ECE 225
High-Speed Digital Integrated Circuit Design

University of California, Santa Barbara
Department of Electrical and Computer Engineering
Winter 2020

Course Focus:

- Nanometer scale issues in VLSI: Devices, Technologies, Circuits & CAD
- Emerging Technologies for VLSI

Class Room/Schedule: ENGR 2-3301, Tue & Thur 4:00PM-5:50PM

Instructor: Prof. Kaustav Banerjee, Room 4151, Harold Frank Hall
Email: kaustav@ece.ucsb.edu
URL: http://nrl.ece.ucsb.edu/
Office Hours: flexible, appointment by email.

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

1. *Fundamentals of Modern VLSI Devices*, Taur and Ning, Cambridge Univ. Press., 2nd edition, 2009.
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.

References: To be posted on class website:
https://www.ece.ucsb.edu/courses/ECE225/225_W20Banerjee/

Software: MMI: Max and Sue VLSI design tools, Avanti HSPICE, Mentor Graphics: XCallibre, and Model Sim Suites (available via ECI account. Software manuals available on course website)

Prerequisites: ECE122A or equivalent is recommended

Grading: Assignments - 25%, Final Exam - 25%,
Final project - 50% (must be attempted individually)

Note: Must complete all assignments and final project to pass.
Projects can be selected from a broad range of topics to be discussed in class.