EEO353: Electronics Laboratory II

Spring 2014

2013-2014 Catalog Description:

Electronics Laboratory II builds upon Electronics Laboratory I and covers optoelectronic devices, such as, ir LED and photo-transistor; advanced circuit concepts, such as, negative feedback and differential amplifier; and oscillator circuits. There are three design projects: multi-stage amplifier project, radio frequency project, and micro controller project. Students also practice how to communicate effectively through writing reports. (3 credits)

Course Designation: Required

Text Book: Laboratory Manual posted on Blackboard

Prerequisites: EEO352

Instructor: Pao-Lo Liu, (716) 645-1021, paololiu@buffalo.edu

Goals: Students learn more advanced concepts and applications of electronic circuits.

Objectives: After successfully completing the course, students will be ready to: 1) design application circuits meeting specific design goals, 2) ready to conduct design projects and deliver project presentations.

Topics Covered:

Activity 1.	Negative Feedback and Push-Pull Amplifier
Activity 2.	Differential Amplifier
Activity 3.	*Multiple Stage Amplifier Project*
Activity 4.	Oscillators
Activity 5.	Infrared Transmitter and Receiver
Activity 6.	*Radio Frequency Communications Project*
Activity 7.	*Micro Controller Embedded Systems Project*

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	20
✓ (b2) an ability to analyze and interpret data	10
✓ (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	30
❑ (d) an ability to function on multi-disciplinary teams	
❑ (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
❑ (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
❑ (i) a recognition of the need for, and an ability to engage in life-long learning	
❑ (j) a knowledge of contemporary issues	
❑ (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	
❑ Any other outcomes and assessments?	
❑ (l) an ability to communicate and/or collaborate effectively online	

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