

ECE 429 – Introduction to VLSI Design Spring 2010

Instructor: Professor Jia Wang

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Prerequisite: ECE 218 and ECE 311

Familiarity with circuits, logic and digital system design.

Experience with CAD tools and UNIX is a plus.

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. The Center for Disability Resources is located in the Life Sciences Building, room 218, 312-567-5744 or disabilities@iit.edu.

Class Time: Tues. and Thur.: 3:15 PM – 4:30 PM

Class Location: Perlstein Hall – Room 131

Class Home Page: <http://blackboard.iit.edu/>

Office Hrs: TBD

Required Textbook: “CMOS VLSI DESIGN: A Circuits and Systems Perspective” (3rd ed.)

Neil H.E. Weste, and David Harris, Addison-Wesley, 2005. ISBN: 0321149017

Warning: As some international editions are different from the original book on technical contents and homework questions, please make sure your purchase matches the original one.

Course Objective: To give students a clear understanding of the fundamental concepts of modern CMOS VLSI design. Students will learn the design of complex and high performance CMOS systems from system level to circuit level.

Topics Covered: MOS transistors, static and dynamic behavior, stick diagrams, MOS circuit fabrication, design rules, resistance and capacitance extraction, scaling, logical effort, combinational and sequential design, data-path and control unit design, clocking schemes, memory design. CAD synthesis techniques, floorplanning and layout.

Grading: Homeworks 10% / Midterm Exam: 20% / Final Exam: 30% / LABs and Project: 40% / Class Participation 5% (Extra). A: $\geq 90\%$ / B: $\geq 80\%$ / C: $\geq 60\%$.

Teaching Assistants: TBD

Homework and Project Policy: Late homeworks and project reports will not be accepted. Discussions on homeworks/projects are encouraged, but copying will call for disciplinary action.

Final Exam Policy: Makeup exams will NOT be given, except for extraordinary reasons.