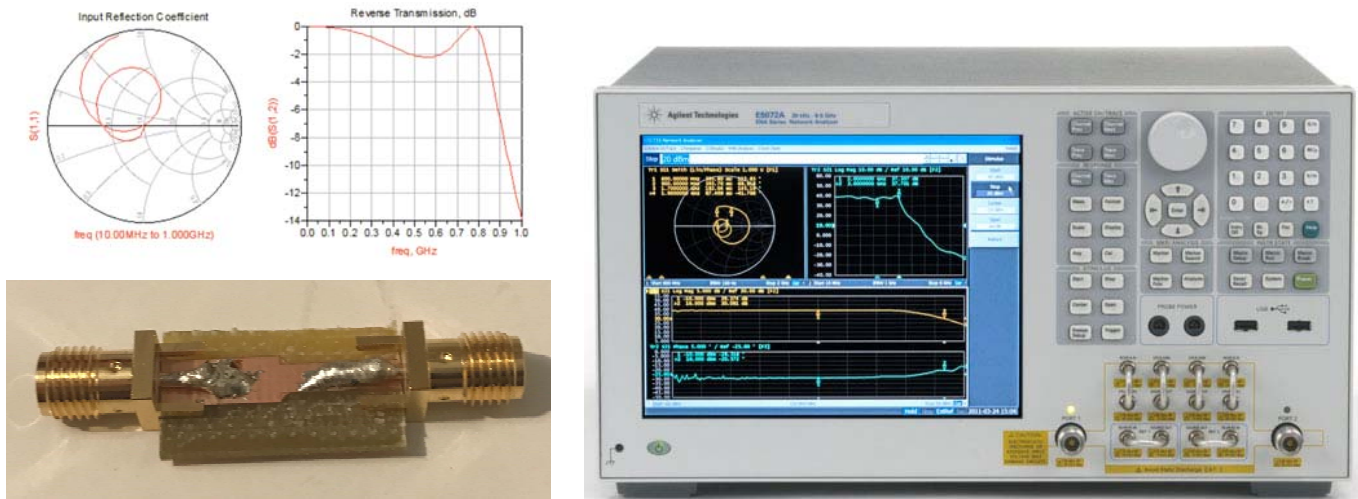
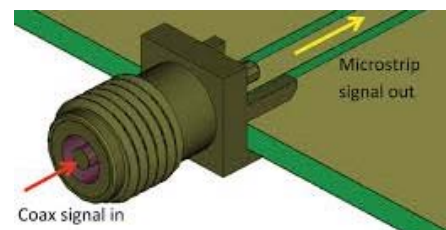
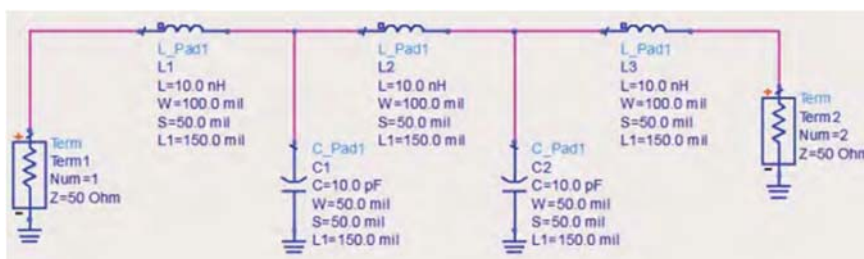


ECE-GY 9713 or ECE-UY 4133

New RF/Microwave Lab



Considering a career in RF Engineering? Learn the necessary industry skills needed for a post-graduation job in the new RF/Microwave lab. Not sure about RF Engineering? RF Design/Applications is fast-growing field that requires new talent, and lots of it! Still not sure? The median salary for RF Design Engineers is \$81,919! Improve your resume with great hands-on experience with this new lab!



Expand your knowledge by gaining valuable skills in the new RF/Microwave Design Lab! The course will teach you about common practices and the software used in the industry today. Learn how to create electromagnetic simulations with Advanced Design Systems, build your own printed circuit boards from scratch, design RF circuits based on industry standards and much more! Prerequisite: EE-UY 3604 or equivalent (undergraduate EM)

Date:
Fall 2018

Time:
Lec: Tue 3:20-5:50pm;
Lab: Thu 3-5:50pm or Fri 10-12:50pm

Place:
Lec: 2 MTC 9.009

Instructor

Prof. I-Tai Lu, itl211@nyu.edu; 646-997-3041
Room 9.114, 2 Metro Tech Center



New Course:**RF and Microwave Circuit Design Lab (3 credits)****Cross Listed Catalog Numbers:**

ECE-GY 9713 SEL TOP ELECTRDYMC/WAVE/ PLASM

ECE-UY 4133 DESIGN PROJ: ELECTROMAGNETIC WAVES AND APPS

Course Description:

This course is to cover transmission line and microstrip line theory, Two-Port Networks and S-Parameters. It will also cover the principles and procedures related to various RF circuit designs including Low Pass, High Pass and Stepped Impedance line Filters, Attenuators, Impedance Matching Networks, Resonators, and Directional Couplers. The course contains both lecture and lab components. Students will implement these circuits physically by designing them to match the parameters of real devices available in the industry, simulating these designs on Advanced Design System (ADS) software and finally manufacturing and testing the designed circuits using Vector Network Analyzers. Alternate-week laboratory.

Objectives:

To provide Graduate students and Undergraduate Seniors important training on RF and Microwave circuit designing so that they can be equipped to work as RF and Microwave Engineers. Undergraduate students can use this course to satisfy the DP1 requirement and can do a DP2 project in RF and Microwave circuit design.

Prerequisites: ECE-UY 3604 or equivalent (Undergraduate Electromagnetic Theory)

Weekly Lectures (10 total, given in the first 10 weeks)

Biweekly Lab experiments (six total, every 2 weeks)

Topics:

- Transmission Line Theory
- Microstrip Line Theory
- Two-Port Networks and S-Parameters
- Impedance Matching and Smith Charts
- Resonators
- Directional Couplers
- Power Dividers
- Filters (Low Pass, High Pass etc.)
- Attenuators

Computer Usage: ADS software, EagleCad

Lab Equipment: Vector Network Analyzer, LPKF, Othermill

Texts: Microwave Engineering, David M. Pozar, 4th Edition; Lab Manuals (to be provided)

Training Required: Safety Orientation Training, Othermill and LPKF training at Makerspace, NYU

Grading Policy

1. Lab Part
 - a. Lab attendance and participation (18%)
 - b. Lab results and reports (18%)
2. Theory Part
 - a. Lecture attendance and Class participation (15%)
 - b. Homework and Quizzes (20%)
3. Final Project (14%)
4. Final Exam (15%)

Instructor

Prof. I-Tai Lu
Room 9.114, 2 Metro Tech Center
itl211@nyu.edu; 646-997-3041