

OHLONE COLLEGE
Ohlone Community College District
OFFICIAL COURSE OUTLINE

I. Description of Course:

1. Department/Course: CS - 129A

2. Title: Software Testing

3. Cross Reference:

4. Units: 3.00

Lec Hrs: 2.50

Lab Hrs: 1.50

5. Repeatability: Yes Times:2

6. Grade Options:

Letter Grade, May Petition Credit/No
Credit (GC)

7. Degree/ Applicability:

Credit, Not Degree Applicable (C)

8. General Education:

9. CAN Numbers:

10. Field Trips: Not Required

11. Requisites:

None

12. Catalog Description:

This is an introductory course in software testing. Student will learn the principles and techniques for software testing, including test design, testing automation, test management, test strategies, bug report and bug tracking system. Advice on how to match the selection of practices to the circumstances of the sample projects is presented.

13. Class Schedule Description:

Software testing concepts and techniques are discussed.

14. Counselor Information:

This is an introductory course in software testing. Students will learn the principles and techniques for software testing, including test case designs, testing automations, test managements, test strategies, bug reports and bug tracking system.

II. Student Learning Outcomes

The student will:

1. Explain the fundamental concepts of software testing
2. Develop and practice techniques used in software testing
3. Describe, explain, and apply the software testing strategies
4. Display the ability to apply software tools for trying them out
5. Describe and explain the most commonly used software waterfall models and process
6. Evaluate software testing design, bug tracking system and bug report
7. Describe and explain the importance of using programming languages Pearl, Java or C++ for software testing

III. Course Outline:

- A. Each week has 3 hours lecture with 1.5 hours lab support

- B. Week 1 Introduction
 - 1. - What is software testing
 - 2. - History of the testing industry
 - 3. - The role of tester
- C. Week 2 Testing Fundamentals
 - 1. - Testing is grounded in cognitive psychology
 - 2. - Good tester thinking technically, and practically
 - 3. - Tester's logic
 - 4. - Tester's requirement
 - 5. - Lab: Testing software installation
- D. Week 3-4 Testing Techniques
 - 1. - Testing combination techniques: coverage, potential problems and evaluation
 - 2. - People-based techniques
 - 3. - Coverage-based techniques
 - 4. - Problems-based techniques
 - 5. - Evaluation-based techniques
 - 6. - Lab: Test outlines & sample, outline approach, create test case
- E. Week 5 Bug Advocacy
 - 1. - Bug report criteria
 - 2. - Report design errors
 - 3. - Report review
 - 4. - Lab: Bug detecting, evaluating, and report
- F. Week 6-7 Automating Testing
 - 1. - What is testing automation
 - 2. - Differences between manual testing and automation testing
 - 3. - Strategies with automating testing
 - 4. - Lab: Automatic testing scripts design, and Automated test level development
- G. Week 8 Documenting Testing
 - 1. - Test documentation templates
 - 2. - IEEE standard 829
 - 3. - Core documentation requirement
 - 4. - Lab: Automatic unit testing and integrated test
- H. Week 9 Midterm
- I. Week 10-11 Interacting with Programming
 - 1. - Understanding how programmers think
 - 2. - Develop programmer's trust
 - 3. - Provide service
 - 4. - Work-oriented testing procedure
 - 5. - Lab: Automatic testing framework
- J. Week 12-13 Managing the Testing Projects
 - 1. - Project analysis
 - 2. - Waterfall lifecycles
 - 3. - Testability features
 - 4. - Project testing strategies
 - 5. - Project dashboard and milestone report
 - 6. - Test report releasing
 - 7. - Lab: Facilitating testing process with automated tool
- K. Week 14 Managing the Testing Group
 - 1. - Mediocrity & a self-fulfilling prophecy
 - 2. - Test with your staff

3. - Skill improvement with the group
 4. - Review technical support logs
 5. - Morale of the group and succeed of new testers
 6. - Lab: Managing automated test
- L.
- M. Week 15 Career in Software Testing
1. - Build a portfolio
 2. - Learning Pearl, Java an C++
 3. - Download demo copies of test tools and try them out
 4. - Improve writing skill and public speaking skill
 5. - Getting certified
 6. - Lab: Commercial test software trying out
- N. Week 16-17 Statistical Techniques and Planning the Testing Strategies
1. - Statistical analysis with software testing
 2. - Guides of test process
 3. - Possible test strategies
 4. - Test level of test complexity
 5. - Test the gray box
 6. - Teat test cycles as the heartbeat the test process
 7. - Lab: Commercial test software trying out (continue)
- O. Week 18 Final Exam

IV. Course Assignments:

Reading Assignments

Writing Assignments

Homework assignments.

(1) Students need to search on Web for advanced study on software testing new development and methodologies

(2) Written assignment should cover some research fields such as Windows environment testing and Java platform testing

Projects, Activities, and other Assignments

V. Methods of Evaluation:

A. Over a 17-week presentation of a course, three hours per week are required for each unit of credit. For each hour of lecture, two hours of independent work done outside of class are required. Methods of evaluation should reflect this out-of-class preparation time.

1. A. Written Assignments: (approximate 30 % of grade)

B. Describe:

C. Homework assignments.

D. (1) Students need to search on Web for advanced study on software testing new develop and methodology

E. (2) Written assignment should cover some research field such as Windows environment testing and Java platform testing

F. Writing Assignments are NOT appropriate because course is:

G. Primarily Computational or Non-Computational Problem Solving

H. Primarily Skill Demonstration

I. Other (specify)

- J.
 - 1. B. Computational or Non-Computational Problem Solving (approximate % of grade)
- K. Describe
 - 1. C. Skill Demonstrations (approximate 20 % of grade)
- L. Describe
- M. Project PowerPoint presentation and Hands-on practice:
- N. (1) Main topic student is assigned and contents
- O. (2) Diagram of testing procedure
- P. (3) Testing bug report and test suite maintenance
- Q.
 - 1. D. Objective Exams (approximate 50 % of grade)
- R. Describe
- S. Concept tests in multiple choice, true/false questions and skill tests in short-answer problems.
 - 1. E. Combination of Above (approximate 0 % of grade)
- T. Describe

Methods of Instruction:

Laboratory
Discussion
Demonstration
Lecture

VI. Textbooks:

Required

- 1. Cem Kaner, James Bach and Bret Pettichord *Lessons Learned in Software Testing - A Context-Driven Approach* 1 Edition, John Wiley & Sons, Inc, , 2002 ISBN: 0-471-08112-4

Optional

VII. Supplies:

- 1. none