

2110724
Software Testing and Quality Assurance
First Semester, 2004

Instructor:

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Grading:

- Midterm Exam - 30% **(August 6, 2004)**
- Final Exam - 30% **(September 24, 2004)**
- Homeworks and/or project – 40%

Text Book: Paul C. Jorgensen, Software Testing: A Craftman's Approach, Second Edition, CRC Press, 2002.

References:

1. Gerard O'Regan, A Practical Approach to Software Quality, Springer, 2002.
2. Karl E. Wieggers, Peer Reviews in Software: A Practical Guide, Addison-Wesley, 2002.
3. Robert V. Binders, Testing Object-Oriented Systems: Models, Patterns, and Tools, Addison-Wesley, 1999.
4. G. Gordon Schulmeyer and James I. Mcmanus, Handbook of Software Quality Assurance, Third Edition, Prentice Hall, 1999.
5. Elfriede Dustin, Jeff Rashka, and John Paul, Automated Software Testing: Introduction, Management, and Performance, Addison-Wesley, 1999.
6. Mark Fewster and Dorothy Graham, Software Test Automation: Effective Use of Test Execution Tools, Addison-Wesley, 1999.
7. Boris Beizer, Software System Testing and Quality Assurance, VNR, 1984.
8. Boris Beizer, Software Testing Techniques Second Edition, VNR, 1990.
9. Boris Beizer, Black-Box Testing: Techniques for Functional Testing of Software and Systems, John Wiley & Sons, 1995.
10. IEEE Standard for Unit Testing, ANSI/IEEE Std 1009-1987.
11. IEEE Standard for Software Test Documentation, ANSI/IEEE Std 829-1983.
12. Thomas C. Royer, Software Testing Management, Prentice Hall, 1993.
13. William Hetzel, The Complete Guide to Software Testing, QED, 1984.

Outline of Topics:

1. Course Overview
2. Software Testing and Software Development Life Cycle Models
3. Introduction
 - Historical views of software testing
 - Definitions
 - Principles of testing
 - Purpose, Goals, and Economics of Testing
4. Functional Testing
 - Boundary Value Testing
 - Equivalence Class Testing
 - Decision Table-Based Testing
5. Structural Testing
 - Path Testing
 - Data Flow Testing
6. Mutation Testing
7. Level of Testing
 - Unit Testing
 - Integration Testing
 - System Testing
 - Acceptance Testing
8. Object-Oriented Testing
9. Test Planning and Test Documentation
10. Managing the Testing Process
11. Test Organization
12. Testing Tools
13. Software Reviews, Inspections, or Walkthrough
14. Software Quality Assurance