EE 434
Analog and Digital VLSI Design
Fall 2005

COURSE INFORMATION

Room: Lecture - 270 Town
      Labs - 1341 Coover (electronics lab)
      - 1331 Coover (CAD lab)

Time: Lecture - MWF 12:10-1:00
      Laboratory - Sec 2 Wed 1-4
                     - Sec 4 Thur 9-12
                     - Sec 5 Mon 6-9
                     - Sec 6 Wed 4-7

Note: Some weeks the laboratory will meet in the CAD Lab and other weeks it will meet in the electronics lab.

Lecture Instructor:
Randy Geiger
351 Durham
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Laboratory Instructors:
Saqib Malik Room 347 Durham sqmalik@iastate.edu 294-8643

Course Description:

Course Web Site: http://class.ece.iastate.edu/ee434
Homework assignments, lecture notes, laboratory assignments, and other course support materials will be posted on this WEB site. Students will be expected to periodically check the WEB site for information about the course.

Required Texts:
CMOS VLSI Design – A Circuits and Systems Perspective, Third Edition
by N. Weste and D. Harris, Addison Wesley, 2005
Reference Texts:

**Digital Integrated Circuits (2nd Edition)**
by Jan M. Rabaey, Anantha Chandrakasan, Borivoje Nikolic, Prentice Hall, 2002

**Analog Integrated Circuit Design**

**Principles of CMOS VLSI Design**
by N. Weste and K. Eshraghian, Addison Wesley, 1992

**VLSI Design Techniques for Analog and Digital Circuits**

**CMOS Analog Circuit Design**
by Allen and Holberg, HRW, 2002.

**Design of Analog CMOS Integrated Circuits**
by B. Razavi, McGraw Hill, 1999

**Introduction to CMOS Op Amps and Comparators**
by R. Gregorian, Wiley, 1999

**CMOS Circuit Design, Layout and Simulation**

**Design of Analog Integrated Circuits**
by Laker and Sansen, McGraw Hill, 1994

**Analysis and Design of Analog Integrated Circuits-Fourth Edition**
Gray, Hurst, Lewis and Meyer, Wiley, 2001

**Analog MOS Integrated Circuits for Signal Processing**
Gregorian and Temes, Wiley, 1986

**Design of Low-Voltage Bipolar Operational Amplifiers**
Fonderie and Huijsing, Kluwer, 1993

**Frequency Compensation Techniques for Low-Power Operational Amplifiers**
Eschauzier and Huijsing, Kluwer, 1995

**Low-Noise Wide-Band Amplifiers in Bipolar and CMOS Technologies**
Chang and Sansen, Kluwer, 1991

**Introduction to the Design of Transconductor-Capacitor Filters**
Kardontchik, Kluwer, 1992
Grading: Points will be allocated for several different parts of the course. A letter grade will be assigned based upon the total points accumulated. The points allocated for different parts of the course are as listed below:

- 2 Exams 100 pts each
- 1 Final 100 pts.
- Homework 100 pts.total
- Quizzes 15 pts each
- Lab and Lab Reports 100 pts.total
- Design Project 100 pts.

If for any reason the final examination is waived, the two listed examinations will be weighted 150 points each.

Laboratory:
There will be weekly laboratory experiments. The laboratory location will alternate between the electronics hardware laboratory and the VLSI CAD laboratory. An IC design project will be conducted in which student designs will be eligible for fabrication through the NSF-sponsored MOSIS program.

Homework:
Homework assignments are due at the beginning of the class period on the designated due dates. Late homework will be accepted, without penalty, up until 5:00 p.m. on the due date in Room 351 Durham.

Additional Comments
I encourage you to take advantage of the e-mail system on campus to communicate about any issues that arise in the course. I typically check my e-mail several times a day. Please try to include “EE 434” in the subject field of any e-mail message that you send so that they stand out from what is often large volumes of routine e-mail messages.