

**Department of Electrical and Computer Engineering**  
**Louisiana State University**  
**EE 4002-2 RF Circuit Design**  
**Spring 2004**

**Schedule:** 10:40-12:00 T,Th

**Location:** 1114 CEBA

**Catalog Description:** EE 4002-2 **RF Circuit Design** (3) *Prereq: EE 3220, 3320, 3120* (C or better). Analysis and design of transmission lines, single and multi-port networks, RF amplifier design, RF filter design and RF component modeling.

**Prerequisites by topic:**

1. Transistor circuits and applications
2. Frequency response and frequency limitations of devices
3. Smith charts
4. Two-port Networks
5. Signal flow graphs
6. Linear systems analysis
7. Pspice
8. Matlab

**Text:** Ludwig and Bretchko, *RF Circuit Design Theory and Applications*, Prentice Hall, 2000

**Course Objectives:**

This course is intended to provide students with knowledge of the basic building blocks of high frequency circuits and systems. This course will educate the student to be able to 1. Analyze circuits using transmission line theory 2. Have a working knowledge of the various network parameters to describe single and multi-port networks 3. Analyze and design RF amplifiers, filters 4. Complete design projects given a set of specifications 5. Use software packages to simulate and verify design performance

**Instructor:** John Scalzo, MSEE Georgia Tech, BSEE Virginia Tech  
Electrical Engineering Building 102 F

**Phone:** 578-5481

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**Experience:** Microelectronics Components Design Engineer, RF Engineer

**Specialization:** DSP, Analog and Digital Communications, and Automata Theory.  
Courses include Coding Theory, Satellite communications, Cellular communications, Digital Speech processing, Digital Image Processing, Frequency Synthesizers, RF Engineering

**Office Hours:** M 9:00-10:00 am/T 9:00-10:00,12:30-1:30 pm/Th 1:30-2:30 pm/F 8:30-9:30 am

**Topics:**

1. Introduction to communications systems
2. Review the traveling wave
3. Transmission line analysis and design
4. Smith Charts
5. Single and multi-port network parameters
6. RF Filter design
7. Design of Impedance matching networks
8. RF component modeling
9. RF transistor amplifier design

<b>Grading:</b>	Homework/Projects	20%	
	Test 1	25%	
	Test 2	25%	
	Final Exam	35%	Friday May 14, 7:30 – 9:30 am

The final exam is cumulative and will replace the lowest test grade, if it helps.

**Grading Assistants:** name:  
email:  
office hours:

**Missed exams and assignments:** Make-up tests will be given only for excused absences (illness, family emergency). Students must notify me immediately upon knowing that a test will be missed. Test 1 must be made up before test 2. Test 2 must be made up before the final exam. Exams that are not taken will not be replaced by the final exam grade. Late homework will be accepted, but will be penalized 1 letter grade per day late. Assignments are due at the beginning of class.

**Academic Dishonesty:** Academic dishonesty of any kind will not be tolerated. Anyone suspected of cheating will be reported to the Dean of Students.

**Attendance and Tardiness:** There will be no attendance or tardiness policies for this class.