COURSE SYLLABUS

Software Verification

- Introduction to Software Testing & Formal Methods
- Spring Semester 2009

BASIC INFORMATION

Instructor: JUNBEOM YOO
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Homepage: http://dslab.konkuk.ac.kr

Course Page: http://dslab.konkuk.ac.kr/Class/2009/09SV/09SV.htm
Class Hours: 13:00 ~ 15:00 (Monday, 602), 11:00 ~ 13:00 (Wednesday, 502)

DESCRIPTION

This course introduces fundamentals of "software testing and analysis" theoretically. It is composed of two parts. The lab class (Monday) focuses on practice of formal methods, and the lecture class (Wednesday) does on software testing.

COURSE ORGANIZATION

This course is a lecture-lab course in which topics are presented by the instructor, and assigned practices are completed by students during the lab periods. Each group of 4 students performs a team project, and presents its progress.

COURSE OBJECTIVE

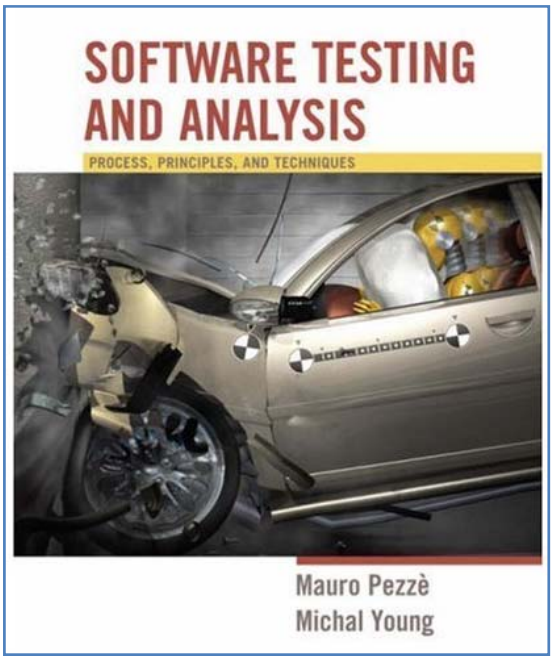
1. To introduce the fundamentals of software Testing and Analysis
2. To provide software testing and analysis experience using CASE tools.

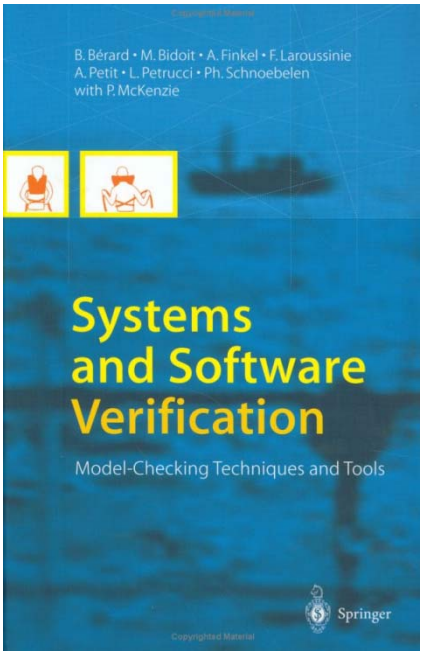
COURSE TOPICS

1. Introduction to Software Testing (Theory)
2. Introduction to Formal Methods (Theory)
3. Practices for Formal Methods

TEXT

1. Required Text: "Software Testing and Analysis" by Mauro Pezzè and Michal Young, WILEY
2. Auxiliary Text: "System and Software Verification" by B.Bérard, et. al., Springer





GRADING PLAN

1. Attendance 10%
2. Mid-term Exam. 30%
3. Practice 30%
4. Final Exam. 30%

TENTATIVE SCHEDULE

WEEKS	DATE	LABORATORY (Monday)	LECTURE (Wednesday)
1	03.02 / 03.04	Course Introduction	Chapter 1. Software Test and Analysis in a Nutshell Chapter 2. A Framework for Test and Analysis
2	03.09 / 03.11	Practice #1 (NuSCR)	Chapter 3. Basic Principles Chapter 4. Test and Analysis Activities Within a Software process
3	03.15 / 03.18	Practice #1 (NuSCR)	Chapter 5. Finite Models Chapter 6. Dependence and Data Flow Models
4	03.23 / 03.25	Practice #1 (NuSCR)	Chapter 7. Symbolic Execution and Proof of Properties Chapter 8. Finite State Verification
5	03.30 / 04.01	Practice #2 (SMV)	Chapter 9. Test Case Selection and Adequacy Chapter 10. Functional Testing Chapter 11. Combinatorial Testing
6	04.06 / 04.08	Practice #2 (SMV)	Chapter 12. Structural Testing
7	04.13 / 04.15	Practice #2 (SMV)	Chapter 13. Data Flow Testing Chapter 14. Model-Based Testing
8	04.20 / 04.22	Mid-Term Exam.	
9	04.27 / 04.29	Practice #3 (VIS)	Chapter 15. Testing Object-Oriented Software
10	05.04 / 05.06	Practice #3 (VIS)	휴강 - 개교기념 일감호 축전
11	05.11 / 05.13	Practice #3 (VIS)	Chapter 16. Fault-Based Testing Chapter 17. Test Execution
12	05.18 / 05.20	휴강 (31th International Conference on Software Engineering, ICSE 2009)	
13	05.25 / 05.27	Practice #4 (Team Project)	Chapter 18. Inspection Chapter 19. Program Analysis
14	06.01 / 06.03	Practice #4 (Team Project)	Chapter 20. Planning and Monitoring the Process Chapter 23. Automating Analysis and Test Chapter 24. Documenting Analysis and Test
15	06.08 / 06.10	Reserved	
16	06.15 / 06.17	Final Exam.	