Syllabus for MAE140
Linear Circuits - Fall 2011

September 28, 2011

This is the Syllabus for MAE140 - Linear Circuits, Fall 2011. Steady-state and dynamic behavior of linear, lumped-parameter electrical circuits. Kirchoff's laws. RLC circuits. Node and mesh analysis. Operational amplifiers. Signal acquisition and conditioning. Electric motors. Design applications in engineering.

Instructors

Jorge Cortés, `cortes at ucsd.edu`

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Teaching assistants

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Prerequisites

Grades of C- or better in Math 20D, 20F and Phys 2B.

Text

The Analysis and Design of Linear Circuits, 6th Edition, R. E. Thomas, A. J. Rosa and G. J. Toussaint, Wiley 2009. ISBN 0470383305. Available on the Science and Engineering Library Reserves.

Important: there is a custom version of the textbook which will be sold at the UCSD bookstore at a significant discount. It should be in stock in time for the class.

Calendar

Both MAE140 sections (# 724188 and # 724189) will be taught in a coordinated way. This means that the instructors will cover roughly the same material at each day of class. The website contains a list of downloadable PDFs with the slides used during the lectures:

Part I
- Introduction (T & R, Chapters 1 & 2)
- Equivalent circuits (T & R, Chapters 2 & 3)
- Systematic circuit analysis (T & R, Chapter 3)
- Active circuits (T & R, Chapter 4)

Part II
- Laplace transform (T & R, Chapter 6 & 9)
- Circuits in the s-domain (T & R, Chapter 6 & 10)
- s-domain circuit analysis and design (T & R, Chapter 10)
- Frequency response and filter design (T & R, Chapter 12 & 14)

It is highly recommended that your reading of the book is one set of slides ahead of what we cover in class.

Exams

The midterm will be on Thursday, October 27, 2011, in class.

The final will be on Wednesday, December 7, 2011, 11:30-2:30pm, at TBD.

Homework

There will be a set of homework problems per week taken from the main text. The homework will be collected and returned on Thursdays. Homework assignments are due weekly (specific dates for your reference are included in the webpage). 20% deduction for lateness by one day without reason, else 100%.

Homework MUST be stapled and MUST be written legibly and in logical order. You MUST include your name (print it!), your professor's name, your ID #, and the assignment.

You are encouraged to ask questions about homework problems in the discussion section. You are encouraged to work in groups on homework problems but each student MUST turn in homework separately.

Grading policy

The overall grade will be the **maximum** between

Grade 1: Final exam: 100%
Grade 2: Homework: 20%, Midterm: 30%, Final exam: 50%

Even if you count on getting the overall grade with option 1, you should still turn in all your homework. Past experiences reveal that it is nearly impossible to get a good grade in the final without having first done the homework.

Official solutions to the midterms and final exams will be posted online.

Ted

Your grades will be available via Ted. Check out http://ted.ucsd.edu for instructions on how to register and log in.

Academic honesty

No form of academic dishonesty will be tolerated. For the definition of academic dishonesty and its (ominous) consequences, refer to the UCSD General Catalogue 2011-2012 at http://infopath-1.ucsd.edu/catalog/front/content.html

Room location and hours

Lectures of section #724188 (Sonia) take place at Peterson Hall (Map Building 399), room 104, Tuesdays and Thursdays, from 12:30pm to 1:50pm.

Lectures of section #724189 (Jorge) take place at Herbert F. York Undergraduate Sciences Building (Map Building 137), room 2622, Tuesdays and Thursdays, from 11:00am to 12:20pm.

Discussion sections take place at Faustina Solis Lecture Hall (Map Building 395), room 104, Wednesdays, from 1:00pm to 1:50pm.

Office hours

Jorge: Thursdays, from 2:00pm to 3:00pm, at EBUII, room 305.

Sonia: Tuesdays, from 2:00pm to 3:00pm, at EBUII, room 305.

Teaching assistants:

- Mike: Mondays, from 2:00pm to 3:00pm, at EBUII, room 305.
- Hamed: Fridays, from 2:00pm to 3:00pm, at EBUII, room 305.
- Chien: Wednesdays, from 2:00pm to 3:00pm, at EBUII, room 305.

Course webpages

http://tintoretto.ucsd.edu/jorge/teaching/mae140/

http://faemino.ucsd.edu/~soniamartinez/teaching/140_LinearCircuits

The webpage contains this syllabus and the list of homework due. Please check it periodically for updates and other announcements related to the course.