Course Description

Modeling of IC devices: transistors, capacitors, resistors, inductors. Temperature and device parameter variation effects. Building blocks of analog integrated circuits: current sources and mirrors, gain stages, level shifters, and output stages. Creative use of non-linearity. Supply, process variation, and temperature independent biasing schemes. CAD tools for circuit design and testing. Layout. Pre-requisite: ECE323 or permission of instructor.

Schedule--Fall Quarter 2015
Monday and Wednesday 4:40 - 6:30 on campus

Course Outcomes

- Fluency with diode, BJT and MOS structures and models
- Design using real devices
- If you can’t fix it, feature it: design using device non-linearity
- Fluency with the basic analog building blocks: bias, feedback, v to i, output
- Single-ended to differential circuits and techniques
- Familiarity with the use of a circuit simulator to support analog IC design
- Introduction to Analog Integrated Electronics Projects
- Ownership of a basic project in personal analog design portfolio


The goal of this course is to introduce students to the first steps on a path to a life-time journey as an analog designer.

Course structure: weekly study guides with homework assignments and prep material for upcoming exercises

Grading: weekly ungraded and graded exercises and in-class project exercises, midterm and final

Two In-Class exams--midterm and final