



## COURSE OUTLINE: MCH145 - MACHINE SHOP PRAC II

Prepared: Neal Moss

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	MCH145: MACHINE SHOP PRACTICAL II
<b>Program Number: Name</b>	4039: MECH. ENG. TN-MANUFA 4040: MACHINE SHOP 5082: MECH.TECH.IND.MAINT.
<b>Department:</b>	MECHANICAL TECHNIQUES PS
<b>Semesters/Terms:</b>	19W, 19S
<b>Course Description:</b>	This course will continue to build on the study of shop machines, safety, and tool care, measurements and layout, bench work and hard tools, material identification, heat treatment and testing, basic lathe, saws, drill presses, grinder, and milling machine, theory and practices, speeds, feeds, tapers, and threads.
<b>Total Credits:</b>	4
<b>Hours/Week:</b>	4
<b>Total Hours:</b>	4
<b>Prerequisites:</b>	MCH121, MCH144
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Substitutes:</b>	MCH136
<b>This course is a pre-requisite for:</b>	MCH259
<b>Course Evaluation:</b>	
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<p>Each absence will reduce a portion of the attendance mark. If the student accumulates 3 absences in the semester, a meeting will be scheduled with the Dean of this program. Continued enrollment in this program will be decided by the Dean, the Coordinator and the instructor of this program.</p> <p>Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00 F (Fail)49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office. W Student has withdrawn from the course without academic penalty.</p>



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**Books and Required Resources:**

Machining Fundamentals textbook by John R. Walker  
 Publisher: Goodheart-Wilcox  
 ISBN: 978 1 61960 209 0  
 Scientific Calculator not cell phone)

Safety Glasses

Safety Boots

**Course Outcomes and Learning Objectives:**

<b>Course Outcome 1</b>	<b>Learning Objectives for Course Outcome 1</b>
<p><b>COURSE DESCRIPTION:</b>            This course is a continuation of Machine Shop Practical I. The student will continue to develop the skills required to safely setup and operate various machines used in Machine Shops. Focus will be on enhancing existing skills using lathes, milling machines and other machines used in the manufacture of components.</p>	<ul style="list-style-type: none"> <li>- Working safely in a shop environment.</li> <li>- Use and care of measuring tools.</li> <li>- Safe setup and operation of lathes</li> <li>- Safe setup and operation of milling machines</li> <li>- Safe setup and operation of drill presses</li> <li>- Safely operate arbour press</li> <li>- Safely perform bench work and assembly</li> </ul>
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
<p>Work safe in a shop environment whether running machines or doing bench work.</p>	<ul style="list-style-type: none"> <li>- Use all shop safety rules.</li> <li>- Wear and use proper safety equipment.</li> <li>- Operate machines in a safe manner.</li> <li>- Practice safe working habits.</li> </ul>
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
<p>Use all of the various measuring tools to verify dimensions of machined parts.</p>	<ul style="list-style-type: none"> <li>- Use measuring tools such as scales, inside and outside micrometers and vernier calipers.</li> <li>- Use transfer measuring tools such as inside and outside calipers, telescopic gauges, small hole gauges and dividers.</li> </ul>
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
<p>Setup and Safely operate lathes.</p>	<ul style="list-style-type: none"> <li>- Use four jaw chucks for centering work</li> <li>- Select correct speeds and feeds</li> <li>- Select proper pitches using quick change gear box</li> <li>- Understand and cut threads using different methods and pitches</li> </ul>
<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
<p>Setup and safely operate Milling Machines.</p>	<ul style="list-style-type: none"> <li>- Setup milling machines using various work holding methods</li> <li>- Select proper speeds and feeds and verify correct cutter rotation</li> <li>- Perform various operations such as squaring stock</li> </ul>



		- Learn about keys and keyways and how to successfully setup and cut
	<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
	Select and operate different types of drill presses.	- Operate sensitive and radial arm drill presses safely. - Select proper size drills for drilling and tapping. - Perform operations such as drilling, reaming, and counter boring. - Perform safe work holding using clamps, vises, angle plates, vee blocks and parallels.
	<b>Course Outcome 7</b>	<b>Learning Objectives for Course Outcome 7</b>
	Safely operate arbour press.	- Using an arbour press correctly install bushings or bearings - Learn about internal keyways and how to cut them using an arbour press
	<b>Course Outcome 8</b>	<b>Learning Objectives for Course Outcome 8</b>
	Safely perform bench work and assembly.	- Assemble machined components - Make necessary adjustments to allow components to fit together - Verify accuracy of finished assembled components

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Attendance and Safety	20%	
Attitude and Participation	10%	
Projects	70%	

**Date:**

August 28, 2018

Please refer to the course outline addendum on the Learning Management System for further information.

