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 - 081

 # Credits: 2

Contact hours

Lecture (# of hours): 20
Lec/lab (# of hours):
Lab (# of hours):
Total course hours: 20

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: Certified Production Technician (CPT)-Maintenance Awareness

Course Description:

This course provides students exposure to maintenance practices and processes common across multiple manufacturing sectors with a focus on standards for entry-level operator, processor and assembler jobs in the manufacturing and logistics industries. It will prepare students for the Manufacturing Skills Standards Council (MSSC) Certified Production Technician (CPT) Maintenance exam.

Type of Course: Career Technical Preparatory

Reason for the new course:

Meeting industry request for entry level worker training.

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?

No

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?

No

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:

Pass/No Pass Only

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. describe two types of electrical current and give applications,
2. describe the components of electrical circuits,
3. connect and operate three types of circuits,
4. demonstrate measurement of voltage, current, and resistance;
5. describe Ohm's law and Kirchhoff's voltage law,
6. describe pneumatic and hydraulic circuits,
7. describe lubrication concepts, and bearing and couplings;
8. describe machine control and automation concepts.

This course does not include assessable General Education outcomes.

Major Topic Outline:

Welding
1. Basic welding
2. Welding safety

Basic electrical circuits
1. Fundamentals of electricity
2. Electrical circuit components
3. Manual input devices
4. Output devices

Electrical measurement
1. Voltage measurement
2. Introduction to series and parallel circuits
3. Current measurement
4. Resistance measurement

Electrical power
1. Ohm's Law
2. Power in series circuits
3. Circuit protection devices
4. AC motor connections
5. Motor circuit components

Pneumatic power systems

1. Introduction to pneumatics
2. Pneumatic power
3. Circuit connections
4. Basic cylinder circuits

Hydraulic power systems

1. Introduction to hydraulics
2. Basic cylinder circuits
3. Basic motor circuits
4. Filtration

Lubrication concepts
1. Total productive maintenance
2. Lubrication concepts
3. Oils
4. Greases

Bearings and couplings
1. Mechanical power transmission safety
2. Introduction to bearings
3. Introduction to couplings
4. Gear drives

Belt drives
1. Belt drive concepts
2. V-Belt operation
3. Belt tensioning
4. Belt tension measurement

Chains drive
1. Chain drive concepts
2. Chain drive operation
3. Chain tensioning
4. Chain tension measurement
5. Fixed center chain installation

Machine control concepts
1. Logic elements (AND, OR)
2. Logic elements (NOT, NOR, NAND)
3. Ladder diagrams
4. Electro-pneumatic solenoid valves

Machine automation
1. Relay operation
2. Relay applications
3. Limit switch operation
4. Time-delay relays

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:

Specify term: Winter 2018