

1. Course Description:

This introductory course will cover the analysis and design of analog/mixed-signal integrated circuits for digital systems and for digital communications.

2. Text books:

Design of Analog CMOS Integrated Circuits, B. Razavi, McGraw Hill, 2001

Analog Integrated Circuit Design, D. Johns and K. Martin, Wiley, 1997.

3. References:

Fundamentals of Microelectronics, B. Razavi, Wiley, 2008

Analysis and Design of Analog Integrated Circuits, P. R. Gray, P. J. Hurst, S. H. Lewis, and R. G. Meyer, Wiley, 2001

4. Teaching Method:

Lecture: 3 hours

Outside study: 4 hours

5. Syllabus:

(as attached)

6. Evaluation:

Homework: 30%

Final Project: 25%

Midterm: 25%

Final: 20%

7. Prerequisite:

Electronics, Analog Integrated Circuits Analysis and Design I

Syllabus

Week 1:	Stability and Frequency Compensation	
Week 2:	Operational Amplifiers	
Week 3:	Switches	
Week 4:	Switched-capacitor circuits	HW #1
Week 5:	Comparators	
Week 6:	Nyquist-rate D/A converters	
Week 7:	Nyquist-rate A/D converters	HW #2
Week 8:	Oversampling A/D converters	
Week 9:	Midterm	
Week 10:	Noise shaping	
Week 11:	Bandgap references	
Week 12:	Continuous-time filters	HW #3
Week 13:	Ring oscillators	
Week 14:	LC oscillators	
Week 15:	Phase-locked loops overview	
Week 16:	Basic phase-locked loops	
Week 17:	CP-based phase-locked loops	