

**Clackamas Community College**  
Online Course/Outline Submission System

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### Section #1 General Course Information

**Department:** Manufacturing

**Submitter**

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**Course Prefix and Number:** MFG - 219

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**# Credits:** 3

**Contact hours**

Lecture (# of hours):

Lec/lab (# of hours): 66

Lab (# of hours):

Total course hours: 66

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.

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**Course Title:** Robotics

**Course Description:**

An introduction to robotics and industrial motion control. Students will be exposed to the operation, programming and applications of a typical FANUC, six-axis industrial robot. Hands-on activities will included manual teach programming, testing with simulation software and programming of advanced movements.

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**Type of Course:** Career Technical Preparatory

Is this class challengeable?

No

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):** Elective to Manufacturing Technology AAS degree

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:** MTH-050 and MFG-209

**Requirements:** None

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

**No**

Will this class use library resources?

**Yes**

**Have you talked with a librarian regarding that impact?**

**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: No**

When do you plan to offer this course?

✓ **Not every term**

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. demonstrate the safe, manual operation of a FANUC industrial robot;
2. manipulate the robot with the teach pendant and record simple motions such as machine loading and stacking,
3. write intermediate motion programs,
4. perform software simulations to verify correct motion and timing of programs,
5. interface robotics hardware with a CNC machine tool to facilitate automated machining,
6. access the machine vision capabilities of the robot to select object based upon shape, orientation and color.

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***This course does not include assessable General Education outcomes.***

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Major Topic Outline:

1. Introduction to robotics.
2. Manual operation and safety.
3. Robot programming.
4. Industrial applications.
5. Electromechanical systems.
6. Fluid power systems.
7. End-of-arm tooling and sensors.
8. Interfacing robots with other industrial systems.
9. Machine vision.
10. Preventative maintenance of robotic systems.

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

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

Percent of course: 0%

First term to be offered:

Specify term: 2015/SP

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