The general flow of the course is Application —> System —> Component; individual components are analyzed by Fields —> Modes —> Equivalent Network. The course proceeds from a review of microwave systems to analysis and synthesis of passive microwave components, then to active, nonreciprocal and nonlinear microwave components.

Applications of microwaves (terrestrial and satellite communications, radar, remote sensing, wireless), system requirements for elements which must be analyzed and synthesized. Propagation modes (TEM, TE, TM, quasi-TEM), attenuation and dispersion of general guidelines. Modeling of discontinuities and junctions using S-parameter matrix. Analysis of circuit components (impedance transformers, directional couplers, hybrids, circulators, filters, solid state mixers, amplifiers and oscillators) and MIC structures (microstrip, coplanar waveguide, slotline, finline, and imageline). Microwave computer-aided design examples. Prerequisites: EE142 or equivalent.


Course Reader: Leeson, D., *Microwave Engineering Notes*, 2003

Additional recommended:

Class: MWF 11:00 in room 550-550D

Office hours: Instructor, Wed 1:15-2:30 by appointment

Homework: Assigned every week, handed out Friday, due Monday two weekends later, graded homework and solutions available following Friday.

Exams: One-hour MIDTERM plus three-hour FINAL. All exams in-class and open book.

Grading: Tentatively set at 30% HW, 30% MIDTERM and 40% FINAL

Web page: http://eeclass.stanford.edu/ee246/
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