

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

Course name: Manufacturing Processes I

Course number: MA3.396

Credits: 6

Days, Hours: Monday through Thursday, 9:00 to 11:50 AM

Location: IB 102

Prerequisite: none

Required text: Machine Tool Practices 10th Edition, ISBN-13: 978-0-13-291265-5

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, 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.

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 20%
- Class attendance and participation 40%
- Homework and Review Questions 15%
- Midterm Exam 10%
- Final Exam 15%

**EACH WEEK'S HANDOUTS AND HOMEWORK ASSIGNMENTS ARE DUE BY
THE DUE DATE LISTED, NO CREDIT FOR LATE WORK**

Course content

Week 1: Introduction: Machining Careers and Competitive Manufacturing/Shop Safety/Mechanical Hardware

Assignment: Shop Safety handout, read pages 1-27 and complete handouts: Section A, Units 1 and 2

Due 10/10/2019

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

Assignment: Read pages 88-122 and complete handouts: Section C, Units 1, 3, Conversion Handout, and

Caliper Handout **Due 10/17/2019**

Week 3: Reading Drawings/Using Micrometer Instruments

Assignment: Read pages 28-36, 123-143 and complete handouts: Section A, Unit 3 and Section C, Unit 4,

and Micrometer Handout **Due 10/24/2019**

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

Assignment: Read pages 500-527 and complete handouts: Section J, Units 1, 2, 3, and 4 **Due 10/31/2019**

Week 5: Basic Semi-Precision Practice/Basic Precision Layout Practice

Assignment: Read pages 230-256 and complete handout: Section E, Unit 2 **Due 11/7/2019**

MIDTERM EXAM

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

Assignment: Read pages 46-63 and complete handouts: Section B, Units 2, 3, and 4 **Due 11/14/2019**

Week 7: The Engine Lathe/Operating the Machine Controls

Assignment: Read pages 372-385, 407-411 and complete handouts: Section I, Units 1 and 5

Due 11/21/2019

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

Assignment: Read pages 386-406 and complete handouts: Section I, Units 2, 3, and 4
Regrind one lathe bit and show to instructor **Due 11/27/2019**

Week 9: Facing and Center Drilling/Other Lathe Operations

Assignment: Read pages 412-421, 438-451 and complete handouts: Section I, Units 6 and 9
Due 12/5/2019

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.

