

Clackamas Community College
Online Course/Outline Submission System

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Section #1 General Course Information

Department: Manufacturing

Submitter

First Name: **Jim**

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Course Prefix and Number: MET - 152

Credits: 6

Contact hours

Lecture (# of hours):

Lec/lab (# of hours): 120

Lab (# of hours):

Total course hours: 120

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: **Digital Electronics, Project Lead The Way**

Course Description:

Covers applied logic that encompasses the application of electronic circuits and devices. Uses computer simulation software to design and test digital circuitry prior to the actual construction of circuits and devices. This course is part of the national Project Lead The Way curriculum.

Type of Course: Career Technical Supplementary

Can this course be repeated for credit in a degree?

No

What is the target audience/industry for this class?

High school students considering engineering/technical degrees

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?

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?

✓ 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. work safely around low-voltage electricity,
2. understand and apply the fundamental principles of DC and Digital electrical theory,
3. design, test and trouble shoot simple series and parallel circuits;
4. apply numbering systems and Boolean algebra to the analysis of digital logic,
5. use common integrated circuits (IC's) to perform tasks such as counting, timing, latching and to perform logic functions;
6. read an IC data sheet to determine the function and to understand the wiring requirements of the device,
7. use programmable logic to perform a simple control task.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Electrical Safety, SI units, engineering notation.
2. Resistor and Capacitor Identification and Values.
3. Soldering – Introduction.
4. Conductors, Insulators, and Semiconductors.
5. Voltage, Current, and Resistance.
6. Circuit Design Software (MultiSim).
7. Logic Gates and Combinational Logic .
8. Binary Hexadecimal and Octal number Systems.
9. Truth Tables.
10. Karnaugh Mapping.
11. Adders and Two's-Complement Arithmetic.
12. Flip-Flops and clocked logic.
13. Programmable logic.
14. Microcontrollers, servos, BOEbots.

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

:
