



COURSE OUTLINE: MAC204 - TURN TECH

Prepared: Peter Corbett

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	MAC204: TURNING TECHNOLOGY
Program Number: Name	6346: GENERAL MACHINIST L2
Department:	MECHANICAL TECHNIQUES PS
Semesters/Terms:	21W, 21F, 22W
Course Description:	This course is designed to provide Level II General Machinist Apprentices the ability to demonstrate: drill and bore holes, turn internal and external recesses and grooves, part-off workpieces, turn internal tapers/angles; cut external and internal screw threads; and turn eccentrics.
Total Credits:	5
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Other Course Evaluation Requirements: Smart watches, smart phones and similar devices are not allowed during tests or quizzes and must be removed. 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 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 W Student has withdrawn from the course without academic penalty.
Books and Required Resources:	Technology Of Machine Tools by Steve F. Krar, Arthur R. Gill, Peter Smid, Robert J. Gerritsen Publisher: McGraw - Hill Edition: 8 ISBN: 9781260565782

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2020-2021 academic year.



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Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Describe safe working procedures when setting up and operating a lathe.(0.5 hrs)	1.1 Identify potential hazards which may occur during a lathe set-up and operating procedures. Demonstrate safe working habits including: - protective clothing - protective equipment and gear - good housekeeping - start up procedures - shut off procedures - securing work piece - stabilizing work piece - lock out procedures - tagging procedures
Course Outcome 2	Learning Objectives for Course Outcome 2
2. Set up lathe work holding devices, attachments, and accessories.(8 hrs)	Identify lathe work holding devices, attachments, and accessories: - face plates - mandrels - steady rests - follower rests - fixtures - chucks - radius attachment - bungs and spigots - tool post grinder - tracing attachment Demonstrate mounting, positioning, alignment, and securing procedures. Demonstrate contact surface cleaning procedures.
Course Outcome 3	Learning Objectives for Course Outcome 3
3. Set up lathe threading and/or form cutting tools and tool holders.(11 hrs)	3.1 Describe cutting tool geometry (nomenclature). Identify threading and/or cutting tools: - right hand - left hand - form - internal - external Demonstrate mounting, positioning, alignment, and securing procedures.
Course Outcome 4	Learning Objectives for Course Outcome 4

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	4. Develop a plan for producing threads, eccentrics, and grooves. (8 hrs)	4.1 Interpret drawings and/or process sheets to determine: - workpiece material - number of workpieces - form and shape of workpiece - machining operations - tolerances - surface finish - machining sequence Select lathe machining procedures: - internal/external threading - turning eccentrics - forming Identify lathe tools, work holding and tool holding devices, and accessories by determining: - angular values for compound setting - linear values on tailstock spindle - steady rest clearance - tool holding and support requirements - boring bar characteristics - workpiece characteristics - four-jaw chucks - face plate - steady/follower rest - bungs/spigots - chip development and flow - cutting edges and angles - taper turning attachment Select turning sequences by determining: - work piece material - speeds and feeds - lubricant - tool characteristics - rigidity of the tool and work piece - machine tool capacity
	Course Outcome 5	Learning Objectives for Course Outcome 5
	5. Perform turning. (14 hrs)	5.1 Demonstrate drilling and boring of holes. Demonstrate turning of internal and external recesses, grooves, and the parting-off of work pieces. Demonstrate turning of internal tapers/angles. Demonstrate cutting external and internal screw threads. Demonstrate turning of eccentrics.
	Course Outcome 6	Learning Objectives for Course Outcome 6
	6. Perform routine maintenance. (0.5 hrs)	6.1 Demonstrate maintenance and cleaning procedures. Demonstrate lubrication procedures. Demonstrate dismantling, handling and storage of tools,

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	tooling, work holding devices, and measuring instruments.												
Evaluation Process and Grading System:	<table> <tr> <th>Evaluation Type</th><th>Evaluation Weight</th></tr> <tr> <td>Attendance, Participation and Attitude</td><td>5%</td></tr> <tr> <td>Final Test and Practical Project</td><td>50%</td></tr> <tr> <td>Mid term</td><td>25%</td></tr> <tr> <td>Quiz 1</td><td>10%</td></tr> <tr> <td>Quiz 2</td><td>10%</td></tr> </table>	Evaluation Type	Evaluation Weight	Attendance, Participation and Attitude	5%	Final Test and Practical Project	50%	Mid term	25%	Quiz 1	10%	Quiz 2	10%
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Date:	January 3, 2021												
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.												

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