

Linn-Benton Community College, Machine Tool Technology Department
Course Syllabus

Course name: Manufacturing Processes I

Course number: MA3.396

Credits: 6

Days, Hours: Monday, Lecture via ZOOM 9:00 AM,
Tuesday through Thursday, 9:00 to 11:50 AM Lab time (conditions permitting)

Location: IB 102

Prerequisite: none

Required text: Machine Tool Practices 11th Edition, ISBN-13: 978-0-13-489350-1

Required calculator: Sharp EL506 X, available at LBCC Bookstore

Required tools: None

Instructor: Ryan Powell

Phone number: 541.917.4599

Email address: powellr@linnbenton.edu

Office: IB 111A

Office hours/student meetings: By appointment, Via ZOOM see instructor website

Catalog description: This course provides training in the skills necessary to pursue a career in the machinist's trade. The lecture portion of Manufacturing Processes 1 introduces students to the fundamentals of good machining practices: theory/practical considerations are covered. In the laboratory aspect of this course, each student completes a series of projects that emphasize the safe operation of machine tools. The safety aspect of the course includes:

- Prevention of accidents, injuries and illness at the work site
- Measures that provide protection from exposure to hazards and hazardous materials
- Legal obligations mandated by OR- OSHA that directly relate to future occupations

Course learning outcomes: Students successfully completing this course will be able to:

- Set-up and operate the vertical milling machine and the engine lathe.
- Apply safe shop practices.
- Introduction to the relationship between cutting speed, feed rate and depth of cut.
- Understand tool geometry and use a bench grinder to sharpen a lathe tool bit.

- Make accurate measurements with a micrometer and dial caliper.
- Basic print interpretation.
- Perform precision layout on a workpiece

Learning activities: This course will include lectures, quizzes, tests, demonstrations and machine shop projects.

Assessment tasks: A student's progress will be evaluated as follows:

- Project completion 15%
- Class attendance and participation 40% (Includes in-class, Moodle, and ZOOM activities)
- Homework and Review Questions 20%
- Midterm Exam 10%
- Final Exam 15%

EACH WEEK'S ASSIGNMENTS ARE POSTED IN MOODLE AND DUE BY THE DUE DATE LISTED, NO CREDIT FOR LATE WORK

Course content

Week 1: Careers and the Machinist's role in Process Plans/Shop Safety

Week 2: Measurement and Common Measuring Tools/Systems of Measurement/Using Vernier, Dial and Digital Instruments for Direct Measurements

Week 3: Blueprint Reading Fundamentals/Views and Line Types/Using Micrometers

Week 4: Vertical Milling Machines/Cutting Tools and Cutting Toolholders for the Vertical Milling Machine/Setups on the Vertical Milling Machine/Vertical Milling Machine Operations

Week 5: Basic Precision Layout Practice

MIDTERM EXAM

Week 6: Work-holding and Hand Tools/Hacksaws/Files

Week 7: Engine Lathe Fundamentals/Operating Lathe Controls

Week 8: Toolholders and Toolholding/Cutting Tools for the Lathe/Lathe Spindle Tooling

Week 9: Facing and Center Drilling/Other Lathe Operations

Week 10: Review for Final Exam

Week 11: FINAL EXAM

Request for Special Needs or Accommodations

Direct questions about or requests for special needs or accommodations to the LBCC Disability Coordinator, RCH-105, 6500 Pacific Blvd. SW, Albany, Oregon 97321, Phone 541-917-4789 or via Oregon Telecommunications Relay TTD at 1-800-735-2900 or 1-800-735-1232. Make sign language interpreting or real-time transcribing requests 2-4 weeks in advance. Make all other requests at least 72 hours prior to the event. LBCC will make every effort to honor requests. LBCC is an equal opportunity educator and employer.

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Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency should speak with their instructor during the first week of class. If you believe you may need accommodations but are not yet registered with the Center for Accessibility Resources (CFAR), please visit the CFAR Website for steps on how to apply for services or call 541-917-4789.