

COURSE FAB1010: FABRICATION TOOLS & MATERIALS

Level:	Introductory
Theme:	Materials and Structures
Prerequisite:	None
Description:	Students develop knowledge and skills in the use of basic hand tools and materials used in fabrication processes, and safely transform common metals into useful products.

Parameters: Access to a materials work centre complete with basic hand tools.

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"> identify and describe the safe use of basic hand tools used in fabricating an artifact or structure identify and compare the properties of common ferrous and nonferrous metals used in fabrication processes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> the identification and description of 20 basic hand tools used in fabrication processes; basic hand tools to include two or more: <ul style="list-style-type: none"> – measurement and layout tools – cutting and boring tools – assembly and dismantling tools – abrading and sharpening tools. <p><i>Assessment Tool</i> <i>Presentations/Reports: Hand Tools, FAB1010–1</i> <i>Illustrative Example: Hand Tool Presentation, FAB1010–2</i></p> <p><i>Standard</i> <i>Correct identification and description of 16 basic hand tools</i> <i>Performance rating of 1 for each applicable task</i></p>	15
	<ul style="list-style-type: none"> a presentation or report that explains the properties, applications and different processes used in assembling/fastening: <ul style="list-style-type: none"> – low-, medium- and high-carbon steels – alloy steels – nonferrous metals and their alloys. <p><i>Assessment Tool</i> <i>Presentations/Reports: Material Identification, FAB1010–3</i></p> <p><i>Standard</i> <i>Performance rating of 1 for each applicable task</i></p>	15

COURSE FAB1010: FABRICATION TOOLS & MATERIALS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply fabrication processes and skills in a safe manner to produce a useful product • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstration of safe processes and skills to plan, fabricate, assemble and finish a useful product. <p><i>Assessment Tool</i> <i>Assessment Framework: Product Assessment, FABPRD</i></p> <p><i>Standard</i> <i>The product is made according to the prepared drawing and event sequence; tools and materials are used according to accepted safe practice</i> <i>Performance rating of 1 for each applicable task</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>70</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Orientation</p> <ul style="list-style-type: none"> • Tools and Equipment • Materials 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe basic hand tools that are used to measure, mark, hold, cut, form, fasten and finish materials • identify and describe basic tools and equipment used in one or more fabrication processes; e.g.: <ul style="list-style-type: none"> – welding – bar, tubular and sheet fabrication – foundry operations – machining • identify and compare the properties of a variety of ferrous and nonferrous metals used in fabrication processes • identify common shapes, sizes and forms of fabrication materials. 	<p>Introduce students to the safe use of manually operated and power assisted hand tools and equipment.</p> <p>Discuss reasons for choosing one metal over another for a given application.</p>

COURSE FAB1010: FABRICATION TOOLS & MATERIALS (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Health and Safety • Production Systems 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe appropriate methods to handle, recycle, store and dispose of materials • identify and demonstrate the appropriate use of personal protective equipment • identify steps to be taken in the event of an accident • outline the typical phases in a production system; e.g.: <ul style="list-style-type: none"> – planning – fabricating – assembling – finishing – evaluating. 	<p>Help students evaluate the short- and long-term impact of the choice of a material on the health of individuals and the environment.</p> <p>Compare those activities to the input, process, output and feedback mechanisms described in other technological systems.</p>
<p>Planning and Management</p> <ul style="list-style-type: none"> • Product Development 	<ul style="list-style-type: none"> • select or modify a plan for a simple product that will meet a defined need • identify and select the appropriate tools, materials and processes required to make the product • list the steps that are required to make a product in a safe and logical order. 	<p>Students are more highly motivated if they can choose and personalize a project.</p>
<p>Implementation</p> <ul style="list-style-type: none"> • Material Processing 	<ul style="list-style-type: none"> • develop basic fabrication skills by building, assembling and finishing a variety of products. 	
<p>Assessment</p> <ul style="list-style-type: none"> • Product Quality • Career Preparation 	<ul style="list-style-type: none"> • describe ways to improve product quality and productivity • create a record of completed activities within a portfolio. 	<p>Students should be encouraged to make reflective notes and keep a record of their completed work.</p>

