EE8337
Spring 2012
Analog Circuits for Communications

Credits: 3
Instructor: Bodhisatwa Sadhu, 4-156 EE/CSci, 626-7171, sadhu002@umn.edu
Time: 8:00-8:50 MWF Location: MechE 102
Office Hours: 9:00-10:00 MW Location: 4-168 ECE/CSsi
Course website: https://moodle2.umn.edu/course/view.php?id=3902
(access: https://wiki.umn.edu/Main/BodhisatwaSadhu or https://myu.umn.edu)
Prerequisite: EE 5333, or equivalents, or instructor approval
Grading: Based on 1 mid-term, 1 end-term, assignments, course project (individual)
Course Description: This course will cover both the basic background and advanced design concepts necessary to design integrated CMOS RF circuits. Emphasis will be placed on CMOS and RF however, where appropriate mention will be made of bipolar circuits and applications to other communications areas. Topics to be covered include:

a) Introduction to wireless systems  
b) RF design concepts: non-idealities, useful definitions  
c) Analog and digital communications (refresher)  
d) Wireless system architectures  
e) LNA design  
f) Mixers  
g) Oscillators  
h) Frequency synthesis (if time permits)  
l) Power amplifiers (if time permits)

Students will be expected to review literature as part of assignments and design as part of a course project. Students are expected to use Matlab, Cadence and possibly one EM simulation tool (we can discuss if your favorite/accessible tool is appropriate) for design problems. Students are expected to know how to use the tools; learning the tools will not be a part of the curriculum.
Book: RF Microelectronics, 2nd ed., by Behzad Razavi
Prentice Hall, 2011