ECEN 665: Integrated CMOS RF Circuits and Systems

• **Spring 2013:** M/W 4:10 – 5:25 p.m., 223 D ZEC

• **Instructor:** Kamran Entesari  
  **Office Hours:** M/W 3:00 pm-4:00 pm  
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• **Prerequisite:** ECEN 474, Graduate standing, Approval of the instructor


• **Description:** The purpose of this course is to understand, analyze and design of RF integrated systems and circuits. Special attention for a top-down design approach will be given. In particular the analysis and design of key building blocks are presented. Discussion of modern applications of RFICs will be provided. It is advisable that you are familiar with CADENCE, Simulink, RF-Spectre and other communication system simulators.

• **Learning Outcomes:** This is a graduate level course on the principles and applications of RF integrated circuits for wireless transceivers. The principles of operation, modeling, design and fabrication of the most common RF CMOS integrated circuits will be discussed.

• **Grading Policy:**  
  - Laboratory: 25%  
  - Homework: 15%  
  - Two Exams: 35%  
  - Final Project: 25% (due in early Dec.)

• **Topics to be covered:**  
  1. Basic concepts in RF design  
  2. Wireless standards and transceiver architectures  
  3. Passive devices on silicon  
  4. Low-noise amplifiers  
  5. Mixers  
  6. Voltage-controlled oscillators  
  7. Frequency synthesizers  
  8. RF power amplifiers

• **Americans with Disabilities Act (ADA) Policy Statement:**  
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845-1637.

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