

Clackamas Community College
Online Course/Outline Submission System

Published Requests

MN-103 Certified Production Technician (CRT)-Maintenance Awareness

General education certified: Yes **No**

- Writing
 Oral Communication
 Arts and Letters
 Science & Computer Science
 Mathematics
 Social Science
 Cultural Literacy
 Health & Physical Education

 Approved Date (mm/dd/yyyy): / / **Section #1 General Course Information****Department:** Manufacturing**Submitter**

First Name: Paul

Last Name: Wanner

Phone: 3387

Email: paulw

Course Prefix and Number: MN - 103**# Credits:** 4**Contact hours**

Lecture (# of hours): 40

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 40

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 (CRT)-Maintenance Awareness

Course Description:

This course is designed to provide students with entry-level understand of maintenance practices and processes common across multiple manufacturing sectors. This program focuses on a knowledge base identified by industry standards at the entry-level for operator, processor and assembler jobs in the manufacturing and logistics industries. This curriculum prepares students for one (1) of the four (4) Manufacturing Skills Standards Council (MSSC) Certified Production Technician (CPT) exams which certify participants in the areas of Safety, Quality Assurance, Production Processes, and Maintenance. No prior experience is necessary.

Type of Course: Career Technical Preparatory**Reason for the new course:**

Meeting Industry request for entry level worker training based on national work standards. Was run as a MFG-199

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 in 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?

No

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?

Yes**Have you consulted with the Dept Chair(s) of other program(s) regarding potential impact such as overlap, duplication, enrollment, impact, etc.?****Yes (A 'Yes' certifies you have talked with the chair and have received approval.)*****What was the result of the conversation with those department(s)?**

The Manufacturing Dept. originally offered this course in a very streamlined format. They no longer offer the course and have provided the core material to develop this one further.

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?

No

Will this course appear in the schedule?

No

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:

E-Learning modules

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: 2015 Summer
