

### ECEn 445. Introduction to Mixed-Signal VLSI.

<b>Catalog Description:</b>	<b>ECEn 445. Introduction to Mixed-Signal VLSI. (4:3:3) F</b> VLSI circuit design emphasizing mixed-signal circuits such as D/A and A/D converters, phase-locked loops, S/H circuits. Associated laboratory provides layout-design experience.	
<b>Course Type:</b>	EE Core	
<b>Prerequisites:</b>	ECEn 313	
<b>Textbooks and/or other required materials</b>	Introduction to Mixed Signal VLSI, D. J. Comer and D. T. Comer. ISBN 0-9638049-1-X	
<b>Topics Covered:</b>	VLSI fabrication technologies, bipolar, CMOS, and BiCMOS circuits and processes, circuit macros, op amps, D/A converters, sample and hold, analog switches, comparators, phase locked loops.	
<b>Course Competencies:</b>	An understanding of modern VLSI processes and how this processing relates to circuit performance.	Outcome 1
	Ability to conduct lab experiments with A/D and D/A converters.	Outcome 1
	Ability to design a mixed-signal IC in CMOS (4000~6000 transistor design including ADC or DAC chips).	Outcome 1
	Ability to write lab reports.	Outcome 1
	Ability to work with industry standard design, verification, and CAD tools.	Outcome 3
	Ability to use Spice including advanced features.	Outcome 3
<b>Schedule:</b>	Lectures: Three 1-hour lectures per week MWF 10-10:55 AM Laboratory: One three hour session per week 4-6:50pm T or Th (section 1 or 2) TA Recitations: Handled in lab session	
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<b>Date:</b>	June 24, 2008	