

TRADE AND TECHNICAL EDUCATION

VAE 103 Blueprint Sketching and Interpretation (3)

This course is designed to introduce the student to the basic principals of blueprint drawing and interpretation. The intent of the course is to teach the student to read specifications and marginal information in production blueprints while enhancing their ability to define size, shape, and dimensional information in their own construction drawings.

VBM 101 Building Maintenance I (4)

Prerequisite: VSP 153a

Provides the students with the opportunity to correctly use a range of Hand & Power Tools more commonly used by building maintenance personnel. This course will also provide the student with knowledge and hands-on experience in Blueprint Reading, Surface Preparation and Finishing and Trim work.

VBM 102 Building Maintenance II (4)

Prerequisite: VSP 153a

This course is designed to provide the students with the basic skills necessary to properly install individual electrical circuits in a building and will cover the use of essential hand and power tools. This course is also designed to provide the students with the basic knowledge required for properly using a meter for testing faulty devices and troubleshoot electrical circuit.

VBM 103 Building Maintenance III (4)

Prerequisite: VSP 153a, VBM 102

Provides the students with practical opportunities to service and maintain plumbing and drainage systems using a variety of hand and power tools. This course will also provide the student with knowledge and hands-on experience in general servicing and maintenance of air-conditioning units.

VBM 104 Building Maintenance IV (4)

Prerequisite: VSP 153a

This course is designed to provide students with skills in the use and care of appropriate equipment for grounds maintenance. Weed control and proper lawn care, decorative plantings, pruning techniques and some amount of landscaping activities form the main focus of this course.

VCE 195 Construction Procedures (1.5)

Prerequisites: VSP 153a

This course introduces the student to the selection of appropriate materials, and the assembly of those materials to erect a structure. The course covers building projects from ground breaking through the laying down of foundations and the accepted construction procedures for wooden, masonry, concrete and steel structures.

VCF 104 Introduction to Cabinet making/Furniture making (3)

Prerequisite: MS 104, ESL 050/SS100 or concurrently

This introductory course is designed to familiarize students with the terminology, materials, and hand tools used in the manufacturing industry in both domestic and commercial cabinet/furniture making.

VCF 106 Plan Reading and Documentation (1.5)

Prerequisite: VCF 104 or concurrently

This course is designed to teach the students to read and interpret from blue print drawings the cabinet/furniture information required to construct as designed. It will also teach the students the basic principles of sketching and drawing full size set outs, using a range of drawing equipment.

VCF 110 Domestic Construction (3)

Prerequisites: VCF 104, VSP 153a

This course is designed to teach the students the basic construction of domestic cabinets and furniture that would be used in domestic situations (private homes), and to teach the students a method of producing a one of piece of furniture, as requested by the client.

VCF 114 Commercial Construction (3)

Prerequisite: VCF104, VSP 153a

This course is designed to teach the students basic construction when producing more than one cabinet or piece of furniture (multiple items). It will demonstrate the use of setting up machinery, making patterns and jigs used to produce mass production type items.

VCF 120 Workshop Administration (2)

Prerequisite: VCF104

This course is designed to teach the students the daily activities involved in a cabinet making workshop, e.g., estimation and costing, ordering materials, organizing and prioritizing work to be carried out as well as the best methods of maximizing the use of materials and reducing waste.

VCF 124 Safety and Maintenance of Power Tools, and Static Machines and Equipment – basic (4)

Prerequisites: VCF104, VSP 153a

This course is designed to teach the students the correct and safe methods of both power tool use and static machines when making cabinets and furniture. It will also teach the students general care, service and maintenance of both power tools and static machines.

VCF 132 Surface Preparation and Finishing Techniques (3)

Prerequisites: VCF104, VSP 153a

This course is designed to teach the students various ways to prepare surfaces ready for applying finishing materials. It will also introduce finishing products that are available and the application of these products to furniture to protect and enrich their finish.

VCT 153 Introduction to Carpentry (3)

This introductory course is designed to familiarize students with the use, care, safe operations and maintenance of hand and power tools; to develop their skills in the use, care, and safe handling of supplies and materials; and to provide them with occupational information about carpentry.

VCT 154 Introduction to Masonry (3)

Prerequisite: VSP 153a

This course provides students with knowledge and experience in the preparation of the various types of mortar and concrete and the handling and placement of masonry units. Instructions will also include the care and safe use of masonry hand tools and power equipments.

VCT 163 Concrete Form Construction (3)

Prerequisite: VCT 153

This course is designed to teach the student construction terms, materials and methods in concrete form construction for residential and commercial buildings. The course also introduces the use, care and maintenance of leveling and sighting instruments.

VCT 173 Rough Framing and Exterior Finishing (3)

Prerequisite: VCT 153

This course concentrates on basic structure construction. It is designed to provide carpentry students with the skills and knowledge necessary to frame floors, walls, wall panels, roofs and ceilings as well as the application of exterior finishing materials.

VCT 183 Finishing and Trim Work (3)

Prerequisite: VCT 153

This course is designed to teach the student about various methods and materials necessary to finish the interior of a residential or commercial building. The course covers the installation of wall and ceiling panels, installation of window and doors, construction of cabinets and closets, application of trim and moldings and installation of finishing hardware.

VEE 100 Soldering and Mechanical Termination Techniques (1.5)

Prerequisite: Admission and VSP 121 or concurrently

Students will learn how to produce solder connections and identify and rectify inferior solder joints. Students will select and prepare the correct soldering tools. In addition the student will master PC component insertion/extraction techniques, basic connector termination techniques and wire wrapping.

VEE 103 Electronic Fundamentals I (3)

Prerequisite: Admission and VSP 121 or concurrently

This course introduces the student to the theory of electricity and magnetism, basic components such as resistors, switches, fuses and circuit breakers, and the relationship of voltage, current, resistance and power and their measurements in basic electrical circuits. Basic direct current circuits are analyzed using Ohm's Law, Kirchoff's Laws and various network theorems.

VEE 104 Electronic Fundamentals II (4)

Prerequisite: VEE 103

This course covers the introduction and examination of the principles, applications and measurement of alternating current. Students will compare different types of alternating current circuits. The course emphasizes filtering basics, reactance, resonance, RC, RL, RLC, relays, transformers, phase angles and power factors. Students will apply formulas to analyze AC circuits.

VEE 110 Discrete Devices I (3)

Prerequisite: VEE 104 or concurrently

This course will introduce students to the construction and operation of various configurations of single stage amplifiers and diode circuits. It will also provide the students with an introduction to basic single-phase power supplies.

VEE 125 Electronic Circuits (4)

Prerequisite: VEE 110

This course allows students to investigate small and large signal amplifiers. Topics includes amplifier coupling, BJT amplifier gain, FET amplifiers, negative and positive feedback, frequency response and classes of operation.

VEE 135 Digital Electronics I (3)

Prerequisite: VEE 110

This course provides the student with the basic concepts of logic gates and digital circuits. Topics include digital switches, combinational and sequential logic gates, number systems, Boolean algebra, Karnaugh Maps, 555 Timers, flip-flops and logic design techniques.

VEE 222 Discrete Devices II (3)

Prerequisite: VEE 110

This course covers the construction and operation of various discrete thyristor power control devices such as Diacs, Triacs, SCRs, PUTs and UJTs and their circuit configurations.

VEE 223 PC Hardware & Software (4)

Prerequisite: VEE 135

This course is designed to help students prepare for entry-level positions in the (Information Communication Technology) ICT fields. Job titles include enterprise technician, IT administrator, and field service technician, call center technician, help desk technician, and (personal computer) PC or support technician. In addition, the curriculum helps students gain confidence with the components of desktop and laptop computers by learning the proper procedures for hardware and software installations, upgrades, and troubleshooting.

VEE 224 Video Systems & Product Servicing (4)

Prerequisite: VEE 135

This course is designed to provide students with the knowledge and experience in the principles of operating, diagramming, circuit tracing, mechanical assembly and disassembly, maintenance and troubleshooting procedures of television, VCR, CD, DVD and other related electronic products.

VEE 225 Business Machine Servicing (4)

Prerequisite: VEE 135

This course covers the principles of operation and servicing of business machines. It includes the manufacturers' procedures in servicing; systematic procedures in diagnosing faults, repairing of business machines, reassembling and testing repaired business machines according to industry standards.

VEE 230 Radio Communications (3)

Prerequisite: VEE 125

This course is designed to familiarize the students with basic communication systems and the method by which signals are transmitted and received via amplitude modulation (AM) and frequency modulation (FM) techniques, as well as the various types and characteristics of transmission lines.

VEE 235 Digital Electronics II (3)

Prerequisite: VEE 135

The course covers register, memory, storage register, shift register, memory circuit, arithmetic counting circuit, ripple counter, up and down counters, adder, subtractor, data conversion, data selector and data distribution network.

VEE 240 Signal Processing (3)

Describes the basic elements of a communication system and identifies various signal processing techniques. Further investigates AM and FM circuits and their operation. In addition Single Side Band, various modulation methods, frequency shift keying and multiplexing are studied.

VEE 250 Cooperative Education Program (2)

This co-operative education and work experience will provide the student with supervised on-the job training that will test the application of classroom learning in a "real life" skill demonstration. The individual students training plan will relate to the student's educational objectives.

VEE 266 Rotating Machinery (3)

Prerequisite: VEM 104 or VEE104

This course will introduce the students to the basic fundamentals of DC Motors and Generators. The students will be able to define, identify and categorize the devices that make up rotating machinery. The students will also learn the different characteristics of rotating machinery. To advance to the next level, the student must demonstrate proficiency to at least "C" grade level.

VEM 102 Electrical Electronic/Drawing and Sketching (1.5)

Prerequisite: MS 104, ESL 050 or concurrently

This course is designed to provide the students with basic skills and knowledge to read and interpret electrical/electronics blueprints. Students will also learn the basic principles of sketching and scale drawing using a variety of drawing equipment.

VEM 103 Basic Electricity I (4)

Prerequisites: VSP 121 or concurrently

This course introduces students to the basic fundamentals of electrical circuitry and its components. It also provides theoretical and practical aspects of direct circuit network by experimentation. The course also covers analysis of direct current (DC) circuits using various network theorems.

VEM 104 Basic Electricity II (5)

Prerequisite: VEM 103

This course covers the introduction and examination of the principles, applications and measurement of alternating current. Students will compare different types of alternating current circuits. The course emphasizes filtering basics, reactance, resonance, RC, RL, RLC, relays, transformers, phase angles & relationships and power factors. Students will apply formula to analyze AC circuits. It also includes the theoretical and practical aspects of series, parallel, and series-parallel circuit construction. To advance to the next level of Electrical course, the student must demonstrate proficiency to at least “C” grade level.

VEM 105 Basic Electricity for AC (3)

Prerequisite: Admission and VSP 121

This course introduces the student to the theory of electricity and basic components used in the electrical industry and the relationship of voltage, current, resistance and power. This course will also enable the students to perform basic measurements by using an electrical measuring device and analyzing electrical circuits using Ohm’s Law. Students will compare different types of electrical circuits. The course emphasizes electrical components of refrigeration and air conditioning system. This course also includes the theoretical aspects of rewiring domestic refrigeration and air conditioning systems.

VEM 110 Workshop Fabrication/Hand and Power Tool Skills (3)

Prerequisite: Admission and VSP 121 or concurrently

The course covers electrical safety, electronics troubleshooting hand tools, testing device and equipment, wires, cables and connectors, crimping and rework of wire, cable and connector assembly.

VEM 111 Electrical Wiring I (3)

Prerequisites: VSP 121, VEM 102, VEM 110 (or VEM 101 for Aircon/Refrigeration Apprentices).

This course is designed to introduce to the students the basic concepts of residential wiring and provide a solid background of electrical principles required for wiring. The students will develop the knowledge of various voltages in a branch circuit and as well as identifying various types of branch circuits used in a dwelling. The students will gain an understanding for special circuits and how they are used in a dwelling. Students will also become familiarized with the information and specification to perform functional and safe wiring practices.

VEM 112 Electrical Wiring II (3)

Prerequisites: VEM 111 or concurrently & VSP121 & VEM110

This course is designed to increase the student’s awareness of safe workplace practices. The course is designed to introduce the basic wiring methods used in the electrical industry. The students will develop skills in basic circuitry, identification of cable types and terminology used in the industry. Apply techniques as required by the National Electrical code with respect to safe wiring practices.

VEM 113 Refrigeration I (3)

Prerequisite: VSP121 or Concurrently

This course introduces the students to the refrigeration principles and practices as applied to domestic, commercial, and industrial refrigeration systems. It also includes refrigeration processes, vapor compression refrigeration cycle, mechanical components, functions, refrigerants and their properties. Discussion of repair and servicing is concentrated mainly for domestic refrigeration and air conditioning application.

VEM 114 Refrigeration II (3)

Prerequisite: VEM 113

This course primarily covers operation principles, installation, preventive maintenance and repair of split type air conditioning systems.

VEM 212 National Electrical Code (3)

Prerequisites: MS 104, ESL 050/SS100 or concurrently

This course is designed to introduce students to the National Electrical Code. The students will develop the skills in using the code to find specific articles related to the correct methods of installing wiring and equipment. The course aims at developing work practices that comply with the National Electrical Code.

VEM 240 Industrial Wiring (3)

Prerequisites: VEM 104 and VEE 266

This course is designed to introduce students to the fundamental concepts, principles, and devices involved in industrial control of motors. Students will also develop the skills necessary for wiring basic motor control and selecting the required pilot devices and safety components. Also includes troubleshooting motor circuitry and understanding Article 430 of NEC. To advance to the next level, the student must demonstrate proficiency to at least "C" grade level.

VSM 101 Introduction Small Engine Repair (4)

Prerequisite: Admission

This is an introductory course to small engine repair. It covers in-depth topics of safety in the workshop; use and application of hand tools, workshop equipment and materials, special tools, and theory and operation of small engines.

VSM 102 Fuel, Lubrication, Carburetor, and Ignition (4)

Prerequisite: VSM 101 or concurrently

This course introduces students to the basic design, function and operation of the small engine's fuel, lubrication, carburetor and ignition systems. Cover topics on maintenance, diagnosis, and service of these associated systems.

VSM 103 Engine Dismantling, Inspection, and Assembly (4)

Prerequisite: VSM 102 or Concurrently

This course deals with the basics of how engine speed is governed, preliminary checks prior to engine dismantling, carrying out failure analysis, engine disassembly and inspection, teardown steps and engine repair and replacement.

VSM 104 Starters, Engine Maintenance, and Troubleshooting (4)

Prerequisite VSM 103 or Concurrently

This course is designed to provide the student knowledge and skills in engine disassembly and reassembly; engine specifications and tolerances; diagnosing major engine failure.

VSP 121 Industrial Safety Electrical/Electronic (1.5)

This course is designed to introduce the students to safe working practices in the Electrical and Electronic Industries. The emphasis is on the safety measures that must be taken in the Industry, particularly when working with activated equipment. The course will make the students aware of the dangers and increase their awareness on the prevention of industrial accidents.

VSP 153a Industrial Safety (1.5)

This course is designed to make the trainees aware of basic safety practices and encourage them to develop safe personal working habits. The aim is the prevention of accidents that result in personal injuries, damage to facilities and/or equipment. Reference is made to various legislation relevant to safety practices.

VSP 153b Industrial Safety (1.5)

This course will focus on the need for trainees to have sound knowledge about chemical, biological and physical hazards and how to avoid injury. It is designed to ensure that the trainee is aware of his/her obligation in the workplace that includes correct reporting procedures and the proper use of safety equipment.

VTE 260 Microwave (3)

Prerequisite: VEE 240

This course introduces the student to Microwaves and Microwave systems. The student will analyze Microwave Transmitters, Receivers, Waveguide Theory, Antennas, Cavity Resonators and Tube Microwave devices and semiconductor microwave devices.

VTE 261 (4) Fiber optics Installation

Prerequisite Course(s): VEE 103 and VEE 104 or VEM 103 and VEM 104

This course is designed to teach students how to safely and properly splice, terminate, and test fiber optics cables. Students will be using the latest technology to troubleshoot and repair fiber optics cables. Coursework will include the use of mechanical and fusion splicing, termination techniques on various types of fiber optic end connectors, the use of the Optical Time Domain Reflectometer (OTDR) to troubleshoot fiber optics cables, and the use of light source & power meter.

VTE 265 Fiber Optics (3)

Prerequisite: VEE 240

This course explores the development of fiber optic technology, explains the theory of light propagation and discusses the advantages and limitations of fiber optic technology. In addition fiber optic components, signal transmission, connections and fiber optic system trouble shooting will also be studied.

VTE 270 Telecommunication Systems (3)

Prerequisite: VEE 230

Students will be familiarized with the various types of telecommunication systems used in the industry. These include the basic elements in a telecom system, transmission medium types, common switching operations, types of broadcast systems, spread spectrum modulation, computer network (wired and wireless), and the operating principles of satellite systems.

VTE 280 Telephone Systems (3)

Prerequisite: VEE 240

This course is designed to introduce students to basic telephone systems and the operation of telephone equipment. It will further focus its study on cellular telephone systems. Students will be introduced to the basic elements, circuits, and techniques of cellular telephone communication systems.

VTM 101 Introduction to Motor Vehicle Mechanics (4)

Prerequisite: By admission

Cover safe working habits in the automotive repair industry, manual handling and mechanical lifting, the use of shop equipment and tools, measuring and identifying fastener types, use of sealants and adhesives, bench fitting, and four stroke cycle operation.

VTM 102 Fuel, Cooling, & Standard Power Train Systems (4)

Prerequisite Course(s): VTM 101 Before or concurrently.

This course covers the design, function and operation of automotive fuel systems, engine cooling, manual transmission, transaxle, and final drive that includes diagnosis, service, and maintenance.

VTM 103 Ignition, Electrical, and Transmission systems (4)

Prerequisite Course(s): VTM 102 or concurrently

Deals with fundamentals of automotive electricity, conventional / electronic ignition, and basic automatic transmission. Cover diagnosis, maintenance, and service of automotive battery, charging, starting, and lighting circuits. Include operation and maintenance of automatic transmission and transaxles.

VTM 104 Brakes, Steering, Suspension, and Wheel Alignment (4)

The course covers operation and repair of drum/disc type brake systems, theory and operation of automotive suspension and steering systems including wheel problem diagnosis, component repair, and wheel alignment procedures

VTM 150 Cooperation Education (6)

Prerequisite Course(s): **Completion of VTM 101, VTM 102, VTM 103, and VTM 104 with a grade of "C" or better.**

This is a semester long course designed to introduce students to all facets of motor vehicle repair and maintenance setting through internship. The course will place the student in the work place to experience working in a real life scenario. Students will be expected to seek internships and fulfill 180 hours of On-The-Job-Training (OJT) before the semester ends. Application of knowledge acquired from lecture and lab instruction to gain relevant practical on-the-job experience to repair vehicle in an actual automotive service facility. The apprentice will be supervised by an experienced service individual within the sponsoring business who will work with the automotive program coordinator in evaluating student progress, performance and grading. Internship is required to complete certificate program requirements.

VWE 115 General Welding (4)

Prerequisite: VSP 121 or VSP 153a or Concurrently

This is an introductory course to welding. This course is designed to introduce students to two types of welding, Oxyacetylene Welding & Cutting and Arc Welding. Coursework includes safety, theory, and practical exercises.