

COURSE FAB3080: AUTOMATED WELDING**Level:** Advanced**Theme:** Fabrication Processes**Prerequisite:** FAB3170 Gas Metal Arc Welding 2**Description:** Students investigate and describe the operation of various manual, semi-automated and automated welding processes and systems used in fabrication industries.**Parameters:** Access to welding facility complete with welding equipment and supplies and to instruction from an individual with welding trade qualifications.**Supporting Courses:** FAB2030 Oxyfuel Welding
FAB2040 Thermal Cutting
FAB2060 Arc Welding 2**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"> explain how manual, semi-automated and automated welding processes differ from one another identify employment and further training opportunities related to production welding 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> the presentation of a written report that outlines the essential differences and similarities between manual, semi-automated and automated welding processes 	20
	<ul style="list-style-type: none"> presentation of an occupational profile that outlines the: <ul style="list-style-type: none"> description of the trade/occupation and working conditions employment opportunities training requirements and opportunities. <p><i>Assessment Tool</i> <i>Assessment Framework: Presentations/Reports, CTSPRE</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each applicable task</i></p>	20
<ul style="list-style-type: none"> apply knowledge of advanced welding processes to demonstrate/simulate an automated welding system 	<ul style="list-style-type: none"> demonstration of a working or simulated automated welding system. <p><i>Assessment Tool</i> <i>Assessment Framework: Activity Assessment, FABACT</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each applicable task</i></p>	60

COURSE FAB3080: AUTOMATED WELDING (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"> Health and Safety Production Processes Automated Welding and Cutting 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> identify the hazards associated with specific machine and automated processes describe methods that are commonly used to protect an individual from injury by an automated system such as a robot describe a safety plan in case of accident explain the difference between: <ul style="list-style-type: none"> manual semi-automated automated cutting and welding processes describe the specialized welding techniques that are suitable for semi-automated processes; e.g.: <ul style="list-style-type: none"> resistance welding GMAW GTAW plasma arc cutting laser beam welding and cutting research the use of robots in welding to determine their advantages and disadvantages identify the main types of robots and describe their work envelope identify the main parts of a robot and the components of a robotic welding system 	<p>Students will likely need to go off-campus to observe automated cutting and welding processes.</p>

COURSE FAB3080: AUTOMATED WELDING (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Automated Welding and Cutting (continued) 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the use of a teach pendant in programming a robot to perform the designated task. 	
<p>Implementation</p> <ul style="list-style-type: none"> • Application 	<ul style="list-style-type: none"> • demonstrate or simulate a viable production system using semi- and/or fully automated processes. 	
<p>Assessment</p> <ul style="list-style-type: none"> • Career Preparation 	<ul style="list-style-type: none"> • identify career opportunities related to the use of automated welding processes in industry • prepare a record of completed activities within a portfolio. 	

