CMPE 646: VLSI Design Verification and Test

Course:

CMPE 646: VLSI Design Verification and Test, Fall 2007. 3 credits.

Course Instructor:

Dr. Jim Plusquellic, Professor of Computer Science & Electrical Engineering
Office: ECS 212, Telephone: 410-455-1349
Email: plusquel@umbc.edu, Home Page: http://www.cs.umbc.edu/~plusquel/
Office Hours: T-Th 6:45-7:30pm or by appointment

Text:

Michael L. Bushnell and Vishwani D. Agrawal, "Essentials of Electronic Testing, for Digital, memory and Mixed-Signal VLSI Circuits", Kluwer Academic Publishers (2001). ISBN: 0-7923-799-1-8

Supplementary text:

Miron Abramovici, Melvin A. Breuer and Arthur D. Friedman, "Digital Systems Testing and Testable Design," Revised, IEEE Press (1990).

Samiha Mourad and Yervant Zorian, "Principles of Testing Electronic Systems", Wiley (2000).

Grading:

The distribution of weights for the exams, homeworks and projects is as follows:

Exam 1	20%
Final	25%
Labs/Homework	25%
Project	25%
Class Participation	5%

No incompletes will be given, except as required by university policy for truly exceptional circumstances.

The final exam is cumulative. However, material covered after the second exam will be emphasized.

Students are encouraged to participate in class.

NOTE: Cheating at any time in this course will cause you to fail the course.

Please refer to the guidelines on the next page.
For a complete description of academic dishonesty, refer to the UMBC Student Handbook.

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The following is taken from the UMBC Student Handbook:

DEFINITIONS OF ACADEMIC MISCONDUCT

Academic misconduct may include but is not limited to the following:

- Cheating: knowingly using or attempting to use unauthorized material, information, or study aids in any academic exercise.
- Fabrication: Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- Facilitating Academic Dishonesty: Intentionally or knowingly helping or attempting to help another commit an act of academic dishonesty.
- Plagiarism: Knowingly representing the words or ideas of another as one's own in any academic exercise, including works of art and computer-generated information/images.

POLICY FOR RESOLVING CASES OF ACADEMIC MISCONDUCT

Individual faculty members have the right and responsibility to deal directly with any cases of academic misconduct which arise in their courses. Instances of academic misconduct may be identified in one of two ways. If a faculty member believes a student has committed an act of academic misconduct--for example, by direct observation of student behavior, by comparing the contents of an assignment with that submitted by another student, or by reviewing notated sources or references--the faculty member, in consultation with the Chair of the Academic Conduct Committee, will assess the student's alleged misconduct and the faculty member's options. If a student believes that academic misconduct has occurred, the student will notify either the faculty member or the Chair of the Academic Conduct Committee.

It is particularly important that the Chair of the Academic Conduct Committee be consulted. The Chair can provide knowledge and insight for the faculty member. Communication of instances of academic misconduct also protects the integrity of the university by providing a means of recording infractions that may be repeated by a particular student, or which may prove endemic to a particular course or department. Consultation with the Chair of the Academic Conduct Committee provides a formal record of the infraction and resolution, protecting the student, professor, and university should any questions later arise.

The student will have the opportunity to respond to an accusation of academic misconduct.

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Tentative Course Outline:

Date	Topic
week 1 (intro)	Introduction
week 2 (overview & economics)	VLSI Testing Process , Equipment and Economics
week 2 (defects)	Defects
week 3 (defectsx)	Defects
week 3 (faultsx)	Faults
week 4 (faultsx)	Fault Models
week 4 (delay_faultsx)	Delay Faults
week 5 (delay_faultsx)	Delay Faults
week 5 (combinational_atpgx)	Combinational ATPG
week 6 (combinational_atpgx)	Combinational ATPG
week 6 (combinational_atpgx)	Combinational ATPG
week 7 (testability_measures)	Testability Measures
week 7	Exam I
week 8 (sequential_atpgx)	Sequential ATPG
week 8 (sequential_atpgx)	Sequential ATPG
week 9 (tbd)	(conference)
week 9 (tbd)	(conference)
week 10 (simulationx)	Simulation
week 10 (fault_simulationx)	Fault Simulation
week 11 (defect_basedx)	Defect-Based Testing
week 11 (dftx)	DFT
week 12 (dftx)	DFT
week 12 (bistx)	BIST
week 13 (bistx)	BIST
week 13 (bistx)	BIST
week 14	Advanced Topics
week 14	Advanced Topics
week 15	Final Exam

(Note: Changes/Additions to this schedule will be posted on my web site http://www.cs.umbc.edu/~plusquel/)