

Clackamas Community College
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Section #1 General Course Information

Department:Manufacturing

Submitter

First Name: Mike

Last Name: Mattson

Phone: 3322

Email: mattsonm

Course Prefix and Number:MFG - 205

Credits:4

Contact hours

Lecture (# of hours):

Lec/lab (# of hours): 88

Lab (# of hours):

Total course hours: 88

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title:Computer-Aided Manufacturing II

Course Description:

Course is the second in the series of three CAD/CAM courses: MFG-204, MFG-205, & MFG-206. The focus is hands-on CNC and manufacturing activities, including Mastercam solids, lathe, and multi-axis. Additional topics will include reverse engineering and post-processing. Class time will be devoted to demonstrations, and in-class projects.

Type of Course:Career Technical Preparatory

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s):Manufacturing Programs

Are there prerequisites to this course?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

Yes

Recommendations:Completion of MFG-204

Requirements:None

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit:Yes

When do you plan to offer this course?

Winter

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. have a technological literacy of the emerging manufacturing technologies including Computer Aided Machining (CAM), Computer Aided Engineering (CAE), and Computer Integrated Manufacturing (CIM);
2. use Mastercam Lathe software to create a simple cylindrical turning model,
3. understand the process of reverse engineering,
4. create simple solid models in a Parasolids-based modeler,
5. identify and select the appropriate technology and level of automation.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. CAM Technologies Review.
 - a. CAD/CAM Software.
 - b. CNC & Motion Control.
 - c. CIM.
2. Industrial Controls.
 - a. Electrical and Electronic Concepts.
 - b. Test Equipment; DMM, Oscilloscope.
 - c. Sensors, Actuators and Relays.
 - d. Relay Ladder Logic.
 - e. Programmable Logic Controllers.
3. Robotics and Motion Control.
 - a. Mechanical and electrical systems.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | No |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course:0%

First term to be offered:

Next available term after approval

:
