP TRAINING. Three hours a week.

This course is intended to teach the Trade and Industrial students the duties and responsibilities of foremen and the techniques which successful foremen use. The student learns what the typical foreman does, what problems he is confronted with and how he handles them so as to accomplish the task of getting the work out. He learns why the human-relations aspect of the foreman's job is so important. The students are given an opportunity to acquire some foremanship skills through the technique of "role-playing."

G-134. EVERYDAY LAW. Four hours a week.

A survey course aimed at giving the technicians and tradesmen a functional knowledge of the basic legal problems that confront them in everyday law.

Special attention is given to court system, commercial paper, bankruptcy, partnership and corporations, contracts, wills, real estate, insurance, and installment buying.

R.I. 100. READING IMPROVEMENT. No credit. Five hours a week.

A course designed for students who wish to improve reading-study skills. How to study, how to take notes, and how to outline, receive attention. Exercises are given to increase speed of reading, to improve vocabulary, and to master word attack methods. Group instruction is given, but each person studies at his own level and receives individual attention as time allows.

Open to students from any division.

G-136. SMALL BUSINESS MANAGEMENT. Three hours a week.

A course designed to teach the fundamentals necessary for the successful operation of a self-owned business. Its contents cover ten major areas which are important in this type of ownership. Major areas include the problems of small business operation, basic business law, business forms and records, financial problems, location problems, ordering and inventory, layout, improving your business, and employer-employee relations.

G-138. MANAGEMENT AND LABOR PROBLEMS. Three hours a week.

This course is more advanced than G-130 Foremanship Training. It is intended for the student who wishes to learn about the functions of all levels of super-

vision and the problems that confront him and to acquire additional training in leadership skills. The human-relations aspect of supervision and the techniques used to produce beneficial human-relations are dealt with more fully. Included are a study of labor unions, their history, functions, and reasons for existence.

The classes are held on a conference-type basis, as nearly as possible, in order to secure maximum student participation. Prerequisite: G-130 or equivalent.

Political Science 61. POLITICAL SCIENCE. Five hours a week.

A study in the major aspects of national, state, and local governments. The three levels are integrated in a functional study of government, with special reference to Michigan.

Social Science 51. MAN AND SOCIETY. Five hours a week.

An analytical study of selected problems of man in his social surroundings, drawn from all of the social science fields and designed to give the student the background necessary for understanding and interpreting the major aspects of his social and cultural environment. Emphasis is placed on the inter-relations which exist between all aspects of man's culture and social institutions.

Speech 51. SPEECH. Four hours a week.

Students receive instruction and practice on research, outlining, speech organization, platform behavior, and delivery. A study of the rules and practices of Parliamentary Procedure designed for the promotion of orderly and effective meetings.

SPECIAL BUSINESS SKILLS

Special Business 111. WORD STUDY AND SPELLING. Two hours a week.

A course designed for the purpose of improving spelling ability, vocabulary, word syllabication, and dictionary usage.

Special Business 112. PERSONALITY DEVELOPMENT. Three hours a week.

This course is designed to orient the student to the business world by developing a right attitude toward work and to assist him to understand himself as well as his employer. The course deals with the importance of business etiquette, health, poise, good grooming, correct speech and manners, and human relations.

Special Business 121. OFFICE TYPEWRITING I. Five hours a week.

A course for beginners in typewriting. Covering the learning of the keyboard, knowledge of machine parts, centering, tabulation, and speed development.

Special Business 122. OFFICE TYPEWRITING II. Five hours a week.

A continuation of Office Typewriting I. It includes the typing of business letters, manuscripts, business forms, reports, minutes of meetings, and production and accuracy tests. Prerequisite: Special Business 121.

Special Business 123. OFFICE TYPEWRITING III. Five hours a week.

Continued speed building techniques, complex tabulation, rough draft, legal documents, application letters and data sheets, production techniques and problem typing. Prerequisite: Special Business 122.

Special Business 133. BUSINESS ENGLISH. Five hours a week.

This course is designed to meet the practical English needs of students in the business field. It includes a review of grammar, sentence structure, punctuation, paragraph construction, use of the dictionary, and spelling. Extensive work is done in the various areas of business letter writing, business reports, and annotation of business articles. A term paper or project is required in this course. Prerequisite: Typewriting.

Special Business 141. COMMERCIAL MATHEMATICS. Four hours a week.

A review of fundamental arithmetical processes and their business applications. Problems solved in this course involve fractions, decimals, percentages, payroll, depreciation, interest, discounts, ratios, and the analysis of business papers.

Special Business 143. PAYROLL ACCOUNTING AND PROCEDURES. Four hours a week.

A study of the payroll laws and procedures. The acquisition of a basic knowledge of payroll records and reports essential in business operations. Prerequisite: Special Business 141.

Special Business 144. ACCOUNTING I. Four hours a week.

An introduction to the fundamental principles of accounting as applied to a sole proprietorship; debit and credit theory; accounts and trial balance; balance sheet and profit and loss statement; accounting for sales, purchases, and cash, the use of special journals; payroll procedures; sales tax; accounting records.

Special Business 145. ACCOUNTING II. Four hours a week.

This course is a continuation of Special Business 144, except that it applies to an introduction to the fundamental principles of accounting as applied to a partnership. A partnership practice set is completed in this course. Prerequisite: Special Business 144.

Special Business 151. OFFICE MACHINES I. Three hours a week.

Introduces the theory of the four basic operations of addition, subtraction, multiplication, and division on the calculator and adding-listing machines.

Special Business 152. OFFICE MACHINES II. Three hours a week.

Concentrates on the speed development in the use of the calculator and adding-listing machines. Emphasis is placed on the handling and figuring of business forms. Prerequisite: Special Business 151.

Special Business 161. DUPLICATING MACHINES. Three hours a week.

Mimeograph and liquid duplication. Instruction in the cutting and correcting of stencils and masters, use of the mimeoscope, running of copies, operation and care of the machine, and the filing of stencils for future use. Prerequisite: Special Business 121.

Special Business 171. TRANSCRIBING MACHINES. Three hours a week.

Emphasis is placed on the development of speed and accuracy in the transcribing of material from the voice transcription machines. Prerequisites: Special Business 111, 122, 133.

Special Business 181. BUSINESS FILING. Three hours a week.

Filing rules in common use are studied in this course. Practice is given in alphabetic, geographic, numeric and subject filing systems.

Special Business 221. CLERICAL OFFICE PRACTICE. Five hours a week.

This course is designed to have the student apply the acquired knowledge and skills to the practical problems that arise in the secretary's work. Four hours a week are spent in a classroom situation and one hour a week is spent in PBX training and/or a cooperative work experience assignment.

Special Business 300. APPLIED CLERICAL OFFICE PROCEDURES. Two to five hours a week.

A work experience program designed to give the student practical experience in applying clerical office procedures in a selected administrative or faculty office. To qualify for admission to this course, a student must (1) have a cumulative honor point average of 2.5 or more; (2) have the permission of the instructor; and (3) have the approval of the divisional dean.

R.I. 100. READING IMPROVEMENT. No credit. Five hours a week.

A course designed for students who wish to improve reading-study skills. How to study, how to take notes, and how to outline, receive attention. Exercises are given to increase speed of reading, to improve vocabulary, and to master word attack methods. Group instruction is given, but each person studies at his own level and receives individual attention as time allows.

Open to students from any division.

DESCRIPTION OF CARNEGIE UNIT-CREDIT COURSES

HIGH SCHOOL DEPARTMENT

The Roman numerals with the subjects listed below indicate the courses or terms in which the subjects are offered. For instance, Algebra II indicates second term of first year Algebra; Algebra III indicates first term of second year Algebra. It will be noted that English I is not offered. It has been found that adult students obtain sufficient rhetoric, composition, and grammar in English II, III, and IV. Each of the courses listed here allows one-half unit of credit.

English II

A course in the fundamentals of grammar, punctuation and composition for the student who has had little or no high school English.

English III

Fundamentals are continued with more attention to sentence structure and organization. Writing problems center on library research and term paper technique.

English IV

In sequence, this represents the second part of English III. In content, emphasis is placed on writing. Grammar, sentence structure and punctuation are reviewed as necessary.

English V – American Literature

This is an historical survey of American writers from John Smith to William Saroyan and Kay Boyle.

English VI – American Literature

American life and literary style are considered through the writing of such representatives as Franklin, Twain, Whitman and Benet.

English VII – English Literature

A study of English Literature and the influences that acted upon it from before Chaucer to the impact of scientific thinking in the 18th century.

English VIII – English Literature

A study of English literature and the influences that acted upon it ranging from the 18th century impact of science writers Thomas Huxley and Charles Darwin to the present poetry of Dylan Thomas.

Speech I

Students receive instruction and practice on research, outlining, speech organization, platform behavior, and delivery. A study of the rules and practices of Parliamentary Procedure designed for the promotion of orderly and effective meetings.

Speech II

This course involves both discussion and debating procedures. The students are required to deliberate and debate current problems of serious import.

U.S. Government

The basic course for all citizens. It presents the relationships of the federal form of government—national, state, county and local.

Economics

This provides the vocabulary and basic economic theories. Many reference materials in such areas as production, strikes, investment and the stock market are used.

Geography

The principles of social geography. The influences of the position of the continents and their environments on the lives and cultures of man are studied.

Problems of Democracy

The social sciences of history, government, economics, and psychology are integrated in a study of selected social problems.

Sociology

The student is introduced to a study of the relationship of man to society and the evolution of group life and culture. The influences of environment as they relate to urban or rural living are considered. The study of such institutions as marriage, the family, and education trace these influences.

United States History I

Period 1400 to 1870, from early period of exploration, including English settlements, American Revolution, Jeffersonian Democracy, War of 1812, Jacksonian Period, Mexican War, Civil War.

United States History II

Reconstruction to the present: Rise of business, Roosevelt and his Square Deal, reform movement 1870-1914, World War I, the great depression, Roosevelt and his New Deal, World War II, United Nations, the conflicts in Asia and the "Cold War."

Biology I

This course includes an analysis of the typical animal cell, protoplasm, scientific method, logical reasoning, and life processes: skeletal, nervous, circulatory, endocrine, respiratory, digestive, and productive systems of man. Brief comparative studies of man and lower animals are made. (3+4)

Biology II

The principles of heredity and units on major diseases affecting man are analyzed. Simple and higher forms of plant life are compared. Lower and higher invertebrate animal forms and higher vertebrate forms of animals are studied. Adaptations of organisms and the theory of organic evolution are discussed. Elementary animal dissection is introduced in the laboratory periods. (3+4)

Chemistry I

Introduction to chemistry, oxygen, hydrogen and water; structure of matter; the alkali metal family; chlorine; acids, bases, and salts; and ionization. Prerequisite: One year of High School Algebra. (3+4)

Chemistry II

Sulphur and its compounds; nitrogen and its compounds; chemical reactions; carbon chemistry; the halogens; periodic table; nuclear energy. Prerequisite: Chemistry I or equivalent. (3+4)

General Science I

A non-technical course covering integrated aspects of elementary physical and biological sciences: air; water; heat; weather; light; outer space; the changing earth. Discussions, demonstrations, reports.

General Science II

A non-technical course covering integrated aspects of elementary physical and biological sciences; work and energy; electricity; communications; transportation; plants; animals; conservation. Discussions, demonstrations, reports.

Physics I

Mechanics; properties of matter; heat. Prerequisite: Two terms of algebra and one term of geometry satisfactorily completed. The second term of geometry may be taken with the first term of physics.

Physics II

Magnetism; electricity; sound; light; electronics; nuclear study. Prerequisites: Two terms of algebra and one term of geometry satisfactorily completed. The second term of geometry may be taken with the first term of physics.

Business Mathematics

A review of fundamental arithmetical processes and their business applications. Problems solved in this course involve fractions, decimals, percentages, payroll, depreciation, interest, discounts, ratios, and the analysis of business papers.

High School Arithmetic

A complete review of arithmetic for students who have not completed the eighth grade or who need review before starting Algebra I.

Algebra I

Beginning algebra including fundamental operations, equations, algebraic expressions and verbal problems. Prerequisite: Satisfactory performance in arithmetic.

Algebra II

Simultaneous linear equations, graphing, special products and factoring, fractions, ratio and proportion, powers and roots, and quadratic equations. Prerequisite: Algebra I.

Algebra III

Review of fundamentals; exponents and radicals; properties of the quadratic equation; systems of equations, determinants, graphs. Prerequisite: Algebra I and II (one unit).

Plane Geometry I

Study of constructions involving angles and polygons, and theorems and exercises illustrating the properties of angles and polygons. Prerequisite: Algebra II or equivalent.

Plane Geometry II

Study of the properties of circles; areas of polygons; and similar figures, ratios, and proportions. Prerequisite: Plane Geometry I or equivalent.

Solid Geometry

Study of the properties of three dimensional figures; and methods of calculating dimensions, areas, and volumes. Prerequisite: Plane Geometry II or equivalent.

Trigonometry

Study of properties of the trigonometric ratios, including graphing of trigonometric functions, and their use in calculations involving triangles. Prerequisite: Plane Geometry II or equivalent.

Advertising

A basic course covering newspaper, magazine, outdoor, direct mail, radio, television, and specialty advertising. The scope and purposes of advertising are considered with particular emphasis on the writing of copy and slogans, layout, packaging and labeling, testing of advertisements, and the study of advertising agencies, campaigns, and laws.

Bookkeeping I

An introduction to bookkeeping principles and their meaning when applied to a sole proprietorship. It is expected that upon completion of the course, the student will have a thorough understanding of such terms as debits, credits, assets, liabilities, proprietorship, profit and loss, journals, ledgers, trial balances, financial statements and other terms common to the subject.

Bookkeeping II

A continuation of the principles learned in Bookkeeping I with special emphasis or more advanced forms of financial statements with application to bookkeeping for a partnership. Accrued items, deferred charges, and reserves for depreciation are studied in detail.

Business English

This course is designed to meet the practical English needs of students in the business field. It includes a review of grammar, sentence structure, punctuation, paragraph construction, use of the dictionary, and spelling. Extensive work is done in the various areas of business letter writing, business reports, and annotation of business articles. A term paper or project is required in this course.

Commercial Law

An introduction to the fundamental principles of contracts, negotiable instruments, agency, real estate, personal property, and wills.

Office Management

Duties of the office manager of personnel, equipment and supplies.

R.I. 100. READING IMPROVEMENT. No credit. Five hours a week.

A course designed for students who wish to improve reading-study skills. How to study, how to take notes, and how to outline, receive attention. Exercises are given to increase speed of reading, to improve vocabulary, and to master word attack methods. Group instruction is given, but each person studies at his own level and receives individual attention as time allows.

Open to students from any division.

Retail Selling

Retailing from the point of view of the customer and the store manager.

Shorthand I

The principles of Gregg Shorthand Simplified with emphasis on the mastery of brief forms, the reading and writing of shorthand, and the taking of new-matter and familiar material. At the termination of this course, a student should meet a minimum speed requirement of 50 words per minute on new-matter material for three minute periods.

Shorthand II

This course is a continuation of Shorthand I with continued emphasis on developing speed and accuracy in the reading and writing of shorthand. Further emphasis is placed on the development of writing new outlines in accordance with Gregg theory, and the introduction to transcription techniques and practices. At the termination of the course, a student should meet a minimum speed requirement of 60 words per minute on new-matter material for five minute periods. Prerequisite: Shorthand I or its equivalent.

Shorthand III

This course encompasses the development of the ability to write new-matter dictation, the improvement of transcription techniques, and the increased emphasis of developing speed and accuracy in transcription on the typewriter of new-matter dictation. At the termination of the course, a student should meet a minimum speed requirement of 70 words per minute on new-matter material for five minute periods with a minimum transcription rate of 20 words per minute. Prerequisites: Shorthand II and Typing II or their equivalents.

Typewriting I

A course for beginners in typewriting. The keyboard is mastered through manual exercises and drills. Business letter forms and simple tabulation problems are introduced. It is expected that the student will attain a minimum speed of 25 words a minute upon completion of the course.

Typewriting II

Continuation of Typewriting I with increased emphasis on typing techniques. The various forms of business letters, manuscripts, rough drafts, and other reports are included along with accuracy and production tests.

Typewriting III

Production techniques and project typing are emphasized with increased accuracy and speed expected as a result of the additional experience.

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