Instructor: Dr. S. M. Loo  
Office: MEC 202E, Phone: (208) 426-5679, Email: smloo@boisestate.edu  
Office Hours: Tuesday and Thursday, 8:00 AM -10:00 AM  

Catalog Description:  
Number systems, Boolean algebra, logic gates, Karnaugh mapping, combinatorial circuits, flip-flops, registers, counters, sequential state-machines. Construction of small design projects.  

Required text:  
Text:  

Simulation Software:  
Xilinx ISE 8.1i & Modelsim  

Time and Place: (Lecture) TuTh 10:40 PM to 11:55 PM, ET 103  
Lab: Tu 1:40 PM to 4:30 PM, MEC 311  

Course Webpage: http://coen.boisestate.edu/smloo/ee230spring2007  

Topics:  
1. Introduction – Design Concepts  
2. Introduction to Logic Circuits  
3. Implementation Technology  
4. Optimized Implementation of Logic Functions  
5. Number Representation and Arithmetic Circuits  
6. Combinational-Circuit Building Blocks  
7. Flip-flops, Registers, and Counters  
8. Synchronous Sequential Circuits  

Prerequisites: COMPSCI 117 or COMPSCI 125  

Grading (EE 230):  
Test (2 @ 20% each) 40%  
Final Exam 20%  
Quiz 20%  
Homework (includes Simulations) 20%  

Grade determination: 100%-90% = A, 89%-80% = B, 79%-70% = C, 69%-60% = D, < 60% = F  

Note and disclaimers:  
There will be rough spots. Question and comments are expected and encouraged. Homework: Homework will be assigned on Thursday and due at beginning of class of the following Thursday. NO LATE homework will be accepted. The latest list of homework problems will be posted on the class webpage.
**Code of Conduct:**
Discussing the assignments with other students is encouraged, as this could be one way to understand the materials. However, the work submitted must be your own. Copying from any source (from someone else, old files, or solution manual!) and turning it in is not permitted. Penalties for copying/cheating range from receiving a 0 on the assignment to receiving an F for the course.

*Student Code of Conduct, Article 3, Section 1, Academic Dishonesty*
Cheating or plagiarism in any form is unacceptable. The University functions to promote the cognitive and psychosocial development of all students. Therefore, all work submitted by a student must represent her/his own ideas, concepts, and current understanding. Academic dishonesty also includes submitting substantial portions of the same academic course work to more than one course for credit without prior permission of the instructor(s).

**Course Objectives:**
After taking this course, the students should be able:
• Calculate the functions described by logic diagrams.
• Implement functions in logic gates and FPGA.
• Design and evaluate circuits to form basic digital circuits.
• Develop proficiency in using Karnaugh maps, functional reduction, and data sheets.
• Design circuits using state diagrams.
• Develop circuits using combinational and clocked logic.
• Design, simulate, and implement counter using state machine technique.
• Design, simulate, and implement sequence detector