CPE 133: Digital Design

Cal Poly San Luis Obispo Fall 2018

Course Policies, Procedures, and Grading (10-12-2018)

Class time: Section 03 & 04: MWF 11:10 – 1:00 Room 20-100

Instructor Info: James Mealy
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Office Hours: Mon: 1:10 – 2:00 Wed: 2:10 – 3:00
(by request only) Fri: 2:10 – 3:00 office hour location: 20-A 300 or 20-100

Course Catalog Description: Number systems, Boolean algebra, Boolean functions, and function minimization. Analysis and design of combinational and sequential logic circuits. Hardware Description Language (HDL) concepts and applications digital design and synthesis in Programmable Logic Devices (PLDs).

Course Prerequisites: CPE/CSC 101 or equivalent

Textbooks: *FreeRange Digital Design Foundation Modeling* by james mealy (lecture portion of course)
FreeRange Verilog Foundation Modeling by james mealy (lecture & lab portion of course)
CPE 133 Lab Activity Manual by james mealy (lab portion of course)

The first three books are in constant production; I'll be adding to them throughout the quarter and post new versions on Polylearn as they become available. The lab manual currently contains 15 (or so) "lab activities" as well as other supplemental reading for the lab portion of the course. I will be modifying this document throughout the quarter, so be sure to always you the latest version when you are starting new experiments.

Software: CPE 133 depends on the Xilinx Vivado software, which you can download from: www.xilinx.com. You should download the version that is currently loaded on the lab computers.

Homework: Example problems appear at the end of the chapters in the text and serve as examples of the skills required to understand the material. You should do as many (or as few) problems as you deem necessary to understand the course topics. I'll post solutions to text problems on PolyLearn.

Grading:			
	Quizzes	25.0%	0%
	Lab Submissions:	20.0%	20.0%
	Lab Final Exam:	25.0%	35.0%
	Lecture Final Exam:	30.0%	45.0%

Grading Notes: Your performance on the lab submissions, lab final exam, and lecture final exam determines your grades with the weightings listed above. I'll give one quiz per week, so there will be ten quizzes during the quarter. You can take as many or as few quizzes are you deem appropriate. The two columns above represent the weightings when you take all quizzes (left column) or no quizzes (right column). If you opt not to take any one quiz, the 2.5% weighting for that quiz will be distributed to the lab and lecture final; for each quiz not taken, 1% and 1.5% of the weighting will transfer to the lab and lecture final, respectively. I follow university grading policy in the assignment of letter grades.

- *Lab submissions are due 3 class meetings after the lab is assigned (though you're behind if you turn it in later than the next class meeting).*
- *Only submit something if your hardware was working*

Lab Hardware: Most experiments require a Digilent BasysIII development board. You will need one of these boards per lab group. You can check out the boards are located on the bench from the instructor during class. It's a good idea to purchase a board of your own, but not mandatory.

Lab Overview: Plan on coming to lab prepared to perform the lab activity. The "lab" portion of the course is an optimal time for me or lab assistants to help you and answer your questions. You should spend some time reading over each of the labs before the lab session begins.

Lab Submissions: Submit one lab submission for each lab activity but only one per lab group. Submit your lab submission directly to me or kick it under my office door. *Do not place anything in the box outside of my office or to the EE Department office.* Lab activities requiring demos must be submitted with either the TA's or the instructor's initials. You need to closely follow the "Lab Work Submission Rule Overview" document in the lab activity manual in order to help you submit quality work.

Problems with the "Digital Labs": The EE Department feels that 8 *poorly* stocked benches and 8 tables in the digital labs is equivalent to 6-8 *well-stocked* benches in all other EE Department labs. The EE Department insists this practice is fair despite being blatantly unfair to both the students and instructors of digital courses. This lack of ethics on behalf of the EE Department (so much for the IEEE Code of Ethics!) creates two major problems:

1) Extra Grading Effort by Instructors: having twice the number of benches requires twice the amount of grading. In order to handle the extra grading, please submit quality lab submissions.

2) Extra In-Class Work by Students: As the CPE 133 experiments become more complex, I'll have less time to help groups solve their problems (as there would if the lab had 6-8 benches). You must learn to solve your own problems, particularly using the simulator. Additionally, any question you ask of a TA or me should have accompanying circuit, timing, flowcharts, and/or state diagrams so we can offer efficient help.

Lab Final Exam: There is a written lab final exam given during finals week. Simply "***doing***" the labs is not enough: you also need to understand what you're doing as it's possible to do the experiments but not understand what you're doing or learn anything useful. Relying on your lab partners to do the work is a documented bad approach.

My Approach Goals: I believe my job is primarily to help you learn, but I also need to evaluate what you've learned. I'll do my best to mirror the effort you put into the course. The lectures provide a quick overview of pertinent material in the course text and/or the lab activity manual. The lectures represent a high-level presentation of the material and thus depend on you doing the assigned reading to understand the material.

Miscellaneous Comments & Policies:

- CPE 133 is a design course, so you're not going to find the right formula to plug into so you can get the answer. Be aware that design problems have multiple correct solutions.
- You will not be able to "catch up" in the final weeks of the course if you fall behind.
- Feel free to work at home, but submit lab items and experiment demos by the due dates.
- I may make changes to this syllabus during the quarter. I'll post all changes to PolyLearn.
- If you can't "find" something on PolyLearn, I probably messed up and don't know about it. Please write me immediately if you feel there is a problem of any type; please never hesitate to write me about anything.
- If you're having issues with a lab partner, you need to correct the problems. Each individual is responsible for learning the course material, so don't blame your lab partner for you not learning the material.
- I will not give either final before the scheduled dates.

Finals Schedule	Lab Final	Lecture Final
11-1 section	CPE 133: Dec 10 (Mon), 11:10 - 1:00	CPE 133: Dec. 12 (Wed), 10:10 - 1:00