ECE721   Digital and mixed-signal VLSI Design

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Text: *CMOS VLSI Design A Circuits and Systems Perspective, 3nd Edition*,
       by N. Weste and D. Harris, Addison-Wesley, 2005.

Reference: Mosis (MOS Implementation System) www.mosis.org

Course Objectives: The objective of this course is to introduce the student to the detailed design of VLSI integrated circuits. The circuits to be studied are CMOS circuits. The student will be introduced to chip operation, chip manufacturing, and the use of VLSI computer aided design tools. The student will complete an individual project and/or group project using the concepts presented in class.

Initial Syllabus

Subject	Reading
Class Organization	Textbook, web pages
Design Flow	Ch. 1, Notes
Project Planning	Notes
Intro to CMOS Circuits	Ch. 1
Design Descriptions	Ch. 1
CMOS Circuit and Logic Design	Ch. 1
MOS transistor Equations	Ch. 2
CMOS Processing	Ch. 3
CMOS Design Rules	,,
CAD tools and Layout	,,
Circuit Characterization	Ch. 4
Performance Estimation	Ch. 4
Circuit Simulation Techniques	Ch. 5
CMOS Combinatorial and Sequential Design	Ch. 6, 7
System Design and Design Methods	Ch. 8
Array Subsystems – SRAM, CAM	Ch. 11
Special-purpose Systems: Clock, I/O Pads, Analog	Ch. 12

Deliverables and Grading:

Homework (maybe quizzes)	15%	Anytime
Exam 1	30%	~week 6
Design Report	20%	near end of quarter
Exam 2	35%	Wed. June 9