Electrical and Computer Engineering 5810  
Microwaves I  
Elective

Course Description:
Impedance matching, microwave network analysis, waveguides, nonlinear elements, analysis and design of power dividers, filter, and ferromagnetic circuits. Laboratory work required.

Prerequisites:
ECE 3870

Textbook:

Course Outcomes:
1. Master transmission line and waveguide theory and develop a working knowledge of circuit design using microstrip and rectangular waveguides.
2. Master Microwave Network Analysis with an emphasis on S-parameters and its use in impedance matching and tuning.
3. Learn to design, fabricate and test/characterize power dividers and directional couplers.

Topics Covered:
- Transmission Line Theory
- Transmission Lines and Waveguides
- Microwave Network Analysis
- Impedance Matching and Tuning
- Microwave Resonators
- Power Dividers and Directional Couplers
- Microwave Filters (time permitting)

Outcome Assessments (Grades):

- Homework: 15%
- Quizzes: 10%
- Project and Labs: 40%
- Midterm: 15%
- Final: 20%

Class Schedule:
Class: Twice a week for one hour and fifteen minutes.

Contribution of course to meeting the requirements of Criterion 5:
3 credit hours of Engineering Topics and contains significant engineering design content

Relationship of course to student outcomes:
Instructor:
    Bedri Cetiner, Associate Professor
    January 2014