

Cornwall Campus
Level 1 Program Name / Description
<p><b>Welding</b></p> <p><b>Start date: Mid-October; 6- to 10-week block</b></p> <p>Credits Earned:</p> <ul style="list-style-type: none"> <li>• MTCU LEVEL 1 APPRENTICESHIP – CODE: 456A</li> <li>• 3 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TLA4Y</li> <li>• 7 COLLEGE CREDITS – TOTAL OF 290 HOURS</li> </ul> <p><b>WELD 1111 – TRADE PRACTICES (30 hours):</b> This course focuses on safe material handling, workplace hazards, and various pieces of legislation governing working conditions in the welding and fabrication trade. Students are also introduced to measuring, hand, and power tools and to the basic arithmetic, calculations and systems of measurement routinely used in the workplace.</p> <p><b>WELD 1112 – APPLIED BLUEPRINT READING (40 hours):</b> This course content addresses basic drawing, sketching, and drafting and introduces layout and fitting in the welding and fabrication trade. Joint types, welding positions, and welding symbols are discussed and applied.</p> <p><b>WELD 1113 – WELDING THEORY (40 hours):</b> This course focuses on safe material handling, workplace hazards, and various pieces of legislation governing working conditions in the welding and fabrication trade. Students are also introduced to measuring, hand and power tools, and to the basic arithmetic, calculations, and systems of measurement routinely used in the workplace.</p> <p><b>WELD 1114 – MATERIALS AND PROCESS QUALITY (30 hours):</b> This course content introduces students to distortion, metallurgy, inspection and testing, and weld quality. The fundamental causes of distortion and the inherent effects and corrective measures are discussed. Students are also introduced to the characteristics of metals and alloys and the effects of welding heat. Destructive and non-destructive testing methods are reviewed, and weld quality, welding discontinuity, and welding procedures are explained.</p> <p><b>WELD 1115 – SHEILDED METAL ARC WELDING PRACTICAL I (70 hours):</b> In this shop course, students safely demonstrate the equipment set-up and the processes for fillet and groove welding of mild steel using the Shielded Metal Arc Welding (SMAW) process. Post-weld operations are performed as are routine and required equipment maintenance procedures.</p> <p><b>WELD 1116 – GAS SHIELDED SEMI-AUTOMATIC WELDING PRACTICAL I (50 hours):</b> In this shop course, students safely demonstrate the equipment set-up, selection of consumables, and the processes for fillet and groove welding of mild steel using the Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW) processes. Post-weld operations are performed as are routine and required equipment maintenance procedures.</p> <p><b>WELD 1117 - THERMAL CUTTING (30 hours):</b> This In this course, students set up and operate manual oxy-fuel cutting equipment, plasma arc cutting equipment and air carbon arc gouging equipment in accordance with government safety regulations. Course content highlights safety-related concepts, equipment features and maintenance, cutting processes, and the correction of common cutting faults.</p>

**Cornwall Campus**

**Level 1 Program Name / Description**

**Automotive Service Technician**

**Start date: Mid-October; 8-week block**

Credits Earned:

- MTCU LEVEL 1 APPRENTICESHIP – CODE: 310S
- 2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TTE4Y
- 5 COLLEGE CREDITS – TOTAL OF 256 HOURS

**MOTO 101 WORK PRACTICES (40 hours):** This course provides students with an introduction to shop safety including the use of hand tools, power tools, and hoists and other lift equipment. Additionally, course content focuses on bearings, seals and sealants, precision measuring tools, oxy-acetylene welding and cutting and the use of computers for accessing trade-related information.

**MOTO 102 – ENGINE SYSTEMS 1 (40 hours):** Course content focuses on engine fundamentals and the operating characteristics of the internal combustion engine and students are introduced to engine disassembly and reassembly and related manufacturing standards. Cylinder block assembly and applications are covered with students performing inspection and testing procedures. Additionally, crankshaft assemblies are discussed in relation to engine performance.

**MOTO 103 – ELECTRICAL, ELECTRONICS & EMISSIONS SYSTEMS 1 (96 hours):** This course introduces the student to electrical, electronic, electromagnetic, and fuel system fundamentals. Course content focuses on diagnostic test equipment, the operation, inspection, and testing of batteries, wiring schematics and component identification, and circuit repair and protection devices. Intake and exhaust, emission control and hybrid systems are discussed.

**MOTO 104 – DRIVE TRAIN SYSTEMS (40 hours):** Clutch assemblies and basic gear theory are introduced in this course. The fundamentals and operation of manual transmissions and transaxles and their inspection, testing, service and repair are covered.

**MOTO 105 – SUSPENSION, STEERING AND BRAKESYSTEMS 1 (40 hours):** This first course of three on suspension, steering, and brakes provides students with an introduction to suspension assemblies and their components, manual steering and linkage assemblies, and base brake system components and operation. Additionally, students are provided with the fundamentals of tire and wheel repair and servicing according to manufacturers' recommendations. Air brake adjustment and air brake chamber safety are also covered.

**Cornwall Campus**

**Level 1 Program Name / Description**

**General Carpentry**

**Start date: Mid-October; 8-week block**

Credits Earned:

- MTCU LEVEL 1 APPRENTICESHIP – CODE: 403A
- 2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TSA4Y
- 4 COLLEGE CREDITS – TOTAL OF 240 HOURS

**CARP 150 SAFETY, MATERIAL, and TOOLS (72 hours + 96 shop hours):** This course provides an introduction to the field of carpentry. Course content outlines the evolution and regulation of the trade and examines health hazards, safety risks and PPE (personal protective equipment). Access equipment including ladders and scaffolding is covered in detail as are rigging and hoisting. The application of materials in residential and commercial construction including wood and wood products is discussed. Joints, fasteners, and the selection, use, and maintenance of hand and power tools are explored.

**CARP 151 PLAN, SPECIFICATION AND CODES (24 hours):** This course defines the working relationships between the stakeholders involved in the construction process including owners, architects, engineers, contractors, subcontractors, and controlling authorities. Course content also introduces different types of plans and drawings and their interpretation as well as freehand sketching.

**CARP 152 ESTIMATING, CALCULATIONS AND LAYOUT I (32 hours):** This course focuses on the use of trade calculations to solve problems and explores basic geometric procedures.

**CARP 153 WELDING FOR GENERAL CARPENTRY APPRENTICES (16 hours):** This course provides students with an introduction to oxy-acetylene cutting and the shielded metal arc welding (SMAW) process for non-structural components. Related safety practices and general operating principles are emphasized.

**Kingston Campus**

**Level 1 Program Name / Description**

**Cook**

**Start date: Beginning September; Day release delivery**

**CREDITS EARNED:**

- **MTCU LEVEL 1 APPRENTICESHIP – CODE: 415A**
- **3 SECONDARY SCHOOL MINISTRY DUAL CREDITS – CODE: TKA4Y**
- **7 COLLEGE CREDITS – TOTAL OF 360 HOURS**

**Fall Semester**

**CHEF 103 Nutrition**

This course provides the student with basic knowledge of nutritional principles and how these are applied to all aspects of food production, healthy eating, and how food is utilized by the body. Students learn about the Canadian Food Guide and various dietary guidelines that are used when developing recipes, menus, portion sizes, and promoting healthy eating choices.

**CHEF 104 Culinary Techniques 1**

In this practical lab course, students develop foundational culinary techniques in a production kitchen. Students demonstrate the ability to plan, prepare, and present menu items. Students learn to follow technical instructions, develop knife skills, and practice classical cooking methods and techniques in food preparation.

**CHEF 105 Food Science 1**

This course introduces students to the theories, science, and foods involved in the fundamentals of classical French cuisine and culinary techniques as they pertain to the professional modern food service industry. Students learn cooking methods and the wide range of ingredients used in the operation of a professional kitchen and the foundational principles of bakeshop production.

**CHEF 106 Baking 1: Foundations of Baking**

This course provides students with an introduction to the theory, science, and application of fundamentals techniques in the professional bakeshop. Students apply the knowledge of how various ingredients interact and develop the skills required to prepare yeast products, quick bread, pies, pastries, cookies, custards, and sweet/savory fillings.

**CHEF 108 Kitchen Management 1**

This course provides an overview of the operational guidelines for a professional food service operation in a variety of subsections of the industry. It also assists students to explore the possible career paths within the various styles of operations in the industry. The course emphasizes the need for teamwork, communication strategies, and the physical/mental/organizational demands of the professional kitchen. Students acquire the skills required to provide a safe, healthy, and well-maintained kitchen environment using the principles of the Hazard Analysis of Critical Control Point System (HACCP).

**Kingston Campus**

**Level 1 Program Name / Description**

**Winter Semester**

**CHEF 203 Food Science 2**

This course builds upon the theories and science involved in the fundamentals of classical and modern food cookery as it pertains to the professional kitchen. Students demonstrate a working knowledge of food theory and how it is applied in culinary labs. The science of sauces and sauce making, both classical and modern, comprehensive meat, poultry, seafood fabrication, and vegetable theory are the focus of this course.

**CHEF 204 Culinary Techniques 2**

This course focuses on the development of skills and professional confidence in the preparation and delivery of menu courses served to the public. Students apply foundational and intermediate preparation methods including the selection and use of appropriate cooking/baking techniques, ingredients, mise en place, and garnishes. Working in a modern brigade system, students develop practical team and interpersonal skills. Students perform a wide range of cooking techniques in the operation of lunch service in the college dining room.

**CHEF 208 Kitchen Management 2**

In this course, students are introduced to environmental sustainability, cost control techniques, and legal aspects of food operations. Students become familiar with managing human resources, materials, and supplies and with the applicable laws/regulations that cover the industry sector such as the Canadian Food Inspection Agency (CFIA), Health Boards, and the Liquor Control Board of Ontario (LCBO) and the Alcohol and Gaming Commission of Ontario (AGCO).

**Kingston Campus**

**Level 1 Program Name / Description**

**Industrial Mechanic Millwright**

**Start date: Beginning September; Day release delivery**

**Credits Earned:**

- **MTCU LEVEL 1 APPRENTICESHIP – CODE: 433A**
- **2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TRC4Y**
- **5 COLLEGE CREDITS – TOTAL OF 240 HOURS**

**MILL 36 - MAINTENANCE PRACTICE BASIC:** This course allows the student to apply the practical application of maintenance functions as they apply to machinery and plant equipment (i.e., equipment inspection and lubrication, installation of new equipment and alterations to existing equipment and repairing of primary and secondary machinery).

**MILL 39 - MAINTENANCE THEORY BASIC:** The student will develop an academic skill that is related to the maintenance functions of industry in order that skilled assessments can be made of the needs to properly maintain the physical plant and related services.

**MILL 33 - TRADE CALCULATIONS BASIC:** The student will perform the basic trade calculations and demonstrate and apply the theory of torque and the use of simple hand calculations.

**MILL 30 - OXYACETYLENE WELDING:** The student will be able upon completion of the course to identify oxyacetylene welding equipment and accessories, describe various oxyacetylene processes, weld mild steel in a flat position using oxyacetylene with filler rod making clean uniform welds and cut mild steel stock using same equipment resulting in a clean uniform cut.

**MILL 42 - BLUEPRINT READING:** The student will learn to read basic blueprints, drawings, and free hand sketches, make elementary drawings, complete an assigned work project, and use drawing instruments for orthographic and isometric projections, etc.

**Kingston Campus**

**Level 1 Program Name / Description**

**General Carpentry**

**Start date: Mid-October; 8-week block**

Credits Earned:

- MTCU LEVEL 1 APPRENTICESHIP – CODE: 403A
- 2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TSA4Y
- 4 COLLEGE CREDITS – TOTAL OF 240 HOURS

**CARP 150 SAFETY, MATERIAL, and TOOLS (72 hours + 96 shop hours):** This course introduces the field of carpentry. Course content outlines the evolution and regulation of the trade and examines health hazards, safety risks and PPE (personal protective equipment). Access equipment including ladders and scaffolding is covered in detail as are rigging and hoisting. The application of materials in residential and commercial construction including wood and wood products is discussed. Joints, fasteners, and the selection, use, and maintenance of hand and power tools are explored.

**CARP 151 PLAN, SPECIFICATION AND CODES (24 hours):** This course defines the working relationships between the stakeholders involved in the construction process including owners, architects, engineers, contractors, subcontractors, and controlling authorities. Course content also introduces different types of plans and drawings and their interpretation as well as freehand sketching.

**CARP 152 ESTIMATING, CALCULATIONS AND LAYOUT I (32 hours):** This course focuses on the use of trade calculations to solve problems and explores basic geometric procedures.

**CARP 153 WELDING FOR GENERAL CARPENTRY APPRENTICES (16 hours):** This course provides students with an introduction to oxyacetylene cutting and the shielded metal arc welding (SMAW) process for non-structural components. Related safety practices and general operating principles are emphasized.

**Kingston Campus**

**Level 1 Program Name / Description**

**Plumbing**

**Start date: Mid-October; 8-week block**

**Credits Earned:**

- **MTCU LEVEL 1 APPRENTICESHIP – CODE: 306A**
- **2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TSB4Y**
- **5 COLLEGE CREDITS – TOTAL OF 240 HOURS**

**PLUM1 - PLUMBING THEORY:** At each level these objectives will provide the apprentice with the essential theoretical knowledge and skills to complement their practical on-the-job training with the employer. Topics covered in the basic theory include valves, building drainage, venting, plumbing codes and stacks and wastes.

**PLUM2 - PLUMBING SHOP:** This course will help develop the apprentice to a high standard of craftsmanship and problem-solving skills with particular emphasis at the Basic level on the installation of steel, cast iron and plastic piping and rough-in procedures involving drains, vents and water lines.

**PLUM3 - WELDING FOR PLUMBING APPRENTICES:** This basic course will introduce the student to the fundamentals of torch welding and the cutting of mild steel. Topics covered will include: safety procedures; correct use of equipment; oxyacetylene cutting and welding mild steel. The course heavily emphasizes hands-on techniques.

**PLUM80 - MATHEMATICS FOR PLUMBING APPRENTICES:** This course will allow the trades student to solve trade related problems involving linear measurement, area of surface, and volume of space in both metric and imperial measure. The student will also develop skills in the application of basic principles of geometry.

**PLUM1003 - BLUEPRINT READING FOR PLUMBERS:** This course introduces the apprentice to the skills required to read and interpret mechanical blueprints. The student will learn to prepare sketches and understand the different types of drawings, views, notes, and title blocks as applied to a residential site.



**Kingston Campus**

**Level 1 Program Name / Description**

**Brick & Stone**

**Start date: Beginning February; 8-week block**

**CREDITS EARNED:**

- MTCU LEVEL 1 APPRENTICESHIP – CODE: 401A
- 2 SECONDARY SCHOOL MINISTRY DUAL CREDITS – CODE: TSZ4Y
- 5 COLLEGE CREDITS – TOTAL OF 240 HOURS

**MASN 110 - Tools and Equipment 1**

The successful completion of this course enables the apprentice to apply the theoretical training in being able to explain and demonstrate the use and maintenance of hand tools and equipment according to manufacturer/employer direction and accepted trade practice, explain and demonstrate the use of power tools and equipment according to manufacturer and accepted trade practice and use and maintain measuring and layout tools according to manufacturer instructions and accepted trade practice.

**MASN 111 – Materials and Safety Equipment**

This course provides the student with the information required for the safe use of scaffolds, personal protection devices, and the Ontario Construction Safety Association's safety in rigging program. Students will study the *Occupational Health and Safety Act* of Ontario and the requirements of the workplace.

**MASN 112– Engineering, Building, and Safety Code 1**

Upon successful completion, the apprentice is able to demonstrate how to interpret architectural drawings, specifications, schedules, contract documents, building codes, CSA masonry standards, safety codes; solve trade-related math problems, and estimate materials for masonry jobs to an acceptable standard within the masonry industry.

**MASN 113 – Worksite Preparation**

The successful completion of this course enables the apprentice to apply the theoretical training in being able to explain how to prepare a worksite so that the worksite is organized and safe to work according to employers and safety regulations. The apprentice will be able to set up a worksite and demonstrate worksite communications correctly.

**MASN 114 – Acclimatize Worksite**

Upon successful completion, the apprentice is able to demonstrate how to acclimatize a worksite to suit various weather conditions according to safety regulations, building codes, and CSA A371.

**MASN 115 – Clean and Disassemble Worksite**

Upon successful completion, the apprentice is able to demonstrate how to clean and disassemble a worksite in accordance with safety regulations and accepted work practices.

**MASN 116 – Wall Systems Accessories 1**

The successful completion of this course enables the apprentice to explain details about wall system accessories and also how to install according to code and other common standards.

**MASN 117- Mortar 1**

Upon successful completion, the apprentice is able to demonstrate how to select, prepare, and apply mortar according to building codes, manufacturer instructions, and building specifications.

**MASN 118 – Masonry Unit Preparation 1**

Upon successful completion, the apprentice is able to explain the use of masonry units and how to prepare them for installation according to manufacturers' recommendations, contract documents, and accepted trade practices.

**MASN 119 – Job Layout 1**

The successful completion of this course enables the apprentice to apply the theoretical training in being able to locate reference line (building line) on-site according to blueprints and other available reference points and codes layout wall or surface lines and heights according to blueprints, gridlines, and benchmarks, locate, match and select masonry units from contract documents or find the unit customer ordered, layout masonry walls or floors, spacing units correctly and in the right bond to the right gauge according to building codes, CSA standards, contract documents, and accepted work practices and layout openings, utilities, accessories and expansion/control joints according to building codes, CSA standards and accepted masonry practice.

**MASN 120 – Structural Masonry 1**

The successful completion of this course enables the apprentice to apply the theoretical training in being able to build a foundation and retaining walls in a timely and orderly manner according to building codes, standards, contract documents, blueprints, and accepted work practice, build walls, beams, lintels and piers in a timely and orderly manner according to building codes, standards (CSA A371), contract documents, blueprints and accepted work practice, build arches, vaults and domes in a timely and orderly manner according to building codes, contract documents, and blueprints as well as accepted work practice.

**MASN 121 – Non-Structural Masonry 1**

The successful completion of this course enables the apprentice to apply the theoretical training in being able to install the following in a timely and orderly manner according to building codes, contract documents, blueprints, and accepted trade practice:

- install stone cladding
- build prefabricated masonry units
- parge masonry
- install unit masonry pavers

**Kingston Campus**

**Level 1 Program Name / Description**

**Electrical**

**Start date: Mid-March, 2023; 8-week block**

**Credits Earned:**

- MTCU LEVEL 1 APPRENTICESHIP – CODE: 309A
- 2 HIGH SCHOOL MINISTRY DUAL CREDITS – CODE: TNA4Y
- 5 COLLEGE CREDITS – TOTAL OF 240 HOURS

**ELEC 101 Canadian Electrical Code:** The student will be able to apply the requirements of the Canadian Electrical Code - Part 1 (CEC) to identify and interpret the general requirements of the CEC; identify and interpret the CEC requirements for conductor ampacity including free air, above and underground installations, grounding and bonding, wiring methods, class 1 and 2 circuits, receptacles and lighting in residential occupancies, single-dwelling and dwelling units, pools, tubs and spas, and temporary installations; and be able to calculate the service requirements for a residential occupancy, single-dwelling and row housing.

**ELEC 102 Prints:** The student will be able to identify and interpret the alphanumeric lines; use the metric and imperial scales and be able to convert between them; obtain information from architectural, structural, and mechanical drawings, specifications, building code, and CEC to complete an electrical installation for a single-dwelling; draw and label a panel schematic for a single-dwelling; complete a material take-off for a single-dwelling.

**ELEC 103 – Electrical Theory:** The student will be able to identify and interpret the alpha numerical lines; use the metric and imperial scales and be able to convert between them; obtain information from architectural, structural and mechanical drawings, specifications, building code and CEC to complete an electrical installation for a single-dwelling; draw and label a panel schematic for a single-dwelling; and complete a material take-off for a single-dwelling.

**ELEC 104 – Installation Methods:** The student will be able to demonstrate the operation of common hand and power tools; install common switching devices, outlets and enclosures; correctly terminate conductors; demonstrate the installation procedures for non-metallic sheathed cable, armoured cable, mineral insulated cable, rigid conduits, flexible conduits, liquid-tight conduit, electrical metallic tubing, and electrical non-metallic tubing, including supports and tools required; install a 100 amp. residential consumer's service and associated branch circuits; layout a service mast installation; install door, signal and extra-low voltage lighting devices; identify and terminate copper communication and hard-wired cables.

**ELEC 105 – Instrumentation:** The student will be able to explain common terms used in instrumentation systems; work with the SI and Imperial system of measurement for pressure and temperature; convert between the four temperature scales; describe the operation, applications and limitations of thermocouples, thermistors, and RTD's; install, connect and test thermocouples, thermistors and RTD's; identify deformation elements of pressure measuring equipment; determine the

accuracy of pressure measuring equipment; explain relationships between gauge and absolute pressure, and vacuum; explain the operation, construction and applications of typical industrial pressure sensors; identify ISA instrumentation symbols and draw basic process (P) and Instrumentation (I) diagrams for pressure and temperature devices; explain the operation of light and sound meters.

**ELEC 106– Electronics:** The student will be able to identify schematic symbols for North American and European basic logic gates; describe the operation of basic logic gates; use basic logic gates to create digital logic circuits; state Boolean equations for simple logic gates; design and test combination logic circuits; describe the voltage requirements for TTL and CMOS logic circuits; demonstrate the use of R.S. and D type flip-flop; use a logic probe to troubleshoot a digital circuit; demonstrate procedures for soldering and de-soldering; state the standard resistor colour code; connect resistors in series, parallel and combination circuits; describe the properties of N and P type semiconductor materials; explain current, voltage and biasing requirements for silicon and germanium diodes and LED's; demonstrate the operation of a bipolar diode; identify the symbols for and describe the operation and biasing for NPN and PNP Bipolar transistors; demonstrate how a transistor can be used as a switch; demonstrate the common applications for an opto-coupler.