Syllabus and Course Information
ECE/CS 756: Computer-Aided Design for VLSI (Fall 2013)
Dept. of Electrical and Computer Engineering, University of Wisconsin-Madison

TIME AND PLACE
Lectures: T R 11:00am-12:15pm
3534 Engineering Hall

INSTRUCTOR
Azadeh Davoodi (adavoodi@wisc.edu)
4621 Engineering Hall, 265-1145
Office hours are posted online at
http://homepages.cae.wisc.edu/~adavoodi/teaching/756.htm

COURSE OVERVIEW
The course introduces advanced computer-aided design (CAD) challenges for VLSI design in nano-scale technologies. The focus will be on CAD techniques for physical design of Integrated Circuits in order to address challenges due to power, performance, temperature and manufacturing variability.

TOPICS
Scaling: trends and challenges
Timing: static timing analysis, performance optimization techniques, clock network design
Power: components, modeling, optimization
Variability: sources, impact, modeling
Thermal: modeling, management
Power grid: modeling and analysis

GRADING POLICY
35% midterm, 15% programming assignment, 50% project

The course has one or two programming assignments requiring completing a provided C program. Each programming assignment should be done individually. The course project however can be done in groups up to three students. There is one exam, typically scheduled in November.

PREREQUISITE
1. Programming in C is required for the programming assignment. The course project is strongly recommended to be implemented in C or C++ however other programming languages may be used if found to be suitable for the defined project.
2. Basic familiarity with digital logic design (ECE/CS 352)
   *Familiarity with graph algorithms and optimization techniques is not required but recommended.*

ECE556 and ECE755 are NOT prerequisite to ECE756.

TEXTBOOK
Research papers and sections from research books will be provided.

CLASS WEBPAGE
Course schedule page: http://homepages.cae.wisc.edu/~adavoodi/teaching/756/F13-schedule.htm
Course reading material, slides, grades, and project submission page: http://learnuw.wisc.edu