

COURSE FAB1050: BASIC ELECTRIC WELDING**Level:** Introductory**Theme:** Fabrication Processes**Prerequisite:** FAB1010 Fabrication Tools & Materials**Description:** Students develop basic skills related to safe use and operation of one or more common electric welding processes.**Parameters:** Access to a materials work centre complete with electric welding equipment and fabrication facilities, and to instruction from an individual with formal specialized training in basic gas metal and/or shielded metal arc welding.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> recognize health and safety hazards associated with electric welding processes, and preventive measures to avoid accidents and personal injury to self and others perform safe gas metal and/or shielded metal arc welding start-up and shut-down procedures 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance in a typical work setting, related to: <ul style="list-style-type: none"> appropriate selection and use of personal protective equipment maintenance of a clean and tidy workstation safe use of equipment and materials. <p><i>Assessment Tool</i> <i>Fabrication Process: Electric Welding, FAB1050-1</i></p> <p><i>Standard</i> <i>Performance rating of 1 for each applicable task</i></p>	10
	<ul style="list-style-type: none"> demonstration of consistent safe start-up and shut-down procedures using Shielded Metal Arc Welding (SMAW) and/or Gas Metal Arc Welding (GMAW) equipment. <p><i>Assessment Tool</i> <i>Equipment Checklist: GMAW Start-up and Shut-down Procedures, FABEQUIP-6</i></p> <p><i>Standard</i> <i>All procedures to be performed correctly</i></p>	20

COURSE FAB1050: BASIC ELECTRIC WELDING (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Electric Welding (continued) • Weld Joints Position and Types • Health and Safety • Fire Prevention 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain the purpose of the electrode coating and/or shielding gas in their respective processes • identify the essential components and accessories used in gas metal and/or shielded metal arc welding • identify typical weld types; e.g.: <ul style="list-style-type: none"> – fillet – groove – plug or slot – stud • identify typical weld positions; e.g.: <ul style="list-style-type: none"> – flat – horizontal – vertical – overhead • list and describe the basic weld joint; e.g.: <ul style="list-style-type: none"> – butt – lap – tee – corner – edge • describe the hazards associated with gas metal and shielded metal arc welding • demonstrate how personal protective equipment is used to protect eyes, skin and respiratory system • describe a safety plan in case of an accident • describe the need to remove or protect all combustible materials in the welding area • identify and locate the appropriate fire extinguisher and fire blanket. 	<p>Have the students understand the need to protect the weld from atmospheric contamination.</p> <p>Demonstrate appropriate methods to set up equipment and strike an arc.</p> <p>As part of an ongoing expectation, students should be able to describe a plan of action in the event of a fire or accident.</p>

COURSE FAB1050: BASIC ELECTRIC WELDING (continued)

Concept	Specific Outcomes	Notes
<p>Planning and Management</p> <ul style="list-style-type: none"> • Weld Specifications • Weld Preparation 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe from a weld specification the: <ul style="list-style-type: none"> – type of equipment to be used – size and type of electrode/wire – weld settings – type of weld, joint and weld position – weld dimensions • prepare weld surfaces by removing any: <ul style="list-style-type: none"> – oil and/or grease – paint, rust or scale • describe the start-up and shut-down procedures for a given piece of equipment • locate all pertinent safety equipment and clamping apparatus. 	<p>For students just beginning to arc weld E6013 and/or E7014 electrodes are recommended.</p>
<p>Implementation</p> <ul style="list-style-type: none"> • Electric Welding 	<ul style="list-style-type: none"> • demonstrate basic skills in: <ul style="list-style-type: none"> – selecting equipment and accessories – setting machine parameters – connecting work leads – striking an arc using a tapping and scratching technique – running a stringer and weave bead – performing fillet welds in the flat position using SMAW, GMAW and FCAW processes. 	<p>It is understood that students will require practice time to develop their skills using coupons and scrap material. However, as much as is possible, students should be allowed to develop these skills by fabricating simple products.</p>
<p>Assessment</p> <ul style="list-style-type: none"> • Quality Control • Career Information • Career Preparation 	<ul style="list-style-type: none"> • complete a visual inspection of a weld by considering the overall appearance, size and shape of the bead • research and describe examples of personal and trade-specific application of electric welding • prepare a record of completed activities within a portfolio. 	