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The Air Conditioning and Refrigeration program trains the technician to service, install and repair refrigeration, air conditioning and heating equipment for domestic and industrial users, and to accept responsibility for equipment selection, sizing, installation and service supervision.

(ACR 111) REFRIGERATION - DOMESTIC AND COMMERCIAL
The course covers refrigeration principles, system refrigerant cycles, matter and heat behavior, fluids and pressure, refrigeration brazed connections, types of tubing, special tools and equipment, and service procedures.

(ACR 112) REFRIGERATION CONTROLS AND WIRING
The course covers electrical principles in relation to refrigeration maintenance. The study includes types and usage of motor and controls used in refrigeration maintenance, refrigeration thermostats, and how to read and understand refrigeration electrical wiring diagrams.

(ACR 114) STANDARD SAFETY CODE
This course is intended to establish reasonable safeguards to life, limb, health, and property; to define certain practices which are inconsistent with safety and to prescribe standards of safety which properly influence future progress and development in refrigeration systems.

(ACR 121) FULL RESIDENTIAL SERVICE AIR CONDITIONING
The student is introduced to residential HVAC principles, system refrigerant cycles, electronic air cleaners, blowers, matter and heat behavior, fluids and pressure, air conditioning brazed connections, types of tubing, special tools and equipment, troubleshooting and service procedures, fuels, and heating systems.

(ACR 122) RESIDENTIAL CONTROLS AND WIRING AIR CONDITIONING
The course covers basic electrical principles found in servicing residential HVAC systems. The study includes electrical control circuits, motors used in residential HVAC systems, electrical energy saving, and how to read and understand HVAC wiring diagrams.

(ACR 123) ENERGY MANAGEMENT
This course is designed to introduce the students to the interrelationship of building energy sources; gains and losses are studied. Heat load calculations are performed and solar system sizing is emphasized. The concept of energy conservation through total energy management is studied. Obtaining data for energy management surveys, setting energy conservation goals and priorities, performing energy surveys, evaluating energy conservation efforts in terms of benefits and cost are studied.

(ACR 131) FULL COMMERCIAL SERVICE AIR CONDITIONING
The student is introduced to commercial heating and ACR principles, and types of systems (systems include low temperature and ice machines). The course will provide the student an opportunity to learn the component parts and their functions and applications. The study includes troubleshooting and service procedures. Heating systems are also included in the course study.

(ACR 132) COMMERCIAL CONTROL WIRING AIR CONDITIONING
The course covers fundamentals of electricity applied to gas-oil-electric heating. The study includes types and usages of motors and controls, thermostats, ambient controls, and how to read and understand the many types of wiring diagrams used with commercial heating.

(ACR 133) ELECTRICAL CODE (N.E.C.)
This course is designed to introduce the students to the accepted standards of electrical requirements as they relate to appliances, heating equipment, fixed heating equipment, motor circuits, controllers, air conditioning and refrigeration equipment.

(ACR 134) STANDARD GAS CODE
This course is designed to provide the necessary student knowledge required to research, interpret, and apply the provisions of the Standard Gas Code that relates to air conditioning, refrigeration, cooking and laundry equipment.

(ACR 141) SPECIAL SYSTEMS
The student is introduced to hydromechanics in relation to chilled water systems, hot water systems for heat, and hot water systems for human consumption. The study includes pump, water towers, valves, controls used in hydro-systems and refrigerants other than fluorocarbons. The student is introduced to window-unit repair and absorption systems. The study includes troubleshooting and service procedures.

(ACR 142) COMMERCIAL ICE MAKERS
The student is introduced to commercial ice machine principles and types of ice making systems. The study includes the refrigerant cycle, components, harvest cycle, and electrical system. Troubleshooting and service procedures are also covered.

(ACR 143) BUSINESS PRACTICES FOR SERVICEMEN
This course of study includes basic technical writing techniques with customer relations (problem solving). The study also includes proper protection, parts and labor warranty procedures, completing report forms, ordering parts, maintenance inventory, completing work orders, and how to get and keep a job.

(ACR 144) HOUSE WIRING FOR AIR CONDITIONING AND APPLIANCES
A course designed to give students an understanding of principles of power and electrical wiring as they relate to energy source for air conditioners, furnaces, air handlers, etc. The study includes proper load calculations, circuit design, layout, and job safety. Basic materials and tools are also emphasized.

(ACR 161) REFRIGERATION DOMESTIC AND COMMERCIAL LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Soldering and brazing refrigeration tubing, etc.

(ACR 162) REFRIGERATION CONTROLS AND WIRING LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Troubleshooting control systems and wiring circuits.

(ACR 164) SPECIAL PROBLEMS
A course to provide the student an opportunity to acquire or up-grade his/her knowledge of air conditioning, heating, refrigeration, etc. The course includes subject matter and problems that will generate research. Study of operating systems will be included and written suggestions and plans will be submitted by the student for system improvement.

(ACR 171) FULL RESIDENTIAL SERVICE AIR CONDITIONING LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Evacuating and charging refrigerant systems, etc.

(ACR 172) RESIDENTIAL CONTROLS AND WIRING AIR CONDITIONING LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Troubleshooting control systems and wiring circuits.

(ACR 181) FULL COMMERCIAL SERVICE AIR CONDITIONING LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: How to pipe for refrigerant when installing commercial refrigeration.
(ACR 182) COMMERCIAL CONTROL WIRING LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Determine the sequence of operation of controls.

(ACR 191) SPECIAL SYSTEMS LAB
This student is introduced to the "hands-on" study of the subjects covered in theory. Example: Troubleshooting water distribution in a boiler heating system.

(ACR 192) COMMERCIAL ICE MAKERS LAB
The study is introduced to the "hands-on" study of the subjects covered in theory. Example: Performing exercises required of an ice maker service man (setting bin control).

(ACR 211) DUCT SIZING AND AIR DISTRIBUTION
The course is designed to introduce the student to basic air flow and its effect upon the refrigeration cycle. The study includes air flow effect upon human comfort and the procedures to follow for an accepted system. The study also includes duct sizing and system design. Air make-up systems and their relation to the heating and cooling system are emphasized. Balancing of the air distribution system is included. Psychrometrics are also emphasized.

(ACR 212) SYSTEM SIZING AND APPLICATION
The course is designed to introduce the student to heat gain calculation and heat loss calculation. The study includes building construction materials in their relation to heat loss and heat gain, selection of equipment using manufacturers' specifications sheets, and types of installations required for different types of applications. The study also includes energy conservation and retrofit systems.

(ACR 213) AUTOMATIC CONTROL SYSTEMS
This course is designed to introduce the student to pneumatic automatic control systems, automatic zoning control systems including steam and hot water, electric control circuits, and electronic control systems. The study also includes conservation systems.

(ACR 214) DRAFTING FOR HVAC
This course is designed to introduce the students to line drawings of plans for heating and air conditioning system. It also includes how to read plans and make equipment and material take-offs for bidding purposes.

(ACR 221) ACTIVE AND PASSIVE ENERGY SYSTEMS
This course is a comprehensive study of solar water heating and solar space heating. The study will include solar energy principles, components for solar system construction, sizing a solar system, and application and installation of a solar system. The study includes electricity for solar systems which will include power and control wiring. Troubleshooting and service procedures are emphasized.

(ACR 222) HEAT PUMPS
This course is a comprehensive study of heat pump principles, application, and installation. The study includes heat pump compressors, building construction for heat pumps, refrigerant flow-controls, auxiliary heat (solar, gas, electric), defrost cycles, and starting components. The study also includes electricity for heat pumps. Troubleshooting and service procedures are emphasized.

(ACR 223) MECHANICAL CODE
This course is designed to introduce the student to the proper way of installing HVAC equipment. Piping, venting, and ducting are included.

(ACR 224) CONTROL WIRING - ACTIVE ENERGY AND HEAT PUMP SYSTEMS
This course is a comprehensive study of controls, solid-state devices, reactance, power factors, and electrical soldering techniques pertaining to solar and heat pump systems. Study includes lab projects.

(ACR 261) DUCT SIZING AND AIR DISTRIBUTION LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Balancing the air flow in a heating and/or cooling system and fabricating duct from duct board.

(ACR 262) SYSTEM SIZING AND APPLICATION LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Using form "J" to calculate heat gain and heat loss.

(ACR 271) ACTIVE AND PASSIVE ENERGY SYSTEMS LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Installing the control system for a water heating solar system.

(ACR 272) HEAT PUMPS LAB
The student is introduced to the "hands-on" study of the subjects covered in theory. Example: Charging a heat pump with refrigerant. A number of live systems installed for this study.

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I (RMA 111) VOCATIONAL MATHEMATICS
Depending on the availability of classes, students typically complete this program in six quarters.

The General Motors Automotive Service Educational Program (ASEP) is a two-year automotive program designed to upgrade the professional competencies of the incoming dealership technical personnel. The curriculum is designed by General Motors and Bessemer Technical College and leads to an Associate Degree in Automotive Service Technology. The program involves attending on campus classroom and laboratory sessions and on the job work experience through a sponsoring General Motors dealership.

(AMT 115) AUTOMOTIVE ELECTRICITY
An introduction to the fundamental laws of electricity and the principles of magnetism and induction. The course includes a study of Ohm's and Kirchoff's Laws of Electricity, electrical circuit schematic reading, wiring, repair, the proper use of electrical test equipment, and a study of automotive batteries, starting systems and charging systems currently used by General Motors.

(AMT 117) GM ELECTRICAL ACCESSORIES
A study of electrical troubleshooting and repair techniques necessary in the removal, repair and replacement of GM accessories. The use of wiring diagrams and special service tools found in current service manuals is covered.

(AMT 123) GM BRAKING SYSTEMS
A study of General Motors brake and brake control systems, including brake system hydraulics and brake hardware. The student will practice approved brake service procedures, brake performance diagnostic and troubleshooting methods. Included is a study of advanced GM brake systems such as Powermaster, RWAL, TIEVES, Bosch and Delco Anti-Lock systems, and the on-board computers and sensors that control these systems.

(AMT 125) STEERING, SUSPENSION & ALIGNMENT
A study of General Motors conventional and strut type suspension systems, and GM conventional and rack pinion steering systems. The student will develop approaches to diagnosing and repairing steering and suspension systems and will apply vehicle alignment methods, including two wheel and four wheel alignment procedures.
(AMT 127) GM SPECIALIZED ELECTRONICS
This course is developed from General Motors Specialized Electronics Training, Course Number 1301.02. The course will build on the principles and laws of electricity studied in AMT-115 and will progress into a study of solid state devices, diodes, transistors, variable resistors, bi-polar transistor switching circuits, light emitting diodes, vacuum fluorescent displays and silicone controlled rectifiers.

(AMT 131) GM ENGINES
A study of the internal combustion automobile engine with emphasis on the engines currently in use by General Motors Car Divisions. The student will be introduced to engine construction types, valve and camshaft arrangements, cooling systems, lubrication systems and aspiration systems, including turbocharging. The student will apply engine teardown and reassembly methods, measurement techniques, component wear and failure analysis methods and will practice GM approved common engine testing methods.

(AMT 133) GM FUEL AND IGNITION SYSTEMS
A fundamental course in the principles of modern GM fuel systems, beginning with a study of the principles of carburetion and the principles of electronic ignition systems. The course will progress into a detailed study of feedback carburetion systems used by General Motors, including Computer Command Control Systems and will conclude with an introduction to Electronic Fuel Injection Systems. The student will practice diagnostic techniques and repair procedures for current production ignition systems and carbureted engine applications.

(AMT 135) ADVANCED GM FUEL AND IGNITION SYSTEMS
This course is an advanced study of the fuel and ignition management systems presently used by General Motors to meet the current EPA mandated emission, fuel economy and performance standards. The course includes an in-depth study of General Motors Electronic Fuel Injection and General Motors Port Fuel Injection Systems (EFI/PFI). Included will be detailed studies of the components that make up the EFI/PFI system(s), diagnostic procedures, on car test procedures and methods presently used to interpret the data available from on board computer system data streams.

(AMT 141) GM AIR CONDITIONING SYSTEMS
A study of the principles of refrigeration and the heating and air conditioning systems currently used by General Motors, including manual, semi-automatic and automatic systems. The course will include details of the electrical control circuits for the compressor clutch, blower motor, and coolant fan(s). The description, purpose and function of air conditioning system components is explained in this course and service and repair procedures will be presented and practiced by the student. Safety procedures for handling R-12 are discussed.

(AMT 143) POWER TRAIN FUNDAMENTALS
A study of the current methods and components used to deliver power from the engine to the drive wheels. The course will include a study of powerflow in the manual transmission/transaxle, gear ratios, clutch systems, drivelines, drive axles, U-joints, CV joints and differentials. The student will apply removal, disassembly and repair methods for power train components.

(AMT 144) AUTOMATIC TRANSMISSION/TRANSAXLE
This course builds on the principles of powerflow studied in AMT-115 and advances into the construction, design, and repair of the GM automatic transmission and automatic transaxle. The student will remove, disassemble and repair transmission/transaxle assemblies and will study the torque converter clutch, torque converter clutch control circuits, both hydraulic and electrical, and study the computer logic approaches that are used to enable/disable the TCC.

(AMT 145) AUTOMOTIVE MICROPROCESSORS
A study of General Motors' on-board computer systems (ECM), including multiple computer applications such as body computers (BCM), instrument panel computers (IPC) and multiplexing circuits. The course will include an introduction to the principles of microprocessors, central processing units (CPU), binary number systems, logic circuits, inputs, outputs, analog-digital converters, data stream interpretations and future computer application considerations.

(AMT 146) GM EMISSION CONTROLS
A study of the exhaust and evaporative emissions produced by the modern automobile that affect the world environment and the emission control systems developed and currently used by General Motors. The student will be introduced to the current federal regulations that influence the design and production of the automobile (EPA Regulations), and he will study the various devices that GM uses to meet these regulations. The course will include test procedures for emission devices and diagnostic or troubleshooting methods.

(AMT 147) GM PRODUCT UPDATE
This course will include current year model General Motors product training classes, such as new model familiarization and current high priority update courses offered in the General Motors Training Centers. Course content will change with each new year model change to ensure that the student receives the most up-to-date information possible prior to graduation from the program.

(AMT 148) ENGINE PERFORMANCE TESTING
A study of engine performance testing methods and the testing equipment presently approved for diagnostic troubleshooting. The course includes a study of engine analyzers (oscilloscopes), interpretation of oscilloscope patterns and waveforms and other diagnostic information available from the current engine analyzers such as the Allen SEA. The application and use of other accepted diagnostic tools is also included, e.g., Tech 1 scan tools, CAMS, vehicle service monitors (VSM) or data recording devices.

(AMT 151 TO 158) DEALERSHIP WORK EXPERIENCE
At the end of each on-campus instruction period, the student returns to the sponsoring GM Dealership to complete this segment of the curriculum under the supervision of the dealership student work coordinator. The student works during the off-campus period on a full-time basis with the sponsoring GM dealership. He is expected to complete work assignments in the dealership that will reinforce and parallel the courses just completed at the college. An evaluation of the student's in-dealership work performance and progress will be completed by the dealership supervisor.

(ATT 225) BUSINESS & INDUSTRIAL PSYCHOLOGY - PART A
(ATT 226) BUSINESS & INDUSTRIAL PSYCHOLOGY - PART B
(RCS 115) COMMUNICATIVE SKILLS I - PART A
(RCS 116) COMMUNICATIVE SKILLS I - PART B
(RCS 117) COMMUNICATIVE SKILLS II - PART A
(RCS 118) COMMUNICATIVE SKILLS II - PART B
(RCS 120) TECHNICAL WRITING - PART A
(RCS 120) TECHNICAL WRITING - PART B
(RMA 115) TECHNICAL MATHEMATICS I - PART A
(RMA 116) TECHNICAL MATHEMATICS I - PART B
(RMA 117) TECHNICAL MATHEMATICS II - PART A
(RMA 118) TECHNICAL MATHEMATICS II - PART B
(RPH 119) TECHNICAL PHYSICS - PART A
(RPH 118) TECHNICAL PHYSICS - PART B
The Auto Mechanics program teaches the student to diagnose the mechanical problem and to make the necessary repairs to all components of the automobile.

The course is designed to teach the student the mechanical theory of the automobile and to allow the student to immediately apply his newly gained knowledge in shop experiences including live-work projects.

(AMC 111) BASIC MECHANICS
The purpose of this course is to provide the student the basic and fundamental knowledge of the automobile including identification of tools, their use and care; identification of parts; use of measuring instruments; fastener and specifications. Safe shop practices are emphasized and reinforced throughout the program.

(AMC 122) MANUAL TRANSMISSION AND TRANSAXLE
This course provides a study of driveshaft, universal joints, rear axles, differentials, bearings, seals, types and construction of clutches, synchronesh transmissions, transaxles, and transfer cases.

(AMC 131) AUTOMOTIVE BRAKES
This course provides the student the technical knowledge necessary to diagnose and repair hydraulic brakes on the modern automobile. Included are drum and disc brakes, and power assisted and anti-lock brakes. Machine work is also covered.

(AMC 132) AUTOMOTIVE ENGINES
This course is the study of engine construction, repair and service which includes engine types, cylinder arrangements, valve arrangements, cooling systems, and lubricating system. It also covers measurements and engine performance, pistons, rings, valve and connecting rods; and includes proper methods of grinding valves and seats.

(AMC 141) AUTOMOTIVE HEATING AND AIR CONDITIONING
The purpose of this course is to provide the student the fundamentals and principles of the operation, construction, diagnosis, service, and repair of the automotive air conditioning and heating system.

(AMC 142) AUTOMATIC TRANSMISSION AND TRANSAXLE
This course provides the student the technical knowledge necessary to understand the construction, operation, hydraulics, systems and the repair of the automatic transmission and transaxle.

(AMC 211) STEERING AND SUSPENSION
This course provides the student the technical knowledge necessary to diagnose and repair front and rear suspensions; manual, power, and rack and pinion steering systems. The student is also introduced to two- and four-wheel alignment procedures and electronic wheel balance operations.

(AMC 221) ENGINE PERFORMANCE
This course provides the technical knowledge necessary for a student to diagnose malfunctions in the ignition system, fuel system, and the emission controls and to perform the necessary repairs. This course includes all domestic computer controlled carburetion and fuel injection systems. Prerequisite: Electrical Systems.

(AMC 231) ELECTRICAL SYSTEMS
This course provides the technical knowledge necessary for a student to understand the fundamentals of electricity, magnetism, and solid-state devices. The diagnosis, service, and repair of the starting, charging, and electrical and electronic accessories are also covered.

(AMC 172-281) PRACTICAL APPLICATION LABS
Practical application of theory through laboratory assignments and live-work projects. Safety is emphasized throughout the courses.

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

Depending on the availability of classes students typically complete this program in six quarters.

The Accounting program is designed to teach, through a sequence of experiences, students interested in accounting skills. Fundamental accounting principles and procedures, cost accounting, income tax procedures, payroll accounting, accounting for business decisions, auditing concepts, and the use of microcomputers in accounting are presented in detail.

(ATT 111) ACCOUNTING I
This course is an introduction to financial accounting which is designed to provide the student with a basic understanding of the nature of accounting systems, their design and methods of utilization for service and retail businesses. Emphasis is placed upon the basic accounting records, transactions, and end of period procedure.

(ATT 121) ACCOUNTING II
This course is a continuation of basic accounting principles with an emphasis on payroll records and procedures, receivables, temporary investments, inventories, plant assets and intangible assets, current liabilities, and reporting the results of operations.

(ATT 131) ACCOUNTING III
This course is an introduction in accounting for partnerships and corporations. Emphasis is placed on formation and ownership of partnerships and corporations, long-term liabilities, investments, internal and external reports, statement analysis, and analysis of cash flow.

(ATT 132) PAYROLL ACCOUNTING
This is a study of the various phases of the Social Security Act and other laws relating to the payment of wages and salaries. It includes the description of the basic payroll accounting systems and procedures used in computing wages and salaries and the time-keeping methods used to record time worked; the development of personnel and payroll records required under numerous laws; and the practice in all payroll operations of recording of accounting entries involving payroll, and preparation of payroll tax returns that are required.

(ATT 160) PRACTICAL APPLICATION LAB
Application of theory through laboratory assignments.

(ATT 161) ACCOUNTING I LAB
The practical application of theory learned in ATT 111.

(ATT 171) ACCOUNTING II LAB
The practical application of theory learned in ATT 121.

(ATT 181) ACCOUNTING III LAB
The practical application of theory learned in ATT 131.

(ATT 211) INCOME TAX I
This course is an introduction to the federal tax system with emphasis on individual returns. Items discussed are: Short Form 1040EZ, 1040A, Form 1040, itemized deductions, capital gains and losses, and credits against tax.

(ATT 212) COST ACCOUNTING
This is an introduction to the methods of accounting for materials, labor, and overhead of manufacturing business. The major emphasis is placed on the job-order and process cost systems.
(ATT 214) ADVANCED ACCOUNTING
This is a continuation of the study of financial accounting with emphasis on selected accounting topics.

(ATT 221) INCOME TAX II
This course deals with the procedure and principles of business, corporate and partnership taxation, and preparation of these tax returns. Attention is also given to special tax problems which may be encountered.

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY
This course provides the knowledge necessary for the student to better understand himself and the psychological workings in the business and industrial world.

(ATT 224) MANAGERIAL ACCOUNTING I
This course examines the managerial accounting environment, the concept of cost and cost behavior, cost-volume-profit analysis and profit reporting for managerial analysis. Emphasis is placed on the use of accounting data in the management process.

(ATT 231) AUDITING*
This is an introduction to the concepts and procedures for external public sector auditing by independent certified public accountants. Emphasis is placed on the actual procedures to be used, the resulting reports to be written, and the accounting standards to be followed.

(ATT 233) ACCOUNTING FOR GOVERNMENTAL AND NON-PROFIT ORGANIZATIONS*
This course is an introduction to the principles, concepts, and practices of accounting for governmental and non-profit organizations. The course is designed to provide the student with a basic understanding of fund accounting and its utilization in governmental agencies, colleges and universities, hospitals, and other non-profit organizations.

(ATT 234) MANAGERIAL ACCOUNTING II
This course is a continuation of ATT 224, Managerial Accounting I. The course examines the process of budgeting, the standard cost system, analysis for decisions, and financial statement analysis. Emphasis is placed on the use of accounting data in the management process.

(ATT 235) ACCOUNTING CASE STUDIES
This is a practical application of previously acquired accounting knowledge through a series of case studies. The case studies method of learning places emphasis on the preparation for, and classroom discussion of a situation which is described in the case.

(ATT 241) MICROCOMPUTER ASSISTED ACCOUNTING
This is an introduction in the utilization of microcomputers in the accounting environment. Emphasis is placed on the general ledger system, depreciation, accounts payable and receivable systems, and payrolls.

(ATT 261) INCOME TAX I LAB
The practical application of theory learned in ATT 211.

(ATT 262) COST ACCOUNTING LAB
The practical application of theory learned in ATT 212.

(ATT 264) ADVANCED ACCOUNTING LAB
The practical application of theory learned in ATT 224.

(ATT 271) INCOME TAX II LAB
The practical application of theory learned in ATT 221.

(ATT 274) MANAGERIAL ACCOUNTING I LAB
The practical application of theory learned in ATT 224.

(ATT 277) ACCOUNTING OFFICE SIMULATION
This is a course designed to, through a simulation of an accounting office, provide the student with a practical application of the principles and procedures introduced in financial accounting. Emphasis is placed on the tasks of accounting supervision, sales, purchases, payroll, ledger maintenance, accounts payable, accounts receivable, cash payments, and cash receipts.

(ATT 278) MANAGERIAL ACCOUNTING II LAB
The practical application of theory learned in ATT 234.

*Student may take either ATT 231 or ATT 233.

Students completing this program will also take 40 credit hours of related courses. The student may select the related courses he/she desires to take from an approved related course listing or by approval of his/her advisor.

Depending on the availability of classes, students typically complete this program in six quarters.

Building Maintenance includes theory, laboratory experiences, and live-work projects relative to the repair, alteration, and modernization of existing structures. Students completing the nine-month course will qualify to enter the maintenance field in several job areas; industrial, commercial, institutional, as well as apartment and condominium buildings.

(BLM 111) FUNDAMENTALS OF BUILDING MAINTENANCE
This course consists of six instructional units designed to provide the student with the basic skills and knowledge to safely perform building maintenance tasks; to read rules and make accurate measurements; to interpret building plans; and to identify and safely use various hand and power tools and miscellaneous equipment.

(BLM 112) MAINTENANCE CARPENTRY
This course consists of 15 instructional units designed to provide the student with the basic skills and knowledge to safely install, repair, and maintain pipe, drainage systems, water systems, fuel piping systems, fixtures and appliances, and lawn sprinkler systems.

(BLM 121) MAINTENANCE PLUMBING
This course consists of 13 instructional units designed to provide the student with the skills and knowledge to safely install, repair, and maintain pipe, drainage systems, water systems, fuel piping systems, fixtures and appliances, and lawn sprinkler systems.

(BLM 122) GENERAL MAINTENANCE
This course is designed to provide the student with the basic skills and technical knowledge to maintain existing structures according to applicable building codes.

(BLM 131) MAINTENANCE MASONRY
This course, currently under development, will provide the student with the basic skills and knowledge to safely accomplish the following: Mix concrete; build simple forms, lay out and cut wire mesh, and finish concrete; mix mortar; and replace tile, bricks, and/or concrete blocks.

(BLM 132) GENERAL REPAIR
This course is designed to provide the basic skills and knowledge necessary to repair, alter, and/or modernize existing structures.
Bessemer State Technical College offers this program for people interested in pursuing a career in building construction. Students successfully completing the program receive an Associate Degree in Applied Technology.

The curriculum is designed to prepare for entry-level employment as a carpenter or electrician and to provide the knowledge necessary to advance after appropriate field experience as an estimator, expeditor, assistant project manager, project manager, appraiser or inspector.

(BLC 112) ELECTRICAL WIRING
Fundamentals of electrical wiring are explained with emphasis on wiring needs and code requirements as applied to construction. The basic skills of wiring are set forth together with the use of the tools and equipment.

(BLC 113) CONSTRUCTION BASICS
A course in the study of construction related tools and materials. The student will be introduced to a variety of hand and power tools, and the characteristics, strengths, uses and selection of building materials.

(BLC 121) FOUNDATIONS AND FRAMING
This course is the study of the basic components of the building industry such as site identification, building layout for foundations and basic construction framing.

(BLC 131) INTERIOR AND EXTERIOR FINISH AND TRIM
This course is the study of the installation and application of interior and exterior construction finishes, trim, and hardward installation.

(BLC 133) PLANS, SPECIFICATIONS, AND CODES
Introduces the student to the construction office and to the application of construction plans, specifications, and national and local building codes.

(BLC 141) CONCRETE AND CONCRETE FORMS
This course is the study of the design of concrete forms and provides the opportunity to practice the skills necessary to physically construct them. Walls, columns, slabs and stairs are typically covered.

(BLC 142) ESTIMATING
The course emphasizes the role of the estimator while working with specifications, drawings, and measures. The student studies systematically all components of residential construction.

(BLC 152) ELECTRICAL WIRING LAB
Practical experience in the application of the theory covered in Electrical Wiring.

(BLC 153) CONSTRUCTION BASICS LAB
Practical application of theory learned in Construction Basics.

(BLC 211) METALS, METAL STUDS, SHEETROCK
This course is the study of structural steel and metals used in construction and provides an opportunity to practice the skills necessary to use some of these efficiently. Metal stud and sheetrock application are covered at this time.

(BLC 222) FIELD PROBLEMS
This course provides an opportunity for the student to practice all previously learned skills. This will be accomplished by (1) co-op placement if available, (2) live-work projects when available, and/or (3) peer instruction in coping with unexpected field problems.

(BLC 262) PRACTICAL APPLICATION LABS
Practical application of construction techniques using various materials.

(BLC 272) SPECIAL PROBLEMS LAB
Special Problems Lab is designed to strengthen skills or increase knowledge in a particular desired area. The course objective and outline vary as necessary for the needs of the individual.

(BLC 274) FIELD APPLICATION LAB
The student will observe the implementation of theories, ideas, concepts and skills learned in the construction classes and laboratories. The course will acquaint the student with problems, development, and opportunities in building construction.

(DRT 112) CONSTRUCTION PRINT DRAWING I
A basic drawing course which introduces the student to the basics of architectural drafting, design, form, and practices.

(DRT 113) CONSTRUCTION PRINT DRAWING II
An advanced drawing course which provides the student the opportunity to apply previously learned competencies to design and detail a set of residential house plans.

(DRT 152) CONSTRUCTION PRINT DRAWING I LAB
Practical application of theory learned in Construction Print Drawing I.

(DRT 153) CONSTRUCTION PRINT DRAWING II LAB
Practical application of theory learned in Construction Print Drawing II.

*Optional Course

Students completing this program will also take several related courses. The student may select the related courses he/she desires to take from an approved related course listing or by approval of his/her advisor.

Depending on the availability of classes, students typically complete this program in six quarters.

The Commercial Art program at Bessemer State Technical College was developed to enhance and maximize artistic skills for persons who desire to work in this career field. Sources of employment are advertising agencies, advertising departments, art studios, mass media (newspapers and TV), printers and publishers, and as free-lance commercial artists.

(COA 111) BASIC DRAWING
Since good drawing ability is the basic skill and talent which commercial artists use daily, this course is designed to improve key knowledge of drawing to help raise drawing skills to an acceptable level. Fundamentals of drawing are addressed using different media and emphasizing the necessity of "seeing
correctly.” If the student can learn to see “as the artist sees,” realistic two-dimensional artwork can be created from a three-dimensional world. Lectures include reviews of the elements and principles of design; principles of perspective; proportions of the human head and figure; and proper presentation of finished artwork. Lectures are supplemented by audio/visual presentations.

(COA 121) BASIC DESIGN
Design and order are inherent in all nature and in all things created by mankind; therefore, design, or composition, is the basis of all order in art. This course is used primarily to present necessary design knowledge to enable the student to solve compositional problems in commercial art. An in-depth study is made of the elements and principles of design. Students will acquire extensive knowledge of basic formats and the use of design in advertising art. Lectures are supplemented by audio/visual presentations.

(COA 131) ADVERTISING DESIGN I
This course introduces the student to advertising art and mechanical reproduction of that art for offset printing production. The student acquires knowledge and skills in the following areas of advertising design; typeface alphabets, grid systems of design, accepted practices of creating good advertising designs (thumbnail sketches, rough layouts and comprehensive layouts), use of color in simulated printing inks, proper materials and proper presentation. After each comprehensive layout is completed to the satisfaction of the instructor, the student will be required to produce the mechanical layout art to simulate proper preparation for the printing process. The student is taught the proper use of overlays to indicate different colors and screen tints. Offset printing procedures are covered in detail to enable the student to better prepare the mechanical art for printing. Assignments begin with simple problems and progress to the more difficult as the course develops. Lectures are supplemented by audio/visual presentations.

(COA 141) ADVERTISING DESIGN II
This course continues intensive instruction in advertising design and mechanical layout. Assignments become progressively more difficult as student skills improve. Students will learn the fundamentals of typesetting to the degree necessary to prepare their own mechanicals. Students will also learn the fundamentals of the graphics camera. Lectures will be supplemented with audio/visual presentations.

(COA 161) BASIC DRAWING LAB
Practical application of theory learned in Basic Drawing.

(COA 171) BASIC DESIGN LAB
Practical application of theory learned in Basic Design.

(COA 181) ADVERTISING DESIGN I LAB
Practical application of theory learned in Advertising Design I.

(COA 191) ADVERTISING DESIGN II LAB
Practical application of theory learned in Advertising Design II.

(COA 211) PHOTOGRAPHY I
This course prepares the student for knowledge and skill in using photography in advertising design. Students will furnish their own 35mm single-lens reflex (SLR) camera, the specific camera to meet the approval of the instructor. Students will familiarize themselves with all aspects and operation of their camera. Most assignments will explore a range of subjects and lighting conditions using black and white film. Students will develop their own film plus print and mount their own photographs. The student will also produce a single projector color slide show using skills acquired in the other courses for presentation. Color slides will be developed by commercial vendors. Lectures are supplemented by audio/visual presentations.

(COA 221) PORTFOLIO
This course reviews, as necessary, the course content of any previous course which may be pertinent to the existing problem. The student is directed to create a corporate identity campaign, an appropriate resume, and a presentable portfolio. Work on the resume will be considered part of the lecture course. The student is allowed a great deal of personal judgment and leeway in accomplishing this course.

(COA 231) PHOTOGRAPHY II*
This course is optional and introduces the student to multi-image audio/visual slide show production using the 35mm SLR camera, a timing computer, three projectors, audio cassette recorder, and rear view screen. The students, formed into teams, will produce one complete three-projector slide show in color. Color slides are developed at commercial vendors.

(COA 261) PHOTOGRAPHY I LAB
Practical application of the theory learned in Photography I.

(COA 271) PORTFOLIO LAB
Practical application of the theory learned in Portfolio.

(COA 281) PHOTOGRAPHY II LAB*
Practical application of the theory learned in Photography II.

*Optional Course

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RCS 112) COMMUNICATIVE SKILLS II
(RMA 111) VOCATIONAL MATHEMATICS

Students may also elect to take several optional related courses from the Offset Printing and Drafting Departments.

Depending on the availability of classes, students typically complete this program in seven quarters.

The dental assistant is trained to work with the dentist in the examination and treatment of the patient. In addition to learning clinical procedures, the student is taught business and dental laboratory techniques normally required in the occupation. Each student performs these duties under the supervision of a licensed dentist prior to graduation from the program.

Through practical application, the student learns operative chair-side techniques, methods of sterilization and disinfection, dental instruments, operation and maintenance of equipment; exposing, processing and mounting dental radiographs, the manipulation techniques and application of dental materials used in clinical dentistry. During the third quarter of the one-year program, the student applies the knowledge and techniques he/she has acquired working with dental students at the School of Dentistry in Birmingham. During the final quarter, knowledge and developed techniques are applied in a private dental practice under the supervision of a licensed dentist.

The Dental Assisting program is accredited by the Commission on Accreditation of Dental and Dental Auxiliary Programs of The American Dental Association. Graduates are eligible to write the certification examination administered by the Dental Assisting National Board, Inc.

(DAS 110) DENTAL ASSISTING LAB
Practical application of theory learned through laboratory assignments.

(DAS 111) ANATOMY AND PHYSIOLOGY
This course is a general study of the structure and function of II body systems, with emphasis on specific structures of the head and neck. Embryo-logical, histological, and morphological correlations provide the foundation essential to understanding of dental health and oral disease.
(DAS 112) DENTAL MATERIALS
This course is a study of the characteristics, manipulation, and application of dental materials ordinarily used in the dental operatory and the laboratory.

(DAS 113) INTRODUCTION TO DENTAL ASSISTING
This course provides an introduction to dentistry, dental auxiliaries, and dental history. It includes the function and responsibilities of dental auxiliaries, personal and certification requirements, legal and ethical considerations, professional organizations, areas of service and prevention.

(DAS 121) CLINICAL DENTAL ASSISTING
This course is a continuation of the Pre-clinical Procedures with emphasis placed on clinical practice of operative procedures and the dental specialties.

(DAS 122) DENTAL RADIOLOGY
This course includes a study of background radiation, biological effects on human tissues, radiation limits and hygiene, components and the dental x-ray machine, basic variables for exposure of dental film, preparing the patient for exposing film using the techniques of paralleling and bisecting, errors in exposing and processing, anatomic landmarks, mounting periapical, bitewing, vital signs, CPR, and the importance of preventive dentistry, caries control, techniques and laboratory instructions with the clinical practice. Review and preparation for the Certification Examination are stressed.

(DAS 162) DENTAL MATERIALS LAB
This course is a study of the characteristics, manipulation, and application of dental materials ordinarily used in the dental operatory and laboratory. Students will be given extra oral technical tasks to perform, including mixing cements, impression materials, preparation of restorative materials, and mixing alginate, stone, and plaster.

(DAS 163) PRE-CLINICAL PROCEDURES
This course places special emphasis on chairside assisting, including principles and procedures related to dental instruments, sterilization and disinfection techniques, safety, and the principles of four-handed dentistry. Performance skills are stressed.

(DAS 171) CLINICAL DENTAL ASSISTING LAB
This is the laboratory that parallels the course Clinical Dental Assisting.

(DAS 172) RADIOLoGY LAB
Through laboratory experience, the student will be introduced to the various types of film and techniques used for their placement, processing, mounting, identifying and evaluating. The student will be introduced to the principles of safe operation and care of equipment.

(DAS 173) DENTAL ASSISTANT PRACTICUM
This course is designed to familiarize the dental assistant student with clinical assisting in a teaching institution and to provide practical experience in the application of four-handed dentistry techniques.

(DAS 191) DENTAL CLINICAL PRACTICE
This course is designed to provide practical experience under the supervision of dentists in private dental offices with emphasis on chair-side procedures, instrument care, oral hygiene and radiology. The clinical experience enables the student to observe all aspects of a routine dental office.

Students completing this program will also take the following related courses.

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY
(RCS 111) COMMUNICATIVE SKILLS I
(RCS 141) APPLIED SPEAKING
(RMA 131) BUSINESS MATHEMATICS

Students complete this program in four quarters.

(DIESEL MECHANICS (DMC)

The Diesel Mechanics program is designed to train mechanics who will have the knowledge and basic skills necessary to repair on-the-road equipment. The student receives the theory of the diesel engine and various components and immediately applies this knowledge in laboratory assignments with trucks and other diesel and gasoline-powered equipment used for the transportation of freight and people. Instruction includes the disassembly, repair, and assembly of engines (gasoline and diesel), final drives, clutches, hydraulic and pneumatic systems, and other components.

(DMC 121) ELECTRICAL SYSTEMS
This course includes fundamentals of electricity and magnetism, and basic circuitry and electrical charging systems as they relate to diesel mechanics. The student learns to use testing equipment to determine malfunctions of alternators, starters, and generators and the procedures necessary to correct the malfunctions.

(DMC 122) DIESEL ENGINE TUNE-UP
The student becomes familiar with mechanical and electrical testing equipment used to diagnose malfunction of the ignition system and to determine the general condition of industrial engines. The student learns the function of the injection fuel system and how to maintain the system for efficient operation.

(DMC 131) FUNDAMENTALS OF HYDRAULICS
A study of fluid power principles, physical properties of fluids, and the principles of operation and constructional features of hydraulic components.

(DMC 132) POWER TRAINS
A study of transmission of power from the engine with emphasis on drive shafts, universal joints, rear axles, differentials, bearings, and seals.

(DMC 141) CLUTCHES AND MANUAL TRANSMISSIONS
The course includes an in-depth study of types and construction of clutches and transmissions with emphasis on troubleshooting and service procedures.

(DMC 143) MINOR DIESEL ENGINE OVERHAUL
The student learns the procedure for rebuilding the engine in the vehicle. The importance of the oiling system, cooling system, heat transfer, bearings and pistons are com-
The student learns the procedure for inspecting and servicing all engine parts that are to be re-used.

(DMC 144) AIR CONDITIONING SYSTEMS
The student learns the different types of compressors, condensers, evaporators, and lines used on diesel equipment and how to troubleshoot and repair back to use.

(DMC 212) AIR AND HYDRAULIC BRAKES
The student learns the operation of hydraulic and pneumatic braking systems, and the procedures of troubleshooting and servicing components.

(DMC 221) BLOWERS
A study of the function of blowers and their service and repair.

(DMC 222) TURBOCHARGERS
A study of the function of turbochargers and the procedure of replacing and troubleshooting them.

(DMC 243) MAJOR DIESEL ENGINE OVERHAUL
The student learns to disassemble various types of industrial engines, diagnose defective parts and make necessary replacements to return the engine to efficient operation.

(DMC 246) PUMP REBUILDING
The student learns how to rebuild different types of fuel injection pumps, inspect and repair for normal operation.

(DMC 248) PUMP TESTING
The student learns how to set pump up on testing machine and check and calibrate fuel flow.

(DMC 171-298) PRACTICAL APPLICATION LABS
The application of theory learned through practical laboratory assignments.

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

Depending on the availability of classes, students typically complete this program in eight quarters.

to prepare graduates for gainful employment in the field of business data processing.

Major topics include program logic, application development using batch and online structured techniques, the use of the personal computer and computer center operations. Extensive laboratory training with an equivalent system used by many business and industries in the area is a plus feature for the technical graduate entering the data processing field.

Programming languages studied are Assembly Language, RPG II, COBOL (Interactive and Batch), and BASIC. Personal computer courses using popular spreadsheet and data base packages are part of the program. Courses in accounting, algebra and English complete the curriculum.

(DPT 111) DATA PROCESSING CONCEPTS
This course is designed to introduce definitions and terminology unique to data processing along with historical developments in data processing equipment and techniques. The course centers around computer system configurations, capabilities, internal representation of data, internal operations, file design and organization, computer center management, and quality control over data.

(DPT 112) REPORT PROGRAM GENERATOR (RPG II LANGUAGE LEVEL)
This study of RPG II Programming Language prepares the computer programmer to communicate with computers to produce reports easily and efficiently. Every phase of RPG II is studied including disk and tape I/O using entry and key-sequenced VSAM files.

(DPT 115) KEYBOARDING
Keyboarding is a self-paced PC-based instructional program designed to improve keying speed and accuracy. Provisions include an entry point for everyone regardless of their present skill level. Keyboarding is strongly recommended for all data processing students that cannot type. The course also may be helpful for any student who can type but feels a need to brush-up or to increase speed and accuracy.

(DPT 122) PROGRAM LOGIC
This course involves the development of program logic through flowcharting. Typical batch applications are presented. Laboratory exercises involve the use of a PC-based program for flowchart design.

(DPT 131) DOS JOB CONTROL LANGUAGE
The concepts and practical application of the job control language for a disk operating system are studied. Instruction and laboratory exercises are based on IBM DOS/VSE-SP.

(DPT 132) COBOL PROGRAMMING I
COBOL is primary commercial programming language in use today. The course involves the study of basic input/output techniques, arithmetic operations, simple and compound decision statements, and control break programming. In this course, programs are developed using typical shop standards. Experience and proficiency in structured COBOL programming techniques are gained by coding, executing and testing numerous programs designed to reinforce each area.

(DPT 141) COBOL PROGRAMMING II
This course is a continuation of COBOL Programming I with emphasis on single and multi-level control breaks, table processing and in-program sort operations.

(DPT 142) BASIC ASSEMBLY LANGUAGE I
This course is designed to develop a thorough understanding of symbolic programming techniques basic on IBM 370-4300 architecture. The information this course provides leads to a much better understanding of COBOL and other high-level languages.

(DPT 145) BUSINESS SPREADSHEETS USING LOTUS 1-2-3
This course uses the most popular electronic spreadsheet available today to explore all fundamental spreadsheet operations and most advanced features. Coverage includes product installation and machine configuration, spreadsheet fundamentals, advanced concepts and report generation.

(DPT 146) UNDERSTANDING DATA BASE TECHNIQUES USING DBASE III PLUS
This course is a full quarter coverage of dBase III Plus beginning with product installation, fundamental and advanced techniques, and programming. Practical business applications include handling inventory, accounts receivable and mailing lists.

(DPT 154) BUSINESS APPLICATION SOFTWARE
This course is designed to provide the technical knowledge necessary to understand word processing, spreadsheet and data base concepts. Laboratory exercises provide the student with experience in solving business related problems.

(DPT 162) REPORT PROGRAM GENERATOR LAB
Practical application of theory learned in Report Program Generator.

(DPT 181) DOS JOB CONTROL LANGUAGE LAB
Practical application of theory learned in DOS Job Control Language.
(DPT 182) COBOL PROGRAMMING I LAB
Practical application of theory learned in COBOL Programming Lab I.

(DPT 191) COBOL PROGRAMMING II LAB
Practical application of theory learned in COBOL Programming II.

(DPT 192) BASIC ASSEMBLY LANGUAGE I LAB
Practical application of theory learned in Basic Assembly Language I.

(DPT 211) BASIC ASSEMBLY LANGUAGE II
This course is a continuation of Basic Assembly Language I.

(DPT 214) PROGRAMMING IN BASIC
This course is designed to provide the technical knowledge necessary to perform input/output operations, arithmetic operations, comparing, looping, and interactive programming techniques. The course also provides the student an opportunity to write BASIC programs using IBM/PC computers.

(DPT 221) COBOL PROGRAMMING III
Batch structured COBOL programming using magnetic tape, entry and key sequenced VSAM files.

(DPT 223) CICS PROGRAMMING IN COBOL
This course is designed to provide the technical knowledge necessary to develop and write on-line business software. The course also provides the student the opportunity with hands-on experiences to develop and write these software systems.

(DPT 224) ADVANCED CICS PROGRAMMING IN COBOL
The purpose of this course is to provide the technical knowledge necessary to develop and write on-line business software at an advanced level. The course also provides the student the opportunity with hands-on experience to develop and write these software systems.

(DPT 225) ADVANCED PROGRAMMING IN BASIC
The purpose of this course is to provide the technical knowledge necessary to process arrays, string functions, sort data, develop menus and develop disk data files.

(DPT 261) BASIC ASSEMBLY LANGUAGE II LAB
Practical application of theory learned in Basic Assembly Language II.

(DPT 264) PROGRAMMING IN BASIC LAB
Practical application of theory learned in Programming in BASIC.

(DPT 271) COBOL PROGRAMMING III LAB
Practical application of theory learned in COBOL Programming III.

(DPT 273) CICS PROGRAMMING IN COBOL LAB
Practical application of theory learned in CICS Programming in COBOL.

(DPT 274) ADVANCED CICS PROGRAMMING IN COBOL LAB
Practical application of theory learned in Advanced CICS Programming in COBOL.

(DPT 275) ADVANCED PROGRAMMING IN BASIC LAB
Practical application of theory learned in Advanced Programming in BASIC.

*Optional Course
Students completing this program will also take the following related courses.

(ATT 111) ACCOUNTING I
(ATT 121) ACCOUNTING II
(ATT 131) ACCOUNTING I LAB
(ATT 171) ACCOUNTING II LAB
(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY

(RCS 111) COMMUNICATIVE SKILLS I
(RCS 121) TECHNICAL WRITING
(RMA 121) APPLIED ALGEBRA I
(RMA 122) APPLIED ALGEBRA II

Depending on the availability of classes, students typically complete this program in six quarters.

(DPT 277) COBOL PROGRAMMING II LAB
Practical application of theory learned in COBOL Programming II.

(DPT 278) CICS PROGRAMMING IN COBOL LAB
Practical application of theory learned in CICS Programming in COBOL.

(DPT 279) ADVANCED CICS PROGRAMMING IN COBOL LAB
Practical application of theory learned in Advanced CICS Programming in COBOL.

*Optional Course
Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RCS 121) TECHNICAL WRITING
(RMA 131) BUSINESS MATHEMATICS

Depending on the availability of classes, students typically complete this program in two quarters.

The Data Entry program is designed to prepare the graduate for a career in data entry.

(DPT 115) KEYBOARDING *
This course is a self-paced course to introduce the computer keyboard or improve keyboarding skills.

(DPT 117) INTRODUCTION TO DATA PROCESSING
This course is designed to introduce the student to the terms and concepts of computer data processing.

(DPT 121) DATA ENTRY SOFTWARE
The purpose of this course is to provide the technical knowledge necessary to run applications unique to data entry on personal computers.

(DPT 123) KEY-TO-DISK DATA ENTRY I
The purpose of this course is to provide the technical knowledge necessary to operate data entry equipment. The course also provides the student an opportunity to practice the skills necessary to become a data entry operator.

(DPT 133) KEY-TO-DISK DATA ENTRY II
The purpose of this course is to provide the technical knowledge necessary to operate data entry equipment including verify and search operations. The course also provides the student an opportunity to practice the skills necessary to become a data entry operator. Increased emphasis is placed on speed.

(DPT 144) TRANSACTION BASED DATA ENTRY
The purpose of this course is to provide the technical knowledge necessary to operate on-line computer terminal equipment. The course also provides the student an opportunity to practice the skills necessary to do transaction-based data entry jobs.

(DPT 154) BUSINESS APPLICATION SOFTWARE
This course is designed to provide the technical knowledge necessary to understand the three major software packages—Spreadsheet, relational database and word processing. The course also provides hands-on experience in operation of the three major software packages and provides the technical knowledge necessary to operate the IBM/PC using these software packages.

(DPT 173) KEY-TO-DISK DATA ENTRY I LAB
Practical application of theory learned in Key-To-Disk Data Entry I.

(DPT 183) KEY-TO-DISK DATA ENTRY II LAB
Practical application of theory learned in Key-To-Disk Data Entry II.

* Optional Course
Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RCS 121) TECHNICAL WRITING
(RMA 131) BUSINESS MATHEMATICS

Depending on the availability of classes, students typically complete this program in two quarters.

The skilled drafting and design technician
is an essential link between the engineer and the shop where the final product is manufactured. As a member of a technical team, the drafting technician will do detail and layout drafting, design, and development. He or she may advance to positions in checking, estimating, advanced design, and supervision. The Associate in Applied Technology Degree program is designed to qualify the graduate for performance of these duties and for advancement when associated with appropriate experience.

(DRT 111) TECHNICAL DRAWING I
The material addressed includes freehand lettering, care and use of drafting instruments, materials and equipment; geometric construction with applications; pictorial representation of shape description; the theory of a third-angle orthographic projection with extensive multiview drawing applications emphasizing the rules and exceptions established in the American National Standard Drafting Specification (ANSI Y-14).

(DRT 121) TECHNICAL DRAWING II
An in-depth study of the principles and applications of sectional view techniques to include full, half, broken-out, resolved, aligned and off-set sections. Drawings requiring the application of several types of sections will be completed by the student. Auxiliary view techniques will be examined to include development of primary and secondary auxiliary views with solutions of dihedral angle applications. Basic descriptive geometry concepts as required in design applications will be addressed in practical applications.

(DRT 131) TECHNICAL DRAWING III
Dimensioning techniques with principles and special considerations are examined with analysis and interpretation required to complete selected projects. Limit dimensioning, tolerancing and geometric feature control concepts are addressed to include application of the American National Standard (ANSI) Tables of Fits. Implications and specifications pertaining to threads, fasteners, and springs with typical application projects are completed by the student.

(DRT 122) INDUSTRIAL MATERIALS AND PROCESSES
This course sets forth the principles and methodology of materials selection and application, explains the types of properties used to evaluate materials, and describes broadly the basic nature and structure of all materials used commonly in industrial/ manufacturing situations. The emphasis is directed to solids since liquids and gases are principally considered chemicals.

(DRT 161) TECHNICAL DRAWING I LAB
Practical application of theory learned in Technical Drawing I.

(DRT 171) TECHNICAL DRAWING II LAB
Practical application of theory learned in Technical Drawing II.

(DRT 181) TECHNICAL DRAWING III LAB
Practical application of theory learned in Technical Drawing III.

(DRT 205) INTRODUCTION TO COMPUTER GRAPHICS
Content dealing with general introductory computer aided drafting and system operation is presented. From the simplest generation of basic entity creation to the final completion of a machine part described in the graphic language and filed on a part (floppy) disk. Techniques which accelerate computer description of parts such as mirroring, translating, and rotating with copying are applied with plotting utilizing a multiple pen, automated drafting plotter, and a dot matrix printer. Material relating to the use of the computer within the design/manufacturing environment will also be introduced.

(DRT 211) ADVANCED DRAFTING I (MACHINE)
Machine drafting is the largest specialty area of drafting in the United States in terms of the broadness of the field and also the number of job opportunities available. The study addresses the following five areas:

1. Examine documentation systems and techniques as pertaining to (a) engineering controls, (b) drawing organization and content, (c) single part drawing and (d) assembly drawing types.
2. Prepare assembly drawing with parts list and appropriate general notes along with detail drawings of design items of the assembly using the mono-detail drawing system.
3. Learn the applications/use and demonstrate a proficiency in measuring the features of machine parts with assembly relationships using the 0-1 inch micrometer, vernier caliper, thread pitch gauge, radius gauge, depth gauge, and the 6-inch machinist's scale.
4. Prepare a design layout of an assembly with a bearing application along with form, fit, and function considerations of the mating parts. Use of Machinery's Handbook, Mechanical Engineer's Handbook, and various vendor catalogs will be introduced.
5. Develop complete documentation to support manufacturing needs from a provided assembly sample taking all information from the sample using measurement, analysis, and research procedures.

(DRT 212) INTRODUCTION TO CIM
An introduction to the many functions and applications of the computer in computer aided design drafting (CADD), computer aided engineering (CAE), computer aided manufacturing (CAM), and robotics, which all embrace comprises computer integrated manufacturing (CIM). Terms, hardware, software, and applications are introduced.

(DRT 215) COMPUTER AIDED DESIGN DRAFTING I
A comprehensive study of the two-dimensional concepts of design drafting utilizing the geometric modeling approach. Graphics generation, editing, manipulation, and display control commands are examined in detail to facilitate the speedy, accurate, and resourceful creation of the designer's model geometry.

(DRT 221) ADVANCED DRAFTING II (ELECTRICAL/ELECTRONIC)
Drafting and design techniques are introduced which deal with the production of electronic equipment for consumer, commercial, and military applications. The various specialized drawings of electrical-electronics drafting addressed in this course are schematic diagrams, connection or wiring diagrams (four unique types), industrial electrical diagrams, ladder schematics, flow-block diagrams, and documentation types and techniques related to printed circuitry.

(DRT 225) COMPUTER AIDED DESIGN DRAFTING II
Utilizing a designer system, this course expands upon basic mechanical design concepts with an emphasis on 3-D modeling. The goal of enhancing operator proficiency and productivity is approached through consideration of the following topics: part structuring parameters; view definition; 3-D commands; construction planes; measurement and calculations; draw mode activities; and library of parts.

(DRT 231) ADVANCED DRAFTING III (STRUCTURAL/WELDING)
This introductory course in structural drafting familiarizes the student with the standard structural steel shapes along with the use of the American Institute of Steel Construction (AISC) Manual. The AISC Structural Steel Detailing Manual is used as primary text in the study and drafting of (a) column and beam connection detail drawing, (b) a shop drawing, (c) an erection drawing, and (d) a bill of materials. A design project requiring the use of the Steel Construction Manual will serve as the principal instructional approach to meeting the course documentation requirements. The welding phase includes an in-depth study of welding symbols significance and applications along with an introduction to the welding process. Practical application drawings will be completed culminating in the drawing of a weldment assembly.
(DRT 235) COMPUTER AIDED DESIGN DRAFTING III
This course will build upon basic concepts to help you create engineering production drawings from a three-dimensional model database. Drawings created will contain standard orthographic, auxiliary, and sectional views completely dimensioned and tolerated to ANSI standards.

(DRT 241) ADVANCED DRAFTING IV (PIPING/WELDING)
An introductory course in basic piping fundamentals as used in a refinery or petrochemical plant. Drawing types examined will be both the single-line diagram and double-line plan views of piping systems to include dimensioning, callouts, and specifications. Also, the isometric drawing will be addressed using both the single and double-line techniques with basic piping data integrated into the assigned projects.

(DRT 245) COMPUTER AIDED DESIGN DRAFTING IV
A sophisticated approach to the generation of electrical schematics and wiring diagrams. All phases of the documentation activity are addressed to include: library symbols construction; schematic construction procedures; signal net list; parts properties; execute files and keyfiles; wiring diagram construction; extract definition files; and wire list and from/to list from extract definition files.

(DRT 255) COMPUTER GRAPHICS LAB
Applications exercises which clarify and reinforce the principles of Computer Graphics in 2-D drafting.

(DRT 261) ADVANCED DRAFTING I LAB (MACHINE)
Practical application of theory learned in Machine Drafting I.

(DRT 262) DRAFTING PROBLEMS I *
This course provides the student an opportunity to study in detail a specific drafting problem directly related to their first year of training. The problem is conducted under the direct supervision of the drafting instructor.

(DRT 265) CADD 2-D LAB
Applications routines and exercises which clarify and reinforce the principles of initial two dimensional entity generation as presented in Computer Aided Design Drafting I.

(DRT 271) ADVANCED DRAFTING II LAB (ELECTRICAL/ELECTRONICS)
Practical application of theory learned in Electrical/Electronics Drafting.

(DRT 273) DRAFTING PROBLEMS II *
This course provides an opportunity to study in detail a specific drafting problem directly related to their second year of training. The problem is conducted under the direct supervision of the drafting instructor.

(DRT 275) CADD 3-D LAB
Application exercises are structured to allow various methods of solution to encourage individual experimentation and creation of simple to complex designer's three-dimensional part models.

(DRT 281) ADVANCED DRAFTING III (STRUCTURAL/WELDING) LAB
Practical application of theory learned in Structural/Welding Drafting.

(DRT 284) DRAFTING PROBLEMS III *
This course provides the student an opportunity to increase his/her understanding of design related functions in either the mechanical or structural specialty fields.

(DRT 285) CADD III (MECHANICAL DETAILING) LAB
Production drawings will be created which apply the mechanical detailing concepts presented in Computer Aided Design Drafting III.

(DRT 291) ADVANCED DRAFTING IV (PIPING) LAB
Practical application of theory learned in Piping Drafting.

(DRT 294) DRAFTING PROBLEMS IV *
This course provides an opportunity to expand the appreciation of electrical/electronics or piping design related functions through research, layout and evaluation and finally complete documentation tied back to the selected specialty field.

(DRT 295) CADD (ES AND WD) LAB
Projects which support the Electrical/Electronics applications are provided for reinforcement and clarification.

*Optional Course
Students completing this program will also take the following related courses.

(ETC 111) DC FUNDAMENTALS
A study of: basic atomic structure; methods of generating EMF; electronic laws and theorems; voltage, current, resistance, and power; instruments and conductors; analog meter scales; electronic color codes; schematic diagrams and symbols; laws and theorems used to solve problems; series and parallel circuits; series-parallel circuits and solutions to related problems using basic laws and theorems.

(ETC 121) AC FUNDAMENTALS
A study of alternating current and its measurements; sinewave function and analysis; resistive, inductive, and capacitive circuits; vectors and plane relationship; power factor; reactance; resonance; and impedance; single phase transformers; basic operation of AC test equipment.

(ETC 131) SOLID STATE DEVICES
The study of: atomic structures with emphasis on valence bonding; semiconductor devices construction and characteristics for; diodes, special purpose diodes, bipolar transistors, FET transistors, thyristors, optoelectronic devices, and integrated circuits; introduction to basic circuits using semiconductor devices; use of measuring instruments; operation and use of oscilloscope.

(ETC 141) ELECTRONIC CIRCUITS
A study of electronic circuits connected together to accomplish a specific task. This course is designed to explain circuits using solid state devices in a variety of circuit configurations. Biasing means and classes of operation of amplifiers are covered and a working knowledge of power supplies, oscillators and pulse circuits will be attained.

(ETC 142) ELECTRONICS FABRICATION
A study of the layout, packaging, and manufacturing of electronic assemblies and systems. Layout and fabrication practices in current use by electronic equipment manufacturers will be examined.
(ETC 143) ELECTRICAL CONTROLS
Theory covering basic electro-mechanical and solid-state control devices; relays, timers, solid-state relays and timers, limit switches, pushbuttons, etc. Basic relay ladder logic circuits are discussed and built. Troubleshooting of these relay logic circuits is stressed.

(ETC 151) DC FUNDAMENTALS LAB
Practical application of theory learned in DC Fundamentals.

(ETC 161) AC FUNDAMENTALS LAB
Practical application of theory learned in AC Fundamentals.

(ETC 171) SOLID STATE DEVICES LAB
Practical application of theory learned in Solid State Devices.

(ETC 181) ELECTRONIC CIRCUITS LAB
Practical application of theory learned in Electronics Circuits.

(ETC 193) ELECTRONIC CONTROLS LAB
Practical application of theory learned in Electrical Controls.

(ETC 211) DIGITAL CIRCUITS
A study of digital logic and digital logic systems. Basic logic gates, flip-flops, logic subassemblies such as adders, counters and shift registers are included. The circuits studied are primarily TTL and CMOS devices. Logic symbols, waveforms, timing diagrams, and wiring diagrams are studied in subassemblies. Combinational logic design is included.

(ETC 212) MICROPROCESSOR BASICS
An introductory study of the organization and interconnection of components of microprocessor systems. Topics include simplified machine architecture, arithmetic, logic, data handling operations, bus concepts, interrupt concepts, subroutines, stack operations, and elementary programming.

(ETC 214) ELECTRICAL MACHINERY
AC and DC generators and motors, principles of operation, applications, construction, and types of controls are studied. Single-phase and multi-phase transformers.

(ETC 221) MICROPROCESSOR INTERFACING
A study of: memory circuits; RAMs, volatile and non-volatile, address decoders, memory devices, input-output devices, special purpose support chips, D-to-A and A-to-D converters; parallel and serial data transfer; microcomputer troubleshooting and repair techniques.

(ETC 222) ELECTRONIC COMMUNICATIONS
A study of electronic circuits as used in basic Amplitude Modulation (AM) and Frequency Modulation (FM), and Single Side Band (SSB) communication systems. Included are communications fundamentals, modulation/detection techniques, and basic systems performance measurements.

(ETC 251) DIGITAL CIRCUITS LAB
Practical application of theory learned in Digital Circuits.

(ETC 252) MICROPROCESSOR BASICS LAB
Practical application of theory learned in Microprocessor Basics.

(ETC 261) MICROPROCESSOR INTERFACING LAB
Practical application of theory learned in Microprocessor Interfacing.

(ETC 262) ELECTRONIC COMMUNICATIONS LAB
Practical application of theory learned in Electronic Communications Theory.

(ETC 264) ELECTRICAL MACHINERY LAB
Practical application of theory learned in Electrical Machinery.

(ILT 241) PROGRAMMABLE CONTROLLERS
A study of programmable controller installation and operating procedures, programming procedures, fault isolation procedures, and methods of entering, executing, debugging, and changing programs.

(ILT 281) PROGRAMMABLE CONTROLLERS LAB
Practical application of theory learned in the Programmable Controller course.

(CRT 231) MICROCOMPUTER SYSTEM FUNDAMENTALS
A fundamental study in the areas of: DOS (disk operating system) diagnostic software, machine language, Assembly language, BASIC language, computer installation, computer upgrade, and general overall use of a microcomputer.

(CRT 241) MICROCOMPUTER SYSTEM UNIT REPAIR
A study of the important areas needed to understand microcomputer repair. Emphasis is on diagnostic software, timing and control signals, block diagrams, interpretation of computer schematics, computer related test equipment, troubleshooting and repair.

(CRT 242) MICROCOMPUTER PERIPHERAL REPAIR
This course is a study of the repair and maintenance of various microcomputer peripheral devices, such as printers, disk drives and displays.

(CRT 271) MICROCOMPUTER SYSTEM FUNDAMENTALS LAB
Practical application of theory learned in the Microcomputer System Fundamentals course.

(CRT 281) MICROCOMPUTER SYSTEM UNIT REPAIR LAB
Practical application of theory learned in the Microcomputer System Unit Repair course.

(CRT 282) MICROCOMPUTER PERIPHERAL REPAIR LAB
Practical application of theory learned in the Microcomputer Peripheral Repair course.

Students completing this program will also take the following related courses:

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY

(DRT 110) RELATED TECHNICAL DRAWING

(DRT 160) RELATED TECHNICAL DRAWING LAB

(RCS 111) COMMUNICATIVE SKILLS I

(RCS 112) COMMUNICATIVE SKILLS II

(RMA 121) APPLIED ALGEBRA I

(RMA 122) TRIGONOMETRY

(RPH 111) APPLIED PHYSICS

Depending on the availability of classes, students typically complete this program in eight quarters.

Bessemer State Technical College offers the person interested in pursuing a career in the vast field of food service the opportunity to gain necessary knowledge and practical experience for an entry-level job. The student receives instruction from a staff that is highly skilled and experienced in quantity food production and service. The college's cafeteria, equipped with commercial kitchen equipment, provides a training laboratory and offers practical experience in the preparation and service of food.

(FOSS 111) ORIENTATION TO THE FOOD SERVICE INDUSTRY

This course is designed to introduce the student to the food service industry and all the elements essential for success, including safety, sanitation, and equipment without which it would not be possible to be a good employee in the field.

(FOSS 121) PREPARATION OF SALADS, BREADS, SANDWICHES AND DESSERTS

The student learns the techniques of preparing salads, salad dressing for tossed and congealed salads, and sandwiches with spread fillings and prepared meats. Concentrated study in the preparation of breads, such as rolls, cornbread, and muffins, and the preparation of desserts such as congealed desserts, cakes and pies.
The general purpose of this course is to introduce the student to the available fruits and vegetables, their usual preparation and place in different menus. Also included are spices, soups, stocks, appetizers, cheese, and breakfast preparations.

This course has a two-fold purpose: (1) to introduce the Food Service Student to general basic nutrition to keep themselves healthy to work in the industry and (2) to familiarize the student with the same basics to rationalize the proper care that must be taken in menu planning and food preparation.

This course is designed to introduce the student to the preparation of meats. It is to provide the technical knowledge necessary to be familiar with all types of meat, the usual methods of preparation, and of serving those preparations.

This course is designed to introduce the student to menu planning and its many components such as purchasing, inventory, and adaptation of menus for special situations. The student must have the skills developed in this class not only to function in a supervisory position but to understand the reasoning behind any dish he/she has to cook.

Practical application of the theory learned using the college’s kitchen and cafetorium as lab.

Practical application of theory learned through laboratory assignments.

Depending on availability of classes students typically complete this program in four quarters.

will prepare graduates to function effectively as licensed practical nurses. Students graduating from the one-year program receive a diploma.

Emphasis is placed on the practical application of knowledge gained through lectures, demonstrations, and laboratory experiences. Students receive clinical experience under the supervision of qualified instructors at modern medical facilities throughout Jefferson County.

The nursing program is approved by the State Department of Education and the Alabama Board of Nursing. Graduates of the program are eligible to write the Examination for Licensure, State of Alabama.

This course is designed to introduce the student to menu planning and its many components such as purchasing, inventory, and adaptation of menus for special situations. The student must have the skills developed in this class not only to function in a supervisory position but to understand the reasoning behind any dish he/she has to cook.

Practical application of the theory learned using the college’s kitchen and cafetorium as lab.

Practical application of theory learned through laboratory assignments.

Depending on availability of classes students typically complete this program in four quarters.

The objective of the School of Practical Nursing at Bessemer State Technical College is to offer a basic program of education which

for Nursing II, III, and IV, Maternity and Newborn, and Nursing for Children.

This course builds on the knowledge and skills obtained in Nursing I Fundamentals, Anatomy and Physiology, and Nutrition and Diet Therapy. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the gastrointestinal, cardiovascular, respiratory, blood and musculoskeletal systems utilizing the nursing process. Insertion of nasogastric tube and care of a tracheotomy are among the skills demonstrated in lab.

This course builds on the knowledge and skills acquired in Anatomy and Physiology, Nutrition and Diet Therapy, Nursing II, Introduction to Mental Health Concepts and Basic Pharmacology. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the gastrointestinal, cardiovascular, respiratory, blood and musculoskeletal systems utilizing the nursing process. Insertion of nasogastric tube and care of a tracheotomy are among the skills demonstrated in lab.

This course builds on the knowledge and skills previously acquired and prepares the student to render safe nursing care to the obstetrical patient and newborn. Emphasis is placed on the care and observation of the mother during the prenatal, labor and delivery, and postpartum periods as well as the care of the unborn and newborn. Abnormal as well as normal aspects of care are included in this course.

This course is a study of normal growth and development and illness of children from the newborn period through adolescent period. Emphasis is placed on normal growth and development and care and observations of the child with a medical-surgical illness.

This course builds on the knowledge and skills acquired in the study of Nursing I, Nursing II and Nursing III. IV therapy, fluid electrolytes, and venipuncture theory and lab practice for these skills is a part of this course content. Emphasis is placed on
recognizing the total needs of the patient with medical-surgical diseases and disorders of the neurological system utilizing the nursing process. Rehabilitation of patients and nursing the patient in the community and the geriatric patient are stressed. In order to prepare the graduate for the world of work, employment seminars including job applications, resume writing, and simulated interviews are emphasized. The legal aspects of nursing are addressed in this course.

(LP 162) NURSING I FUNDAMENTALS CLINICAL
The clinical application of knowledge and skills learned in Nursing I Fundamentals.

(LP 172) NURSING II CLINICAL (ADULT/CHILD)
The clinical application of knowledge and skills learned in Nursing II.

(LP 173) BASIC PHARMACOLOGY CLINICAL
The clinical application of knowledge and skills learned in Basic Pharmacology.

(LP 181) NURSING III CLINICAL (ADULT/CHILD)
The clinical application of knowledge and skills learned in Nursing III.

(LP 182) PHARMACOLOGY II CLINICAL
The clinical application of knowledge and skills learned in Basic Pharmacology.

(LP 183) MATERNITY AND NEWBORN CLINICAL
The clinical application of knowledge and skills learned in Maternity and Newborn.

(LP 183) PHARMACOLOGY III CLINICAL
The clinical application of knowledge and skills learned in Basic Pharmacology.

(LP 194) NURSING IV CLINICAL (ADULT/CHILD)
The clinical application of knowledge and skills learned in Nursing IV.

The Retailing and Merchandising program provides educational experiences for students whose career objectives are in the marketing, sales, and sales related areas. Effective selling, advertising as it relates to retailing, buying merchandise for resale, consumer and commercial credit management, and organizational and supervisory management are emphasized. The organizational structures of the sole proprietor business to the mass merchandisers are incorporated into the instruction to illustrate the varied business operations. Each major subject is complemented with a laboratory experience enabling the student to gain the practical application of theory learned in classroom lectures.

(MET 141) INTRODUCTION TO RETAILING
This course is designed to provide the students with an insight into the most effective ways to deal with employees they may be supervising. The course also relates the necessary supervisory skills to a retail manager's day-to-day situation. Particular emphasis is placed on the human relations approach to accomplishing objectives.

(MET 142) RETAIL ORGANIZATION
This course is designed to provide the students with an insight into the most effective ways to deal with employees they may be supervising. The course also relates the necessary supervisory skills to a retail manager's day-to-day situation. Particular emphasis is placed on the human relations approach to accomplishing objectives.
enables student to buy for maximum sales turnover.

(MET 221) RETAIL COMMUNICATIONS
This course is designed to prepare the student to enter retail management and to have a better understanding of the art of dealing with people to accomplish desired objectives. The course emphasizes the importance of the communications process to efficient and productive management and acquaints the student with the human relations approach to management and the role it plays in effective management.

(MET 222) APPLIED ECONOMICS
This course is designed to provide students with a better understanding of our economic system, and how it applies to them. The course also enables the student to make better decisions in the retail environment armed with a keener knowledge of what motivates consumers in our economy.

(MET 223) THE RETAIL CONSUMER
This course is designed to prepare students to enter the work force and to better manage their personal finances and assets. The course also enables the student to make wiser decisions and to be an alert and informed consumer.

(MET 224) ENTREPRENEURSHIP
The purpose of this course is to provide the student with a knowledge of the basic principles, guidelines, practices, procedures, and methods used in operating a small business. Students will be exposed to proven techniques used by successful small business owners today.

(MET 261) RETAIL EMPLOYEE CASE STUDIES LAB
Practical application of theory learned in Retail Employee Case Studies.

(MET 262) RETAIL BUYING LAB
Practical application of theory learned in Retail Buying. This lab will also utilize a microcomputer simulation, "Computerized Inventory Procedures," to familiarize the student with the IBM personal computer and acquaint the student with the increasing applications of the computer in retailing.

(MET 271) RETAIL COMMUNICATIONS LAB
Practical application of theory learned in Retail Communications.

Students completing this program will also take the following related courses.

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY
(DPT 177) INTRODUCTION TO DATA PROCESSING
(RCS 111) COMMUNICATIVE SKILLS I
(RCS 112) COMMUNICATIVE SKILLS II
(RCS 121) TECHNICAL WRITING
(RCS 141) APPLIED SPEAKING
(RMA 131) BUSINESS MATHEMATICS
(RMA 133) ACCOUNTING MATHEMATICS
(SEC 112) BEGINNING TYPING

Depending on availability of classes, students typically complete this program in six quarters.

(ATT 223) ACCOUNTING I
(ATT 161) ACCOUNTING I LAB

The Machine Tool program prepares the student for entry-level positions in the machinist field.

The program provides instruction in the operation of standard metal cutting machine tools and equipment, such as the milling machine, lathe, shaper, drill press, jig borer, sloter, power saw; and pedestal, cylindrical and surface grinders. The student learns the theory of operation of these various pieces of equipment and immediately applies what he/she has learned in shop assignments. These assignments are completed under conditions very similar to on-the-job situations.

To supplement shop experience, the curriculum includes related courses in blueprint reading, use of machinery handbook, mechanical drawing, applied mathematics, communicative skills, economics, and business and industrial psychology. After completion of the machine tool program the college offers an optional quarter of computerized numerical control (CNC). A person entering the CNC training must first complete the machine tool program or have a minimum of four years experience in machine shop work.

(MST 111) INTRODUCTORY MACHINE SHOP OPERATION I
This course includes the use and care of measuring instruments, layout tools and hand tools used in bench work. The student becomes familiar with lubrication procedures and the use of abrasives.

(MST 112) MACHINE TOOL PRINCIPLES I
Following a brief history of the machinist trade, the student learns the variations and uses of the basic machines in the machine shop. Emphasis is placed on the safe use of machines and tools.

(MST 115) SPECIAL MACHINING PROCESSES*
This course consists of machine processes encountered in the operation of the engine lathe, the sensitive drill press, and the milling machine.

(MST 116) SPECIAL MACHINING PROCESSES*
A continuation of MST 115.

(MST 121) INTRODUCTORY MACHINE SHOP OPERATION II
This course consists of principles of tool design and grinding procedures with emphasis on threads and threading tools. Special set-ups and their uses are explained.

(MST 122) MACHINE TOOL PRINCIPLES II
This course consists of an in-depth study of the construction and operation of the drill press, lathe, saw, and the tools and attachments used in operating these machines. The course also includes the design, layout, and set-up of projects produced by these machines.

(MST 131) APPLIED MACHINE SHOP I
This course consists of information and calculations required to accurately compute, set-up machines, and measure tapes, angles, and threads. The operation and safe use of the milling machine are covered.

(MST 141) APPLIED MACHINE SHOP II
This course consists of information and calculations required to set up a machine and to measure finished products on the lathe, shaper, and milling machine. The construction and use of the grinding machine are covered.

(MST 161) INTRODUCTORY MACHINE SHOP OPERATION I LAB
Practical application of knowledge acquired in Introductory Machine Shop Operation I.

(MST 165) SPECIAL MACHINING PROCESSES LAB*
Practical application of knowledge gained in Special Machining Processes.

(MST 166) SPECIAL MACHINING PROCESSES LAB*
A continuation of MST 165.

(MST 171) INTRODUCTORY MACHINE SHOP OPERATION II LAB
Practical application of knowledge gained in Introductory Machine Shop Operation II.

(MST 181) APPLIED MACHINE SHOP I LAB
Practical application of knowledge gained in Applied Machine Shop I.

(MST 191) APPLIED MACHINE SHOP II LAB
Laboratory used to demonstrate and experience the methods for best usage of each
machine, i.e., precision boring, internal threading, cutting keyways, and cylindrical and surface grinding.

(MST 211) ADVANCED MACHINE SHOP I
Use of formulas required to properly operate milling machines, index head, surface grinder, and cylindrical grinder is covered in this course.

(MST 221) ADVANCED MACHINE SHOP II
An in-depth study of gears including gear uses, methods of producing and inspecting gears is included in this course. Emphasis is on grinding machines, grinding terms, and proper operating procedures for grinding wheels.

(MST 231) COMPUTERIZED NUMERICAL CONTROL
This is a study of numerical control systems and their application to some special machine shop machines.

(MST 261) ADVANCED MACHINE SHOP I LAB
Practical application of knowledge gained in Advanced Machine Shop I.

(MST 271) ADVANCED MACHINE SHOP II LAB
Practical application of knowledge gained in Advanced Machine Shop II.

(MST 281) COMPUTERIZED NUMERICAL CONTROL LAB
Practical application of knowledge gained in Computerized Numerical Control.

*Optional Course

Students completing this program will also take the following related courses.

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY

(DRT 110) TECHNICAL DRAWING
(DRT 160) TECHNICAL DRAWING LAB
(MST 222) APPLIED ECONOMICS
(RBP 111) BLUEPRINT READING I
(RBP 112) BLUEPRINT READING II
(RBP 113) BLUEPRINT READING III
(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS
(RMA 121) APPLIED ALGEBRA I
(RMA 123) APPLIED TRIGONOMETRY
(RMA 141) USE OF MACHINE SHOP HANDBOOK

Depending on the availability of classes, students typically complete this program in seven quarters.

The Ornamental Horticulture program presents subject matter and laboratory learning activities that will prepare the student for successful employment in the production, management, sales, and service areas of horticulture.

The student receives general background information in the areas of soils, fertilizers, plant propagation, and horticulture sciences. Courses in the areas of landscaping, landscape maintenance, food crops, pest control, turf grasses, nursery and greenhouse production are also offered to provide the student the knowledge necessary to seek and hold employment. Laboratory courses are designed to expose students to work habits, skills, and machinery needed in most horticultural enterprises. Student experience is supervised and is provided in campus laboratories, greenhouses, nursery, and landscape situations. The use of field trips and co-op training helps greatly to broaden the student's education.

(OHT 111) HORTICULTURAL SOILS AND FERTILIZERS
The study of different artificial and natural soils and the maintenance of their fertility. Course work includes the chemical composition of the many different fertilizers, limes and soil amendments.

(OHT 112) HORTICULTURE SCIENCE
Designed to provide a broad understanding of the fundamental facts and principles of botanical sciences, chemistry, crop science, horticulture, and the conservation of renewable natural resources. Emphasis is placed on plant improvement and genetics.

(OHT 121) PLANT PROPAGATION
This course is designed to study various techniques used in the propagation of plants grown by commercial nurseriesmen, using seeds, cuttings, and grafts. New methods like tissue culture are also explored.

(OHT 122) TURFGRASS MANAGEMENT
This is the study of all major southern lawn grasses and their maintenance. Turf machinery, fertilizers, and uses of lawn grasses are covered to a great extent along with information on bidding and estimating.

(OHT 131) ORNAMENTAL AND TURF PEST CONTROL
This is the study of the different insects, disease, and weed pests of ornamental plants. Emphasis is placed on identification and control. The major emphasis of this course is helping the student pass state license exams.

(OHT 132) FOOD CROPS
The study of the basic temperate food crops with emphasis placed on vegetables and fruit crops and their growth.

(OHT 141) TECHNICAL LANDSCAPING
This course will provide the student with the technical information necessary to obtain and hold a job in landscape design, implementation, or labor. Information in this course is related to other courses including Landscape Maintenance, Nursery Management, and Ornamental and Turf Pest Control.

(OHT 142) NURSERY MANAGEMENT
This course will provide the student with the technical information needed to obtain and hold employment in the nursery production industry. Information in the course relates strongly with courses: Technical Landscaping, Landscape Maintenance, Greenhouse Production, Ornamental and Turf Pest Control and Plant Propagation.

(OHT 152) IDENTIFICATION AND USE OF PLANT MATERIALS LAB
Practical course teaching interior and exterior plant identification and use for these plants in various horticultural situations.

(OHT 153) LANDSCAPE DESIGN AND DRAWING LAB
Practical course teaching the principles of drafting, layout of drawings, scale and printing. Course includes actual production of landscape drawings as directed by instructor.

(OHT 154) LANDSCAPE BIDDING AND ESTIMATING LAB
Practical course teaching modern bidding and estimating principles through the use of actual properties, specifications, blueprints, etc. Emphasizes landscape maintenance and installation bidding.

(OHT 161-192) PRACTICAL APPLICATION LABS
Practical application of theory learned in the classroom through laboratory assignments scheduled according to seasonal growing conditions. Major emphasis is on building student confidence, speed and quality of work.

(OHT 211) GREENHOUSE PRODUCTION
The purpose of this course is to increase student's abilities to work in or manage a commercial greenhouse.

(OHT 212) LANDSCAPE MAINTENANCE
This course is designed to improve students knowledge of landscape maintenance concepts and thereby increase their abilities as a groundskeeper.

(OHT 221) ADVANCED STUDIES
Individual study in an area of interest to the student and approved by the instructor.

(OHT 222) CURRENT TOPICS IN HORTICULTURE
The study of modern trends in the horticulture industry. Methods used include
review of trade journals, videos, and class discussion.

(OFP 261-271) PRACTICAL APPLICATION LABS
Practical application of theory learned in the classroom through laboratory assignments and practical application of theory learned in the classroom through laboratory assignments schedules according to seasonal growing conditions. Major emphasis is on building student confidence, speed and quality of work.

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
Students completing this program will also take the following related courses.

(RMA 111) BUSINESS MATHEMATICS
Related courses in Drafting, humanities and Small Engine Mechanics are optional.

Depending on the availability of classes, students typically complete this program in six quarters.

Bessemer State Technical College offers a diploma program for persons interested in entering the field of printing and publishing. The program is designed to acquaint the student with the major phases of producing quality printed material and to give the student the opportunity in his or her final year to specialize in a particular occupational area in offset printing. Following a thorough introduction to offset printing, the student concentrates on learning the theory and practical application of offset press operation, graphic arts camera techniques, platemaking and stripping, and bindery processes. The final three quarters are devoted primarily to a printing production specialty in preparation for employment. In addition to learning to perform with efficiency in the major departments of a printing or publishing firm, the student acquires a working knowledge of copy design and preparation and specialized printing techniques, including advertising and graphic design, typography, and silk screen printing.

The student learns the theory of offset printing through individual and classroom instruction and applies this newly gained knowledge in a shop equipped with modern equipment identical, in most cases, to the equipment he or she will be using on the job.

(OFR 111) FUNDAMENTALS OF OFFSET PRINTING
The student is introduced to the offset printing industry, the various steps of production, safety, tools of the trade, and major printing processes.

(OFR 121) OFFSET PRESS OPERATION
An in-depth study of the offset printing process, procedures for operation of various offset presses, inks and inking systems, regulating pressures, and offset presswork troubleshooting.

(OFR 131) GRAPHIC ARTS CAMERA LAB
A study of the function and operation of the graphic arts camera to achieve suitable copy preparation for printing. The course includes line and half-tone photography and darkroom procedures for developing lithographic film.

(OFR 141) PLATEMAKING AND STRIPPING
A study of printing plate characteristics including surface plates and deep-etch plates, and the exposure devices used in the preparation of plates for offset printing.

(OFR 161) FUNDAMENTALS OF OFFSET PRINTING LAB
Practical application of theory covered in Fundamentals of Offset Printing.

(OFR 171) OFFSET PRESS OPERATION LAB
Practical application of theory learned in Offset Press Operation.

(OFR 181) GRAPHIC ARTS CAMERA LAB
Practical application of theory learned in Graphic Arts Camera.

(OFR 191) PLATEMAKING AND STRIPPING LAB
Practical application of theory learned in Platemaking and Stripping.

(OFR 211) BINDERY
A study of the final step in the offset printing process which is finishing the product and preparing it for delivery. The student learns folding, gathering, and binding techniques.

(OFR 221) PRODUCTION SPECIALTY I
The student enters concentrated study in the area of offset printing which he or she has selected as a career goal.

(OFR 231) PRODUCTION SPECIALTY II
Concentrated study in a specific area of greatest interest of the student.

(OFR 241) PRODUCTION SPECIALTY III
Refinement of techniques in final preparation for an occupation in the offset printing industry.

(OFR 261) BINDERY LAB
Practical application of theory learned in Bindery.

(OFR 271) PRODUCTION SPECIALTY I LAB
Concentrated application of theory learned in a specific area of offset printing.

(OFR 281) PRODUCTION SPECIALTY II LAB
Concentrated application of theory learned in a specific area of the industry.

(OFR 291) PRODUCTION SPECIALTY III LAB
Concentrated application of theory learned in a specific area of offset printing.

Students completing this program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS
(RMA 131) BUSINESS MATHEMATICS

Depending on the availability of classes, students typically complete this program in eight quarters.

(RBP 111) BLUEPRINT READING I
This course offers instruction in the principles of reading and interpreting industrial blueprints as applied to specific major programs.

(RBP 111) WELDING BLUEPRINT READING
The purpose of this course is to provide the technical knowledge necessary for the student to understand the trade drawings which describe the work they must do.

(RBP 112) BLUEPRINT READING II
Emphasis is placed on developing an ability to read drawings skillfully with the same degree of accuracy and speed required by industry.

(RBP 113) BLUEPRINT READING III
The purpose of this course is to study the relationship of bills of material, detail drawings, and assembly drawings.

(RBP 114) CONSTRUCTION PRINT READING I
The first of three courses in the interpretation, preparation, and utilization of construction prints and sketches. Includes study and use of current and proposed building plans.

(RBP 115) CONSTRUCTION PRINT READING II
The second in a series of three courses in print reading dealing primarily with residential plans and light commercial construction prints.

(RBP 116) CONSTRUCTION PRINT READING III
The final course in a three-part series which places emphasis on light and heavy commercial print reading.
(RCS 111) COMMUNICATIVE SKILLS I
This course is a basic grammar and composition course which employs the study of grammar rules and their application in writing. Special emphasis is placed on the four basic communication skills of reading, writing, listening, and speaking. By studying and improving these basic skills, the student will become a more effective communicator who is better able to achieve career goals.

(RCS 112) COMMUNICATIVE SKILLS II
This course is designed to provide the technical knowledge to enable students to write compositions that are coherent, well organized, and maturely expressed and to select materials suited to reading ability in order to improve students' comprehension skills. The course also provides students an opportunity to practice these writing and reading skills as well as listening and speaking skills.

(RCS 121) TECHNICAL WRITING
Technical Writing is an advanced course in business communication. All writing is geared toward the business world and extends from the business memorandum to the formal report. The student is expected to have a working knowledge of basic grammar and writing skills. Emphasis is placed on proper, effective communication for the career-minded individual.

(RCS 131) BUSINESS ENGLISH AND VOCABULARY
This course is designed to refine the student's composition skills and to strengthen the vocabulary of the students.

(RCS 141) APPLIED SPEECH
Applied Speech is a basic speech course in which emphasis is placed on the actual practice of public speaking.

(RMA 111) VOCATIONAL MATH
This course is designed to provide the technical knowledge necessary to do general arithmetic with fractions, decimals, and percents. Coverage includes the metric system and general geometry (perimeter, area, volume). Much emphasis is placed on word problems and determining missing dimensions.

(RMA 112) APPLIED ALGEBRA I
This course is designed to cover the basic algebra concepts beginning with arithmetic of integers and ending with solutions of equations by factoring. Emphasis is placed on step by step problem solving especially with word problems.

(RMA 122) APPLIED ALGEBRA II
This course continues the study of applied algebra started in Algebra I. The topics pick up with factoring and carry through solution of quadratic equations.

(RMA 123) APPLIED TRIGONOMETRY
This course begins with a brief review of facts from geometry (area of polygons, Pythagorean's theorem, etc.). Then much effort is given to the solution of right triangles. Remaining topics include: trig functions of any size angle, solution of oblique triangles, graphs of trig functions and identities.

(RMA 131) BUSINESS MATHEMATICS
The purpose of this course is to provide business students with the specific mathematics skills needed for business calculations. It assumes the student needs a basic math review, then introduction to the procedures used in bank records, payroll records, insurance, loans, and interest and taxes.

(RMA 133) ACCOUNTING MATHEMATICS
Accounting Mathematics presents basic mathematical concepts and procedures, which are encountered in a business environment. Included are computations on the purchase and sale of corporate stocks and bonds, simple and compounded interest, business statistics, insurance, and annuities.

(RMA 141) USE OF MACHINIST'S HANDBOOK
This course enables the student to use the information contained in various tables of the Machinist Ready Reference for solving problems given in the workbook.

(RPH 111) PHYSICS
The purpose of this course is to provide knowledge that will allow the student to analyze the environment and relate the function of mass and energy to the acts of everyday events and to explain the problems that arise in the major course material. It provides an opportunity to develop skills in observation, computation, and analysis of problems. Demonstrations of effects, and working problems provide a basis of understanding of relationship and solutions.

SECRETARIAL PROGRAMS
(SEC)
DIPLOMA PROGRAM
DAY PROGRAM

The Secretarial Program prepares students for as many as 14 different occupations as identified in the Dictionary of Occupational Titles. These occupations are categorized into four levels which the student can choose—General Office, Secretarial, Stenographic, and Word Processing.

A highlight of the program is the individualized Diploma Plan which is designed for each secretarial major, based on his/her career objectives. A faculty advisor assists the student from enrollment to graduation. This plan includes the granting of advanced credit for basic courses when prior education or experience is documented.

Although each student may choose a specific area of occupational interest, all are trained in the basic secretarial skills of typing, filing, telephone operations, 10-key, and grooming. All secretarial majors receive hands-on experience in today's electronic office procedures, including basic word processing, spreadsheet, and data base management. In addition, students learn the important steps in securing a job and in maintaining a career.

Students are encouraged to participate in the professional organization, Collegiate Secretaries International. Graduates are eligible to sit for the CPS (Certified Professional Secretary) Exam, the hallmark of success in the profession.

Each advanced level prepares graduates for specific jobs, in addition to the jobs from the previous level. These jobs include Word Processor, Transcriptionist, and Correspondence Secretary (Word Processing Level, 5 quarters); Stenographer, Medical Secretary, and Legal Secretary (Stenographic Level, 5 quarters); Billing Clerk, and Inventory Clerk (Secretarial Level, 4 quarters); and Receptionist, File, Reprographics, Correspondence, and General Clerk positions (General Office Level, 3 quarters).

(SEC 109) BASIC TYPING
This course is designed for students who just want to learn to type and are not Secretarial majors. Using the Championship Techniques methods developed by Cortez Peters, Jr., students learn the proper alphabetic and numeric reaches of the keyboard by touch. Technique and accuracy are stressed, with speed development emphasized after the keyboard has been mastered. A minimum level of 20 wpm typing speed should be attained. Basic business letter format is taught and applied at the end of the course.

(SEC 110) PRACTICAL APPLICATION LAB
A laboratory specifically designed for secretarial majors, this time frame provides students with the additional opportunity to apply knowledge learned in each of their secretarial courses. The lab area is equipped with electronic typewriters, 10-key calculators,
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systems.

Job opportunities and career paths course in addition to the traditional filing

do systems, students learn how to design and equip a business office with a records system

that most efficiently meets their needs. They also enroll in a Practical Lab (SEC 110) on days opposite to this course so that daily practice can take place.

SEC 113) RECORDS MANAGEMENT

Upon successful completion of SEC 114 (or its equivalent), students begin advanced instruction in records management systems. By researching and examining various records systems, students learn how to design and equip a business office with a records system that most efficiently meets their needs. They also learn how to manage the clerical staff necessary to handle the system. Magnetic storage media, micrographics media, and databases are an integral portion of this course in addition to the traditional filing systems. Job opportunities and career paths in records management are also covered.

SEC 114) FILING

Have you ever heard that "anyone can file"? Students learn in this course that there is a lot more to filing than just knowing one's alphabet! The most recent filing rules and procedures adopted by the Association of Records Managers and Administrators (ARMA) are taught in the course; students are given daily application of these rules through the use of practice sets. Students learn to index, code, sort, and file alphabetically, geographically, numerically, and by subject. The student is also introduced to the latest in computerized information storage and retrieval systems.

SEC 115) MACHINE TRANSCRIPTION

Students apply a prerequisite typing speed of 40 wpm to transcribing mailable business documents. Daily practice in utilizing machine transcribers with headsets and foot pedals, is stressed along with the swift, efficient production of various business letters. The students learn the basics of word processing so the transcription can be done on computer. Of all skills in today's office, machine transcription is growing in popularity due to the time saved on the part of the executive and the secretary.

SEC 121) NOTETAKING II

This course is designed for students who have successfully completed SEC 112, and who wish to build their speed and skill in note taking. Students will develop a broader shorthand vocabulary, develop speed in taking dictation and transcribing accurately, and will develop competence in office-style dictation with emphasis on mailable. The completion of this course will prepare students for those jobs which require shorthand ability.

SEC 122) INTERMEDIATE TYPING

With a prerequisite of SEC 112 or experience in touch-typing the keyboard, students are given instruction in electronic typewriter or computer operations and maintenance. Business document theory is presented so that students are able to produce mailable documents including reports, tables, letters, memos, and forms in both straight-copy and/or edited rough-draft copy. A minimum speed of 40 wpm is expected upon completion. It is highly recommended that students also enroll in a Practical Lab (SEC 110) on days opposite to this course so that daily practice can occur.

SEC 123) SECRETARIAL ACCOUNTING

This course provides students with the basic accounting knowledge necessary to keep the financial records for a general office. In addition to theory, students acquire experience in writing checks, maintaining checking account records, preparing a balance sheet, journalizing transactions, posting to ledgers, completing worksheets, preparing trial balances, making adjusting entries, preparing an income statement, and basic payroll accounting. A prerequisite of Business Math is advised.

SEC 125) WORD PROCESSING—DISPLAYWRITE 4

A prerequisite of 40 wpm typing allows students to progress through this most popular word processing software packages. The basic of computer operations for both a hard-drive and floppy-disk system are taught before any word or data processing is presented. Students produce mailable documents using the DW4 software, including both low and high-level functions such as merge and document assembly.

SEC 132) ADVANCED TYPING

With a prerequisite of both touch-typing techniques and format theory at a rate of 40 wpm, students are given the opportunity to build speed, accuracy, and format knowledge in this course. Emphasis is placed on the application of theoretical knowledge to produce mailable documents in actual business situations. A minimum speed of 50 wpm is expected upon completion. It is highly recommended that students also enroll in a Practical Lab (SEC 110) on days opposite to this course so that daily practice can occur.

SEC 133) OFFICE PROCEDURES

In this course, students experience the overall business atmosphere of an office. They learn and practice good communication skills, including listening techniques. They perform such daily office functions as greeting callers and visitors, making travel arrangements, handling business meetings, processing office mail, rephotographs, using reference materials, managing budgetary records, and proofreading. All of this is done through actual application in an office setting.

SEC 134) ORAL/TELEPHONE COMMUNICATIONS

One of the most valuable tools an office employee will ever use is the simple telephone. His/her voice can make or break a business relationship with a client. This course gives hands-on experience to each student using one of the most advanced telephone training systems available—Eduphone. Students learn not only how to answer business calls, but also how to transfer calls, place calls, take messages, use directories, set up teleconferences, use cellular phones, handle electronic and voice mail. Students are also given extensive instruction in improving their speaking voice and developing a pleasant, professional enunciation. Manners and courtesy are stressed throughout.

SEC 143) BUSINESS COMMUNICATIONS

With a prerequisite of the first two levels of English, students are well equipped to apply their grammar and punctuation knowledge to the composition of actual business documents. Students are given instruction and then case studies in which they produce mailable goodwill, positive response, request, negative response, collection, sales, and job application letters.

SEC 144) ELECTRONIC OFFICE SIMULATION

This course is designed to give students the latest in today's modern, electronic office... Operations of various computer and word processing hardware systems, production of mailable documents using basic generic word processing software, utilizing spreadsheet capabilities, managing database information systems, producing desk-top publishing docu-
ments by mixing text and graphics capabilities, processing electronic mail, utilizing electronic filing systems, and managing telecommunication networks using a computer, modem, and teleconferencing network (MIX) system. A typing speed of 40 wpm is the advised prerequisite.

(SEC 145) EMPLOYMENT PREPARATION AND GROOMING

Students are given instruction in acceptable grooming habits and dress for a professional office career. In addition to addressing the "outside" person, students take part in daily discussion on such "work ethic" topics as getting along in the work force, success skills, women in the work force, and teleconferencing network (MIX) system.

(SEC 146) LEGAL TERMINOLOGY AND PROCEDURES

This course is designed for students who are possibly seeking a career as a legal secretary. A prerequisite of 40 wpm typing is required; shorthand skill is recommended. A thorough knowledge of legal terminology will be obtained by the completion of this course. Students learn the specific procedures used in a legal office, including labeling and filing various legal records and files, maintaining client dockets and financial records, preparing non-court and civil court documents, basic word processing and data processing procedures peculiar to a medical office—preparation, design, and layout, the telephone, preparing medical records, completing various insurance forms, maintaining financial records, billing patients, and composing letters to medical clients. Students are given instruction in acceptable grooming habits and dress for a professional office career. Students learns the specific procedures in preparing and maintaining financial records, billing patients, and composing letters to medical clients.

(SEC 147) WORD PROCESSING—WORDPERFECT

With a prerequisite of 40 wpm typing, students learn how to perform routine system start-up/close-out procedures using both a hard-drive and a floppy-disk IBM-compatible computer. In addition to learning basic word processing and data processing theory, students apply their knowledge on a daily basis by producing mailable documents using WordPerfect software.

(SEC 148) MEDICAL TERMINOLOGY AND PROCEDURES

This course is designed for students who are possibly seeking a career as a medical secretary. A prerequisite of 40 wpm typing is required; shorthand skill is recommended. In addition to specific medical terminology being taught, students learn the office procedures peculiar to a medical office—scheduling appointments, greeting patients, labeling and filing medical records, handling the telephone, preparing medical records, completing various insurance forms, maintaining financial records, billing patients, and composing letters to medical clients.

(SEC 161) NOTETAKING I LAB

Practical application of the theory learned in SEC 111.

(SEC 171) NOTETAKING II LAB

Practical application of the theory learned in SEC 121.

(SEC 175) WORD PROCESSING LAB—DISPLAYWRITE 4

Practical application of the theory and demonstrations taught in SEC 125.

(SEC 184) OFFICE MACHINES

The 10-key calculator is such an integral part of today's office of the ability to operate one is tantamount. Students are taught the most efficient method of operations—the 10-key by Touch. Once mastered with a KPM of 140, students progress through a number of business applications including payroll records, bank reconciliation, inventory control, income statements, invoices, and sales discount records. Basic machine maintenance is also learned and practiced on a daily basis.

(SEC 185) INTENSIVE TYPING

Using the Championship Typing Techniques of World Champion, Cortez Peters, Jr., each student's individual typing ability is scientifically analyzed, and an individualized typing program is prescribed to build speed and reduce errors. Students must have mastered the touch-technique on the basic keyboard prior to entering this course; this course can be repeated as many times as necessary to achieve a typing speed increase of at least 20 percent and a reduction of errors to three or less on any five-minute timing.

(SEC 197) WORD PROCESSING LAB—WORDPERFECT

Practical application of the theory and demonstrations taught in SEC 147.

Students completing the diploma program will also take the following related courses.

(DPT 117) INTRODUCTION TO DATA PROCESSING

(RCS 111) COMMUNICATIVE SKILLS I

(RCS 129) COMMUNICATIVE SKILLS II

(RCS 131) BUSINESS ENGLISH AND VOCABULARY

(RMA 131) BUSINESS MATHEMATICS

Depending on the diploma level chosen, additional related courses may be required.

The Small Engine Mechanics Program is designed to train the student to become a competent serviceman and repairman. The training involves instruction in identification, diagnosis, repair, disassembly and assembly, and testing of engines and power equipment. The course includes the principles and or theory of small gasoline engines, both two and four cycle.

(SEM 111) BASIC SMALL ENGINE THEORY

This course is designed to provide the student with an introduction to engine identification and inspection procedures, basic engine principles and design, and the principles of operation for four-stroke and two-stroke cycle engines. The course will also provide the student with the basic skills and knowledge to safely perform selected small engine repairs using the appropriate tools and fasteners.

(SEM 121) ENGINE SERVICE

This course is designed to provide the student with the fundamentals and knowledge for parts management and to diagnose, service, and repair the lubrication, cooling, fuel, governor, and exhaust systems and overhaul four-stroke and two-stroke cycle engines.

(SEM 131) OUTDOOR POWER EQUIPMENT REPAIR

This course is designed to provide the student an introduction to common types of outdoor power equipment and provide them the fundamental skills and knowledge to diagnose, service, and repair power trains, brakes, clutches, transmissions, transaxles, hydraulic systems, hydrostatic drives, front axles and steering, equipment drives, and tires and rims.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 111) VOCATIONAL MATH

Depending on the availability of courses, students typically complete this program in three quarters.

The Welding program provides the student the opportunity to acquire the necessary skills, knowledge, and experience for employment in welding occupations. Emphasis is on the technical aspects of welding. Instruction is offered in the welding of mild steel, stainless steel, cast iron, and aluminum. Training is also conducted in torch burning, joint preparation, design, and layout.
(WDT 111) OXY-FUEL CUTTING AND WELDING THEORY/LAB
This course is designed to teach the student rules of safety and identification of shop equipment. This course is also necessary for the safe operation of oxyacetylene welding, brazing and oxy-fuel cutting equipment.

(WDT 112) INTRODUCTION TO SHIELDED METAL ARC WELDING (SMAW) THEORY
This course is designed to teach the student the safety practices and terminology in the Shielded Metal Arc Welding process.

(WDT 115) BASIC GAS METAL ARC WELDING (GMAW)
This course is designed to provide the technical knowledge necessary to understand the basic fundamentals of Gas Metal Arc Welding and Flux Cored Arc Welding.

(WDT 121) BASIC SHIELDED METAL ARC WELDING THEORY
This course is designed to instruct the student in the safety procedures of arc welding, the testing procedures for groove welds and the study of basic metallurgy.

(WDT 131) INTERMEDIATE SHIELDED METAL ARC WELDING THEORY
This course is designed to instruct the student in welding safety, carbon steels, cast iron welding procedures and identification of metals by their numbering systems.

(WDT 132) GAS METAL ARC WELDING FLUX CORED ARC WELDING THEORY
This course is designed to prepare the student to weld using GMAW and FCAW equipment, welding controls, electrode wire and shielding gases. The student will be able to define wire stickout, lap joints, t-joints, v-groove butt joints, the four basic weld positions and know safety conditions associated with electrical duty cycle, cable handling, gas and coolant hoses, arc rays and clothing.

(WDT 141) ADVANCED SHIELDED METAL ARC WELDING THEORY/LAB
This course is designed to prepare the student to weld open root, single-v-groove joints using electrodes in the F3 and F4 groups and to use carbon rod air arc gouging equipment.

(WDT 143) PLASMA AIR OR CARBON ARC CUTTING (PAC) THEORY/LAB
This course is designed to offer a student a guide to the knowledge and skills in the safe operation and use in plasma air carbon arc cutting (PAC) of ferrous, nonferrous, and cast iron metal.

(WDT 152) INTRODUCTION TO SHIELDED METAL ARC WELDING LAB
This course is designed to train the student to operate SWAW machine equipment and controls, strike and control the arc and successfully weld in the 1F and 2F positions using electrodes in the F2, F3, and F4 group.

(WDT 161) ARC WELDING LAB
This course is designed to prepare students to produce quality welds with electrodes in the F3 and F4 group on lap and t-joints in the 3F and 4F positions. They will also be able to weld single-v-groove joints using electrodes in the F3 and F4 groups on plates in the 1G and 2G positions.

(WDT 172) GAS METAL ARC WELDING FLUX CORED ARC WELDING LAB
This course is designed to instruct the student to weld laps, tee and single-v-groove butt joint welds in the four basic weld positions.

(WDT 211) GAS TUNGSTEN ARC WELDING THEORY AND CODE
This course is designed to offer a guide to pipe fit-up, joint preparation, current setting, electrode selection, and purging gases in accordance with the codes for gas tungsten arc welding process.

(WDT 212) PIPE GAS TUNGSTEN ARC WELDING PREPARATION AND CUTTING
This course is designed to provide the student with skills and knowledge necessary to prepare weld couplings for pipe welding, using the gas tungsten arc welding process.

(WDT 221) PIPE SHIELDED METAL ARC WELDING AND CUTTING
This course is designed to provide the student with the practices and procedures required for cutting and preparing pipe using the shielded metal arc welding process in the 2G, 5G, and 6G positions in accordance to codes.

(WDT 222) (SHIELDED METAL ARC WELDING) PIPE THEORY AND CODE
This course is designed to offer a guide to pipe fit-up, joint preparation, current setting, electrode selection, and root, fill and cap passes.

(WDT 251) PIPE (GAS TUNGSTEN ARC WELDING) LAB II
This course is gas tungsten arc welding is designed to develop a student's pipe welding skills in the 2C, 5C, and 6C positions using ER70S-2 filler rods.

(WDT 261) PIPE (SHIELDED METAL ARC WELDING) LAB I
This course is designed to provide the student with skills in welding pipe (up-hill) in the 2C, 5C, and 6C positions using F3 and F4 group electrodes and in testing in accordance with code.

Students completing the diploma program will also take the following related courses.

(RBP 111) BLUEPRINT READING FOR WELDERS
(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

Depending on the availability of classes, students, typically complete this program in five quarters.
Bessemer State Technical College offers more than 20 major programs through evening certificate classes. Students enrolling in the evening programs typically wish to enter a chosen occupation or are presently employed and wish to upgrade their skills.

Each certificate program listing consists of (a) certain required courses in the major subject, (b) required related courses (these always include a minimum of one course in mathematics and one course in communication skills), and (c) optional related courses for students who wish to take additional course work to expand their knowledge and experience. Students who choose not to complete a certificate program may complete only the required major courses to gain minimum entry-level skills in an occupation.

Bessemer State operates on a quarterly schedule. Students have the option of attending two or four evenings per week. Each class is scheduled from 6 p.m. to 9:45 p.m. on Monday/Wednesday or Tuesday/Thursday nights. Tuition and fees must be paid each quarter before students are officially registered.

Students attending two nights per week pay tuition of $75 per quarter. Students attending four nights per week pay tuition of $150 per quarter. Students annually pay $1 for a parking decal and $1 for a student identification card. In addition, a one-time application fee of $10 is charged new students.

Students enrolled in evening certificate programs are classified as attending either quarter-time or half-time, depending on whether they are enrolled for one class (two evenings per week) or two classes (four evenings per week). Some financial aid programs require a minimum of half-time enrollment, and students receiving financial assistance are responsible for learning the enrollment and attendance policies that apply to them prior to registration. Evening certificate programs typically constitute segments of the full-time day programs leading either to a diploma or an Associate in Applied Technology degree. Students enrolled in evening certificate programs who wish to continue their training in a full-time program must file a written request with the registrar and meet all entrance requirements for the full-time program before the application for transfer can be processed. Evening students who regain entry into the full-time program will receive advanced placement reflecting that portion of the program they have completed at night.
(ACR 101) REFRIGERATION
Covers performance of complete service checks on heating, electrical, refrigeration and air conditioning equipment, and how to correct minor service problems. Includes an introduction of basic electrical principles and components, use of meters, and the interpretation of the pictorial and schematic wiring diagrams and electrical symbols.

(ACR 102) FULL RESIDENTIAL SERVICE
Covers all procedures required to service and troubleshoot residential heating and cooling equipment—heating, electrical, refrigeration, airconditioning and gas furnaces. Concentrates heavily on electrical problems and controlling electrical circuits.

(ACR 103) COMMERCIAL SERVICE
Covers design, service and troubleshooting techniques for commercial heating, refrigeration, ventilating and air conditioning and roof top equipment. Both single-zone and multi-zone systems are studied.

(ACR 104) SPECIAL SYSTEMS
Covers installation and design of solar water heating and solar space heating systems. Includes window units, automotive A/C, hydromechanics of water systems for heating and cooling, and the repair of absorption systems. Also includes sizing, application, installation, troubleshooting and service procedures.

(ACR 201) APPLICATION
Introduces the student to systems (heat and cool) application. Load calculation and equipment selection are stressed. Includes methods of figuring application jobs used by various recognized agencies. Includes air distribution, duct sizing, and environment control.

(ACR 202) HEAT PUMP
Covers fundamentals of heat pump through advanced service and installation techniques. Includes design, troubleshooting, sequence, electrical functions and controls. Materials and concepts presented apply to any manufacturer's heat pump. All lab work on live systems.

(ACR 203) CERTIFICATION REVIEW FOR CONTRACTORS
(ACR 204) HEATING REVIEW*
Gas fired condensing furnaces, oil fired furnaces including controls, electric heating furnaces, and other duct heaters using energy saving controls. Heat pumps in-
cluding those with two-stage compressors, solid-state controls, and solar heating (water)—passive and active.

*Optional Course
Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

OPTIONAL RELATED COURSES
(BLM 101) BASIC THEORY FOR ELECTRICIANS
(BLM 102) RESIDENTIAL WIRING
(BLM 301) BUILDING MAINTENANCE-PLUMBING I
(EET 111) DC THEORY
(EET 142) ELECTRICAL CONTROLS
(WDT 101) BASIC ARC WELDING AND OXYACETYLENE BURNING

(AMC 111) BASIC MECHANICS
This course includes a brief history of the automotive industry; identification of tools, their use and care; use of measuring instruments, fasteners, and specification.

(AMC 122) FRONT END AND STEERING
The student learns to service and align front suspension and to replace and service steering sectors and linkage.

(AMC 123) ENGINES I
A study of engine construction, including types, cylinder arrangements, valve arrangements, engine cooling systems and lubricating systems.

(AMC 124) FRONT END AND STEERING II
A continuation of the study of front end and steering.

(AMC 131) AUTOMOTIVE BRAKES
A detailed study of types of braking systems and service requirements, machine turning of brake drums and rotors and vacuum power brakes.

(AMC 132) ENGINES II
The student studies engine operation, measurements and performance, pistons, rings, valves and connecting rods; and learns the proper methods of grinding valves and seats.

(AMC 133) CLUTCHES AND STANDARD TRANSMISSIONS
An in-depth study of types and construction clutch, service and troubleshooting.

(AMC 143) DIFFERENTIALS AND DRIVE LINES
A study of drive shafts, universal joints, rear axles, differentials, bearings and seals.

(AMC 211) AUTOMOTIVE ELECTRICITY
Including fundamentals of electricity and magnetism, basic circuitry, and electrical charging systems.

(AMC 212) FUEL AND EXHAUST SYSTEMS
A study of the components of the fuel system including lines, pumps, and carburetors; and components of the exhaust system including manifolds, exhaust pipes, mufflers, resonators and tail pipes.

(AMC 221) AUTOMATIC TRANSMISSION I
Designed to provide the student with an understanding of the construction and operation of automatic transmissions. Includes hydraulics, fluid couplings, planetary gear systems, governor control valves, clutch units, servos and bands.

(AMC 223) AUTOMOTIVE AIR CONDITIONING
A study of the fundamentals and principles in the construction and operation of automotive air conditioning systems.

(AMC 231) TUNE-UP AND TESTING
The student becomes familiar with mechanical and electrical testing equipment used to diagnose malfunctions of the ignition system and to determine the general condition of the engine.

(AMC 232) AUTOMATIC TRANSMISSION II
A continuation of the study of automatic transmission to include methods of disassembly and assembly and making necessary repairs and adjustments.

(AMC 233) EMISSIONS CONTROL
The purpose of this course is to provide the student knowledge necessary to understand automotive emission control systems and the effect automotive emissions have on our environment.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS
(ATT 111) ACCOUNTING I (PRINCIPLES)
An introduction to the nature of accounting and procedures for the accounting of cash, payrolls, merchandise, notes, and interest for a sole proprietorship. Emphasis is placed on the accrual system, closing and preparing books, and periodic reports.

(ATT 121) ACCOUNTING II (PARTNERSHIPS)
A study of accounting for partnerships, including the presentation of financial statements and the use of financial statements for comparative analysis. Accounts receivable, payables, and capital entries involving payroll and payrolls are stressed. Students also learn the proper use of hand power tools. Service-oriented firms, and partnerships in the retail and wholesale trade are emphasized.

(ATT 131) ACCOUNTING III (CORPORATE)
A study in corporate accounting including procedures and practices for the accounting of cost, capital earnings, bonds, intangibles, and investments. The voucher system is presented in depth, and the use of financial statements for comparative analysis is stressed.

(ATT 132) PAYROLL ACCOUNTING
A study of the various phases of the Social Security Act and other laws relating to the payment of wages and salaries. Includes the basic payroll accounting systems, procedures used in computing wages and salaries, methods used to record time worked, the development of personnel payroll records required under numerous laws, practice in all payroll operations, recording of accounting entries involving payroll, and the preparation of payroll tax returns.

(ATT 193) PRACTICE SET LAB*
Working experience in an accounting department is simulated through the use of practice sets. The sets cover sole proprietorship, service-oriented firms, and partnerships in a retail organization and a manufacturing organization.

(ATT 212) COST ACCOUNTING
The methods of accounting for materials, labor and factor overhead in a manufacturing firm are covered. The job order, process and standard cost systems are stressed, with emphasis on financial decisions based on the analysis of these systems.

(ATT 222) BUSINESS AND INDUSTRIAL PSYCHOLOGY
This course is designed to help the student understand and solve the complex and diverse problems that occur in the day to day business or industrial environment.

(ATT 241) MICROCOMPUTER ASSISTED ACCOUNTING*
An introduction to the utilization of microcomputers in the accounting environment. Emphasis is placed on the general ledger system, depreciation, accounts payable and receivable, and utilization of VISICALC.

*Optional Course
Students completing the certificate program will also take the following related courses.

(ATT 212) COST ACCOUNTING
Students completing the certificate program will also take the following related courses.

(DPT 111) DATA PROCESSING CONCEPTS

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 131) BUSINESS MATHEMATICS I

OPTIONAL RELATED COURSES

(DPT 132, 141, 221) COBOL I, II, III

(DPT 123) DATA ENTRY I

(RCS 112) COMMUNICATIVE SKILLS II

(RCS 121) TECHNICAL WRITING

(SEC 101) BEGINNING TYPEWRITING AND LAB

(ATT 111) ACCOUNTING III (PRINCIPAL)
An introduction to the nature of accounting and procedures for the accounting of cash, payrolls, merchandise, notes, and interest for a sole proprietorship. Emphasis is placed on the accrual system, closing and preparing books, and periodic reports.

(ATT 121) ACCOUNTING II (PARTNERSHIPS)
A study of accounting for partnerships, including the presentation of financial statements and the use of financial statements for comparative analysis. Accounts receivable, payables, and capital entries involving payroll and payrolls are stressed. Service-oriented firms, and partnerships in the retail and wholesale trade are emphasized.

(ATT 131) ACCOUNTING III (CORPORATE)
A study in corporate accounting including procedures and practices for the accounting of cost, capital earnings, bonds, intangibles, and investments. The voucher system is presented in depth, and the use of financial statements for comparative analysis is stressed.

(ATT 132) PAYROLL ACCOUNTING
A study of the various phases of the Social Security Act and other laws relating to the payment of wages and salaries. Includes the basic payroll accounting systems, procedures used in computing wages and salaries, methods used to record time worked, the development of personnel payroll records required under numerous laws, practice in all payroll operations, recording of accounting entries involving payroll, and the preparation of payroll tax returns.

(ATT 193) PRACTICE SET LAB*
Working experience in an accounting department is simulated through the use of practice sets. The sets cover sole proprietorship, service-oriented firms, and partnerships in a retail organization and a manufacturing organization.

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(ATT 241) MICROCOMPUTER ASSISTED ACCOUNTING*
An introduction to the utilization of microcomputers in the accounting environment. Emphasis is placed on the general ledger system, depreciation, accounts payable and receivable systems, payrolls, and utilizations of VISICALC.

*Optional Course
Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 131) VOCATIONAL MATHEMATICS

(BLM 101) BASIC THEORY FOR ELECTRICIANS
A course designed to give students an understanding of the basic technical aspects of the electrical devices and concepts they will work with as electricians. Includes lecture and lab exercises on electricity and how it flows, Ohms law for DC circuits, magnetism, alternating current, resistors, inductors, capacitors, transformers, and power factors. Safety procedures are also emphasized.

(BLM 102) RESIDENTIAL WIRING
Lecture and practical lab experience in the basic skills required of a residential maintenance electrician. Based on National Electrical Code. Includes blueprint reading, load calculation, water heaters, heating systems, smoke detectors, service entrance, remote control lighting circuits, circuit design and layout of typical residential circuits. Job safety, basic materials and tools are also emphasized.

(BLM 104) COMMERCIAL WIRING
All aspects of commercial-type electrical work. Includes conduit bending, circuit design, controls, rigging, pulling of cables, and switch gear design. Generation principles, along with transformers, are emphasized.

(BLM 105) INDUSTRIAL WIRING
Extensive experience in practical problems faced by a maintenance electrician. Lab exercises in electrical troubleshooting and renovation are emphasized, along with recognition of safety hazards.

(BLM 106) ELECTRICAL CODE*
A thorough, in-depth study of The National Electrical Code. Preparation for Journeyman or Master's Test given by city or county inspection services. Workbook, tests, and explanations cover The National Electrical Code from cover to cover. Students become aware and familiar with many little known but important aspects of The National Electrical Code. Prerequisite: 1½ to 2 years minimum of in-the-field experience or equivalent electrical knowledge. Reading and comprehension important.

*Optional Course
Students completing the certificate program will also take the following related courses.

**RCS 111** COMMUNICATIVE SKILLS I

**RMA 111** VOCATIONAL MATHEMATICS

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**BLM 301** BUILDING MAINTENANCE - PLUMBING I

Lecture and practical lab exercises in the basic skills needed to be a maintenance plumber. Job safety, plumbing materials and plumbing tools are studied in detail.

**BLM 302** BUILDING MAINTENANCE - PLUMBING II

A continuation of the skills learned in Plumbing I. The joining, installing, and supporting of different type pipes are emphasized. Sizing of sanitary drainage and vent piping is also studied.

**BLM 303** BUILDING MAINTENANCE - PLUMBING III

A study of water supplies, plumbing fixtures, and appliances. The student also learns testing and inspection procedures.

Students completing the certificate program will also take the following related courses.

**RCS 111** COMMUNICATIVE SKILLS I

**RMA 111** VOCATIONAL MATHEMATICS

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**OPTIONAL RELATED COURSES**

**RMA 121** APPLIED ALGEBRA I

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**COA 101** BASIC DRAWING II

Further practice is gained in the concepts of freehand drawing using different media. Students are taught to be proficient in being able to draw anything they can imagine or perceive. Perception as a function of intellect is stressed.

**COA 102** BASIC DESIGN I

This design course has been developed to teach the fundamental order of art and design by study and use of the elements and principles of design. The student is introduced to advertising layout and design. Proper presentation of finished artwork is stressed.

**COA 103** BASIC DESIGN II

The study of the fundamental order of art and design is continued. Emphasis is placed on using the elements and principles of design in basic design concepts, formats, and compositions. The student is introduced to the academic concepts of the Golden Mean through solution of several problems. Proper presentation of finished artwork is stressed.

**COA 104** AIRBRUSH ART

Fundamentals of airbrush techniques. Practice in various exercises for airbrush illustrations including mechanical cutaways, posters, figure drawings and portrait rendering.

**COA 105** ADVERTISING DESIGN I

Techniques for preparing the advertising design and subsequent mechanical layout. Emphasis is placed on typefaces, grid systems, accepted practices of creating good advertising designs (thumbnail sketches, rough layouts, and comprehensive layouts), use of color, proper materials and proper presentation. Following each completed comprehensive, a mechanical layout is prepared for simulated printing production.

**COA 106** ADVERTISING DESIGN II

Advanced techniques in advertising design and mechanical layout. Assignments become progressively more difficult as students' skills improve.

**COA 107** MULTIMAGE PHOTOGRAPHY

Production of a three-projector multi-image color slide show using skills acquired in basic photography. Students will write scripts, create a storyboard and produce a complete slide presentation. Stress will be placed on graphic design, typography and color.

**COA 108** PORTFOLIO

Students refine their skills in all areas of previous courses by assembling and recreating art pieces for their presentation portfolios. Additionally, students prepare and refine their resumes to prepare for job interviews.

**COA 216** TYPESETTING II*

This course develops the knowledge and skills acquired in Typesetting I. The student is introduced to the Compugraphic Powervisual and terminal for more comprehensive training. Projects of increased difficulty are presented for solution and accomplishment.

*Optional Course

Students completing the certificate program will also take the following related courses.

**COA 205** PHOTOGRAPHY I (BASIC)

**OPR 101** PRESS OPERATION I

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**COA 206** BASIC STUDIO

An introduction to studio lighting techniques and posing. This course includes hands on training with on-camera flash and flash, electronic flash system/diary balanced light, some strobe lighting. The basic six single portrait poses, some stand-up modeling/fashion posing, and some wedding group posing. Required: 35mm camera

**COA 207** ADVANCED STUDIO II

(ADVERTISING)

The study of table top advertising photography, fine art still-life photography, and soft lighting with electronic flash unit. Some
environmental product shooting. Required: 35mm camera. Optional: 2 1/4 x 2 1/4 camera (Students may shoot 4x5 or 8x10 format, but must provide camera and sheet developing-printing and polaroids.)

(COA 208) PHOTO ADVERTISING
The study of photo layout, comps, and photo advertising. Students are asked to take their photographs from Studio I and II and use them in an annual report, a P-O-P ad, and in a self-promotional project which requires a mechanical. Required: 35mm camera

(COA 209) PHOTOJOURNALISM
An introduction to newspaper and magazine photography and writing. Course includes 35mm "in the field" shooting and writing caption lines. Shooting on assignment and free-lance. Sports, news, everyday life. Short story writing, data sheets and TV story-board. Required: 35mm camera

(COA 210) BASIC PHOTO AIRBRUSH
An introduction to the airbrush, including airbrush techniques and exercises. Photographic "block-out" and photo-restoration for black and white photography. Required: 35mm camera, Double-action airbrush

(COA 211) ADVANCED AIRBRUSH II
A study of advanced airbrush photographic techniques which include color "block-out," color restoration and re-touching, superimposing, color dipping, and workbook techniques.

(COA 212) PHOTO MARKETING
This marketing course includes where to market your work, how to free-lance, and shooting for stock photo. An introduction to business, concerning photography only. Self promotion, tax tips, required policies, and booking. Shooting a photo request list, writing queries, and keeping records. Required: 35mm camera

(COA 213) PUBLICATION LAB*
Portfolio evaluation for entry-level employment requirements. At this point, students decide if they want or need further training. Teacher advisement/teacher(s) and industry critique. Self-promotion publicity by student.

(COA 214) PUBLICATION LAB II*
Live jobs or school publication work, advance black and white darkroom work (depending upon availability). Photo silk screen.

(COA 217) BLACK AND WHITE PHOTOGRAPHY II*
A non-credit course offered for anyone who does not wish to complete the photo major, but would like more darkroom time. This course involves shooting on location, black and white film processing and black and white darkroom.

(DMC 212) ELECTRICAL SYSTEMS
Fundamentals of electricity and magnetism, basic circuitry, and electrical charging systems as they relate to diesel mechanics. The student learns to use testing equipment to determine malfunctions in the electrical system and the procedures necessary to correct the malfunctions. Emphasis is on diagnosing problems and returning the equipment to operating standards.

(DMC 213) POWER TRAINS
A study of the transmission of power from the engine with emphasis on drive shafts, universal joints, rear axles, differentials, bearings, and seals.

(DMC 214) CLUTCHES AND MANUAL TRANSMISSIONS
In-depth study of types of construction of clutches and transmissions; powerflow, ratio, and major overhauls. Emphasis is on troubleshooting and service procedures.

(DMC 215) AIR AND HYDRAULIC BRAKES
The student learns the operation of hydraulic and pneumatic braking systems, and the procedures of troubleshooting and servicing components.

(DMC 216) MAJOR DIESEL ENGINE OVERHAUL
The student learns to disassemble various types of industrial engines, diagnose defective parts and make necessary replacements to return the engine to efficient operation.

Students completing the certificate program will also take the following related courses.

(DMC 217) BASIC MECHANICS

(DMC 218) ADVANCED STUDIO III
Master portrait studio lighting/glamour photo and live models. Advanced lighting techniques, gels and tabletop. Required: 35mm camera Optional: 2 1/4 x 2 1/4, 4x5, 5x7, 8x10 format cameras

(DMC 303) AIRBRUSH III (HANDTINT)
An advanced study of photo airbrush for those who wish to make it a career. The study of inks and dyes related to this field. New wave hand tinting.

*Optional Course
Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS I

(DPT 123) DATA ENTRY I
Introduction to data entry. Covers use, function, and operation of key-to-disk data entry equipment. Job-related practice work is used. Emphasis on basic keyboarding skills.

(DPT 124) DATA ENTRY II
A continuation of Data Entry I. Additional machine capabilities are introduced along with programming for the data entry equipment. Special emphasis is placed on speed and accuracy.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 131) BUSINESS MATHEMATICS
(SEC 101) BEGINNING TYPING

OPTIONAL RELATED COURSES

(SEC 102) INTERMEDIATE TYPEWRITING
(SEC 208) INTRODUCTION TO WORD PROCESSING
(DPT 111) DATA PROCESSING
CONCEPTS
A course designed to introduce definitions and terminology unique in data processing, along with historical developments of first, second, and third generation machines, data processing equipment and data processing techniques, computer systems configurations, computer capabilities, internal representation of data, internal operations of a computer, characteristics of a program, computer files, management of a computer facility, and quality control in data processing.

(DPT 131) DOS JOB CONTROL
LANGUAGE
The concepts and practical applications of the job control language for a disk operation system are included.

(DPT 132) COBOL PROGRAMMING I
COBOL is the primary commercial programming language in use today. All elements of COBOL are studied in this first of three courses. Experience and proficiency in COBOL programming techniques are gained by coding, executing, and testing numerous programs designed to reinforce each area.

(DPT 141) COBOL PROGRAMMING II
A continuation of COBOL Programming I at the intermediate level.

(DPT 142) BASIC ASSEMBLY LANGUAGE I
A comprehensive treatment of symbolic programming techniques and third generation programming.

(DPT 145) LOTUS 1-2-3
This course uses the most popular electronic spreadsheet available today to explore all fundamental spreadsheet operations and most advanced features. Coverage includes product installation and machine configuration. Spreadsheet fundamentals, advanced concepts and report generation using sideways.

(DPT 146) DBASE III PLUS
This course is a full quarter coverage of DBase III Plus beginning with product installation, fundamental and advanced techniques and programming. Practical business applications include mailing list handling, accounts receivable and inventory.

(DPT 214) PROGRAMMING IN BASIC
BASIC is the language used for processing on microcomputers. Major elements of the language are studied, and experience and proficiency are gained by coding, executing, and testing numerous programs designed to reinforce each element.

(DPT 221) COBOL PROGRAMMING III
The advanced level of COBOL Programming.

(DPT 223) CICS PROGRAMMING IN
COBOL
This course introduces the student to on-line command-level programming with emphasis on user friendly programming techniques. The student is required to work his or her way through a variety of applications in order to see how screens are generated and files are maintained.

Students completing the certificate program will also take the following related courses.

(DPT 154) BUSINESS APPLICATION
SOFTWARE
(RCS 111) COMMUNICATIVE SKILLS I
(RMA 121) APPLIED ALGEBRA I

OPTIONAL RELATED COURSES

(ATT 111) ACCOUNTING I (PRINCIPLES)
(DPT 224) ADVANCED CICS
PROGRAMMING IN COBOL
(DPT 225) ADVANCED PROGRAMMING
IN BASIC
(DPT 211) BASIC ASSEMBLY
LANGUAGE II
(DPT 112) REPORT PROGRAM
GENERATOR (RPG II
LANGUAGE LEVEL)

(DRT 303) DRAFTING-SECTIONAL VIEWS AND DIMENSIONING
An in-depth study of the principles and applications of sectional view techniques, to include full, half, broken out, revolved, aligned and offset section. Dimensioning techniques with principles and special considerations are examined with analysis and interpretation required to complete assigned projects.

(DRT 304) ARCHITECTURAL DRAFTING I
A basic drawing course which introduces the student to the basics of architectural drafting and design. The student will receive an in-depth study of the preliminary research necessary to develop and design a floor plan, floor plan and foundation plans. In practical application lab the student will design his/her own floor plan, foundation and plot plan.

(DRT 305) ARCHITECTURAL DRAFTING II
A continuation of Architectural Drafting I including the study of door and window schedules, elevations, and structural design. Students will use various reference materials to determine the proper size and framing requirements of different type doors and windows. Students will study the various style residential dwellings in preparation for the development of their elevation drawing. Students will be introduced to structural framing of various style residential dwellings. In practical application lab, the student will develop door and window schedules and make elevation drawings.

(DRT 306) ARCHITECTURAL DRAFTING III
A continuation of Architectural Drafting II with emphasis placed on the development of sections, details, and writing specifications. Students will use various reference materials to design appropriate wall sections and details. The student will be introduced to the development of plumbing, heating and air conditioning plans. In practical application lab, the student will design and draw wall sections, details, and develop a set of specifications to include framing and room finishing materials.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 121) APPLIED ALGEBRA I
OPTIONAL RELATED COURSES

(BLM 101) BASIC THEORY FOR ELECTRICIANS
(BLM 201) CARPENTRY I
(BLM 301) PLUMBING I
(BLM 102) RESIDENTIAL WIRING
(RMA 123) TRIGONOMETRY

(DRT 101) DRAFTING - BASICS
This is a beginning course for students who have had little or no previous experience in drafting. The material addressed includes freehand lettering, care and use of drafting instruments, materials and equipment, and single-view drawings with an in-depth study of geometric construction with applications.

(DRT 102) DRAFTING - ORTHOGRAPHIC PROJECTION
Pictorial representation of shape description. The theory of third-angle orthographic projection is addressed with extensive multiview drawing application emphasizing the rules and exceptions established in The American National Standard Drafting Specification (ANSI Y-14). Freehand sketching and shape description through development of pictorial and multiview sketches. Multiview orthographic projection representations pertaining to machine parts with emphasis on the alphabet of lines, edges, and surfaces, selection of views, and precedence of lines.

(DRT 103) DRAFTING - SECTIONAL VIEWS AND THEORY
An in-depth study of the principles and applications of sectional view techniques to include full, half, broken out revolved, aligned, and off-set sections. Forms and specifications pertaining to threads and fasteners. Drawing requiring the application of several types of sections and thread forms will be completed by the student.

(DRT 104) DRAFTING - AUXILIARY VIEWS
Auxiliary view techniques will be examined to include development of primary and secondary auxiliary views to include solution of dihedral angle application.

(DRT 105) DRAFTING - DIMENSIONING AND TOLERANCE
Dimensioning techniques with principles and special considerations are examined with analysis and interpretation required to complete assigned projects. Limit dimensioning and tolerancing concepts will be addressed to include applications to The American Standards Table of Fits.

(DRT 106) DRAFTING - PRODUCTION DRAWING
A detailed study of the elements and composition of welding symbols and their application on a (production) working drawing. Assembly drawing types, organization and special considerations are addressed with the preparation of a complete package containing both detail and assembly drawings. A weldment subassembly is also included.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 121) APPLIED ALGEBRA I

OPTIONAL RELATED COURSES

(ETC 111) DC THEORY
(ETC 121) AC THEORY
(RMA 123) TRIGONOMETRY

(DRT 200) INTRODUCTION TO COMPUTER GRAPHICS
Concepts of general procedures and system operations. The scope consists of simple generation of entity insertion to final completion of a machine part described in the graphic language and filed on a part (floppy) disk. Techniques which make short work of extensively repetitive features such as mirroring, translating, and rotation with copying are applied with plotting utilizing a multiple pen, automated drafting plotter and a dot matrix printer. Material relating to the use of the computer within the design/manufacturing environment is introduced.

(DRT 201) COMPUTER AIDED DESIGN DRAFTING I (2-D CADD)
An in-depth study of the two-dimensional concepts of design drafting utilizing the geometric modeling approach. Graphics generation, editing, manipulation and display control commands are examined in detail to facilitate the speedy, accurate, and resourceful creation of the designer's model geometry. Projects are provided for clarification and reinforcement.

(DRT 202) COMPUTER AIDED DESIGN DRAFTING II (3-D CADD)
Based on a 3-D designer system this course expands upon basic mechanical design concepts with an emphasis on true 3-D modeling. The goal of enhancing operator proficiency and productivity is approached through examination of the following topics: Part structuring parameters; view definition; 3-D commands; construction planes; measurement and calculations; draw mode activities; and library of parts. Exercises structural allow various methods of solution to encourage individual experimentation and creation of models. A simple to complex design's three-dimensional part models are provided.

(DRT 203) COMPUTER AIDED DESIGN DRAFTING III (MECHANICAL DETAILING)
Utilizing provided three-dimensional models, production drawings containing standard orthographic, auxiliary, and sectional views completely dimensioned and tolerated. Individual experimentation is encouraged since required applications can be solved using alternate methods.

OPTIONAL RELATED COURSES

(DPT 214) PROGRAMMING IN BASIC (SEC 101) BEGINNING TYPEWRITING

For the certificate program in Electronics the student must take the five core courses and select five elective courses for completion of a chosen major area of emphasis in either Industrial Electronics or Computer Electronics. In addition, two related maths, Algebra I and II, and Communicative Skills must be taken.

The electronics curriculum core courses and elective courses for the certificate program are listed below:

Core
DC Theory
AC Theory
Semiconductor Devices
Semiconductor Circuits
Digital Techniques
Elective Courses
Electrical Controls
DC Machinery
AC Machinery
Programmable Controllers
Solid-State Power Systems
Advanced Digital Techniques
Microprocessor Basics
Microprocessor Interfacing/Applications
Advanced Microprocessor
Interfacing/Applications
Electronic Communications
Microcomputer System Technology
Microcomputer System Repair
Microcomputer Peripheral Repair
(ETC 110) DC THEORY
Composition of matter; electrical units; circuits, symbols and diagrams; electrical color codes; electrical laws and theorems; resistance in series, parallel and complex circuits. Lab experiments are used to supplement classroom instruction.

(ETC 120) AC THEORY
Alternating current and its measurements; sine wave function and analysis; resistive, inductive, and capacitive circuits; vectors and phase relationships; power factors; reactance, resonance, and impedance; single-phase transformers; basic theory of operation and use of the oscilloscope. Lab experiments are used to supplement classroom instruction. Prerequisite: DC Theory or permission of instructor.

(ETC 130) SEMICONDUCTOR DEVICES
Atomic structure with emphasis on valence and bonding; semiconductor device construction and characteristics for: diodes, special purpose diodes, bipolar transistors, FET transistors, thyristor devices, optoelectronic devices, and introduction to integrated circuits; introduction to basic circuits using semiconductor devices; use of measuring instruments; operation and use of the oscilloscope. Lab experiments are used to supplement classroom instruction. Prerequisite: DC Theory or permission of instructor.

(ETC 140) SEMICONDUCTOR CIRCUITS
Semiconductor rectifiers; transistor static and dynamic considerations; biasing, load lines and application to basic circuits; common-base, common-emitter and common-collector configurations; operational amplifier characteristics and circuits; non-sinusoidal and sinusoidal oscillators; power supplies both unregulated and regulated; test equipment operation and use. Lab experiments are used to supplement classroom instruction. Prerequisites: DC Theory, AC Theory and Semiconductor Devices.

(ETC 142) ELECTRICAL CONTROLS
Includes DC and AC manual starters, automatic starters, manual and automatic speed controls, line voltage control and special control devices, electrical control design, troubleshooting control analysis. Lab experiments are used to supplement classroom instruction. Prerequisite: AC Theory or permission of instructor.

(ETC 211) INDUSTRIAL DC MACHINERY
DC generators and motors: principles of operation, applications, construction, and types of electromechanical controls are studied. Single-phase transformers are included. Lab experiments are used to supplement classroom instruction. Prerequisite: Electrical Controls or permission of instructor.

(ETC 221) INDUSTRIAL AC MACHINERY
A study of design, operation, performance characteristics, and application alternators, transformers, and induction motors. Includes load division, calculation of equivalent circuits power factor, synchronization of alternators, speed and voltage regulation, losses and efficiency. Three-phase transformers are included. Lab experiments are used to supplement classroom instruction. Prerequisite: Electrical Controls or permission of instructor.

(ETC 231) DIGITAL TECHNIQUES
Binary and BCD numbering systems; Boolean algebra; digital terminology; pulse analysis; logic functions: AND, OR, NAND, NOR, and NOT; combinational logic circuits: flip-flops, counters, shift registers, decoders, encoders, multiplexers, demultiplexers, information storage and retrieval circuits; multivibrators; readout devices. Lab experiments are used to supplement classroom instruction. Prerequisite: Electrical Controls or permission of instructor.

(ETC 234) MICROPROCESSOR INTERFACING/APPLICATIONS
Advanced microprocessor interfacing using both parallel and serial programmable integrated circuits. Microcomputer peripheral construction, theory of operation, and service techniques are studied. Robot technology is introduced. Lab experiments are used to supplement classroom instruction. Prerequisite: Microprocessor Interfacing/Applications or permission of instructor.

(ETC 251) ADVANCED DIGITAL TECHNOLOGY
Digital memory circuits, digital to analog and analog to digital converters. Digital circuit design and circuit board construction techniques. Digital circuit troubleshooting and repair techniques. Lab experiments are used to supplement classroom instruction. Prerequisite: Digital Techniques or permission of instructor.

(ETC 252) ELECTRONIC COMMUNICATIONS
Review of complex waveforms; amplitude modulation; broadcast, suppressed carrier double sidebands, and single sideband; frequency modulation; Phase modulation; AM receivers and transmitters; FM receivers and transmitters; Angle modulation receivers and transmitters; sending and receiving RF transmission: antennas, transmission lines, and coaxial cable; introduction to lasers and fiber optics. Lab experiments are used to supplement classroom instruction. Prerequisite: Semiconductor Circuits or permission of instructor.

(ETC 253) MICROPROCESSOR BASICS
Microprocessor and microcomputer terms: Binary, Octal, and Hexadecimal numbering systems are covered. Computer arithmetic, logic, and data handling operations; BASIC flowcharting and machine code programming; microprocessor internal structure using programming models and block diagrams; basic computer input/output devices; microprocessor interrupt concepts. Lab experiments are used to supplement classroom instruction. Prerequisite: Digital Techniques or permission of instructor.

(ETC 254) PROGRAMMABLE CONTROLLERS
Replacement of electro mechanical relays, counters, timers and analog devices with more reliable Programmable Controllers (PC). Operation and programming the programmable controller using both Ladder and Boolean Logic languages. Lab experiments are used to supplement classroom instruction. Prerequisite: Electrical Controls or permission of instructor.

(ETC 255) MICROCOMPUTER PERIPHERAL REPAIR
A study of the repair and maintenance of
various microcomputer peripheral devices, such as printers, disk drives and displays. Lab experiments are used to supplement classroom instruction. Prerequisite: Microcomputer Systems Technology or permission of instructor.

(ETC 258) SOLID STATE POWER SYSTEMS
Unregulated and regulated single-phase and three-phase power supply and drive systems. Methods and circuits used in solid-state power system. Power supply design and troubleshooting procedures. Lab experiments are used to supplement classroom instruction. Prerequisite: Semiconductor Circuits or permission of instructor.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 121) APPLIED ALGEBRA I
(RMA 122) APPLIED ALGEBRA II

(ETT 111) DC THEORY
Composition of matter; electrical units; circuits, symbols and diagrams; electrical color codes; electrical laws and theorems; resistance in series, parallel and complex circuits. Lab experiments are used to supplement classroom instruction.

(ETT 120) AC THEORY
Alternating current and its measurements; sinewave function and analysis; resistive, inductive, and capacitive circuits; vectors and phase relationships; power factors; reactance, and impedance; single-phase transformers; basic theory of operation and use of the oscilloscope. Lab experiments are used to supplement classroom instruction.

(ETT 142) ELECTRICAL CONTROLS
Includes DC and AC manual starters, automatic starters, manual and automatic speed controls, line voltage control and special control devices, electrical control design, troubleshooting control analysis. Lab experiments are used to supplement classroom instruction.

(MIT 112) BASIC MECHANICS
An introductory course for millwrights and mechanics. Includes selection, safe use and care of hand and power tools; fasteners; precision measuring instruments; lubrication principles and methods; types and uses of fluids.

(MIT 123) MECHANICAL POWER TRANSMISSION
Principles and applications of belt drives; pulleys, flat belts and drive arrangements; gears; chain drive installation, maintenance and replacement.

(MIT 131) INDUSTRIAL MECHANICS
Covers bench work, machinery installation and pipefitting. Includes rigging, abrasives, heat treatment of seals, piping strains and alignment, and analysis of vibration with moving machinery.

Students completing the certificate program will also take the following related courses.

(RBP 111) BASIC BLUEPRINT READING FOR WELDERS
(RCS 111) COMMUNICATIVE SKILLS I
(RHY 101) BASIC HYDRAULICS
(RMA 111) VOCATIONAL MATHEMATICS
(RMA 121) APPLIED ALGEBRA I
(WDT 101) BASIC ARC WELDING

OPTIONAL RELATED COURSES

(ETC 211) INDUSTRIAL DC MACHINERY
(ETC 221) INDUSTRIAL AC MACHINERY
(RHY 102) ADVANCED HYDRAULICS

(EMT 099) EMT I
Bessemer State Technical College offers courses in Emergency Medical Technician, Levels I and II. The requirements for entry into EMT I include a health statement from a physician, a transcript of school grades, and application papers to Bessemer State. The following course fees must be paid during registration:

$90.00 Tuition
$15.00 Malpractice Insurance
$ 2.25 Accident Insurance
$ 1.00 Parking Decal
$ 1.00 ID Card

A lab jacket, three-way pen, stethoscope, bandage scissors, and pen light must also be obtained prior to doing hospital rotations. These supplies, plus textbooks can be purchased in the school bookstore. The Department of Health requires that each EMT I student have a minimum of 100 classwork hours of training. During the course, each student is also required to complete 20 hours of emergency room training and ambulance rotations designated by the instructors and Bessemer State's administration.

After completion of all hourly requirements, the student will then be tested by the Department of Health for Licensing as an EMT I Basic.

(EMT 199) EMT II
After successful completion of all phases of EMT I (Basic) level, a student may then proceed to the next level of training, which is EMT II (Intermediate).

EMT II entry requirements are as follows:

EMT I License
Bessemer State Application
Health Statement
Transcript
$140.00 Tuition
$ 15.00 Malpractice Insurance
$ 2.25 Accident Insurance
Books selected by Instructor

A minimum of 153 hours of in-hospital training will be required. Rotation areas are:

Emergency Room
Cardiac Intensive Care
Bessemer Fire Rescue 5
Recovery
Anesthesia-Surgical

After completion of all aspects of training, the student must pass a test administered by the State Department of Health before being licensed as an EMT II Intermediate.

A 75 percent average must be maintained during both courses. Any student missing three classes will be dropped. Any student dropping below 75 percent during a two-week period will be dropped.

(LPN 111) PERSONAL AND VOCATIONAL RELATIONSHIPS AND MENTAL HEALTH CONCEPTS
This course is designed to assist the student in his/her adjustment to nursing. The course content provides the student with program orientation, study skills, history of nursing, personal hygiene and grooming. The role and responsibilities of the practical nurse focus on the individualization of patient care with the use of problem solving and communication techniques. Mental Health Concepts introduces the student to defense mechanisms and adjustment skills; growth and development throughout the life cycle; emotional problems, substance abuse and therapeutic interventions used to deal with specific patient behaviors. This course aids the student nurse in understanding human behavior.
(LPN 112) NURSING I FUNDAMENTALS
This course is designed to assist the student in developing knowledge and skills in basic nursing procedures. Through the use of the nursing process, the student begins to acquire technical competence in meeting the basic needs of the individual patient.

(LPN 114) ANATOMY AND PHYSIOLOGY
This course is designed to assist the student in developing knowledge of the normal structure and functions of the human body. This course provides the student with a base for Anatomy and Physiology, Nutrition and Diet Therapy, Maternal and Child Nursing, and Nutrition and Diet Therapy I.

(LPN 212) NURSING I FUNDAMENTALS - PART II
This course is a continuation of Nursing I Fundamentals, designed to assist the student in developing knowledge and skills in basic nursing procedures. Through the use of the nursing process, the student continues to acquire technical competence in meeting the basic needs of the individual patient. Basic math review is included in this course.

(LPN 213) NURSING II (MEDICAL-SURGICAL)
This course builds on the knowledge and skills obtained in Nursing I Fundamentals, Nursing I Fundamentals - Part II, and Anatomy and Physiology. It introduces the student to recognizing signs and symptoms of illness, diagnostic procedures, cause and prevention of disease, pre-and post-operative care and nursing the patient with cancer and sensory disorders. Cardiopulmonary resuscitation and first aid are included in this course.

(LPN 214) NUTRITION AND DIET THERAPY
This course introduces the student to the basic principles of nutrition for all ages, food safety, cultural and religious food habits; abnormal nutrition; therapeutic dietary modifications; and the practical nurse’s role and responsibility in meeting the patient’s nutritional needs. This course provides a base for Nursing II, III, IV, V, and VI (Medical-Surgical Nursing), Maternity and Newborn, and Nursing for Children.

(LPN 311) NURSING III (MEDICAL-SURGICAL)
This course builds on the knowledge and skills acquired in Anatomy and Physiology, Nutrition and Diet Therapy, and Nursing I and II. Emphasis is placed on recognizing and meeting the total needs of the patient with medical-surgical diseases and disorders of the urinary, reproductive, dermatological, and endocrine systems utilizing the nursing process.

(LPN 312) BASIC PHARMACOLOGY
This course builds on the knowledge and skills obtained in Nursing I Fundamentals. The student develops skills in converting and calculating drug dosages and the general principles and methods of medication administration.

(LPN 411) NURSING IV (MEDICAL-SURGICAL)
This course builds on the knowledge and skills acquired in Anatomy and Physiology, Nutrition and Diet Therapy, Nursing II and III, Introduction to Mental Health Concepts, and Basic Pharmacology. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the cardiovascular, respiratory systems, utilizing the nursing process.

(LPN 511) NURSING V (MEDICAL-SURGICAL)
This course builds on the knowledge and skills acquired in Anatomy and Physiology, Nutrition and Diet Therapy, Nursing II, III, and IV, Introduction to Mental Health Concepts, and Basic Pharmacology. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the gastrointestinal and musculoskeletal systems and blood dyscrasias utilizing the nursing process.

(LPN 512) MATERNITY AND NEWBORN
This course builds on the knowledge and skills acquired in the previous quarters. IV Therapy, Fluid Electrolytes and Venepuncture theory and lab practices for these skills. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the neurological system utilizing the nursing process. Rehabilitation and nursing the patient in the community and the geriatric patient are stressed. In order to prepare the graduate for the world of work, employment seminars including job application, resumes, interviews as well as the legal aspects of nursing are included in this course.

(LPN 611) NURSING VI (MEDICAL-SURGICAL)
This course builds on the knowledge and skills acquired in the previous quarters. IV Therapy, Fluid Electrolytes and Venepuncture theory and lab practices for these skills. Emphasis is placed on recognizing the total needs of the patient with medical-surgical diseases and disorders of the neurological system utilizing the nursing process.

(MAJOR APPLIANCE REPAIR [MAR] CERTIFICATE PROGRAM EVENING CLASSES)
(MAR 112) LAUNDRY EQUIPMENT AND BUSINESS PRACTICES
This course includes fundamentals of automatic washers and automatic dryers and a study of washing and drying different fabrics using different cleaning and softening materials and mechanical cycles. The student is introduced to operations of
assemblies, components and how they work, electrical control systems, heating systems (gas and electric), and service procedures, troubleshooting and safety precautions. The student is also introduced to customer relations, property protection, parts and labor warranty, quality reports, ordering parts, completing work orders, how to get and keep a job, and problem solving.

(MAR 114) COOKING EQUIPMENT AND APPLIED RESIDENTIAL ELECTRICAL WIRING
This course covers the fundamentals of gas ranges and controls, electric ranges, and microwave ovens. Included in the study are installation procedures, piping gas lines, adjusting and servicing controls, understanding wiring diagrams, solid-state controls, microprocessors, and maintenance and troubleshooting. The study also includes principles of electrical wire as it relates to energy sources for appliances. Installing electrical outlets for appliances, and troubleshooting electrical wiring systems for appliances are covered.

Students completing the certificate program will also take the following related courses.

(ACR 101) REFRIGERATION
(ACR 102) FULL RESIDENTIAL SERVICE
(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

OPTIONAL RELATED COURSES
(BLM 101) BASIC THEORY FOR ELECTRICIANS
(BLM 301) PLUMBING I

(MET 101) RETAIL SALESMANSHIP
Retail Salesmanship is designed to develop basic persuasive abilities. The essential elements of professional salesmanship and the manner in which to use them efficiently are presented. These elements of salesmanship are applied to actual selling situations and to hypothetical cases. The student applies his sales knowledge and ability in video-taped sales simulations as well as in problem-solving case situations.

(MET 102) RETAIL BUYING
Retail Buying is based on the fundamental principles of buying merchandise for resale. The success of a contemporary retail operation is dependent on how accurately the needs of the customers are satisfied. The retail buyer must provide the knowledge and expertise necessary to satisfy those needs. The buying function, invoice mathematics, pricing, merchandise budgeting, purchase planning and control, report analysis, and sales force scheduling are topics of emphasis in the Retail Buying course.

(MET 103) ADVERTISING AND MERCHANDISE DISPLAY
Advertising and Merchandise Display is designed to provide the student with the knowledge, skills and understanding necessary to arrange a functionally effective display area. The course will also look at advertising from the retailer's standpoint of how to capture the most return for the advertising dollars spent.

(MET 104) RETAIL SUPERVISION
Retail Supervision is designed to develop an understanding of major retail management functions and the skills that lead to managerial success. The effect of managerial performance on employee productivity and satisfaction is highlighted. The student's skill in planning, organizing, decision making, and controlling is sharpened by applying theory to direct work experience and hypothetical case situations.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATHEMATICS

OPTIONAL RELATED COURSES
(DPT 111) DATA PROCESSING CONCEPTS
(SEC 101) BEGINNING TYPEWRITING

(MST 201) INTRODUCTION TO CNC MANUFACTURING
The theory and operation of Computerized Numerical Control Machine Tools and Processes as compared to conventional machining.

(MST 202) CNC LATHE MANUFACTURING
Processing Planning, CNC Manual Programming, Lathe FAPT Programming. Manually program and set up CNC lathe with proper tooling to produce designed parts to engineering specifications by utilizing the controls capabilities.
and measure external and internal threads, tapers and angles.

(MST 105) MACHINE SHOP THEORY AND SHOP V
The sharper and planer are introduced and used to finish projects. Also includes an introduction to milling machines.

(MST 106) ADVANCED MACHINE SHOP I
The continued study and practice of the various milling machines. Uses of the index head and rotary table are also covered.

(MST 107) ADVANCED MACHINE SHOP II
Emphasis is on the surface grinder. Terms and proper operation procedures for grinding are covered along with the cylindrical grinder.

(MST 108) ADVANCED MACHINE SHOP III
Specific advanced jobs are completed in this course. These include the cutting of gears, sprockets, and worm gears.

Students completing the certificate program will also take the following related courses.

(RBP 101) BASIC BLUEPRINT READING AND SKETCHING

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 111) VOCATIONAL MATHEMATICS I

OPTIONAL RELATED COURSES

(RBP 102) INTERMEDIATE BLUEPRINT READING

(RBP 103) ADVANCED BLUEPRINT READING

(RMA 121) APPLIED ALGEBRA I

(WDT 101) BASIC ARC WELDING AND OXYACETYLENE BURNING

(OHT 122) TURF MANAGEMENT
The study of all major southern lawn grasses and their maintenance. Turf machinery, fertilizers and uses of lawn grasses are covered. This and other major courses in Bessemer State’s evening certificate program in horticulture are designed to help horticulturists successfully complete State Department of Agriculture and industry licensure needed to conduct business in Alabama.

(OHT 131) ORNAMENTAL AND TURF PEST CONTROL
The study of the different insect, disease, and weed pests of ornamental plants. Emphasis is placed on identification and control.

(OHT 141) TECHNICAL LANDSCAPE
The study of landscape plant materials and their use in both residential and commercial landscaping.

(OHT 212) LANDSCAPE MAINTENANCE
A study of landscape maintenance involving tree surgery, disease and pest control, planting shrubbery and trees, and pruning ornamentals.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 131) BUSINESS MATHEMATICS I

OPTIONAL RELATED COURSES

(DRT 101) DRAFTING - BASICS

(RCS 121) TECHNICAL WRITING

(RMA 121) APPLIED ALGEBRA I

(SMC 101) SMALL ENGINE REPAIR I

(OHT 100) INTRODUCTION TO OFFSET PRINTING
Exposure to all phases of offset printing including press operation and process camera. Emphasis is on familiarizing student with the whole process through which camera-ready artwork proceeds to become finished, printed material.

(OPT 101) PRESS OPERATION I
Hands-on press familiarization. Includes basic press mechanics and operation. Students learn to run print jobs using pre-made plates.

(OPT 102) PRESS OPERATION II
Instruction and practice in negative stripping techniques and platemaking, plus an introduction to paper stock definition. By the end of the quarter, a student will be able to take a negative, strip the negative, make a plate, put the plate on a press, make necessary adjustments and run a completed job.

(OPT 103) PRESS OPERATION III
Intermediate techniques in printing methods. Includes multiple image stripping and platemaking (doubleburns). Students will learn to pull color from single negatives and to mix inks to achieve specific colors.

(OPT 104) PRESS OPERATION IV
Advanced techniques in color offset printing.

(OPT 201) PROCESS CAMERA I
Instruction in the fundamentals of offset photography. Includes film types and uses, film chemistries, darkroom procedures, and operation of the process camera.

(OPT 202) PROCESS CAMERA II
Hands-on camera operation. Film selection, sizing of copy, shooting and developing line copy. The student will learn and practice the principles of Photomechanical Transfer (PMT).

(OPT 203) PROCESS CAMERA III
Screen types and their uses. The student will make half-tone and duotone negatives, PMT's, duplicate negatives, and reverses. Includes an introduction to color.

Student completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I

(RMA 111) VOCATIONAL MATHEMATICS I

OPTIONAL RELATED COURSES

(COA 105) ADVERTISING DESIGN I

(COA 106) ADVERTISING DESIGN II

(RCS 111) COMMUNICATIVE SKILLS I
The purpose of Communicative Skills I is to provide the student an opportunity to acquire or upgrade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

(RCS 121) COMMUNICATIVE SKILLS II
A continuation of Communicative Skills I with more in-depth study of basic grammar, usage, punctuation, reading, composition, spelling, vocabulary and oral communication.

(RCS 121) TECHNICAL WRITING
Technical writing involves the fundamental skills of selection, arrangement, and presentation of data basic to all writing. The course prepares the technician to communicate, in written form, information gained from a library. Emphasis is on clarity, selection, and arrangement of material in a format and style which meets the needs of a particular situation.

(RBP 101) BASIC BLUEPRINT READING AND SKETCHING
A course for machinists, including basic line
weights; review of basic math; the interpretation of orthographic projection, title block and bill of material; basic screw and thread representation, dimension types and methods. Includes dimensioning with shop notes.

(RBP 102) INTERMEDIATE BLUEPRINT READING
An in-depth study of orthographic projection with applicable drawing assignments. Includes the identification, interpretation, and application of sectional views as related to visual and dimensional development of a drawing. The machinist handbook is used to familiarize the student with standard tables and their utilization.

(RBP 103) ADVANCED BLUEPRINT READING
In-depth study and application of special sections for complicated interiors. Includes definition and application of assembly drawings and multi-scale drawings; comparison of pictorial and orthographic projection drawing; interpretation and application of cams, spur, bevel and worm gears.

(RBP 111) BASIC BLUEPRINT READING FOR WELDERS
A course for welders, includes interpretation of orthographic projection, title block and bill of material; basic screw and thread representation; dimension types and methods; structural shapes; and the interpretation of basic welding symbols.

(RMA 111) VOCATIONAL MATH
A course in basic mathematics also including a brief study of the metric system. The fundamentals of arithmetic are covered, and formula solution is introduced.

(RMA 121) APPLIED ALGEBRA I
A study of basic concepts and operations of algebra, algebraic symbols, signed numbers, equations of first degree, special products and factoring, fractions, and applications.

(RMA 122) APPLIED ALGEBRA II
This course consists of a review of systems of equations in two and three unknowns; the use of determinants in solving simultaneous equations; exponents, roots and radicals, logarithms, equations, variation, and graphical methods.

(RMA 123) APPLIED TRIGONOMETRY
A study of trigonometric functions and relations; a review of angles as related to the coordinate plane; angles of triangles, solutions to triangles; vectors and complex numbers.

(RMA 124) ANALYTIC GEOMETRY
A study of the relationship between algebra and geometry.

(RMA 131) BUSINESS MATHEMATICS I
A course designed to give the student an understanding and application of mathematical concepts in business activities, and to improve competency in the fundamental mathematical and arithmetic skills. Emphasis is on learning these concepts through practical application in business situations.

(RMA 132) BUSINESS MATHEMATICS II
A course designed to provide the student with a further understanding of mathematical computations used in business and industry.

(PRE 060) GENERAL EDUCATION DEVELOPMENT
Objectives for GED are to master the basic skills in the five academic areas (mathematics, natural science, social science, language, and reading comprehension) necessary for completion of the GED test battery.

(PRE 061) DEVELOPMENTAL SKILLS
Objectives of the Developmental Skills program are to offer review courses which are needed by high school graduates (or GED certificate holders) to upgrade skills or enable learners to enter another field of study.

(RHY 101) BASIC HYDRAULICS
Covers the properties of fluids, basic physics review of force and motion. Calculations of volume, area and displacement. Covers components for power transfer, arrangements for controlling flow and power, methods of joining pipe, tubing and special conduits, and special application concepts of hydraulics and pneumatics.

(RHY 102) ADVANCED HYDRAULICS
Covers the evaluation, efficiency, and economy of hydraulic systems, study of hydraulic fluid composition, filters, pump sizing, compatibility, installation and alignment, valve selection, heat exchangers, various type pumps, and accumulators. Review of the JIC symbols and standard formulas used in industrial fluid power.

(RHY 103) PROPORTIONAL CONTROLS
This course covers the selection, application and troubleshooting of proportional directional and pressure control valves and the circuitry involved in the hydraulic system.

(RHY 104) PROPORTIONAL CIRCUITS
This course covers the circuit analysis of resistive and overrunning load control circuits, and metering circuits. Analyze the parameters for proportional hydraulics and the design of proportional hydraulic systems.

Students completing the certificate program will also take the following related courses.

(RCS 111) COMMUNICATIVE SKILLS I
(RMA 111) VOCATIONAL MATH
OPTIONAL RELATED COURSES

(ETC 111) DC THEORY
(ETC 120) AC THEORY

(SEC 104) BEGINNING SHORTHAND - PART I
An introductory course in the theory of Gregg Shorthand, Diamond Jubilee Series. Reading and dictation are included. The course covers the first half of the textbook.

(SEC 105) BEGINNING SHORTHAND - PART II
A continuation of Beginning Shorthand I. Reading, dictation, and a limited amount of transcription of familiar material are included.

(SEC 106) INTERMEDIATE SHORTHAND
A review of principles and further development of skills in the reading and writing of shorthand. Each lesson continues to develop the student's ability to spell, to punctuate, and to apply the rules of grammar correctly.

(SEC 107) ADVANCED SHORTHAND
A course designed to increase shorthand vocabulary and to develop speed and accuracy in taking and transcribing dictation.

Students should have mastered typing to the intermediate level prior to entering this program. Students completing the certificate program will also take the following related courses.
administrative communications, tables with courses.

Experiences designed to enable the student to specific office, and the jobs are typical of the statistical reports and business forms. Each special features, reports and business forms.

This course includes planned learning experiences designed to enable the student to review typing skills; to become proficient in the use of transcribing machines; to receive an introduction to word processing theory and practices; and to develop practical skills for processing words. The course includes considerations of interpersonal relationships and adapting to the changing office environment of the present and future.

*Optional Course

Students completing the certificate program will also take the following related courses.
(WDT 101) BASIC ARC WELDING AND OXYACETYLENE BURNING
Designed to introduce the student to the welding field, and to give him or her a working background in basic electric arc welding, flame cutting, welding terminology, and safe practices of each.

(WDT 102) FUNDAMENTALS OF ARC WELDING
Introduction in manipulative skills of electric arc welding with various joint designs.

(WDT 103) ELECTRODE IDENTIFICATION AND INTERMEDIATE WELDING THEORY
Students learn electrode selection and lab application with various joint designs.

(WDT 104) ADVANCED WELDING THEORY AND APPLICATION
Manipulation skills with various joint design and electrode sizes are learned in this course.

(WDT 105) ACETYLENE WELDING AND BRAZING
Theory and various joint design applications.

(WDT 106) METALLIC INERT GAS WELDING
Theory and application.

(WDT 107) WELDING PREPARATION AND INSPECTION
Theory and application of various techniques of weld preparation and bevel joint design. Includes an inspection process for weld faults.

(WDT 108) REVIEW AND PREPARATION FOR INSPECTION

(WDT 109) ADVANCED THEORY IN PIPE WELDING*
This course includes the theory of key hole penetration and the fusion method for the root pass with fast freeze electrodes and cap passes with low hydrogen electrodes, and root and cap passes with fast freeze electrodes. Prerequisite: Demonstrated competency in structural steel plate welding and permission of instructor.

(WDT 110) FUNDAMENTALS OF MIG AND TIG PIPE WELDING*
Theory of vertical down penetration and uphill cap pass, and horizontal penetration and cap passes with metallic inert gas processes, and tungsten inert gas processes using a purging system. Prerequisite: Demonstrated competency in MIG and TIG structural steel plate welding and permission of instructor.
ABOUT THE COLLEGE

Education that meets the challenges of America’s leading businesses and industries is the kind of training you can expect at Bessemer State Tech, Alabama’s pacesetter in college-level technical education. The college is located on 52 acres of rolling wooded hills just north of I-459/1-59 junction. Each year over 6,000 students enroll at Bessemer State Tech. The college provides a selection of 33 major areas of study, Alabama’s best technical instructors and a staff of qualified and knowledgeable counselors and advisors to assist with career selections and job placement.

From half-time and full-time day programs to evening and Saturday classes, the college will build a schedule to meet your needs. Day classes are scheduled to meet either Monday, Wednesday and Friday or Tuesday and Thursday to accommodate students who desire to attend two, three or five days a week. All programs are certified by the State Board of Education and Southern Association of Colleges and Schools.

HOW DO I APPLY?
Applying to Bessemer State Technical College is easy.
1. Drop by Room A-110 or call the Office of Admissions at 428-6391 for an application.
2. Return the completed information along with appropriate fees to the Office of Admissions.

STUDENT FEES
- Tuition is $10 per weekly contact hour.
- Full-time students pay $200 tuition per quarter.*
- Half-time students pay $150 per quarter.
- Students annually pay $1 for a student identification card. In addition, a one-time application fee of $10 is charged new students.
- Tuition and fees must be paid each quarter before students are officially registered.

*Fees higher for some health programs.

SAMPLE COSTS

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Half-Time Enrollment (15 hours per week)

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SENIOR ADULT DISCOUNT
Bessemer State Tech provides free tuition to senior adults age 60 and over on a space available basis.

SHOULD I APPLY FOR FINANCIAL ASSISTANCE?
The purpose of the financial assistance programs at Bessemer State Technical College is to assist students who need help in meeting the cost of their education. We encourage applications from all students who believe they will require assistance to enroll.

Federal Assistance includes the PELL Grant, SEOG Grant (Supplemental Education Opportunity Grant) and the College Work Study Program.

There are also a variety of local and state financial assistance programs which are not based on submission of the Federal Student Assistance Application. A comprehensive list of scholarships and loans is available in the Financial Assistance Office for students wishing to investigate outside sources of assistance. Students needing financial assistance should visit the Office of Student Financial Assistance and complete the necessary paperwork.

VETERANS
Bessemer State Tech has an Office of Veterans Affairs, which is located in the Administration Building. This office assists the veteran in minimizing the problems of adapting to an educational environment. Services provided by the Office of Veterans Affairs include counseling, referral services, general and specific information about all available benefits and assistance in filing claims for such benefits.

All persons who wish to enter the school will be using VA educational assistance while enrolled at Bessemer State should contact the Office of Veterans Affairs as soon as initial admission requirements are completed. All questions concerning regulations governing the use of VA educational assistance should be directed to this office.

COUNSELING
Professional counseling is available through Student Personnel Services and in the Admissions Office. These offices are open 8 a.m. through 8 p.m., Monday through Thursday, and/or from 8 a.m. through 4 p.m., Friday.

PLACEMENT TESTS
All full-time students must take a pre-entrance placement exam before admittance to a program.

SPECIAL NOTES
- Some financial assistance programs require a minimum of half-time enrollment, and students receiving financial assistance must learn the enrollment and attendance policies that apply to them prior to registration.
- Students enrolled in evening and Saturday certificate programs who wish to continue their training in a full-time program must file a written request with the registrar and meet all entrance requirements for the full-time program before the application for transfer can be approved. Evening students who gain entry into the full-time program will receive advanced placement reflecting that portion of the program they have completed at night.
- Some classes have shop or lab fees and may require special equipment or clothing.
- Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment. All policies, regulations and rules of conduct at the college are in effect both day and night.
- It is the official policy of the Department of Postsecondary Education and Bessemer State Technical College that no person in Alabama shall, on the grounds of race, color, handicap, sex, religion, creed, national origin, or age, be excluded from participation in, denied the benefits of, or be subject to discrimination under any program, activity, or employment. Bessemer State Technical College complies with non-discriminatory regulations under Title VI and Title VII of the Civil Rights Act of 1964; Title IX Educational Amendment of 1972; and Section 504 of the Rehabilitation Act of 1973. Inquiries concerning this policy may be directed to Dr. W. Michael Bailey, President, Bessemer State Technical College, P.O. Box 308, Bessemer, Alabama, 35021.
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<th>Areas of Study</th>
<th>Associate Degree (Day)</th>
<th>Diploma (Day)</th>
<th>Evening Certificate</th>
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Morning, Afternoon, Evening and Saturday Classes
Call 428-6391 for a Free Schedule

Bessemer State TECH