

## EEO352: Electronics Laboratory I

Fall 2013

### 2013-2014 Catalog Description:

Electronics Laboratory I provides students with a hardware-based learning environment for hands-on experimentation with computer-based instrumentation and the construction, diagnosis, characterization of a variety of analog and digital electronic circuits. Devices used include resistors, capacitors, diodes, SCR, MOSFET, BJT, opamp, and digital ICs. Students also practice how to communicate effectively through writing reports. (3 credits)

**Course Designation:** Required

**Text Book:** Laboratory Manual posted on Blackboard

**Prerequisites:** Circuits

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**Goals:** Students learn how to design, build, diagnose, and characterize basic electronic circuits.

**Objectives:** After successfully completing the course, students should be able to:  
1) operate electronic instrumentation, 2) analyze characteristics of devices and circuits, 3) read diagram, construct, diagnose, and characterize electronic circuits, 4) prepare technical report.

### Topics Covered:

Activity 1.	Introduction to Electronics Laboratory
Activity 2.	RC Filters and Diodes
Activity 3.	DC Power Supply
Activity 4.	Inverters and Clock Signal Generation
Activity 5.	Digital Circuits
Activity 6.	Operational Amplifier
Activity 7.	Field-Effect Transistor Amplifier
Activity 8.	Bipolar Junction Transistor Amplifier
Activity 9.	Timing Circuit and Silicon Controlled Rectifier
Activity 10.	Exams

**Class/laboratory Schedule:** 4 hour laboratory per week

## Student Outcomes and Assessment

**%  
contribution**

✓ (a) an ability to apply knowledge of mathematics, science and engineering	10
✓ (b1) an ability to design and conduct experiments	30
✓ (b2) an ability to analyze and interpret data	20
✓ (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	10
<input type="checkbox"/> (d) an ability to function on multi-disciplinary teams	
<input type="checkbox"/> (e) an ability to identify, formulate, and solve engineering problems	
✓ (f) an understanding of professional and ethical responsibility	10
✓ (g) an ability to communicate effectively	20
<input type="checkbox"/> (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
<input type="checkbox"/> (i) a recognition of the need for, and an ability to engage in life-long learning	
<input type="checkbox"/> (j) a knowledge of contemporary issues	
<input type="checkbox"/> (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	
<input type="checkbox"/> (l) an ability to communicate and/or collaborate effectively online	

**Document Prepared by:** Pao-Lo Liu on 1/16/2014