

**COURSE CON1140: TURNING OPERATIONS****Level:** Introductory**Theme:** Manufacturing Systems (Processes and Applications)**Prerequisite:** CON1010 Basic Tools & Materials**Description:** Students use wood-turning equipment and techniques to create a faceplate and spindle turning made from solid and/or built-up stock.**Parameters:** Access to a materials work centre, complete with basic hand and power tools, and to instruction from an individual with specialized training in the use of power tools.**Supporting Course:** CON1120 Project Management**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"> <li>operate, safely, a power wood lathe</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>demonstration of the safe set-up, use and shut-down procedures.</li> </ul> <p><i>Assessment Tool</i> <i>Equipment Checklist: Wood Lathe, CONEQUIP-3</i></p> <p><i>Standard</i> <i>All procedures are performed according to standard lathe practice and specific recommendations of the lathe manufacturer</i></p>	15
<ul style="list-style-type: none"> <li>apply drawing and transfer skills to prepare a full-size pattern or template</li> </ul>	<ul style="list-style-type: none"> <li>preparation of a full-size pattern or template.</li> </ul> <p><i>Standard</i> <i>The pattern and/or template is to be within <math>\pm 1</math> mm of the original plan or object</i> <i>Performance rating of 2 for each applicable task</i></p>	15
<ul style="list-style-type: none"> <li>produce a faceplate and spindle turning, using solid or built-up stock</li> </ul>	<ul style="list-style-type: none"> <li>demonstration of accepted material preparation and wood-turning skills.</li> </ul> <p><i>Assessment Tool</i> <i>Assessment Framework: Project Assessment, CONPRO</i></p> <p><i>Standard</i> <i>The turnings should be within <math>\pm 2</math> mm of the original drawing or free formed according to accepted design principles. The product should be free of major production defects (machining marks, gouges, burns and voids)</i> <i>Performance rating of 2 for each applicable task</i></p>	70

**MODULE CON1140: TURNING OPERATIONS** (continued)

Module Learner Expectations	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 Learner Expectations	Notes
<p>Orientation</p> <ul style="list-style-type: none"> <li>Health and Safety</li> <li>Materials</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>identify and demonstrate the safe use and operation of the wood lathe</li> <li>identify the common lathe chisels and accessories associated with wood turning</li> <li>describe recommended tools and accessories for faceplate and spindle turning</li> <li>identify and describe accepted work piece mounting and supporting techniques</li> <li>describe the turning characteristics of a number of common woods</li> <li>identify finishes and finishing procedures suitable for common turned products.</li> </ul>	<p>Discuss the need for properly maintained tools, dust control equipment and the use of personal protective equipment.</p>
<p>Planning and Management</p> <ul style="list-style-type: none"> <li>Product Design</li> </ul>	<ul style="list-style-type: none"> <li>select, modify or design a faceplate and/or spindle-type product that incorporates three or more different types of cuts</li> <li>create a full-size pattern or template</li> </ul>	<p>It is recommended that students complete CONEQUIP-3: Wood Lathe Equipment Checklist prior to the use of this piece of equipment.</p>

**MODULE CON1140: TURNING OPERATIONS** (continued)

Concept	Specific Learner Expectations	Notes
<ul style="list-style-type: none"> <li>• Estimating</li> <li>• Event Sequencing</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• prepare a material list and cost estimate</li> <li>• show a sequence of operations that facilitates the safe and efficient use of materials, tools and equipment</li> <li>• calculate the appropriate turning speeds using tables.</li> </ul>	<p>Demonstrate proper procedures and sequence of events to produce:</p> <ul style="list-style-type: none"> <li>– straight and taper cuts</li> <li>– coves and Vs</li> <li>– beads and shoulders</li> <li>– concave and convex surface.</li> </ul>
<p>Implementation</p> <ul style="list-style-type: none"> <li>• Lathe Work</li> </ul>	<ul style="list-style-type: none"> <li>• demonstrate the appropriate skills to:               <ul style="list-style-type: none"> <li>– prepare stock for turning</li> <li>– lay out and size a rough turning</li> <li>– rough cut and finish cut according to a predetermined pattern/template or free forming principles</li> <li>– sand and apply the recommended finish</li> <li>– remove and assemble finished product.</li> </ul> </li> </ul>	<p>Discuss free forming principles used by artisans and the use of copy lathes and automated equipment used in industry.</p>
<p>Assessment</p> <ul style="list-style-type: none"> <li>• Quality Control</li> <li>• Career Preparation</li> </ul>	<ul style="list-style-type: none"> <li>• complete a visual inspection of a product to determine whether the structure is sound, surfaces are free of scratches, gouges, burns and voids</li> <li>• demonstrate efficient methods to improve quality and productivity</li> <li>• maintain a record of completed activities within a portfolio.</li> </ul>	

