Syllabus

Level: graduate students
Credits: 3
Time: Monday 9:10pm-12:00pm
Location: EE92371 and EE95312 ChiMei 3F SoC Lab

Instructor Information:
Instructor: Prof. 邱瀝毅 (Lih-yih Chiou)
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Course website: http://moodle.ncku.edu.tw (under Prof. 邱瀝毅 name)

Course Description

Power consumption is one of the critical design factors in modern VLSI design. The rapid increase in both power and performance requirements are especially true in applications such as wireless communication, notebook, and portable multi-medium devices. As technology down scaling, heat dissipation and packaging cost also demand low power IC. This is a project-oriented course for advanced topics of power consumption either circuit design or system-level design. After introducing selected topics in the class, learners need to select papers of interest, present materials, form a final project and complete/analyze the project. Upon completing this course, you will learn

1) system design issues;
2) system model and simulation approaches; or
3) nano-scale circuit design issues;
4) nano-scale circuit design techniques.

Pre-requisite Courses:
- System Design
  Low-Power VLSI Design (must)
  VLSI System Design (must)
  Computer Organization (must)
Circuit Design
   Low-Power VLSI Design (must)
   VLSI Circuit Design (must)

Course Materials:
   - Lecture notes on course website
   - Papers and chapters in books
   - Peer presentations

Reference books:
   - Low-Power CMOS VLSI Circuit Design, Kaushik Roy, 2000
     ISBN: 9780929306322
   - “Computer Organization and Design: The Hardware/Software Interface,” 3th ed. by
     David A. Patterson and John L. Hennessy, Morgan Kaufmann Pub., 2005. ISBN:
     981-2592-17-2
     Chandrakasan, B. Nikolic, 2003

Grading:
   - Participation
   - Homework
   - Presentations
   - Final Project

Course Policy
   - Encourage you to discuss assigned problems with peers
   - Must complete his/her assignment independently or as specified
   - Any person/team who is found to be dishonesty in laboratory assignments,
     examines/quizzes, the involved person(s) will receive an “0” on the evaluated
     instrument (exam, lab work, etc.)