

COURSE FAB2130: PRECISION TURNING 1**Level:** Intermediate**Theme:** Production Systems and Processes**Prerequisite:** FAB1130 Principles of Machining**Description:** Students develop basic turning skills to size, shape and finish common machineable metals and plastics.**Parameters** Access to a fabrication work centre complete with metal lathe and accessories and to instruction from an individual with specialized training in machining 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"> • identify health and safety hazards specific to metal turning, and take preventive measures to avoid accidents and personal injury to self and others • perform safe metal lathe set-up, operation and shut-down procedures 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • observed performance related to: <ul style="list-style-type: none"> – appropriate selection and use of personal protective equipment – containment of long hair, loose clothing, removal of rings and other forms of jewellery – safe handling of materials – precautions taken to ensure the safety of others • demonstration of approved practices to: <ul style="list-style-type: none"> – mount work in a three- or four-jaw chuck – mount work using a chuck and a live or dead centre – mount work between centres – set-up for a taper. <p><i>Assessment Tools</i> <i>Equipment Checklist: Metal Lathe</i> <i>FABEQUIP-3</i></p> <p><i>Standard</i> <i>All procedures to be performed correctly</i></p>	<p>10</p> <p>15</p>

COURSE FAB2130: PRECISION TURNING 1 (continued)

Concept	Specific Outcomes	Notes
<ul style="list-style-type: none"> • Lathe Parts and Accessories • Machine Operations 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the basic parts and accessories of an engine lathe • explain the difference between a three- and a four-jaw chuck • identify cutting and forming tools that are used for: <ul style="list-style-type: none"> – roughing – facing – drilling – boring – parting – knurling – finishing • describe the correct procedures to: <ul style="list-style-type: none"> – mount work in a three- and/or four-jaw chuck – mount work between centres • describe set-up procedures to face, centre drill, straight turn and drill stock • describe the factors that affect spindle speed, feed rate and depth of cut • describe safe finishing techniques, using files and abrasives • identify and describe lathe and lathe tool lubricants and coolants. 	<p>Demonstrate how to centre an object in a four-jaw chuck and how to select and centre a cutting tool.</p>
<p>Planning and Management</p> <ul style="list-style-type: none"> • Print Reading 	<ul style="list-style-type: none"> • from a machine drawing of a turned part, identify: <ul style="list-style-type: none"> – overall dimension – types of material – types of finishes – fits and tolerances • list and describe the machining operations in a logical order • calculate the appropriate cutting speeds, feed rates and depth of cuts for rough turning, finishing, drilling and knurling different materials. 	<p>Compare the use and accuracy of mechanical and electronic measuring devices such as a vernier and digital caliper.</p> <p>Use appropriate tables and charts.</p>

COURSE FAB2130: PRECISION TURNING 1 (continued)

Concept	Specific Outcomes	Notes
<p>Implementation</p> <ul style="list-style-type: none"> • Lathe Work 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate basic turning skills related to: <ul style="list-style-type: none"> – facing – centre drilling – straight turning – drilling – boring – knurling – parting – finishing <p>common machineable metals and/or plastics.</p>	<p>The fabrication of products, such as a mallet and screwdriver handle, provide opportunities for the student to develop a wide range of lathe skills.</p>
<p>Assessment</p> <ul style="list-style-type: none"> • Quality Control • Career Preparation 	<ul style="list-style-type: none"> • research ways to improve output quality and reduce machining time • prepare a record of completed activities within a portfolio. 	