

EEL 4421/6936 RF/Microwave Circuits I – Fall 2006

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Office Hours: Tuesday 3:30-5, and by appointment

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Class Time: 2:00-3:15 on TTh in ENB 110

Overview: This course provides an introduction to passive RF/microwave/wireless circuit design. Topics to be covered include distributed transmission line theory, lumped circuit and network analysis, impedance matching, and the design of various microwave components (e.g., filters, couplers, detectors, and mixers).

Course Objectives: 1) Gain a solid understanding of distributed transmission line theory, 2) Become proficient in the analysis of lumped and distributed transmission line circuits, and 3) Become familiar with modern RF/microwave circuit design techniques.

Prerequisites: EEL 4472 (Electromagnetics) and ELR 4316 (Wireless Circuits and Systems Laboratory), or graduate standing.

Text: *Microwave Engineering* by David M. Pozar, 3rd Edition, Wiley, 2005. **References:**

1. Transmission Line Design Handbook by Brian Wadell, Artech House, 1991
2. Microstrip Lines and Slotlines by Gupta, Garg, Bahl and Bhartia, Artech House, 1996.
3. Foundations for Microwave Engineering by Collin, McGraw-Hill, 1992.

Computer Requirements: Access to and experience with a PC or work-station is necessary. A PC is preferred, and it should have a 586 or higher processor, at least 512 MB RAM, Windows XP and SVGA graphics capability.

Assignments: There will be homework assignments given almost every Tuesday, that are due the following Tuesday. These will be combined with approximately six “laboratories” that involve the use of computer-aided engineering software (*Advanced Design System* (including *Momentum*) from Agilent Technologies).

EEL 6936 Students: You will be required to review two journal papers throughout the semester and write brief summary reports. You will also be required to complete additional homework problems beyond what are done by the undergraduate students.

Miscellaneous: Academic dishonesty – it is not acceptable to copy, plagiarise or otherwise make use of the work of others in completing homework, project, exam or other course assignments. The minimum penalty for doing so is an automatic zero on the assignment. Unless specified otherwise, scholarly exchange on out-of-class assignments is encouraged. If there are any questions regarding this policy they should be asked. **Attendance policy** – you are not required to attend lectures. **Property** – you are not granted permission to sell notes or tapes of class lectures. **Absence** – you must provide written notification by the second class period if you anticipate being absent from class due to major religious observances. **Make-up assignments** – late work will not be accepted without prior notification (at least two days before the due date) and reasonable justification; make-up exams will be allowed at the instructor’s consent.

Grading Policy: Undergraduate and graduate sections will be graded independently. A sliding scale set at the first or second highest overall score will be used. The plus/minus grading policy will not be used.

	<u>EEL 4421</u>	<u>EEL 6936</u>
Homework	10	5
Lab exercises	15	15
Midterm exam	35	35
Paper Reviews	0	5
Final exam	40	40