



E0 284 Aug 2:1

Digital VLSI Circuits

Instructor

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Teaching Assistant

Email:

Department: Electronic Systems Engineering

Course Time: Tue., Thu., 9-10 AM

Lecture venue: Auditorium

Detailed Course Page:

Announcements

Brief description of the course

This course is suitable for graduate students interested in Digital VLSI design. The course gives a complete insight into the modern design of digital systems fundamentals from an eminently practical point of view.

Students learn a set of design methodologies, hardware descriptive language (such as Verilog) and CAD tools to build a complete Application Specific Integrated Circuit (ASIC).

Prerequisites

Basic digital design, logic gates.

Syllabus

Introduction to MOS transistor theory, Circuit characterization & simulation, the theory of logical effort, interconnect design and analysis combinational circuit design, sequential circuit design. Design methodology & tools, testing & verification, datapath subsystems, array subsystems, power and clock distribution, introduction to Verilog and digital IC design CAD tools.

Course outcomes

After taking this course

1. Students will be able to design any digital system.
2. Students will learn the basics from simple transistor design to complex digital system.
3. This is a very industry oriented course, students learn various CAD tools used in the chip design industry.

The course makes the students highly employable in various IC design companies.

Grading policy

10% for assignments (about 4 in the semester)

25% for the mid-term examination

30% for a course project (team {3 students per team} project done in the later half of the semester)

35% for the final examination

Assignments

Resources

N.Weste and D. Harris, CMOS VLSI Design. A Circuits and Systems Perspective, Addison Weley, 2005.

J. M. Rabaey, A. Chandrakasan, and B. Nikolic, Digital Integrated Circuits.

Various journal/conference papers in the field.