

ENEE 610 - Fall 2004

Course Description

1. Course: ENEE 610, Electrical Network Theory
2. Time: M W 17:00 - 18:15
3. Place: Room CHEM 0128
4. Instructor: R. W. Newcomb
Office: AVWII-1347; MSLab: AVWII-1362
Phones: Office: (301) 405-3662 Home: (301) 622-0177 (before 9:30pm)
Office Hours: probably MW 16:15 - 16:45
email address: newcomb@eng.umd.edu
5. Grader: Ms. Yu Jiang; email: jiangyu@glue.umd.edu
6. Prerequisite: Graduate standing in EE or consent of instructor
7. Textbook: B. Peikari, Fundamentals of Network Analysis and Synthesis," reprint Edition, R. E. Krieger Publishing Co., Malabar, FL, 1982. [available from Author; to be in bookstore]
Recommended Programs: SPICE; Evaluation version of PSpice, MATHCAD and/or MATLAB.
8. References:
 - a) M. Hasler and J. Neiryneck, Nonlinear Circuits, Artech House, Norwood, MA, 1986.
 - b) Journal Articles from: IEEE Transactions on Circuits and Systems, CSSP Journal; ISCAS Proceedings, Electronics Letters
9. Course Description:

This course covers the theory of electrical networks with an emphasis upon computer aided design and advanced analog circuit theory aspects including synthesis. Treatment is from the abstract to the concrete and includes computer aided circuit design, especially for the use of PCs. Students are expected to get a good general knowledge of advanced network theory and synthesis as well as the experience of an in depth circuit theory study. Course web page with possible files of interest:

http://www.ece.umd.edu/newcomb/courses/fall2004/610/ENEE610_fall2004.html

10. Course Operation:

Lectures and discussions will be given at the class period, including computer demonstrations. The student is to become an expert on a paper from the literature in the field of electrical network theory. For this and depending upon class size, two student presentations are planned, one to give the background theory, and the other giving a computer aided design based upon the theory of the paper chosen. A formal engineering paper summarizing the journal paper and its background and related information is then to be submitted at the end of the course. Every student will be a commentator on another student's paper and presentations. The student should work problems from the textbook or similar source or make up appropriate ones. To record this a notebook should be kept, with a table of contents indexing it and dating the work as done, showing the examples worked, details of theorems proven, etc., along with other materials studied for the course.

Use of PSpice (or/and Unix Spice or any other circuit analysis program) is encouraged. Disks of evaluation version 6.2 of PSpice (in Design Center form) are available for student download from http://www.ece.umd.edu/newcomb/spice_dl.htm (a CD of student version 9.1 may still be obtained from Cadence at <http://www.cadencepcb.com/products/downloads/default.asp>) and the PCs of the Jasmine Lab are available for use as are the SUN workstations of Rooms AVW 1442 for which every student should have an account. VLSI fabrications via MOSIS of designs are possible - see the instructor for details.

11. Grading:

Depending upon the presence of a TA or grader the grading will be roughly:

15% = notebook

15% = class presentations and participation including commentator activities

45% = final report

25% = final [Th 12/16/04; 16:00-18:00]