COURSE OUTLINE: MAC204 - TURN TECH

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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 W Student has withdrawn from the course without academic penalty.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.

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**

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,

	tooling, work holding devices, and measuring instruments.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Attendance, Participation and Attitude	5%
Final Test and Practical Project	50%
Mid term	25%
Quiz 1	10%
Quiz 2	10%

Date: January 3, 2021

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

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