**EECS170LA Electronics I Laboratory: Section B**

Fall 2005

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| **Goal and Description:** | Laboratory accompanying EECS170A for students to improve experimental skills and enhance the understanding of lecture materials by conducting hand-on experiemnts. The experiments focus on semiconductor material properties, semiconductor device physics and operation principles, transistor switches, and transistor amplifiers. |
| **Prerequisites:** | Physics 7D, EECS70A, and EECS70B |
| **Co-requisites:** | Physics 7E, EECS 170A |
| **No. of Units:** | 1 unit |
| **No. of Design units:** | 1 unit |
| **Experiments:** | 1. Introduction and equipment operations<br>2. Soldering technology and RC filters<br>3. Characterization of semiconductors<br>4. Characterization of P-N junction and Schottky diodes<br>5. Transient responses of diodes<br>6. Characterization of bipolar junction transistors and MOSFETs<br>7. Bipolar junction and MOS transistors as switches<br>8. Bipolar junction transistor amplifier |
| **Objectives & Outcome:** | This course partially satisfies Obj-EE 1 and EE3. It partially contributes to a successful assessment of outcomes Out-EE(c), Out-EE(d), and Out-EE(f). It partially satisfies the program criterion Crit-EE 2. |
| **Outcomes**: | Students will learn how to use modern electronic equipment, how to characterize diodes and transistors, and how to build basic circuits and measure them. At the end of course students will be able to design, build, and measure single-stage transistor amplifiers. |
| **Laboratory Location:** | MSTB 224 |
| **Instructor:** | Peter J. Burke, Professor<br>Electrical and Computer Engineering<br>2226 Engineering Gateway<br>949-824-7462 pburke@uci.edu |
| **Teaching Assistants:** | Zhen Yu (yuz@uci.edu), Gang Qiu (gangq@uci.edu) |
| **Grading Components:** | Lab. reports 50%<br>Quiz (Dec. 1, Monday) 50% |
| **Laboratory Manual:** | Available ~ $6 per copy at the Engineering Copy Center |

You must be present in the entire lab period to get credit.

## *The lab course starts on Monday September 26, 2005.*