

Clackamas Community College

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Section #1 General Course Information

Department: Manufacturing

Submitter

First Name: Mike

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Course Prefix and Number: IMT - 223

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.

Course Title: Instrumentation & Controls

Course Description:

This course is intended to provide the industrial maintenance technician with knowledge and skills in the areas of process measurement, control and data acquisition. Students will become familiar with common sensors and actuators and their applications.

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: MFG-130 or EET-137

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. describe the ranges of common sensors and actuators that are used for environmental measurement and process control;
2. successfully select and implement sensors for a variety of measurement applications including, temperature, position, angular velocity, strain, and pressure;
3. implement actuators such as motors, valves and heaters to perform process control tasks;
4. demonstrate the ability to interpret a process measurement and control system for an industrial or environmental application.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Process control and measurement overview.
2. Piping and Instrumentation Diagrams.
3. Temperature, Infrared and Thermometers.
4. Pressure, instruments and measurement.
5. Position, proximity, encoding, and measurement.
6. Signal transmission, current loops, and interference.
7. Controllers
8. Valves
9. Actuators and positioners
10. Built-in Industrial and personal safety equipment

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

:
