ECE902: Timing Analysis in Nanometer Designs

Spring 2010
Instructor: Azadeh Davoodi
Course Objectives

• Comprehensive understanding of static timing analysis in nanometer designs
  – What needs to be specified? What are the issues?
• Overview of modeling solutions for analysis and new optimization techniques
  – Not covered in ECE556 / ECE756
• Improve presentation and writing skills
Topics to Cover

1. The book
   - Static timing analysis for nanometer designs
     • Available via library two-hour reserve, some chapters will be made available online
   - “Simple read” but provides comprehensive aspects in dealing with a complex timing tool for nanometer VLSI design
   - The last 30-minutes of each Thursday is dedicated to present part of a chapter of the book by one student
Topics

2. Research papers about timing modeling and optimization in nanometer designs such as:
   – Clock tree synthesis
   – Crosstalk
   – Impact of power droop
   – Retiming
   – Post-Si timing validation
Grading

• (10%) Chapter presentation (one or two times per semester per student)
  – Responsible to summarize the chapter and present in 30-minutes
  – Prepare slides or summary notes for the class

• (10%) Writing one-page summary of specified research papers
  – ~ Bi-weekly
Grading

• (25%) Midterm
• (50%) Project
  – Group of at most two students
  – (10%) Proposal (due second week of March)
  – (30%) Final report
  – (10%) Poster day (last day of class)
• (5%) Participation
  – Class attendance