

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

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**Section #1 General Course Information****Department:**Engineering**Submitter**

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**Course Prefix and Number:**ENGR - 171**# Credits:**4**Contact hours**

Lecture (# of hours): 33  
Lec/lab (# of hours):  
Lab (# of hours): 33  
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:**Digital Logic**Course Description:**

The first course in digital design covers basic logic gates, Boolean algebra, Karnaugh mapping, number systems, timing analysis, and state machines. Students will become proficient with computational tools including schematic capture programs and circuit simulators.

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**Type of Course:**Lower Division Collegiate**Reason for the new course:**

This new course will meet requirements for Computer and Electrical Energy Engineering majors.

**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?

**Yes**

**Pre-reqs:**Pass MTH-111

Have you consulted with the appropriate chair if the pre-req is in another program?

**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?

**Yes**

Have you talked with the appropriate chair?

**Yes (A 'Yes' certifies you have talked with the chair and have received approval.)\***

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:No**

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. analyze and characterize digital circuits using Boolean algebra and number systems,
2. design basic combinational logic circuits for programmable logic devices,
3. analyze and design digital circuits including decoders, adders, multipliers, muxes and dmuxes;
4. minimize Boolean functions by applying Karnaugh maps and systematic algebraic reduction techniques,
5. analyze simple synchronous and asynchronous circuits.

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

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Major Topic Outline:

1. Boolean Algebra.
2. Number Systems.
3. Combination Logic.
4. Programmable Logic Devices.
5. Modular Design.
6. Synchronous Logic.

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 **No**

Percent of course:0%

## Section #2 Course Transferability

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state currently requires us to certify that at least one OUS school will accept a new LDC course in transfer. Faculty should communicate with colleagues at one or more OUS schools to ascertain how the course will transfer by answering these questions.

1. Is there an equivalent lower division course at the University?
2. Will a department accept the course for its major or minor requirements?
3. Will the course be accepted as part of the University's distribution requirements?

If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course, though it will likely not be eligible for Gen Ed status.

Which OUS schools will the course transfer to? (Check all that apply)

- PSU (Portland State University)
- OIT (Oregon Institute of Technology)
- OSU (Oregon State University)

Identify comparable course(s) at OUS school(s)

PSU - ECE 171  
OSU - ECE 271/272  
OIT - EE 131

How does it transfer? (Check all that apply)

- required or support for major

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First term to be offered:

Specify term: Winter 2015

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