

# EE433/533 Mixed Signal Design (Analog IC Design)

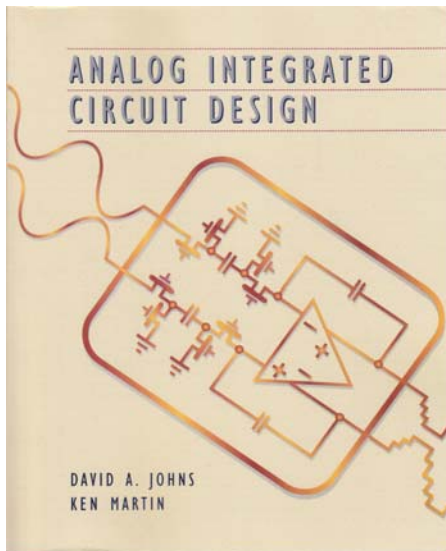
**T H 5:00 – 6:15 pm Rend 123 (Spring 09)**

**PREREQ: EE g432**

**Instructor: Jonathan Jensen from [ON Semiconductor](#)**

Today analog integrated circuit (IC) design is one of the important aspects of Electrical Engineering. Systems originated with discrete components are often re-designed as ICs to increase performance at a much lower cost. Engineers in analog IC design are in high demand.

**Mixed Signal Design** is the analog version of the IC design course pair (EE432/433). It reviews the basic structure of the metal-oxide-semiconductor (MOS) transistor and its operations – specifically for analog circuits. Basic equations are derived and modeled for the single-stage amplifier topologies; then are used to build more sophisticated IC building blocks – namely the operational amplifier or OpAmp. This course focuses on a thorough understanding of the OpAmp fundamentals, which will enable students to branch out into other, more advanced topics. In the meantime, ADCs, active filters, comparators and switched capacitor circuits are introduced to show the various ways that OpAmps can be used. Low noise OpAmp design will also be addressed. The textbook was carefully chosen so that it can be used throughout one's professional career.



Throughout the class, designated projects will allow students to practice the design and simulation of basic integrated circuits – using the industry standard Cadence<sup>®</sup> software. The VLSI lab of EE dept. is specially equipped for IC designs. This course will help students become more familiar with Cadence tools and be more prepared for professional IC design.