# **EE1A/EE1LA: Engineering Circuit Analysis I**

Department of Electrical Engineering, University of California Spring 2004

Class

lecture: MWF 8:10-9:00 am, HMNSS 1503			laboratory: T 11:10am –2pm, F 2:10-5pm, B160 Bourns		
Instruc	tor: Prof. Ilya Dumer	A257 Bourns, dumer@ee	<u>ucr.edu</u>	Off. hrs: MW 5 pm - 6 pm	
TA:	Arun Rangarajan Zhuo Zhao	arangara@ee.ucr.edu; zzhao001@student.ucr.ed	<u>du</u> Off.	Hrs. TR 2:30-4 pm , room B-236 Hrs. MW 3:30-5 pm, TA office	

# **Textbooks:**

**T1. Electric Circuits** (TK454.N54) (reserved), J. Nilsson & S. Riedel, 6th ed., Prentice-Hall, 1999 (ISBN 0-201-43653-1), or 2001 (revised printing, ISBN 0-13-032120-6)

**T2.** Introduction to PSpice Manual for Electric Circuits (TK454.N542) (reserved), J. Nilsson & S. Riedel, 4th ed., Prentice-Hall, 2000.

T3. EE1LA Lab Manual (in Printing & Reprographics Center)

#### **References:**

R1. Basic engineering circuit analysis (TK454.I78), J. Irwin, 5th ed., Prentice Hall, 1996.

R2. SPICE: a guide to circuit simulation and analysis using PSpice (TK454.T85), P. Tuinenga, 2nd ed., Prent. H., 1992.

R3. Using Computer Tools for Electric Circuits (TK454.N542), J. Nilsson & S. Riedel, 5th ed., Addison Wesley, 1995.

Prerequisite: Physics 040C and Math 046

Course Description: The following topics on circuit analysis will be covered:

(1) Circuit variables and units	(2) Fundamental circuit elements
(4) Resistive circuits	(5) Node-voltage and Mesh-current analysis
(7) Inductors and capacitors	(8) Responses of RC and RL circuits

(3) Kirchhoff's laws

- 6) Operational amplifier
- (9) Circuit analysis with PSpice

# Lab

One lab orientation, seven lab experiments, and two practical tests. Two students form a group. One is responsible for connecting the circuit, the other one for checking connections. Two group members must alternate responsibilities to get equal practice. A connector board at least 5 inch by 7 inch is needed for each group. Other tools will be described in the lab orientation. Each group of two students is required to write the lab report and submit it according to the TA's requirements. Before each session, the lab description is expected to be read, the Prelab be completed and your circuit be connected. No late lab report will be accepted.

#### Homework

Homework will be assigned every week, and collected the following week in class. Each homework should be completed individually. No late homework will be accepted. Home assignments from the textbook T1:

 HW1
 1.9, 1.16, 1.26, 2.3, 2.12, 2.16, 2.20, 2.25

 HW3
 4.2, 4.9, 4.11, 4.22, 4.27, 4.35, 4.39, 4.42

 HW5
 4.87, 4.92, 5.2, 5.5, 5.12

 HW7
 7.6, 7.33, 7.36

The syllabus, some course materials and homework solutions will be posted on http://www.ilearn.ucr.edu/

# Exams

One midterm exam in class on 05/05/2004 and one final exam 06/08/2004 3 to 6 p.m. The exams are closed book. No make-up exam will be provided.

**Grading:** 3 unit letter grade for the lecture and 1 unit letter grade for the lab. Lecture: homework - 15%; midterm exam - 35%, final - 50%. Lab: each lab - 10%; each practical test - 15%.