CMOS VLSI Project
E190AT
Spring 2019

Teaching Staff

Professor: David Harris   Parsons 2374   David_Harris@hmc.edu

Schedule

Lab Session: M11-11:50   Digital Lab Parsons B183
Office Hours: TBD

Feel free to stop by even if I do not have official office hours.

Recommended Text

CMOS VLSI Design, 4th Ed., (Weste & Harris, Addison-Wesley, 2010)

Electronic Communication

Class web page: pages.hmc.edu/harris/class/e190at
Class email list: eng-190at-1-2019-sp@g.hmc.edu

Learning Objectives

At the end of this class, you will have designed and validated your own chip. You will be able to apply industry-standard tools to both custom and synthesized blocks. You will take a nontrivial integrated circuit from specification through detailed design and verification with a teammate and will provide oral and written reports on your work.

Grading

Labs: 10%
Project: 90%

During the first weeks, we will have lectures introducing you to schematics, layout, and fabrication of CMOS Very Large Scale Integration (VLSI) chips. During these weeks, you will work through labs to learn to apply these concepts using the Cadence and Synopsys tools. During the remainder of the semester, you will design your own chip.

The labs should be your own work, although it is acceptable to talk with your classmates if you get stuck. The project should be done in a team of 2 or 3.

Schedule

Date	Topic	Deliverable
1/28:	Intro	
2/4:	Circuits and Layout	Lab 1
2/11	Design Flow	Lab 2
2/18	CMOS Transistor Theory	Lab 3
2/25		Lab 4, Project Proposal
3/4	Silicon Run Video	
3/11		Verilog Checkoff
3/18	Spring Break	
3/25		Schematic Checkoff
4/1	Microprocessor Hall of Fame	
4/8		Block Layouts
4/15	Office Hours	
4/22		Project Checkoff
4/29		Presentations

Honor Code Policy

1. All students enrolled in this course are bound by the HMC Honor Code. More information on the HMC Honor Code can be found in the HMC Student Handbook.

2. It is your responsibility to determine whether your actions adhere to the HMC Honor Code. If this document does not clarify the legitimacy of a particular action, you should contact the course instructor and request clarification.

3. Work you submit for individual assignments should be your own, and you should complete all assignments based on your own understanding of the underlying material. If you work with, or receive help from, another individual on an assignment, provide a written acknowledgement in complete sentences that includes the person's name and the nature of the help.

4. This document is not meant to be an exhaustive list of every possible Honor Code violation. Infractions not explicitly mentioned here may still violate the Honor Code.

5. Boundaries of Collaboration
Verbal collaboration with other students on individual assignments is encouraged AFTER you have given serious thought to each component yourself. However, all submitted written work should be written by yourself individually, and not a collaborative effort or copied from a common source (e.g., a chalkboard). It is NOT acceptable to work on labs in lockstep with another classmate.

6. Use of Published Solutions
You may check your answers against the solutions on the textbook web page after completing problems, but may not reference step-by-step solution instructions in separately published solution manuals.

7. Use of Computer Software
The use of graphing calculators and computer software to aid in course work is acceptable, as long as it does not substitute for an understanding of the course material.

8. Use of Web Resources
The use of Internet resources to aid in course work is acceptable, as long it does not substitute for an understanding of the course material. Plagiarism and direct copying from online (or any other) sources is strictly prohibited. You may NOT refer to solutions to textbook problems floating around on the Web.

9. Use of Your Own Work from Previous Semesters
If you have previously attempted this course, you may resubmit your work from previous semesters as this semester's coursework, as long as you understand the underlying material.

10. Use of Other Course Resources from Previous Semesters
You may not reference assignments (labs, problem sets, activities) of this course from previous semesters.

11. Retention of Course Resources
Assignments and exams from this course may not be committed to dorm repositories or otherwise used to help future students.