

EEE 451/551 Microwave Engineering

Fall Semester 2013

Textbook: D. M. Pozar, *Microwave Engineering*, John Wiley & Sons, Latest (3rd) Edition.

References: Robert S. Elliot, *An Introduction to Guided Waves and Microwave Circuits*, Prentice-Hall International, Inc. 1993,

Peter A. Rizzi *Microwave Engineering*, Prentice-Hall International, Inc. 1988,

R. E. Collin *Foundations of Microwave Engineering*, McGraw-Hill Book Company, 1966

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Goals: To introduce the high frequency behavior of circuit and network elements as well as the analysis and the design of passive microwave devices.

Prerequisites by Topics:

1. Electromagnetic Waves
2. Circuit theory and complex numbers
3. Ordinary and partial differential equations.

Topics:

1. Review of basic electromagnetic theory.
2. Introduction to guided waves (theory of general cylindrical waveguides).
3. Review of transmission line theory.
4. Smith Chart and transients in transmission lines.
5. TE, TM and TEM waves in printed transmission lines and waveguides.
6. Microwave network analysis.
7. Impedance matching and tuning.
8. Passive microwave circuit elements (Resonators, Power Dividers, Directional Couplers, Hybrids, etc.).

Grading Policy (Tentative):

- Quiz: 25% (There will be overall 5 quiz, each counts 5%)
- Midterm Exam: 25%
- Laboratory 5% (laboratories for extra credits are available for interested parties)
- Project : 15%
- Final Exam: 30%

Project/Lab Policy: Copying from other's project/report is strictly forbidden and disciplinary action will be taken when noticed. On the first page of each project/laboratory report (underneath your name and number), please write the following pledge "*No aid is given, received or observed*" and sign it.

Attendance: All students are expected to attend the lectures. Attendance will be taken and should be minimum 70% throughout the semester to obtain a passing grade. For those who attend the course less than 70% without a valid excuse will receive **FZ** automatically regardless of their midterm and quiz grades.