

ECE225 / 125

High-Speed Digital Integrated Circuit Design

University of California, Santa Barbara
Department of Electrical and Computer Engineering
Winter 2010

Course Focus:

- Advanced digital CMOS design concepts
- Nanometer scale issues in VLSI
- Emerging Technologies for VLSI

Class Room / Schedule: PHELP 1437 Mon & Wed 6:00PM-7:50PM

Instructor: Prof. Kaustav Banerjee, Room 4151, Harold Frank Hall
Email: kaustav@ece.ucsb.edu
URL: <http://www.engineering.ucsb.edu/faculty/profile/137>
Office Hours: Tue 1:00-2:00PM or appointment by email.

Text: **The following books are recommended as references:**

1. *Fundamentals of Modern VLSI Devices*, Taur and Ning, Cambridge Univ. Press., 1998.
2. *Design of High-Performance Microprocessor Circuits*, Chandrakasan, Bowhill, and Fox, IEEE Press, 2001.
3. *Emerging Nanoelectronics: Life With and After CMOS*, Eds. A. M. Ionescu and K. Banerjee, Springer, 2004.

The ECE 124A text book (by Weste and Harris) can be used as a basic reference.

References: To be posted on class website

Software: MMI: Max and Sue VLSI layout tools, Avanti HSPICE, Mentor Graphics: XCalibre, and Model Sim Suites

Prerequisites: ECE124A or equivalent

Grading: Assignments: 30%, Midterm-Exam: 30%, Final project: 40%

Note: Must complete all assignments and final project to pass.