Instructor: Richard Campbell    Office hours T-Th 1-2 p.m. 503 725-9046
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Course Outline:

• Review Wave Equation, impedance, reflection and transmission
• Radio Frequency Prototype Design and Construction
• Review of standing waves and wave propagation
• Smith Chart: Theory and practice. Design of narrow band matching networks using the Smith Chart
• Scattering Parameters: Emphasis on physical interpretations of elements of S-matrix.
• Microwave building blocks: amplifier; frequency mixer; filter; oscillator
• Software tools for dealing with above topics

Other information:

Textbook: David M. Pozar Microwave Engineering 3rd edition, John Wiley 2005
Lab Kit: Kanga 50 MHz VHFs available at PSU Bookstore in February
web resources: ece.pdx.edu/~campbell

Pre-requisites by topic:

• Maxwell’s equations in general form, boundary conditions on differential equations, electromagnetic wave equations
• Familiarity with transmission lines, waveguides and resonators, and antennas
• Basic semiconductor device operation (p-n junction, BJT, MOSFET)
• Pre-requisite course: EE 331/332 or equivalent
• A working knowledge or exposure to transmission line concepts is assumed

Grading: mid-terms (50%), study exercises (25%), lab projects (25%), Class attendance is expected-the lab project work requires interactions in class. Text readings and problems will be suggested but not graded. Grad students lead project work and conduct independent investigations.

If you are a student with a documented disability and registered with the Disability Resource Center, please contact the instructor at the beginning of the course to set up appropriate academic accommodations, e.g. taking quizzes in the Disability Resource Center. You are required to self-identify and request accommodations to be eligible for services. DRC can be reached at (503) 725-4150.