ELE202 DIGITAL CIRCUIT DESIGN LABORATORY

Fall 2007 Syllabus

Catalog Description: Laboratory experience in digital electronics; logic design projects using standard integrated circuits.

Course Objectives:

- To understand how to use basic electronic measurement instruments to measure logic states and signals
- To question alternative designs of digital circuits for solving engineering problems
- To design digital systems using SSI and MSI chips and software tools
- To lead a team of students in a design project.
- To communicate project results in both oral and written form

Schedule: 4 sections, Monday, Tuesday, Wednesday, or Thursday, 2:00-4:45 P.M., Kelley 218
The lab is available at all other times using your URI ID card.

Materials: Digital electronics kit (subsidized to $10 by student fees; purchased through the stockroom in Kelley Hall, next to 218); laboratory manual

Instructor: Prof. Jien-Chung Lo, 221 Kelley Annex, URI, jcl@ele.uri.edu or (401) 874-2996
Lab teaching assistants**:** Weijun Xiao (wjxiao@ele.uri.edu) and
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Course Website: http://www.ele.uri.edu/Courses/ele202

Semester Schedule & Grading::

Topics	Mon (L01)	Tue (L02)	Wed (L03)	Thurs (L04)	Grading
Lab 1 – equipment basics	9/17	9/18	9/12	9/13	8%
Lab 2 – combinational logic I	9/24	9/25	9/19	9/20	8%
Lab 3 – combinational logic II	10/1	10/2	9/26	9/27	10%
Lab 4 – sequential logic I	10/10	10/9	10/3	10/4	10%
Lab 5 – software tools	10/15	10/16	10/17	10/11	5%
Lab 6 – sequential logic II	10/22	10/23	10/24	10/18	10%
Lab 7 – sequential logic III	10/29	10/30	10/31	10/25	12%
Lab 8 – BCD counters	11/5	11/6	11/7	11/1	10%
Lab 9 – multiplexing displays	11/19	11/13	11/14	11/8	12%
Lab 9 continues	11/26	11/20	11/21	11/15	
Lab 10 – Stop watch	12/3	11/27	11/28	11/29	15%
Lab 10 continues	12/10	12/4	12/5	12/6	

Final grades typically are: A=90-100, B=80-89, C=70-79, etc.

Notes:

1. **<u>Individually</u>**, you are expected to design, build, and test circuits for each of labs. The lab kits will provide most of the parts required for these circuits; as needed they will be complemented by equipment on the desk (power supply, meter, and oscilloscope) and other items from the "parts bins" in lab.
   - When you have your circuit working, you are to demonstrate its proper action in the lab. To get full credit for the exercise, the circuit must work as expected and you must be able to describe and/or answer questions about your circuit.
   - You will need to show the circuit to the instructor or the TA and make sure that your working circuit is checked off.
2. The written report requirements are described in the lab manuals. Each lab will have different report requirements and thus different points be given (see schedule and grading above).
   - Sheets for the short reports are part of this lab manual. These reports will be graded on the circuit working as expected as well as the accuracy of the information provided.
   - Reports should be typed (no hand-written reports) and perhaps with figures, diagrams or charts to enrich the contents..
   - Reports are due one week (7 days later, by 4 PM) after your section's original lab date.
3. The last two labs, labs 8 & 9, are applications of digital design and were both designed as multi-week labs. You must control the progress yourself. Remember it is always a good idea to finish the lab early. Do not wait until the last minutes! In fact lab 8 may need three lab sessions and lab 9 may need more than two lab sessions to complete. You are expected to spend time between your assigned lab hours to work out the assigned works. Students who wait until the last week will get a nasty surprise!