Syllabus for MAE140
Linear Circuits - Winter 2009

January 14, 2009

This is the Syllabus for MAE140 - Linear Circuits, Winter 2009. 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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> Mauricio de Oliveira, `mauricio at ucsd.edu`

Teaching assistants

> Mansi Sheth, `mnsheth at ucsd.edu`
>
> Jun Shin, `jss003 at ucsd.edu`
>
> Halil Bastruk, `basturkhalil at gmail.com`

Prerequisites

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

Text

> The Analysis and Design of Linear Circuits, 5th Edition, R. E. Thomas and A. J. Rosa, Wiley 2006. ISBN 0-471-76095-1. Available on the Science and Engineering Library Reserves.

Calendar

> Both MAE140 sections (#644611 and #650317) 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, February 5, 2009, in class.

The final will be on Tuesday, March 17, 2009, from 11:30am to 2:30pm.

Homework

There will be a set of homework problems per week taken from the main text. The homework will be collected and returned on Tuesdays. 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 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%

In exceptional cases, I reserve the right to give extra points for excellent performance on the midterms and the final. Please do not count on it as a way to avoid doing the other assignments.

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

WebCT

Your grades will be available via WebCT. Check out http://webct.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 2008-2009 at http://infopath-1.ucsd.edu/catalog/front/content.html

Room location and hours

Lectures of section #644611 take place at Faustina Solis Lecture Hall (Map Building #395), room 107, Tuesdays and Thursdays, from 12:30pm to 1:50pm.

Lectures of section #650317 take place at Peterson Hall (Map Building #399), room 102, Tuesdays and Thursdays, from 3:30pm to 4:50pm.

Discussion sections take place at Patrick J. Ledden Auditorium (formerly Humanities and Social Sciences Building, Map Building #250), Mondays, from 3:00pm to 3:50pm.

Office hours

Jorge: Thursdays, from 2:00pm to 3:00pm, at EBUII, room 312.

Mauricio: Tuesdays, from 2:00pm to 3:00pm, at EBUII, room 312.

Teaching assistants:

- Mansi: Mondays, from 10:00am to 11:00am, at EBUII, room 312.
- Jin: Wednesdays, from 10:00am to 11:00am, at EBUII, room 312.
- Halil: Fridays, from 10:00am to 11:00am, at EBUII, room 312.

Course webpages

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

http://maecourses.ucsd.edu/~mdeolive/mae140/

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