

COURSE FAB3050: ARC WELDING 3**Level:** Advanced**Theme:** Fabrication Processes**Prerequisite:** FAB2060 Arc Welding 2**Description:** Students learn the role of codes and standards in the welding trade, as well as test welds and develop vertical position welding skills.**Parameters:** Access to a welding facility complete with shielded metal arc welding equipment and supplies and to instruction from an individual with welding trade qualifications.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none"> examine and maintain sheet metal arc welding (SMAW) equipment and accessories read and interpret weld drawings and symbols demonstrate advanced level SMAW competencies in the vertical position 	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none"> observed performance related to the examination and maintenance of personal protective equipment, welding accessories and equipment 	15
	<ul style="list-style-type: none"> accurate reading of a welding symbol that graphically represents three details such as the type of weld, its location and process 	15
	<ul style="list-style-type: none"> completion of two successive single and multiple pass fillet vee-groove and outside corner welds in the vertical position on mild steel plate. <p><i>Assessment Tool</i> <i>Fabrication Process: Vertical Lap and Tee Joints, FAB3050-1</i> <i>Illustrative Example: Vertical Outside Corner – Multi-pass, FAB3050-2</i></p> <p><i>Standard</i> <i>Welds are to be the correct width and height, free of voids, slag inclusions and apparent restarts, undercutting or overlapping; plate surfaces and adjacent beads have adequate penetration and fusion.</i> <i>Performance rating of 3 for each applicable task</i></p>	70

COURSE FAB3050: ARC WELDING 3 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Orientation</p> <ul style="list-style-type: none"> Welding Codes, Standards and Specifications Welding Symbols 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> explain the purpose of welding: <ul style="list-style-type: none"> codes standards specifications identify agencies that establish codes and standards in Canada and the United States; e.g.: <ul style="list-style-type: none"> Canadian Standards Association (CSA) American Welding Society (AWS) Canadian Welding Bureau (CWB) American Society of Mechanical Engineers explain the purpose of a weld symbol identify the basic data included in a welding symbol show how a welding symbol can be used to specify: <ul style="list-style-type: none"> location of a weld type of weld welding process root opening contour degree of penetration type of electrode 	<p>Stress the importance of safety and weld quality and explain how codes and standards help achieve this end.</p> <p>Point out that a welding symbol can communicate a great deal of information in a small space and therefore must be fully understood.</p>

COURSE FAB3050: ARC WELDING 3 (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Testing 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • analyze common destructive and non-destructive testing methods. 	
<p>Planning and Management</p> <ul style="list-style-type: none"> • Care and Maintenance of Equipment • Print Reading 	<ul style="list-style-type: none"> • before beginning to weld: <ul style="list-style-type: none"> – analyze the condition of cables and lugs – insure adequate air flow for proper cooling – check the condition of all personal protective equipment • use a welding symbol to determine: <ul style="list-style-type: none"> – location of a weld – type of weld – root opening – type of electrode. 	<p>This course has a strong link to FAB2020: Print Reading.</p>
<p>Implementation</p> <ul style="list-style-type: none"> • Shielded Metal Arc Welding 	<ul style="list-style-type: none"> • use the appropriate equipment and supplies to make single and multiple pass fillet and vee-groove welds in the vertical position. 	<p>E6010, E6011 and E7018 electrodes are recommended for this activity.</p>
<p>Assessment</p> <ul style="list-style-type: none"> • Quality Control • Career Preparation 	<ul style="list-style-type: none"> • perform one or more destructive and non-destructive tests on a weld sample • prepare a record of completed activities within a portfolio. 	

