Physics 335: Electric Circuits Laboratory II
Based on S27 as taught by G. Watts

Overview
This is the second course in the Electronic Circuits Laboratory series (334 is the first). This quarter concentrates on digital electronics. First we work our way through the basic building blocks of all circuits – gates: and gates, or gates, nor gates, etc.. We will also explore some of the logical tools associated with the gates. The second half of the quarter concentrates on the PIC micro-controller. This is a small system-on-a-chip and can be used to control components, like lights, or speakers, digital-to-analog and analog-to-digital converters to distance measurement using a sonic ranger.

Evaluation
The course has a weekly lab and homework due each week. There are two exams.

Texts
1. **Required:** The book is the same as required in 334:

Topics by week
1. Introduction to Digital Logic. Lab: Getting acquainted with logic probes and basic gates and digital wiring.
2. Lecture & Lab: Flip-flops and introduction to sequential logic
3. Lecture & Lab: MSI counters, binary number systems, and displays
4. Lecture & Lab: Analog to Digital Conversion
5. Lecture & Lab: Introduction to the PIC Microcontroller
6. Lecture & Lab: Pulse Width Modulator
7. Lecture & Lab: Pulse Width Modulator applications
8. Lecture & Lab: Sonic ranging