



Course EERF6335: RF and Microwave Amplifier Design
Professor Matt Heins
Term Fall 2013
Meetings 8:30-9:45pm Tuesday, Thursday ECSS 2.311

Professor's Contact Information

Office Phone TBD
Office Location TBD
Email Address Matthew.Heins@utdallas.edu
Office Hours TBD

General Course Information

Pre-requisites, Co-requisites, & other restrictions EE4368 or equivalent

Course Description **RF and Microwave Amplifier Design**

- Ability to understand the properties of S-parameters and calculate S-parameters of electrical circuits
 - Ability to implement impedance matching networks with discrete components and microstrip lines
- Learning Outcomes**
- Ability to determine the stability of RF and microwave amplifiers
 - Ability to design narrow and broadband RF and microwave amplifiers circuits

Required Texts & Materials

Title: Microwave Transistor Amplifiers: Analysis and Design, 2nd ed.
Author: Guillermo Gonzalez
Publisher: Prentice Hall
ISBN: 0-13-254335-4

- Suggested Texts, Readings, & Materials**
- Students must have to access eLearning.
 - Simulations will be carried out in **AWR Microwave Office** which is available in the computer labs of the department.

Course Content:

1. Two-port networks

- The Impedance, Admittance, Hybrid and ABCD Matrices
- Transmission Line Concepts
- Scattering Parameters

2. Matching networks

- The Smith Chart
- Impedance Matching Networks
- Power Gain

3. RF and Microwave Amplifier Design

- Power Gain Equations
- Stability Considerations
- Two port matching
- Bias Networks

4. Noise in Amplifiers

- Noise in Two-port Networks
- Noise Figure
- Low Noise Amplifiers
- Constant Noise Figure Circles

5. Broadband Techniques

- Broadband Amplifier Design
- Bandwidth Analysis

Note: Course content is subject to change and may include material from lectures that is not covered in the textbook.

Course Policies

Grading (credit) Criteria	Grading Policy (Subject to change) Quizzes: 10 % Projects: 35 % Exam 1: 25 % Exam 2: 30 % Exam 1 and 2 dates will be announced in eLearning at least 1 week prior to the exam. Homework is assigned weekly and may be graded.
Make-up Exams	No exam grades will be dropped. Make-up exams will be given only in very special circumstances and at the discretion of the instructor.
Late Work	Late work is not accepted without special circumstance and pre-arrangement with the instructor.
Special Assignments	Design projects will be assigned which will be completed using the AWR microwave design tool and analysis methods in the course. A final report and software file will be submitted for a grade.
Classroom Citizenship	Student participation in lectures is expected. Please silence all mobile phones and refrain from using them in class.
UT Dallas Syllabus Policies and Procedures	<i>The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.</i> Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.