

**COURSE FAB3110: SHEET FABRICATION 5 (DUCT COMPONENTS)****Level:** Advanced**Theme:** Fabrication Processes**Prerequisite:** FAB2100 Sheet Fabrication 3 (Parallel Line)**Description:** Students apply and develop specialized skills in duct component pattern making and fabrication techniques.**Parameters:** Access to a fabrication facility complete with sheet metal shearing, forming, fastening and layout tools and to instruction from an individual with specialized training in sheet metal practices.**Supporting Course:** FAB3090 Sheet Fabrication 4 (Radial Line)**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none"> <li>identify common duct components and applications</li> <li>demonstrate the principle of triangulation to create a transition pattern</li> <li>apply pattern making and sheet metal fabrication skills to create a duct component</li> </ul>	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none"> <li>accurate identification and description of:               <ul style="list-style-type: none"> <li>radius elbow</li> <li>riser</li> <li>offset</li> <li>branch tee</li> <li>take-off components</li> </ul> </li> <li>application of triangulation principles to produce a transition pattern</li> <li>successful completion of one or more interconnecting duct components.</li> </ul>	10
	<i>Assessment Tool</i> <i>Assessment Framework: Activity Assessment, FABACT</i>	25
	<i>Standard</i> <i>The components are to be structurally sound and air tight; surfaces are to be free of blemishes and hazards. Components should be constructed to meet stated sizes and tolerances</i> <i>Performance rating of 3 for each applicable task</i>	65

**COURSE FAB3110: SHEET FABRICATION 5 (DUCT COMPONENTS) (continued)**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <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"> <li>Ducting</li> </ul> <ul style="list-style-type: none"> <li>Fabrication Processes</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>prepare a list of duct system applications</li> <li>list and state the purpose of the following components used in a duct system:               <ul style="list-style-type: none"> <li>radius elbow</li> <li>riser</li> <li>offset</li> <li>branch tee</li> <li>take off</li> </ul> </li> <li>describe how air volume and pressures are measured</li> <li>analyze the effect of component resistance on static and velocity air pressures in a ducting system</li> <li>list and describe the use and construction of the following joints:               <ul style="list-style-type: none"> <li>S and drive</li> <li>T-lock</li> <li>hammerlock</li> <li>government locks</li> </ul> </li> <li>state the advantages and disadvantages of using each of the above systems</li> <li>differentiate among the use of parallel line, radial line and triangulation in pattern development.</li> </ul>	<p>Explain why it is important for duct components to be sized accurately.</p>

**COURSE FAB3110: SHEET FABRICATION 5 (DUCT COMPONENTS) (continued)**

Concept	Specific Outcomes	Notes
<p>Planning and Management</p> <ul style="list-style-type: none"> <li>• Pattern Development</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• calculate the material allowance for:                             <ul style="list-style-type: none"> <li>– S and drive</li> <li>– T-lock</li> <li>– hammerlock</li> </ul> </li> <li>• use triangulation to develop a pattern for an object whose sides are not parallel.</li> </ul>	<p>Students may require additional assistance and time to develop a pattern.</p>
<p>Implementation</p> <ul style="list-style-type: none"> <li>• Material Processing</li> </ul>	<ul style="list-style-type: none"> <li>• use the appropriate tools, materials and processes to fabricate specific components in a ducting system.</li> </ul>	<p>Consider one of the following components:</p> <ul style="list-style-type: none"> <li>– reducing elbow</li> <li>– square elbow</li> <li>– reducing offset</li> <li>– rectangular to round offset.</li> </ul>
<p>Assessment</p> <ul style="list-style-type: none"> <li>• Career Assessment</li> <li>• Career Preparation</li> </ul>	<ul style="list-style-type: none"> <li>• describe the trade qualifications and work opportunities related to sheet metal fabrication</li> <li>• prepare a record of completed activities within a portfolio.</li> </ul>	

