

**COURSE TITLE: ENGR 272 Digital Logic Design Lab**

**CREDITS: 1**

**ROOM: (Online)**

**CRN: 43215**

**LECTURE/RECITATION: (Pre Recorded Lectures Online)**

**LABS: (Pre Recorded Labs Online)**

**INSTRUCTOR: Craig Munsee**

**EMAIL: [munseec@linnbenton.edu](mailto:munseec@linnbenton.edu)**

**OFFICE: IA-206**

**OFFICE HOURS: (Zoom Meeting)**

**Monday 1:00 pm - 1:50 pm**

**Tuesday 1:00 pm - 1:50 pm**

**Wednesday 1:00 pm - 1:50 pm**

**Thursday 1:00 pm - 1:50 pm**

**Friday 1:00 pm - 1:50 pm**

**Others by Appointment**

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**Course Description:**

Laboratory to accompany ENGR 271 Digital Logic Design. Illustrates topics covered in the lectures of ENGR 271 using computer-aided design, verification tools, and prototyping hardware.

**Prerequisite(s):**

Prerequisite: MTH 231 Elements of Discrete Mathematics or MTH 251 Differential Calculus with a grade of "C" or better.

**Course Outcomes:**

Upon successful completion of this course, students will be able to:

1. Analyze and design combinational systems using standard gates and minimization methods.
2. Analyze and design combinational systems composed of standard combinational modules, such as multiplexers and decoders.
3. Analyze and design simple synchronous sequential systems.
4. Analyze and design sequential systems composed of standard sequential modules, such as counters and registers.
5. Analyze and design simple systems composed of programmable logic devices.

**Text Book:**

**Digital Design and Computer Architecture, ARM Edition.** Authors: Sarah Harris David Harris or Digital Design and Computer Architecture, 2nd Edition. Authors: Sarah Harris David Harris.

**Digital Design and Computer Architecture: ARM Edition, is available for free to the students through the LBCC Library's Ebook Central database. <http://bit.ly/digides>**

**Laboratory:**

Each lab report will be graded on conformance with specific criteria, which will be reviewed during the first week’s lab session. Lab reports are due for grading at the beginning of the next lab, with dates indicated in Moodle. **Late lab reports will lose 10% per day for each day the report is late.**

Links to the experimental procedures can be found on the course schedule, and should be reviewed carefully before coming to lab.

**Grading:**

Assignment:	Number:	Percentage:
Labs	5	100%

90-100% A, 80-89.9% B, 70-79.9% C, 60-69.9% D, < 59.9% F

**Holidays:**

- Memorial Day: LBCC will be closed (**Monday, May 31, 2021**)

**Class Climate Survey:**

- Student feedback is important to improve this course and to help the instructor know how to adjust teaching methods. Your feedback is taken seriously and does influence future versions of the course. The evaluations are anonymous, and links to the evaluations will be emailed to your student LBCC email account after the 5<sup>th</sup> week of the term. I encourage you take this opportunity to provide constructive feedback on the class. Thank you in advance for your input!
- **Extra Credit will be given for those who completing the Class Climate Survey.** Since the survey is anonymous you are asked to attach a screen shot showing that you completed the survey (Not a screen shot of your answers). A place to turn this in can be found on week 7 of Moodle.

**Academic Integrity:**

- You are expected to turn in your own work and not take credit for the work of others.
- For Homework and Lab assignments, you may work together and discuss the problems with your classmates, but you are expected to turn in your own work. If you turn in something that is not your work, it is considered cheating (This includes copying and sharing computer files).
- **No collaboration or any outside assistance is allowed for Exams. This includes the use of the internet and sites like Chegg.**
- **Depending on the severity of the incident, Those caught cheating and those who aid them will receive a score of zero for that assignment or fail the class and will be reported to Jill Childress, Ed. D. | Manager, Student Conduct and Retention.**

## **Computer & Software Requirements:**

- You will need a computer capable of running the Quartus Prime Lite software, ModelSim and programming the DE10-Lite FPGA. There is only a Windows and Linux version available for Quartus Prime Lite.
  - Quartus Prime Lite
  - <https://fpgasoftware.intel.com/?edition=lite>
- To use a Mac computer, a windows environment would need to be installed on the computer to run the software (VMware Fusion).
  - <https://www.vmware.com/products/fusion.html>
- You should install these programs the first week to determine if your computer can run the programs correctly.
- If you are considering purchasing a new computer, I would recommend a Windows-based Laptop with an Intel i7 processor, 16 GB of RAM, and at least a 500 GB hard drive. MacOS computers are good computers too but are limited when it comes to compatibility for Engineering software.

## **College Policies**

### **Drop/Withdraw Policy:**

If you are withdrawing from the class, you must file a Schedule Change Form with Registration or use WebRunner. If you formally drop the class **before Monday of the second week of the term**, you will receive a tuition refund. If you withdraw after the Monday of the second week of instruction through the seventh week a ‘W’ will show up on your transcript. **No withdrawals are allowed after the end of the seventh week**. An instructor may not assign a “W” grade.

If you received financial aid or veteran’s benefits, PLEASE talk with associates at the appropriate office to determine what effects on eligibility dropping a course will have. Don’t jeopardize your eligibility!! You can contact the Financial Aid Office by calling (541) 917-4850 or by visiting the Financial Aid Office in Takena Hall.

If you stop attending the course without formally withdrawing you will continue to accumulate grades (zeroes for all assignments not turned in) and will receive the grade assigned by the instructor. You will also be held accountable for all charges on your account.

### **Center for Accessibility Resources (CFAR):**

You should meet with your instructor during the first week of class if:

1. You have a documented disability and need accommodations.
2. Your instructor needs to know medical information about you.
3. You need special arrangements in the event of an emergency.

If you have documented your disability, remember that you must make your request for accommodations through the Center for Accessibility Resources Online Services web page every term in order to receive accommodations. If you believe you may need accommodations but are not yet registered with CFAR, please visit the CFAR website at <http://www.linnbenton.edu/cfar> for steps on how to apply for services or call 541-917-4789.

### **LBCC Comprehensive Statement of Nondiscrimination**

LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native

language, national origin, sex, sexual orientation, gender, gender identity, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws. For further information see Board Policy P1015 in our Board Policies and Administrative Rules. Title II, IX, & Section 504: Scott Rolen, CC-108, 541-917-4425; Lynne Cox, T-107B, 541-917-4806, LBCC, Albany, Oregon. To report: [linnbenton-advocate.symplicity.com/public report](http://linnbenton-advocate.symplicity.com/public-report).

**Know your rights and responsibilities:**

LBCC students have rights: the right to free speech, the right to assemble, the right of a free press, etc. LBCC students also have responsibilities to their community: the responsibility to participate and engage in class, the responsibility to advocate for their needs (ask for help), the responsibility to support a respectful teaching and learning environment, the responsibility to treat all persons with respect, the responsibility to be truthful and honest in all work and communications, and the responsibility to follow staff directions, local, state, and federal laws.

Rights and responsibilities balance together to create the best learning environment. For example, while you have free speech in the café or courtyard, in class the instructor decides whose turn it is to talk and what the topics for conversation will be. Students are free to believe what they believe, but instructors may require students to learn and recite concepts, principles, or theories for a class even if the student does not believe those concepts. You play a role in creating a positive community at LBCC.

Please review your rights and responsibilities (<http://linnbenton.edu/go/studentrights>).

If you believe a student is violating your rights, ask to be treated with respect. If that does not cure the situation, report to Associate Dean Dr. Lynne Cox, Takena Hall Rm. 107. If you believe a faculty member or LBCC employee is violating your rights, please report to Human Resources, Scott Rolen, Calapooia Center Rm. 108.

**Changes to the Syllabus**

I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, or through LBCC e-mail.