CSCE 613: Fundamentals of VLSI Chip Design

Meeting times: Officially MWF 12:20-1:10, but may change to MW 12:20-1:35

Locations: Swearingen 2A15 (lecture), 1D43 (lab)

Textbook: *CMOS VLSI Design: A Circuits and Systems Perspective* (3rd edition)
Neil H.E. Weste, David Harris (ISBN: 0321149017)

Official prereqs: Digital logic design (CSCE 211),
Circuit analysis (ELCT 221)

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Office hours: Monday, Wednesday 11:00 – before class
(However, stop in anytime I'm here!)

Grading structure:

Homework, lab assignments	50%
Course Project	50%

Course Organization:

Introduction: IC design, CMOS logic, and fabrication fundamentals
2 weeks:
Lectures
Assignments from textbook

CMOS circuit design, layout, and simulation
1 week:
Tutorial: Cadence IC-Tools
2 weeks:
Design projects

Cell library development
2 weeks:
Development of standard cell library
2 weeks:
Tutorials: Cadence SignalStorm and Abstract Generator
Report on cell library

VHDL Design
1.5 weeks:
Lectures on VHDL
Tutorial: Mentor HDL Designer

Logic Synthesis and Place-and-Route
1.5 weeks:
Tutorial: Synopsys Design Analyzer
Tutorial: Cadence First Encounter

Course project (Two member teams)
Remainder of term

Official Policy on Late Submissions

Late homework and lab assignments will be charged a 5% grade penalty for each weekday after the due date. Students that do not complete the final project by the end of the semester will not receive a passing grade except under special circumstances and with permission from the instructor.

Academic Honesty Policy

Students are encouraged to assist their colleagues for the purpose of overcoming technical challenges related to the use of the design tools. Moreover, students working on a group project must (by definition) perform joint work. However, any collaboration beyond these exceptions is prohibited and is subject to the university's guidelines, regulations, and policies regarding academic dishonesty.

Students Receiving Graduate Credit

University policy requires that students who wish to receive graduate credit for an undergraduate course must complete additional requirements beyond those who only wish to receive undergraduate credit. In order to receive graduate credit for this course, there will be additional required components and requirements for the final project design.

Group Work Policy

The final project will require students to work in groups of two. Choose your group partner wisely. Both partners will receive the same grade for the final project. The instructor is not responsible for inner-group conflicts related to disproportional work effort.