CSCE 932: Fault Tolerance: Testing and Testable Design, Spring 2007
2:00:3:15, Tu and Th, Avery Hall, Room 347

Course Web Page: http://www.cse.unl.edu/~seth/932

Instructor: Sharad Seth, Avery Hall, Room 359 (seth@cse.unl.edu), Phone: 472-5003

Office Hours: 3:30-4:30 Tu and Thu; please make an appointment for other times.

Prerequisites: Background in logic design and Boolean algebras plus some maturity in mathematics and CSE topics e.g. probability/statistics, discrete math, computer architecture and operating systems.

References: There is no single required textbook for this course. However, for the first part of the course that will cover the background material in VLSI testing you may consult one of several excellent textbooks that have appeared recently:

1. Michael L. Bushnell and Vishwani D. Agrawal, *Essentials of Electronic Testing For Digital, Memory, & Mixed-Signal VLSI Circuits*, Kluwer Academic Publishers, 2000.
2. N. K. Jha and S. Gupta, Testing of Digital Systems, Cambridge University Press, UK, 2003.
3. A. Miczo, *Digital Logic Testing and Simulation*, Second Edition, John Wiley, 2003

Other Resources: Current literature available from UNL Libraries and from the instructor's personal collection; Design and test tools for practice and experimentation; Web links that will be available from the class web page.

Course Format: I will provide the necessary background on VLSI testing in the first half of the class. This material is well covered in the textbooks listed above. I will provide you with lecture overheads and summary notes but will expect you to fill in the gaps on your own by referring to the textbooks and other sources. There will be several homework assignments devoted to this part. During the rest of the semester we will delve into selected advanced topics including those mentioned in the course announcement and others related to current research carried out by my students. The course format will change from primarily lectures-by-me and discussion to presentations and discussions by every one in the class. Your presentations will be judged both on their contents and effective technical communication.

Before the mid semester, I will assist you in selecting a research project to work on for the rest of the semester. The project specification may well require multiple iterations before arriving at the final version, therefore you should start thinking about it as soon as possible. The project specification should be between two to three single-spaced pages of the proposal, along with a list of references that you plan to consult for the project.

At the beginning of your project work, you will carry out a comprehensive review of the background related to the project and document this in a written report of about 8-10 single spaced pages by the 12^{th} week of the semester.

For the research project, I expect original work that demonstrates your mastery of the topic. At its completion you will make an oral presentation, reporting on the results of your work. You will also be expected to submit a *paper-length written report* (20-35) double spaced pages, including figures and references) following your oral presentation. The written report should include a brief literature review (3-5 pages) summarizing and possibly updating what you submitted earlier. It should follow the norms of good technical writing. On the class webpage you will find links to several helpful web sites on technical communication. Expect the final oral presentations to happen during the 15th week and the written report to be submitted some time during the finals' week.

Grading:

Homework:	40%
Topic Presentations:	25%
Project:	
Proposal	10%
Presentation	10%
Report	15%

Conversion of Points to Letter Grades:

A+	A	A-	B+	B	B-	C+	C	C-	F
≥ 97%	93 – 96%	90 – 92%	87 – 89%	83 – 86%	80 – 82%	77 – 79%	73 – 76%	70 – 72%	< 70%

OTHER IMPORTANT INFORMATION

Late Policy: As a rule, late work will not be accepted unless there are overriding circumstances.

Class Attendance and Etiquette: You are expected to come to all lectures

Academic Integrity: The department has a zero-tolerance policy on academic dishonesty that is strictly enforced; see the following web page, accessible from the departmental web page:

http://www.cse.unl.edu/undergrads/academic_integrity.php

Cheating in homework and plagiarism are among the most common examples of academic dishonesty. Complicity in cheating is equally culpable. Besides the penalty imposed by the instructor, the Department requires that the instructor reports every offense to the Chair for further consideration.