EE 151-04        Instructor: Dean Arakaki
Introduction to Electrical Engineering        Office: 20-302
Fall 2004        Phone: 756-2625

Co-requisite: EE 111.

**Purpose and Topics:** In this course, various student-conducted experiments and instructor-conducted demonstrations are performed across the field of electrical engineering (EE). This hands-on experience provides both motivation and information for subsequent EE coursework.

- Basics of electrical engineering (switches; series and parallel connections; resistance, capacitance, and inductance)
- Basic operations of electronic equipment (ohmmeter, ammeter, voltmeter, oscilloscope, spectrum analyzer, curve tracer, logic analyzer)
- Building an electric motor
- Basic electronics (diodes, light-emitting diodes, transistors, …)
- Building a crystal radio
- Basics of discrete-time signal processing
- Basics of control systems
- Basics of computer software and programming

**Text:** EE 151 lab manual (in production, to be distributed as it becomes available).

**Laboratory Notebook:** Each student should record the work they perform during the lab sessions in their own laboratory notebook. In contrast to a polished “report,” the primary purpose for maintaining a laboratory notebook is to document experimental work sufficiently well that anyone with the appropriate background can read it and readily understand precisely what was done. In this course, we will not strive for such completeness; rather, each student is to record data and any analyses upon them at least well enough that they can recall what was done and concluded. In particular, for the final exam, each student will have access to their laboratory notebook, but no other notes.

Prior to the first experiment, you should obtain (e.g., from the bookstore) a completely blank version of a bound notebook having the following label on the front:
Then, complete these tasks before coming to the lab:

- Write your full name (first name, then surname) on the front cover. (Writing in pencil will be allowed.)
- Starting with the first page after the front cover, sequentially number the pages 1, 2, 3, ..., 10, placing each number on the upper, outer corner of the page. Since you will be writing on both sides of each sheet, odd-numbered pages are on the right, and even-numbered pages are on the left.
- At the top of page 1, start a table of contents by writing the following:

  
  **EE 151-04: Introduction To EE Laboratory**

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic Electricity</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- At the top of page 3, give the first experiment a heading including its number, name, and date:

  **Exp 1: Basic Electricity**
  **September 28, 2004**

Thereafter:

- For each experiment (including instructor demonstrations), record in your notebook all significant information – e.g., procedural notes, circuit diagrams, data, mathematical analyses, plots, conclusions. Your writing should be well organized and reasonably neat, but a formal appearance is not necessary.
- Write on both sides of each sheet, leaving no blank areas, with the following one exception.
- Begin each new experiment on a right-sided (i.e., odd-numbered) page.
- Enter into the table of contents the number, name, and page number of each experiment, have the instructor sign your documentation before you leave the lab.
- Do not write in your lab notebook (or otherwise alter it) outside of lab.

**Assignments:** It is anticipated that at the end of each experiment, there will be several post-lab questions to be answered. Your answers (written on loose-leaf sheets separate from your lab notebook), are due at the beginning of the next class.

**Grading:** The course grade will be based on a weighted average of the scores obtained on the post-lab assignments and the final exam, using the following weights:

  Assignments: 75%
  Final exam: 25%
**Class Attendance**: Following the add-drop period, class attendance is *mandatory* to pass the course – except for university-recognized emergencies, which must be brought to the instructor's attention as soon as possible (e.g., by telephone or e-mail). Attendance will be verified by a signature sheet for everyone to sign, which will be circulated during class.

**Class Meetings**: Room 20-148, T 12:10pm – 3:00pm.

**Final Exam Date and Time**: Tuesday, Nov. 30, 12:10pm – 1:00pm.

**Office Hours (may change)**:

M: 3:10pm – 5:00pm  
Tu: 4:10pm – 5:00pm  
W: 4:10pm – 5:00pm  
Th:  
F: 4:10pm – 5:00pm

or by appointment.