

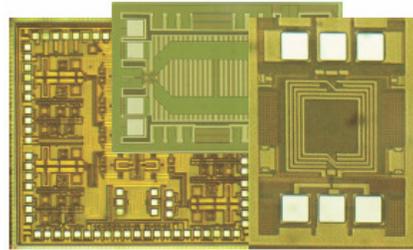
# **ELEN 9303 - Spring 2009**

## **(High-Speed Analog Circuits for Wireless and Wireline Communication Systems)**

### **(Instructor: Harish Krishnaswamy)**

This course will cover recent advancements in the area of high-speed analog integrated-circuit design for wireless and wireline communication systems. Learn about exciting new advances in the past decade in the following areas of research:

1. Transimpedance Amplifiers
2. Clock and Data Recovery Circuits
3. Oscillators and VCOs
4. Low Noise Amplifiers
5. Power Amplifiers
6. Principles of RF Measurement
7. High-speed Package Modeling
8. High-speed PCB Design for Testing



#### **Course format**

The course will be conducted in a mixed lecture-and-presentation format. Each of the topics will be introduced to students through a lecture at the end of which multiple research papers will be assigned. Students must read the paper they have been assigned, understand the claims and contributions, verify the results and prepare a 20-minute technical presentation on what they have learned to be delivered during the following lecture.

#### **Who should take the course?**

The course is ideal for the PhD student who is involved in a related field and wishes to broaden his/her knowledge base to aid his/her research. The course is also perfect for MS students who are interested in pursuing a career in analog IC design and wish to be up-to-date with recent developments in the area. At the end of the course, students will also be adept at making professional technical presentations.

#### **Prerequisites**

Students will be expected to have taken (or be taking) ELEN E4314 (Communication Circuits) and ELEN E4312 (Analog Electronic Circuits) or their equivalents at another university. Please contact the instructor ([harish@ee.columbia.edu](mailto:harish@ee.columbia.edu)) if you do not have the pre-requisites.

#### **Grading**

Students will be graded on the quality of their in-class presentations – clarity, understanding and delivery of technical contributions and ability to answer questions.

#### **Location/Time**

Thursdays from 9:00-10:50am at 337 Md.