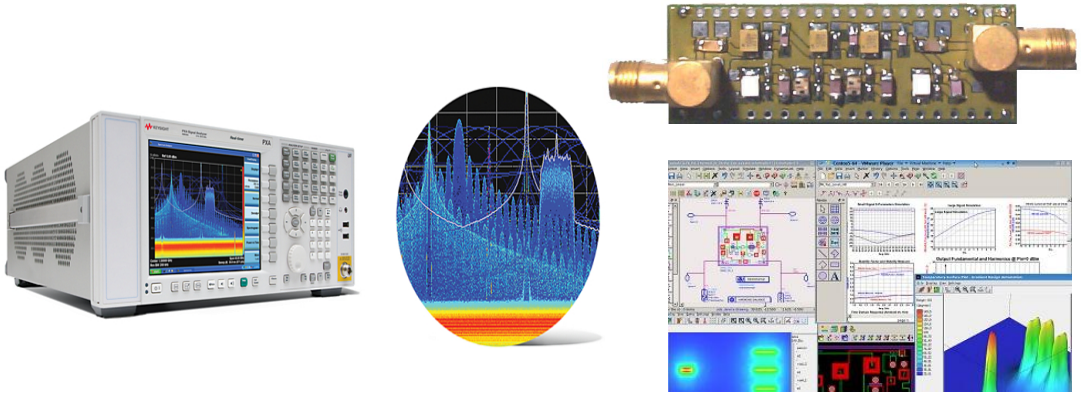
ELEN 6903: Principles of RF and Microwave Measurements



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This hands-on lab-based course covers the principles behind RF and microwave simulation and metrology, key skills in scientific research and industrial development. The theory behind various simulation and measurement techniques will be covered. The course will include multiple measurement- and simulation-based lab modules that will utilize industry-standard measurement equipment as well as EDA tools.

Topics include:

- RF and Microwave Basics
- Theory of S Parameters
- RF Passive Components
- Principles of Network Analysis Measurements
- Principles of Large-Signal Simulations and Measurements
- Principles Behind Spectrum Measurements
- Principles Behind Noise Measurements
- Principles of Time Domain Measurements
- Frequency-Conversion Measurements

Instructor: Prof. Harish Krishnaswamy
Number of Credits: 3
Hours: Fall 2015 on Tue/Thur from 2:40pm-3:55pm. Lab sessions are TBD.
Evaluation: midterm exam (20%), final exam (30%) and lab modules (50%).

Enrollment: The total class size will be capped at 27 students due to availability of lab resources. Interested students are required to send Prof. Krishnaswamy an email at harish@ee.columbia.edu by September 4th, 5pm Eastern time, stating their interest and describing their educational background in a CV. Please emphasize prior coursework in analog, RF and microwave engineering. Qualified students will be admitted on a first-come-first-serve basis. A wait list will be maintained to finalize enrollment by the Add/Drop date.

A subset of the topics covered in this course has been recognized as preparing students for the Keysight RF and Microwave Industry-Ready Student Certification Program. Interested and qualified students will be nominated for the program at the end of the course.