BESSEMER STATE TECHNICAL COLLEGE

GENERAL DRAFTING

CERTIFICATE PROGRAM

EVENING CLASSES

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 applications. Basic descriptive geometry concepts as required in design applications will be addressed in practical applications.

DRT 105 Drafting - Dimensioning and Tolerancing
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 of The American National Standard Tables of Fits.

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GENERAL DRAFTING - Continued

DRT 106 Drafting - Production Drawings
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 sub assembly is also included.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide students with an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling vocabulary and oral communication.

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.

OPTIONAL RELATED COURSES

RMA 123 Trigonometry
A study of trigonometric functions and relations; a review of angles as related to the coordinate place, angles of triangles; solutions to triangles; vectors and complex numbers.

EIT 111 DC Theory
Composition of matter; electrical units; circuits, symbols and diagrams; color codes; Ohm's Law; Watt's Law; Kirchoff's Laws. Resistance in simple series, parallel and complex circuits is covered.

EIT 121 AC Theory
Alternator theory, sine function, sine-wave analysis, vectors and phase relationships, and Ohm's Law for alternating current, capacitors and capacitance, inductors and inductance, transformers, frequency and the electromagnetic spectrum, time-varying circuits consisting of inductance, capacitance, resistance and combination of these. Operation and use of the cathode-ray oscilloscope are stressed. Prerequisite: EIT 111.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised Summer Quarter, 1984
MST 101  MACHINE SHOP THEORY AND SHOP I
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 102  MACHINE SHOP THEORY AND SHOP II
The student learns the variations and uses of the basic machines in the shop. This includes the pedestal grinder, drill press and power saw. Emphasis is placed on the safe use of machines and tools.

MST 103  MACHINE SHOP THEORY AND SHOP III
An introduction to the lathe and the tools and attachments used in operating this machine. Includes the design, layout and set-up of projects. Simple to semi-complex jobs are completed on the lathe.

MST 104  MACHINE SHOP THEORY AND SHOP IV
A continuation of lathe work with more complex jobs completed. Includes calculations and set-ups required to machine 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. The cylindrical grinder is also covered.

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

REQUIRED RELATED COURSES

RMA 111  VOCATIONAL MATHEMATICS
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.
REQUIRED RELATED COURSES (CONTINUED)

RCS 111 COMMUNICATIVE SKILLS I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RBP 101 BASIC BLUEPRINT READING AND SKETCHING
A course for welders and machinists. Includes 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 (including dimensioning with shop notes; and the interpretation of basic welding symbols). Drawing assignments are supplemented by slide presentations.

OPTIONAL RELATED COURSES

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. Pre-requisite: RBP 101

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. Pre-requisites: RBP 101 and RBP 102

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.

WEL 101 BASIC ARC WELDING AND OXYACETYLENE BURNING
A course 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.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Winter Quarter, 1981-82
ACR 101 Basic Maintenance
Covers performance of complete service checks on heating, electrical, refrigeration and air conditioning equipment, and how to correct minor service problems. Includes an introduction to basic electrical principles and components, use of meters, and the interpretation of pictorial and schematic wiring diagrams and electrical symbols. This course is a pre-requisite to all other courses in the HVAC program.

ACR 102 Full Residential Service
Covers all procedures required to service and troubleshoot residential equipment-heating, electrical, refrigeration and air conditioning. Concentrates heavily on electrical problems and controlling electrical circuits. Pre-requisite: ACR 101.

ACR 103 Commercial Service
Covers nomenclature, service and troubleshooting techniques for commercial heating, refrigeration, ventilating and air conditioning equipment. Both single zone and multizone units are studied. Pre-requisite: ACR 101.

ACR 104 Special Systems
Covers nomenclature 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. Pre-requisite: ACR 101.

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. Pre-requisite: ACR 101.

ACR 202 Heat Pumps
Covers fundamentals of heat pumps through advanced service and installation techniques. Includes design, troubleshooting sequence, electrical function and controls. Materials used and concepts presented apply to any manufacturer's heat pump. Pre-requisite: ACR 101.
REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communication Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

OPTIONAL RELATED COURSES
(Air Conditioning majors may select any 4 of these 6 courses, depending on course availability and individual needs.)

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 factor. Safety procedures are also emphasized.

BLM 102 Residential Wiring
Lecture and practical lab exercises in the basic skills required of a residential maintenance electrician. Includes proper load calculations, circuits design, layout of dimensions, and job safety. Basic materials and tools are also emphasized. Pre-requisite: BLM 101 or acceptable job-related experience.

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.

EIT 111 Electric Theory (DC)
Composition of matter; electrical units; circuits, symbols and diagrams; color codes; Ohm's Law; Watt's Law; Kirchoff's Laws. Resistance in simple series, parallel and complex circuits, is covered.

EIT 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. Also includes an introduction to static control symbols, devices, and circuits. Prerequisites: EIT 120 or permission of instructor.

WEL 101 Basic Arc Welding and Oxyacetylene Burning
A course 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.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Winter Quarter, 1983-84
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 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.
DATA PROCESSING - Continued

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

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.

DPT 154 Business Application Software
This course is intended to survey software packages that are currently popular in the PC market including word processing, spreadsheet software, and programming languages. This course is not intended to have students become highly proficient in any of the above areas; however, they will be familiar with the design and philosophy, capabilities, and limitations of each product examined.

OPTIONAL RELATED COURSES

DPT 112 Report Program Generator (RPG II Language Level)
This study of RPG II programming language prepares to 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 211 Basic Assembly Language II
A continuation of basic assembly language at the intermediate level.

DPT 224 Advanced CICS Programming in COBOL
Emphasis in this course is on application development using techniques learned in DPT 223.

DPT 225 Advanced Programming in BASIC
A continuation of DPT 214, Programming in Basic, with emphasis on disk operations and other topics not covered earlier.

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 adjusting books and periodic reports.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 7-15-87
WEL 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.

WEL 102 Fundamentals of Arc Welding
Instruction in manipulative skills of electric arc welding with various joint designs.

WEL 103 Electrode Identification and Intermediate Welding Theory
Student learns electrode selection and lab application with various joint designs.

WEL 104 Advanced Welding Theory and Application
Manipulation skills with various joint designs and electrode sizes.

WEL 105 Acetylene Welding and Brazing
Theory and various joint design applications.

WEL 106 Metallic Inert Gas Welding
Theory and application.

WEL 107 Welding Preparation and Inspection
Theory and application of various techniques of weld preparation and bevel joint design. Includes inspection process for weld faults.

WEL 108 Review and preparation for Certification

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course 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.

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.
RBP 111 Basic Blueprint Reading for Welders
A course for welders. Includes interpretation of orthographic projections, title block and bill of material; basic screw and thread representation; dimension types and methods; structural shapes and the interpretation of basic welding symbols.

OPTIONAL RELATED COURSES

WEL 109 Advanced Theory in Pipe Welding
The 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.

WEL 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: Demonstration competency in MIG and TIG structural steel plate welding and permission of instructor.

WEL 111 Advanced Procedures in MIG and TIG Welding Processes (Structural)
Theory and application of spray, globular, and short circuiting metal transfer to take advantage of the various techniques and procedures of MIG and TIG welding. Prerequisites: WEL 106, 3 years welding experience or permission of the instructor.

WEL 112 Certification in MIG and TIG Welding Processes (Structural)
Preparation and certification in MIG and TIG welding. Prerequisites: WEL 111, 4 years welding experience or permission of the instructor.

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. Prerequisite: RBP 111.

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. Prerequisites: RBP 111 and RBP 102.

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.

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RCS 112 Communication Skills II
A continuation of Communication Skills I with more in-depth study in basic grammar, usage, punctuation, reading, composition, spelling, vocabulary, and oral communication.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Winter Quarter, 1984-85
For the certificate program in Industrial Electronics the student must take the five core courses and select any five elective courses. In addition, two related math, Algebra I and II, and Communicative Skills I 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

**EIT 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.

**EIT 120 AC Theory**
Alternating current and its measurements; sinewave 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: EIT 111 or permission of instructor.

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KIT 243 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: EIT 231 or permission of instructor.

KIT 245 Microprocessor Interfacing/Applications
This course includes: memory circuits, RAM memories, volatile and non-volatile, ROM, PROM, EPROM, and EEPROM's; interfacing to microprocessor systems; 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. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 243 or permission of instructor.

KIT 247 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: EIT 142 or permission of instructor.

KIT 249 Advanced 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: EIT 245 or permission of instructor.

KIT 250 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: EIT 140 or permission of instructor.

KIT 251 Advanced Digital Techniques
Digital memory circuits, digital to analog and analog to digital converts. Digital circuit design and circuit board construction techniques. Digital circuit troubleshooting and repair techniques. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 231 or permission of instructor.

KIT 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 transmissions: antennas, transmission lines, and coaxial cable; introduction to lasers and fiber optics. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 140 or permission of instructor.

-Continued-
INDUSTRIAL ELECTRONICS - Continued

KIT 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, thyristors 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. Prerequisites: EIT 111 and EIT 120 or permission of instructor.

KIT 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; nonsinusoidal and sinusoidal oscillators; power supplies both unregulated and regulated; test equipment operation and use. Lab experiments are used to supplement classroom instruction. Prerequisites: EIT 111, EIT 120 and EIT 130 or permission of instructor.

KIT 142 Electrical Controls
Includes DC an 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: EIT 120 or permission of instructor.

KIT 211 Industrial DC Machinery
DC generators and motors: principle of operation, applications, construction, and types of electro-mechanical controls are studied. Single phase transformers are included. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 142 or permission of instructor.

KIT 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: EIT 142 or permission of instructor.

KIT 231 Digital Techniques
Binary and BCD numbering systems; Boolean algebra; digital terminology; pulse analysis; logic functions: AND, OR, NAND, EXOR, and NOT; combinational logic circuits: flip-flops, counters, shift registers, decoders, encoders, multiplexers, demultiplexer, information storage and retrieval circuits; multi-vibrators; readout devices. Lab experiments are used to supplement classroom instruction. Prerequisites: EIT 140 and EIT 140 or permission of instructor.

-Continued-
INDUSTRIAL ELECTRONICS - Continued

KIT 253 Microcomputer Systems Technology
A fundamental study in the area of installation, identification of parts, program writing and use of the microcomputer. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 245 or permission of instructor.

KIT 254 Microcomputer System Unit Repair
A study of the important areas needed to understand how to repair microcomputers. Emphasis is on diagnostic software, timing and control signals, block diagrams, and memory maps. Also covered are procedures in preventive maintenance, MOS IC's handling, module replacement, memory troubleshooting and power supply troubleshooting. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 253 or permission of instructor.

KIT 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: EIT 253 or permission of instructor.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

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
A review of systems of equations in two and three unknowns, the use of determinants in solving simultaneous equations, exponents, roots and radicals, logarithms and applications, quadratic equations, variation and graphic methods.

OPTIONAL RELATED COURSES

RHY 101 Basic Hydraulics
Covers the properties of fluids, basic physics review of force and motion. Calculations of volume, area and displacement. Cover 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.

-Continued-
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 J.I.C. symbols and standard Formulas used in industrial fluid power.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 7-17-87
PREREQUISITE: Concurrent with DRT 105 or equivalent experience/training.

DRT 200 Introduction to Computer Graphics
Concepts of general introductory 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 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 are introduced.

DRT 201 Computer Aided Design Drafting I (2-D CADD)
An in-depth study of the 2-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 plans; measurements and calculations; draw mode activities; and library of parts. Exercises structural to allow various methods of solution to encourage individual experimentation and creation of simple to complex designer's 3-dimensional part models are provided.

DRT 203 Computer Aided Design Drafting III (Mechanical Detailing)
Utilizing provided 3-dimensional models, production drawings containing standard orthographic, auxiliary, and sectional views completely dimensioned and toleranced to ANSI standards. Individual experimentation is encouraged since required applications can be solved using alternate methods.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.
**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.

**OPTIONAL RELATED COURSES**

**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.

**RMA 123 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.

**SEC 101 Beginning Typewriting**
Practice in the basic typewriting operations. Covers techniques in skill building and application of basic rules for memorandums, centered reports, tables, simple reports and business letters.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 07-15-87
AMC 111 Basic Mechanics
The course includes a brief history of the automotive industry; identification of tools, their use and care; use of measuring instruments; fasteners; and specifications.

DMC 121 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 122 Troubleshooting, Service and Tune-Up
The student becomes familiar with mechanical and electrical testing equipment used to diagnose malfunctions. Includes setting overheads, adjusting injectors and valves and all tune-up techniques to maintain the system for efficient operation.

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
In-depth study of types and construction of clutches and transmissions; power flow, ratio and major overhauls. Emphasis is on troubleshooting and service procedures.

DMC 143 Minor Diesel Engine Overhaul
The student learns lubrication of all diesel components including proper lubrication methods, location of where lubricants should be applied and the types of lubricants. The course includes a study of the cooling system, heat transfer and the importance of the cooling system to assure efficient operation.

DMC 212 Air and Hydraulic Braking Systems
A study of braking systems activated by air and fluid pressure. The student learns the operation of brake service equipment and troubleshooting procedures.

-Continued-
DMC 243 Major Diesel Engine Overhaul
The student learns to disassemble various types of diesel engines, diagnose defective parts and make necessary replacements to return the engine to efficient operation.

REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communication Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised
Fall Quarter, 1982
BESSEMER STATE TECHNICAL COLLEGE
BUILDING MAINTENANCE - ELECTRICAL
CERTIFICATE PROGRAM

EVENING CLASSES

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 factor. 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 the 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. Pre-requisite: BLM 101 or acceptable job related experience.

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.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

—Continued—
RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

OPTIONAL RELATED COURSES

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. Prerequisites: 1½ to 2 years minimum of in-the-field experience or equivalent electrical knowledge. Reading and comprehension important.

EIT 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.

EIT 211 Electrical Machinery I (DC)
DC generators and motors, principle of operation; application, construction, and types of controls are studied. Experiments and tests are made in lab to supplement the classroom instruction. Single phase transformers are included.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Summer Quarter, 1985
SMC 101 Small Engine Repair I
A course to familiarize the student with basic hand tools and their use in relation to the component parts of small engines, lawnmowers, motorcycles, chainsaws and other two and four cycle engines. Recommended pre-season and post-season maintenance and engine storage are covered. In this, and all other small engine courses, shop safety is stressed.

SMC 102 Small Engine Repair II
Diagnosis and repair of the most common engine problems. Students will repair and replace the ignition system; gear box, gear case and transmission; and the starter system.

SMC 103 Small Engine Repair III
A course in major engine overhaul procedures. Student learns cylinder block removal, disassembly and inspection, and the basis for deciding when to recondition, rebuild or overhaul an engine. Cylinder block assembly and installation, and engine table testing are also covered.

SMC 104 Small Engine Repair IV
An advanced course for small engine mechanics desiring to improve and speed up their techniques in troubleshooting and open shop work. Includes a study of how a mechanic can start and operate his own small engine repair shop.

SMC 105 Outboard Motor Mechanics I
A course to familiarize the student with basic hand tools and their use in relation to the component parts of an outboard motor. Recommended pre-season and post-season maintenance and engine storage are covered. Shop safety is stressed.

SMC 106 Outboard Motor Mechanics II
Diagnosis and repair of the most common engine problems. Student will repair and replace the fuel system; the ignition system; gear box, gear case and transmission; and the starter system.

SMC 107 Outboard Motor Mechanics III
A course in major engine overhaul procedures. Student learns power head removal, disassembly and inspection, and the basis for deciding when to recondition, rebuild or overhaul an outboard motor. Power head assembly and installation and tank performance testing are also covered.

-Continued-
SMC 108 Outboard Motor Mechanics IV
An advanced course for outboard motor mechanics desiring to improve and speed up their techniques in troubleshooting and open shop work. Includes a study of how a mechanic can start and operate his own outboard motor repair shop.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

OPTIONAL RELATED COURSES

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 adjusting books and periodic reports.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.
SEC 101 Beginning Typewriting
Practice in the basic typewriting operations. Covers techniques in skill building and application of basic rules for memorandums, centered reports, tables, simple reports and business letters.

SEC 102 Intermediate Typewriting
A continuation of the basic typewriting operations, with emphasis on speed and accuracy. Special attention is devoted to the technicalities of typewriting basic business letters, business letters with special features, administrative communications, tables with special features, reports and business forms. Emphasis is also placed on erasing and correcting errors. Prerequisite: SEC 101.

SEC 201 Advanced Typewriting
Further development and refinement of typewriting skills through drills for speed and accuracy. Stress is placed on production and problem-solving activities in the preparation of business letters, manuscripts, statistical reports and business forms. Each productions block is designed around a specific office, and the jobs are typical of the jobs one would expect to find in that particular office. Prerequisites: SEC 101 and SEC 102.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RMA 131 Business Mathematics I
A course designed to give the student an understanding and application of mathematical concepts to 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.

OPTIONAL RELATED COURSES

SEC 205 Introduction to Word Processing
The course includes planned learning experiences designed to enable the student to review typing skills, become proficient in the use of transcribing machines, receive an introduction to word processing theory and practices, and develop practical skills for the processing words. The course also includes considerations of interpersonal relationships and adapting to the changing office environments of the present and future. Prerequisites: SEC 201 or typing skills of 40 w.p.m. and permission of instructor.
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.

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 adjusting books and periodic reports.

NOTE: A student entering the Secretarial program must be a high school graduate or equivalent (G.E.D.).

This is a sample curriculum. Courses may not be offered in the exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Spring Quarter, 1983
SEC 104. BEGINNING SHORTHAND - PART I

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.
Pre-requisite: SEC 104.

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 rules of grammar correctly. Major emphasis is placed on the speed and accuracy of readable letter transcription. Pre-requisites: SEC 104 and SEC 105.

SEC 107 ADVANCED SHORTHAND
A course designed to increase shorthand vocabulary and to develop speed and accuracy in taking and transcribing dictation.
Pre-requisites: SEC 104, SEC 105 and SEC 106.

REQUIDRELATED COURSES:

RCS 111 COMMUNICATIVE SKILLS I
A course to provide the student an opportunity to acquire of up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RMA 131 BUSINESS MATHEMATICS I
A course designed to give the student an understanding and application of mathematical concepts to 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.

OPTIONAL RELATED COURSES

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 adjusting books and periodic reports.

RCS 112 COMMUNICATIVE SKILLS II
A continuation of Communicative skills I with more in-depth study in basic grammar, usage, punctuation, reading, composition, spelling, vocabulary and oral communication.

-Continued-
OPTIONAL RELATED COURSES (CONTINUED)

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

SEC 205  INTRODUCTION TO WORD PROCESSING
The course includes planned learning experiences designed to enable the student to review typing skills, become proficient in the use of transcribing machines, receive an introduction to word processing theory and practices, and develop practical skills for the processing of words. The course also includes considerations of interpersonal relationships and adapting to the changing office environments of the present and future. Pre-requisites: SEC 201 or typing skills of 40 W.P.M. and permission of instructor.

NOTE:  A student entering the Secretarial program must be a high school graduate or equivalent (GED).

This is a sample curriculum. Courses may not be offered in the exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Spring, 1989.
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. This course will also look at advertising from the retailers standpoint of how to capture the most return for the advertising dollars spent.

MET 104 Retail Supervision
Retail Supervision is designed to develop and 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 directed work experience hypothetical case situations.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

-Continued-
RMA 131 Business Mathematics I
A course designed to give the student an understanding and application of mathematical concepts to 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.

OPTIONAL RELATED COURSES

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.

SEC 101 Beginning Typewriting
Practice in the basic typewriting operations. Covers techniques in skill building and application of basic rules of memorandums, centered reports, tables, simple reports and business letters.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Spring Quarter 1987
BESSEMER STATE TECHNICAL COLLEGE

RELATED COURSES

EVENING CLASSES

BEP 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.

BEP 101 Basic Blueprint Reading and Sketching
A course for machinists. Includes basic line weights; review of basic with 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.

BEP 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. Prerequisite: RBP 101 or RBP 111.

BEP 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 drawings; interpretation and application of cams, spur, bevel and worm gears. Prerequisites: RBP 101 or RBP 111, and RBP 102.

BCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

BCS 112 Communicative Skills II
A continuation of Communicative Skills I with more in-depth study in basic grammar, usage, punctuation, reading, composition, spelling, vocabulary and oral communication.

BCS 121 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 assembled by observation and personal discussion rather than information gained from a library. Emphasis is on clarity, and on selection and arrangement of material in a format and style which meet the needs of a particular situation.

-Continued-
RELATED COURSES - Continued

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

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
A review of systems of equations in two and three unknowns, the use of determinants in solving simultaneous equations, exponents, roots and radicals, logarithms and applications, quadratic equations, variation and graphic methods.

RMA 123 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 students and understanding and application of mathematical concepts to 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 a further understanding of mathematical computations used in business and industry.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Fall Quarter 1985
BESSEMER STATE TECHNICAL COLLEGE

ORNAMENTAL HORTICULTURE

CERTIFICATE PROGRAM

EVENING CLASSES

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 Tech'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 Landscaping
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.

REQUIRED RELATED COURSES

RMA 131 Business Mathematics I
A course designed to give the student an understanding and application of mathematical concepts to 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.

RCS 111 Communicative Skills I
A course 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.

OPTIONAL RELATED COURSES

SMC 101 Small Engine Repair I
A course to familiarize the student with basic hand tools and their use in relation to the component parts of small engines, lawnmowers, motorcycles, chainsaws and other two and four cycle engines. Recommended pre-season and post-season maintenance and engine storage are covered. In this, and all other small engine courses, shop safety is stressed.

-Continued-
ORNAMENTAL HORTICULTURE - Continued

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.

RCS 121 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 assembled by observation and personal discussion rather than information gained from a library. Emphasis is on clarity, and on selection and arrangement of material in a format and style which meet the needs of a particular situation.

DRT 101 Drafting - Basics
A beginning course for students who have had little or no previous experience in drafting. Includes freehand lettering; care and use of drafting instruments, materials and equipment; single view drawings with an in-depth study of geometric construction with applications.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised,
Winter Quarter 1981-82
OPR 100 Introduction to Offset Printing
Exposure to all phases of offset printing to include 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.

OPR 101 Press Operation I
Hands-on press familiarization. Includes basic press mechanics and operation. Students learn to run print jobs using pre-made plates. In this and all other offset printing courses, safety procedures are stressed both in classroom presentations and in laboratory applications.

OPR 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 (which is furnished), strip the negative, make a plate, put the plate on a press, make necessary adjustments and run a completed job.

OPR 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.

OPR 104 Press Operation IV
Advanced techniques in color offset printing.

OPR 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.

OPR 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).

OPR 203 Process Camera III
Screen types and their uses. The student will make half-tone and duo-tone negatives, PMT's, duplicate negatives, and reverses. Includes an introduction to color.

-Continued-
OFFSET PRINTING - Continued

REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

OPTIONAL RELATED COURSES

COA 105 Layout and Design
Theory of layout and design using lettering, typography, copy blocks, and illustrations/photographs as elements in creating advertising layouts. Problems include thumbnail sketches, rough layouts and comprehensive layouts in full color or black and white.

COA 106 Mechanical Layout
Techniques for preparing mechanical layout for printing production. Includes use of basic layout boards and acetate overlays to accomplish designs created in Layout and Design. Theory of half tone, screen tints, color (including four-color process-color), copy fitting and photo drop-out/proportional sizing techniques.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised Summer Quarter, 1984
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 to basic electrical principles and components, use of meters, and the interpretation of pictorial and schematic wiring diagrams and electrical symbols. This course is a pre-requisite to all other courses in the HVAC program.

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 precaution. The student is also introduced to customer relations, property protection, parts and labor warranty, quality reports, ordering parts, completing work order, how to get and keep a job, and problem solving.

ACR 102 Full Residential Service
Covers all procedures required to service and troubleshoot residential equipment—heating, electrical, refrigeration and air conditioning. Concentrates heavily on electrical problems and controlling electrical circuits.

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 source for appliances, installing electrical outlets for appliances, and troubleshooting electrical wiring systems for appliances.
REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communicative Skills I
A course to provide the student and opportunity to acquire or up-grade his/her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

OPTIONAL RELATED COURSES

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 factor. Safety procedures are also emphasized.

BLM 301 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.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Winter Quarter, 1985-86
BESSEMER STATE TECHNICAL COLLEGE

INDUSTRIAL HYDRAULICS

CERTIFICATE PROGRAM

EVENING CLASSES

RHY 101 Basic Hydraulics
Covers the properties of fluids, basic physics review of force and motion. Calculations of volume, area and displacement. Cover 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 J.I.C. symbols and standard formulas used in industrial fluid power.

RHY 103 Proportional Controls
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
The course will cover 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.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

OPTIONAL RELATED COURSES

KIT 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.

-Continued-
INDUSTRIAL HYDRAULICS - Continued

KIT 120 AC Theory
Alternating current and its measurements; sinewave 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: EIT 111 or permission of instructor.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 7-20-87
EVENING CLASSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

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.

KIT 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.

KIT 120 AC Theory
Alternating current and its measurements; sinewave 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: EIT 111 or permission of instructor.

KIT 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: EIT 120 or permission of instructor.

WKL 101 Basic Arc Welding
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.

WBP 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.

-Continued-
INDUSTRIAL ELECTROMECHANICS - Continued

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RHY 101 Basic Hydraulics
Covers the properties of fluids, basic physics review of force and motion. Calculations of volume, area and displacement. Cover 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.

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, analysis of vibration with moving machinery.

OPTIONAL RELATED COURSES

KIT 211 Industrial DC Machinery
DC generators and motors: principle of operation, applications, construction, and types of electro-mechanical controls are studied. Single phase transformers are included. Lab experiments are used to supplement classroom instruction. Prerequisite: EIT 142 or permission of instructor.

KIT 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: EIT 142 or permission of instructor.

-Continued-
RY 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 J.I.C. symbols and standard Formulas used in industrial fluid power.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 7-22-87
BESSEMER STATE TECHNICAL COLLEGE

GENERAL DRAFTING

CERTIFICATE PROGRAM

EVENING CLASSES

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 applications. Basic descriptive geometry concepts as required in design applications will be addressed in practical applications.

DRT 105 Drafting - Dimensioning and Tolerancing
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 of The American National Standard Tables of Fits.

-Continued-
DRT 106 Drafting- Production Drawings
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 sub assembly is also included.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide students with an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling vocabulary and oral communication.

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.

OPTIONAL RELATED COURSES

RMA 123 Trigonometry
A study of trigonometric functions and relations; a review of angles as related to the coordinate place, angles of triangles; solutions to triangles; vectors and complex numbers.

EIT 111 DC Theory
Composition of matter; electrical units; circuits, symbols and diagrams; color codes; Ohm's Law; Watt's Law; Kirchoff's Laws. Resistance in simple series, parallel and complex circuits is covered.

EIT 121 AC Theory
Alternator theory, sine function, sine-wave analysis, vectors and phase relationships, and Ohm's Law for alternating current, capacitors and capacitance, inductors and inductance, transformers, frequency and the electromagnetic spectrum, time-varying circuits consisting of inductance, capacitance, resistance and combination of these. Operation and use of the cathode-ray oscilloscope are stressed. Prerequisite: EIT 111.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised Summer Quarter, 1984
BESSEMER STATE TECHNICAL COLLEGE

GENERAL DRAFTING

CERTIFICATE PROGRAM

EVENING CLASSES

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 applications. Basic descriptive geometry concepts as required in design applications will be addressed in practical applications.

DRT 105 Drafting - Dimensioning and Tolerancing
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 of The American National Standard Tables of Fits.

-Continued-
GENERAL DRAFTING - Continued

DRT 106 Drafting- Production Drawings
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 sub assembly is also included.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide students with an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling vocabulary and oral communication.

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.

OPTIONAL RELATED COURSES

RMA 123 Trigonometry
A study of trigonometric functions and relations; a review of angles as related to the coordinate place, angles of triangles; solutions to triangles; vectors and complex numbers.

EIT 111 DC Theory
Composition of matter; electrical units; circuits, symbols and diagrams; color codes; Ohm's Law; Watt's Law; Kirchoff's Laws. Resistance in simple series, parallel and complex circuits is covered.

EIT 121 AC Theory
Alternator theory, sine function, sine-wave analysis, vectors and phase relationships, and Ohm's Law for alternating current, capacitors and capacitance, inductors and inductance, transformers, frequency and the electromagnetic spectrum, time-varying circuits consisting of inductance, capacitance, resistance and combination of these. Operation and use of the cathode-ray oscilloscope are stressed. Prerequisite: EIT 111.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised Summer Quarter, 1984
BENZEMER STATE TECHNICAL COLLEGE
COMPUTER AIDED DESIGN DRAFTING (CADD)
CERTIFICATE PROGRAM
EVENING CLASSES

PREREQUISITE: Concurrent with DRT 105 or equivalent experience/training.

DRT 200 Introduction to Computer Graphics
Concepts of general introductory 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 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 are introduced.

DRT 201 Computer Aided Design Drafting I (2-D CADD)
An in-depth study of the 2-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 plans; measurements and calculations; draw mode activities; and library of parts. Exercises structural to allow various methods of solution to encourage individual experimentation and creation of simple to complex designer's 3-dimensional part models are provided.

DRT 203 Computer Aided Design Drafting III (Mechanical Detailing)
Utilizing provided 3-dimensional models, production drawings containing standard orthographic, auxiliary, and sectional views completely dimensioned and tolerated to ANSI standards. Individual experimentation is encouraged since required applications can be solved using alternate methods.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

--Continued--
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.

OPTIONAL RELATED COURSES

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.

RMA 123 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.

SEC 101 Beginning Typewriting
Practice in the basic typewriting operations. Covers techniques in skill building and application of basic rules for memorandums, centered reports, tables, simple reports and business letters.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 07-15-87
SEC 101  Beginning Typewriting  
Practice in the basic typewriting operations. Covers techniques 
in skill building and application of basic rules for memorandums, 
centered reports, tables, simple reports and business letters.

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 133  Data Entry II  
A continuation of DPT 123. Additional machine capabilities are 
introduced along with programming for the data entry equipment. 
Special emphasis is placed on speed and accuracy. 
Pre-requisite: DPT 123.

REQUIRED RELATED COURSES

RMA 111  Vocational Mathematics 
A course in basic mathematics designed to teach the student the 
fundamental processes and concepts which are necessary in 
developing skills. The fundamentals of arithmetic are covered.

RCS 111  Communicative Skills I 
A course to provide the student an opportunity to acquire or 
up-grade his or her knowledge of basic grammar, usage and 
punctuation. The course also provides instruction in reading, 
composition, spelling, vocabulary and oral communication.

OPTIONAL RELATED COURSES

SEC 102  Intermediate Typewriting  
A continuation of the basic typewriting operations, with emphasis 
on speed and accuracy. Special attention is devoted to the 
technicalities of typewriting basic business letters, business 
letters with special features, administrative communications, 
tables with special features, reports and business forms. Emphasis 
is also placed on erasing and correcting errors. Pre-requisite: 
SEC 101.

---Continued---
SEC 205  Introduction to Word Processing
The course includes planned learning experiences designed to enable
the student to review typing skills, become proficient in the use of
transcribing machines, receive an introduction to word processing
theory and practices, and develop practical skills for the processing
words. The course also includes considerations of interpersonal
relationships and adapting to the changing office environments of the
present and future. Prerequisites: SEC 201 or typing skills of 40
w.p.m. and permission of instructor.

RMA 131  Business Mathematics I
A course designed to give the student an understanding and application
of mathematical concepts to 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.

This is a sample curriculum. Courses may not be offered in this exact sequence.
Bessemer State Technical College reserves the right to cancel or postpone
courses due to insufficient enrollment.

Revised
Spring Quarter, 1984
AMC 111 Basic Mechanics
The course includes a brief history of the automotive industry; identification of tools, their use and care; use of measuring instruments; fasteners; and specifications.

DMC 121 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 122 Troubleshooting, Service and Tune-Up
The student becomes familiar with mechanical and electrical testing equipment used to diagnose malfunctions. Includes setting overheads, adjusting injectors and valves and all tune-up techniques to maintain the system for efficient operation.

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
In-depth study of types and construction of clutches and transmissions; power flow, ratio and major overhauls. Emphasis is on troubleshooting and service procedures.

DMC 143 Minor Diesel Engine Overhaul
The student learns lubrication of all diesel components including proper lubrication methods, location of where lubricants should be applied and the types of lubricants. The course includes a study of the cooling system, heat transfer and the importance of the cooling system to assure efficient operation.

DMC 212 Air and Hydraulic Braking Systems
A study of braking systems activated by air and fluid pressure. The student learns the operation of brake service equipment and troubleshooting procedures.

--Continued--
DMC 243 Major Diesel Engine Overhaul
The student learns to disassemble various types of diesel engines, diagnose defective parts and make necessary replacements to return the engine to efficient operation.

REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communication Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised
Fall Quarter, 1982
BESSEMER STATE TECHNICAL COLLEGE

COMMERCIAL PHOTOGRAPHY

CERTIFICATE PROGRAM

EVENING CLASSES

COA 205 Photography I (Basic)
Commercial and fine arts photography, film developing, basic darkroom printing. This course covers good composition and design, and shooting with available light. Introductions to strobelighting and portrait posing, story board, mounting and presentation, spot toning and sepia toning, and hand painting.

COA 206 Photography II (Advertising)
Product and advertising photography, multi-exposure, solarization, bleaching, photocopying, point-of-purchase display, photo lay-out, color slide show presentation. Pre-requisite: COA 205.

COA 207 Photography III (Airbrush)
Airbrush exercise, airbrush art, photographic airbrush and retouch, and introduction to airbrush advertising. (Black & White / Color) Pre-requisite: COA 205.

COA 208 Photography IV (Studio)
Strobelighting with live models, flood lighting, and table-top photography. Commercial portrait session, including posing and lighting. Wedding posing, and commercial advertising. Retouching and hand painting photographs.

COA 209 Photography V (Photojournalism)
Preparation for newspaper and magazine work shooting photo stories and writing copy for cutlines and captions. Photo lay-out. Pre-requisites: COA 205 and RCS 111.

COA 210 Photography VI (Photostencil)
Photographic silk screen with emphasis on commercial art and advertising techniques and applications. Pre-requisites: COA 205, COA 206, COA 207, COA 208, and OPR 201.

REQUIRED RELATED COURSES

COA 100 Basic Drawing I
The basic concepts of freehand drawing are stressed. Emphasis is placed on knowing and using the elements of design. Students become familiar with various conceptual problems using a variety of media. Art concepts include contour drawing, positive and negative space, perspective imaging, portraiture (drawing from a live model), figure drawing, and high contrast problems. Proper presentation of finished art work is stressed.

-Continued-
COMMERCIAL PHOTOGRAPHY - Continued

OPR 201 Process Camera I
Instruction in the fundamentals of offset photography. Includes film types and uses, film chemistry, darkroom procedures, and operations of the process camera. Pre-requisite: COA 205.

RCS 111 Communication Skills I
A course to provide the students an opportunity to acquire or up-grade his or her knowledge of basic grammar usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary, and oral communication.

RMA 111 Vocational Math
A course in basic mathematics designed to teach the student the fundamental process and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

OPTIONAL RELATED COURSES

COA 213/214 Publications Lab
Photographic techniques in relationship to periodicals, brochures, and newsletters. (Note: This course may be repeated one time for credit.)

COA 217 Advanced Photography I (Studio)

COA 218 Advanced Photography II (Airbrush)
A study of color photo airbrushing which includes three different techniques of photo retouch and composite layout retouch. Pre-requisites: COA 205, COA 207, and COA 208.

This is a sample curriculum. Courses may not be offered in this exact sequence.
Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised, Winter Quarter, 1984-85
The basic concepts of freehand drawing are stressed. Emphasis is placed on knowing and using the elements of design. Students become familiar with various conceptual problems using a variety of media. Art concepts include contour drawing, positive and negative space, perspective, imaging, portraiture (drawing from a live model), figure drawing, and high contrast problems. Proper presentation of finished art work is stressed.

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 on intellect is stressed. Proper presentation of finished art work is stressed. Prerequisite: COA 100.

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 art work is stressed. Prerequisites: COA 100 and COA 101.

The study of 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 art work is stressed. Prerequisites: COA 100, COA 101 and COA 102.

Fundamentals of airbrush techniques. Practice in various exercises for airbrush illustrations including mechanical cutaways, posters, figure drawing and portrait rendering. Prerequisites: COA 100, COA 101, COA 102 and COA 103.

Techniques for preparing the advertising design and subsequent mechanical layout. Stress 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. Prerequisites: COA 100, COA 101, COA 102, COA 103 and COA 104.
COMMERCIAL ART - Continued

COA 106 Advertising Design II
Advanced techniques in advertising design and mechanical layout. Assignments become progressively more difficult as student skills improve. Prerequisites: COA 100, COA 101, COA 102, COA 103, COA 104 and COA 105.

COA 107 Multi-Image Photography
Production of three projector multi-image 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. Prerequisites: COA 100, COA 101, COA 102, COA 103, COA 104, COA 105 and COA 106.

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. Prerequisites: COA 100, COA 101, COA 102, COA 103, COA 104, COA 105 and COA 106.

REQUIRED RELATED COURSES

COA 205 Photography I (Basic)
Commercial and fine arts photography, film developing, basic darkroom printing. This course covers good composition and design, and shooting with available light. Introductions to strobelighting and portrait posing, story board, mounting and presentation, spot toning and sepia toning, and painting.

OPR 201 Process Camera I
Instruction in the fundamentals of offset photography. Includes film types and use, film chemistries, darkroom procedures, and operation of the process camera.

EMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

OPTIONAL RELATED COURSES

COA 206 Photography II (Advertising)
Produce and advertising photography, multi-exposure, solarization, bleaching, photocopying, point-of-purchase display, photo lay-out, color slide show presentation. Prerequisite: COA 205.

COA 207 Photography III (Airbrush)
Airbrush exercise, airbrush art, photographic airbrush and retouch, and introduction to airbrush advertising. (Black & White/Color) Prerequisites: COA 104 and COA 205.

-Continued-
COMMERCIAL ART - Continued

COA 215 Typesetting I
This course trains the students in basic typesetting skills using the Compugraphic MCS 100 controller and terminal with the Compugraphic 8400 typesetter. The students will become familiar with functions and capabilities of the equipment and acquire skills in typesetting various formats. A knowledge and proficiency in typing will be helpful.

COA 216 Typesetting II
This course develops the knowledge and skills acquired in COA 215 (Typesetting I). The student is introduced to the Compugraphic Powerview 10 computer and terminal for more comprehensive training. Projects of increased difficulty are presented for solution and accomplishment. Prerequisite: COA 215.

OPR 100 Introduction to Offset Printing
Exposure to all phases of offset printing to include press operation and process camera. Emphasis is on familiarizing students with the whole process through which camera-ready art work proceeds to become finished, printed material.

OPR 101 Press Operation I
Hand-on press familiarization. Includes basic press mechanics and operation. Students learn to run print jobs using pre-made plates. In this and all other offset printing courses, safety procedures are stressed both in classroom presentations and in laboratory applications.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 7-10-87
BESSEMER STATE TECHNICAL COLLEGE

BUILDING MAINTENANCE - PLUMBING

CERTIFICATE PROGRAM

EVENING CLASSES

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 are also studied.

BLM 305 Building Maintenance - Plumbing III
A study of water supplies, plumbing fixtures, and appliances. The student also learns testing and inspection procedures. Prerequisites: Plumbing I and II.

REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communicative Skills I
A course 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.

OPTIONAL RELATED COURSES

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.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.
BESSEMER STATE TECHNICAL COLLEGE

BUILDING MAINTENANCE - CARPENTRY

CERTIFICATE PROGRAM

EVENING CLASSES

BLM 201 Building Maintenance - Carpentry I
A course involving the identification, care, adjustment and proper use of hand and power tools. Safe use of various tools is stressed. Measuring and layout tools, leveling instruments and building materials are also stressed.

BLM 202 Building Maintenance - Carpentry II
A study of footings and foundations. Floor, wall, ceiling and roof construction is emphasized. The student also learns to read blueprints.

BLM 203 Building Maintenance - Carpentry III
A study of roofing materials, window and door installation, wall finishing, thermal and sound insulation, and floorings.

BLM 204 Building Maintenance - Carpentry IV
A study of the techniques of construction and developing required of building maintenance workers. Stair construction, post and beam construction, and trimming are emphasized.

REQUIRED RELATED COURSES

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.
BESSEMER STATE TECHNICAL COLLEGE

AUTOMOTIVE MECHANICS

CERTIFICATE PROGRAM

EVENING CLASSES

AMC 111 Basic Mechanics
The course includes a brief history of the automotive industry; identification of tools, their use and care; use of measuring instruments; fasteners; and specifications.

AMC 122 Front End and Steering I
A study of tires, balance, bearings, front and rear suspension designs, inspection and repair of worn components will be covered.

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
This course will cover steering sector operations and repair, wheel alignment angles, alignment and diagnostic checks.

AMC 131 Automotive Brakes
A detailed study of types of braking systems and their 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 an seats. Prerequisite: AMC 123.

AMC 133 Clutches and Standard Transmissions
An in-depth study of types and construction of clutches, service and troubleshooting.

AMC 143 Differentials and Drive Lines
A study of drive shafts, universal joints, rear axles, differentials, bearing and seals.

AMC 211 Automotive Electricity
Includes 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.

-Continued-
AUTOMOTIVE MECHANICS - Continued

AMC 221 Automatic Transmissions I
Designed to provide the student 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 the 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 systems and to determine the general condition of the engine.

AMC 232 Automatic Transmissions II
A continuation of the study of automatic transmissions to include methods of disassembly and assembly and making necessary repairs and adjustments. Prerequisite: AMC 221.

AMC 233 Emission Controls
A study of automotive emissions, their effects on the environment, and devices to control the effect. Includes components, types, and their repair, replacements, and adjustments.

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course 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.

RMA 111 Vocational Mathematics
A course in basic mathematics designed to teach the student the fundamental processes and concepts which are necessary in developing skills. The fundamentals of arithmetic are covered.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

Revised 07-15-87
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 adjusting books and periodic reports.

ATT 121 Accounting II (Partnerships)
A study of accounting for purchases, sales inventories, assets and owner's equity. Emphasis is on end-of-year procedures and reports such as the income statement, balance sheet and interim statements.

ATT 131 Accounting III (Corporate)
A study in corporate accounting including procedures and practices for the accounting of stock, 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 and payroll records required under numerous laws, practice in all payroll operations, recording of accounting entries involving payroll, and preparation of payroll tax returns.

ATT 212 Cost Accounting
The methods of accounting for materials, labor and factory 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. Prerequisites: ATT 111, ATT 121, and ATT 131.

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 environments.
ACCOUNTING - Continued

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

RMA 131 Business Mathematics I
A course designed to give the student an understanding and application of mathematical concepts to 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.

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 system 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.

OPTIONAL RELATED COURSES

COBOL I, II, III or other computer languages up to three quarters.

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. Prerequisites: ATT 111, ATT 121, and ATT 131.

SEC 101 Beginning Typewriting and Lab
Practice in the basic typewriting operations. Covers techniques in skill building and application of basic rules for memorandums, centered reports, tables, simple reports and business letters.

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.

RCS 112 Communicative Skills II
A continuation of Communicative Skills I with more in-depth study in basic grammar, usage, punctuation, reading composition, spelling, vocabulary and oral communication.

-Continued-
RCS 121  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
assembled by observation and personal discussion rather than
information gathered from a library. Emphasis is on clarity and
on selection and arrangement of material in a format and style which
meet the needs of a particular situation.

RMA 132  Business Mathematics II
A course designed to provide the student a further understanding
of mathematical computations used in business and industry.

ATT 241  Microcomputer Assisted Accounting
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, payrolls, and
utilization of VISICALC.

This is a sample curriculum. Courses may not be offered in this exact sequence.
Bessemer State Technical College reserves the right to cancel or postpone
courses due to insufficient enrollment.

Revised Winter Quarter, 1985-86
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 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.

-Continued-
DATA PROCESSING - Continued

REQUIRED RELATED COURSES

RCS 111 Communicative Skills I
A course to provide the student an opportunity to acquire or up-grade his or her knowledge of basic grammar, usage and punctuation. The course also provides instruction in reading, composition, spelling, vocabulary and oral communication.

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.

DPT 154 Business Application Software
This course is intended to survey software packages that are currently popular in the PC market including word processing, spreadsheet software, and programming languages. This course is not intended to have students become highly proficient in any of the above areas; however, they will be familiar with the design and philosophy, capabilities, and limitations of each product examined.

OPTIONAL RELATED COURSES

DPT 112 Report Program Generator (RPG II Language Level)
This study of RPG II programming language prepares to 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 211 Basic Assembly Language II
A continuation of basic assembly language at the intermediate level.

DPT 224 Advanced CICS Programming in COBOL
Emphasis in this course is on application development using techniques learned in DPT 223.

DPT 225 Advanced Programming in BASIC
A continuation of DPT 214, Programming in Basic, with emphasis on disk operations and other topics not covered earlier.

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 adjusting books and periodic reports.

This is a sample curriculum. Courses may not be offered in this exact sequence. Bessemer State Technical College reserves the right to cancel or postpone courses due to insufficient enrollment.

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