

CSE 8243 – Software Specifications Spring 2009

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Office: 326 Butler Hall, 325-8923
Office Hours: Monday and Wednesday: 9-10 A.M.

Course Prerequisites: Software Engineering I (with a grade of C or Better) or permission of instructor

Course Description: This course will discuss the writing of formal specifications for detailed software design, and examine how those specifications can be translated into code and verified. A Case Study will be used with different specification methods to show how different methods compare against one another.

Course Objectives: At the end of this course, the student should be familiar with several different formal approaches to building software specifications, and be able to build specifications for simple software systems using each of these approaches.

Approach: Several different specification methods will be presented and explored, then compared against each other. Quizzes will be given to assess individual understanding of the methods. A case study will be undertaken during the semester to explore more thoroughly the differences between methods.

Required Text: Feijs & Jonkers, Formal Specification and Design, Cambridge University Press, 2005.

Optional Text: Diller, Z: An Introduction to Formal Methods, Wiley, 1994.

Academic Honesty:

Mississippi State University has an approved Honor Code that applies to all students. The code is as follows:

"As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. For additional information please visit:

<http://www.msstate.edu/dept/audit/1207.html>

Grading Policy:

Attendance and Participation	20%
Quizzes	20%
Case Study	30%
Research Paper	30%

Grading Scale:

A	92 - 100
B	80 - 91
C	70 - 79
F	Below 70

Quizzes will be given periodically throughout the semester to make sure that the students are reading the textbook. These quiz grades will be averaged and will count as 20% of the grade. Each student will participate in a group case study throughout the semester, and will have to make presentations at different points in the semester. Each group will conduct peer evaluation(s) to keep the group members honest and participating.

Class Attendance: Students are expected to attend all class meetings. If a class is missed, the student is responsible for the material covered. Excused absences must be coordinated before the class meeting. Excessive tardiness will result in recorded absences.

Class Participation: Students are expected to conduct themselves in a professional manner. Derogatory language or conduct of any kind will not be tolerated. Participation is expected and required. Participation does not include sitting and listening. Actively engaging in dialogue during class discussions is required.

Research Paper: The term paper required for this course is to be a research paper, as opposed to a survey paper. Every paper will define a problem, discuss the problem and propose a solution to that problem. Survey papers will be summarily given a non-passing grade. Research paper deliverables are due periodically during the semester and will contribute to the paper grade. Final papers are due at the end of the 14th week of the semester by e-mail.

Material to be covered:

Week	Date	Topic	Reading	Deliverables
1.	1/7	Selection of Case Study and Team Formation		
2.	1/12	Algebraic Specifications	F&J Chapter 1-2	
3.	1/21	Algebraic Specifications	F&J Chapter 3-4	Quiz 1
4.	1/26	Algebraic Specifications Case Study		Paper Topic
5.	2/2	Algebraic Specifications Case Study		
6.	2/9	State-Based Specifications	F&J Chapter 5-6	
7.	2/16	State-Based Specifications	F&J Chapter 7-8	Quiz 2
8.	2/23	State-Based Specifications Case Study		Paper Bibliography
9.	3/2 3/9	State-Based Specifications Case Study Spring Break		
10.	3/16	Logic-Based Specifications	Supplemental Material	
11.	3/23	Logic-Based Specifications	Supplemental Material	Quiz 3
12.	3/30	Logic-Based Specifications Case Study		Paper Outline
13.	4/6	Logic-Based Specifications Case Study		
14.	4/13	UML-Based Specifications		
15.	4/20	UML-Based Specifications Case Study		Final Paper