

# Linn-Benton Community College, Machine Tool Technology Department

## Course Syllabus

Course name: Advanced CNC Technology II

Course number: MA3.452

Credits: 3

Days, Hours: Monday and Tuesday 3:00-4:50 PM

Location: IB 103

Prerequisite: Completion of Advanced CNC Technology I (MA3.451)

Required text: None

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 and learning experiences in Computer Numeric Control (CNC) technology. Students will receive training on safe CNC operation skills on the HAAS VF1 and HAAS MiniMill.

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

- Demonstrate good CNC operator skills on HAAS vertical milling machines.
- Set up a 4<sup>th</sup> Axis rotary
- Call up an existing program, check offsets and perform a dry run.
- Make program and tool adjustment as required by machining considerations.
- Follow set up sheet and blueprint instructions.
- Read, write and edit basic G&M machine code.
- Understand basic fixturing and programming concepts related to 3 and 4 axis machining.

Learning activities: This course will include a combination of lectures, demonstrations, and a machine shop project.

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

- Notebook 10%
- Homework 20%
- Class participation and quizzes 50%
- Midterm Exam 5%
- Final Exam 15%

### Course Content

The following topics will be covered in this course:

- Machine shop safety
- Measuring tools including indicators, calipers and micrometers
- Safe operation and set-up of HAAS CNC milling machines
- 4<sup>th</sup> Axis set up and operation
- 4 axis programming considerations
- G and M code reading/writing
- 4<sup>th</sup> fixturing applications
- Thread milling
- Tool and work offsets for 3 and 4 axis machining
- Tooling and tool holders for the mill
- Renishaw tool setter usage
- Renishaw touch probe introduction

### **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.