

Course Syllabus

Course Information

EECT 6326.501 Analog Integrated Circuit Design
Fall 2016
Tuesday and Thursday: 5:30pm-6:45pm, ECSS 2.203

Instructor Contact Information

Oscar Moreira, Ph.D.
(214) 415-6829, oxm019100@utdallas.edu.
Office Hours: After class and by appointments

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-requisite: EE 4340 / EECT 5340 Analog Integrated Circuit Analysis and Design

Student Learning Objectives/Outcomes

- Ability to analyze low-frequency characteristics of single-stage amplifiers and differential amplifiers
- Ability to analyze and design current sources/sinks/mirrors
- Ability to analyze and design voltage and current references including bandgap references
- Ability to analyze high-frequency response of amplifiers
- Ability to understand stability compensation for amplifiers
- Ability to design and characterize amplifiers according to design specifications in Cadence CAD software
- Ability to prepare effective technical reports

Required Textbooks and Materials

- Design of Analog CMOS Integrated Circuits, by Behzad Razavi, McGraw-Hill, 2001. ISBN: 0-07-238032-2.

Reference Books:

- CMOS Circuit Design, Layout, and Simulation. R. Jacob Baker. Wiley-IEEE Press, 2011
- Analog Integrated Circuit Design, D. Johns and K. Martin, John, Wiley & Sons, 1997.
- Analysis and Design of Analog Integrated Circuits, Paul R. Gray, Paul J. Hurst, Stephen H. Lewis, and Robert G. Meyer, John Wiley & Sons, Inc., 5th edition, 2009. ISBN: 0470245996.

Grading Policy

The final grade will be determined using the following scheme:

- Homework x 20% + Project x 10% + Exam 1 x 30% + Exam 2 x 40%
- Homework will be assigned on a bi-weekly basis and be collected at the beginning of the class on the due date. No late homework is allowed. Some of the homework and the project require the use of cadence/analog artist design tools; tutorial will be given at the beginning of the semester. In order to use Cadence tools at UTD, a UTD UNIX account is required. It is OK to use Cadence tools at students' workplace if preferred. Both exams are closed book with one page notes allowed for Exam 1 and two-page notes for Exam 2.

Topics

Topic	Razavi
I. Introduction and MOS models	Ch. 2 and 16
II. CMOS Technologies and Layouts	Ch. 17
III. Single-Stage and Differential Amplifiers	Ch. 3-4
Review Session	
Midterm Exam	
IV. Current Sources and Voltage references	Ch. 5 and 11
V. Frequency Response	Ch. 6
VI. Amplifier Design	Ch. 9
VII. Stability and Compensation	Ch. 10
VIII. Noise	Ch. 7

Course & Instructor Policies

- Students are responsible for all course materials, announcements, notes, etc. given during our regular class meeting time.
- It is the responsibility of the instructor to encourage an environment where you can learn and your accomplishments will be rewarded fairly. Any behavior that compromises the University's rules of academic honesty will be reported to the University.