

COURSE FAB3090: SHEET FABRICATION 4 (RADIAL LINE)**Level:** Advanced**Theme:** Fabrication Processes**Prerequisite:** FAB2100 Sheet Fabrication 3 (Parallel Line)**Description:** Students develop specialized skills in cylindrical and conical pattern development and seam construction of ferrous and nonferrous sheet metals.**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.**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"> describe the procedures that are used to lay out a typical cylindrical and conical shape demonstrate parallel and radial line pattern making skills perform advanced cylindrical and conical sheet stock fabrication skills and processes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> accurate identification and description of parallel and radial line layout procedures 	10
	<ul style="list-style-type: none"> application parallel and radial line development processes to produce a cylindrical and conical pattern 	25
	<ul style="list-style-type: none"> successful completion of sheet metal products that incorporate cylindrical and conical shapes. <p><i>Assessment Tool</i> <i>Assessment Framework: Product Assessment, FABPRD</i></p> <p><i>Standard</i> <i>The products are to be structurally sound, free of surface blemishes and hazards; and conform to stated overall sizes, shapes and tolerances</i> <i>Performance rating of 3 for each applicable task</i></p>	65
	<ul style="list-style-type: none"> demonstrate basic competencies. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

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Concept	Specific Outcomes	Notes
<p>Orientation</p> <ul style="list-style-type: none"> • Ferrous and Nonferrous Stock • Fabrication Processes and Tools 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • research the properties of and applications of the following sheet materials: <ul style="list-style-type: none"> – aluminum – copper – brass – galvanized steel – mild steel – stainless steel – tin plate • describe which materials are most malleable • describe the techniques that are used to form sheet stock • describe the type of pattern development that is used to lay out a: <ul style="list-style-type: none"> – cylinder – cone – rectangle to round • explain when single, double, grooved and wired seams are used in conjunction with cylindrical and conical fabrication • identify and describe the use of the following solder coppers: <ul style="list-style-type: none"> – square point – bottoming – roofing. 	
<p>Planning and Management</p> <ul style="list-style-type: none"> • Measurement 	<ul style="list-style-type: none"> • use a micrometer caliper or sheet gauge to measure the thickness of a piece of sheet stock • calculate the inside, outside and mean diameter of a cylindrical component • identify the correct formula to calculate the allowances for seam and edges 	

COURSE FAB3090: SHEET FABRICATION 4 (RADIAL LINE) (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Product Design 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • select a product that incorporates: <ul style="list-style-type: none"> – cylindrical and conical shapes – grooved and double seams – solder joints and finished edges • select the appropriate material for a given product and finish • create the necessary pattern development, using a computer or conventional means. 	<p>Students may require additional assistance and time to create a conical pattern.</p> <p>Consider projects such as a:</p> <ul style="list-style-type: none"> – funnel – watering can – vase.
<p>Implementation</p> <ul style="list-style-type: none"> • Material Processing • Personal and Tool Safety 	<ul style="list-style-type: none"> • use the appropriate tools, materials and processes to: <ul style="list-style-type: none"> – cut and bend sheet stock – raise and finish a surface – locate and make joints watertight • wear personal protective clothing and equipment • show that tools are kept in working order • handle, store and discard metal off-cuts in a correct manner. 	
<p>Assessment</p> <ul style="list-style-type: none"> • Career Preparation 	<ul style="list-style-type: none"> • prepare a record of completed activities within a portfolio. 	

