

E3210 類比電子電路 (Analog Electronic Circuits)

Lecture Instructor:

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Course Description:

The goal of this course is to learn analog integrated circuit design and the design trade-offs. The simulation tool, HSPICE, will be used to verify your design. The course is organized as follows:

1. Introduction
2. Basic MOS Device Physics
3. Bias Circuitry
4. Single-Stage Amplifiers
5. Operational Amplifiers
6. Noise
7. Other Analog Building Blocks

Textbook:

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

References:

1. R. J. Baker, *CMOS: Circuit Design, Layout, and Simulation*, 2nd Ed., IEEE Press, 2005.
2. P. E. Allen and D. R. Holberg, *CMOS Analog Circuit Design*, 2nd Ed., Oxford University Press, Inc., 2002.
3. D. A. Johns and K. Martin, *Analog Integrated Circuit Design*, John Wiley & Sons, Inc., 1997.
4. K. R. Laker and W. M.C. Sansen, *Design of Analog Integrated Circuits and Systems*, McGraw-Hill, Inc., 1994.
5. M. Ismail and T. Fiez, eds., *Analog VLSI Signal and Information Processing*, McGraw-Hill, Inc., 1994.
6. J. E. Franca and Y. Tsvetov, eds., *Design of Analog-Digital VLSI Circuits for Telecommunications and Signal Processing*, 2nd Ed., Prentice-Hall, 1994.

7. P. Gray and R. Meyer, *Analysis and Design of Analog Integrated Circuits*, 3rd Ed., Wiley and Sons, 1993.
8. R. L. Geiger, P. E. Allen and N. R. Strader, *VLSI Design Techniques for Analog and Digital Circuits*, McGraw Hill, 1990.
9. C. Toumazou, F. J. Lidgley and D. G. Haigh, eds., *Analogue IC Design: the Current-Mode Approach*, Peter Peregrinus Ltd., 1990.

Grading Policy:

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| Homework, Labs & Project | 40% |
| Midterm Exam | 30% |
| Final Exam | 30% |

Late policy

Any homework after the solutions are distributed will not be accepted. If a homework is turned in after the stated deadline, but before distribution of solutions, the instructor has the right to choose to grade it or not, and the grade will be discounted.

Copying homework

You are encouraged to discuss the homework problems and project with your classmates and teaching staff. However, you must turn in your own write-up to show an individual effort. If the homework contents for different students are the same, the grade for each student will be the average of those of the copies.