

Uka Tarsadia University



M.Sc. (C.A.)

Software Testing (040020303)

3rd Semester

EFFECTIVE FROM JUNE-2012

Uka Tarsadia University
MSc(CA) (3rd Semester) Syllabus, June 2012

Prerequisite: Software Engineering

Objective: Provide Knowledge of Testing Techniques

Subject Code: 040020303

Subject: Software Testing

Total: 48 Hrs.

[Lecture: 4 Tutorial: 0 Practical:0]

- 1. Introduction [07 Hrs.]**
 - 1.1 Test Analyst
 - 1.2 Marathon, the Example Application
 - 1.3 Types of Systems
 - 1.4 Test Planning and Test Control, Test Analysis and Test Design
 - 1.5 Test Implementation and Test Execution
 - 1.6 Evaluation of Exit Criteria and Reporting
 - 1.7 Test Closure Activities
- 2. Specification-Based, Structure-Based, Defect-Based Testing Techniques [08 Hrs.]**
 - 2.1 Individual Specification-Based Techniques
 - 2.2 Selecting a Specification-Based Techniques
 - 2.3 Benefits and Drawbacks of Structure-Based Testing Techniques
 - 2.4 Applications of Structure-Based Testing Techniques
 - 2.5 Individual Structural Techniques
 - 2.6 Selecting a Structure-Based Techniques
 - 2.7 Detection-Based Testing Technique, Taxonomies
- 3. Experience-Based Testing, Analysis Techniques, Testing Software Characteristics [09 Hrs.]**
 - 3.1 Error Guessing, Checklist-based Testing
 - 3.2 Exploratory Testing
 - 3.3 Attacks, Strengths and Weaknesses
 - 3.4 Static Analysis
 - 3.5 Dynamic Analysis
 - 3.6 Software Quality Attributes
 - 3.7 Software Quality Attributes for the Test Analyst
 - 3.8 Software Quality Attributes for the Technical Test Analyst
- 4. Functional, Usability and Accessibility, Efficiency Testing [09 Hrs.]**
 - 4.1 Accuracy, Suitability Testing
 - 4.2 Interoperability, Functional Security Testing
 - 4.3 Usability Testing, Effectiveness
 - 4.4 Accessibility Testing, Test Process for Usability and Accessibility
 - 4.5 Performance, Load, Stress Testing

4.6 Scalability, Resource Utilization Testing, Planning of Efficiency Tests

4.7 Specification of Efficiency Tests, Executing Efficiency Tests

4.8 Reporting Efficiency Tests, Tools for Efficiency Testing

5. Security and Reliability

[08 Hrs.]

5.1 Planning Security Tests, Typical Security Threats

5.2 Security Test Analysis and Design

5.3 Execution and Reporting Security Tests

5.4 Tools for security Testing

5.5 Reliability Test Planning and Specification

5.6 Reliability Test Execution

5.7 Reporting

5.8 Tools for Reliability Testing

6. Maintainability and Portability Testing

[07 Hrs.]

6.1 Maintainability Testing

6.2 Planning issues in Maintenance

6.3 Adaptability

6.4 Replace ability

6.5 Installation

6.6 Co-existence

[Note: Implementation using open source tools or IBM Rational Functional Tester.]

MODES OF TRANSCATION (i.e. Delivery)

Various methods of teaching could be employed depending on the objectives of the content taught.

- Lecture method is recommended along with discussion method.
- Activity assignment may be given to the students in group.
- Case study can be used to teach in-depth.

Teachers Activities/Practicum:

The following activities should be carried out by the teachers.

1. Simulation/Demonstration of Testing Tools.
2. Software testing concept demonstration.

Student Activities/Practicum:

The following activities may be carried out by the students.

1. Recent trend in software testing.
2. How to become software tester?
3. Operative knowledge of popular software testing tools.

[Weightage to be given in Continuous Internal Evaluation]

Text Book:

1. Graham Bath, Judy McKey (2008). The Software Test Engineers Handbook, SPD

Reference Books:

1. M. G. Limaye (2012). Software Testing Principles, Techniques, and Tools, TMH
2. Ron Pattern (2011). Software Testing, Sams Pearson
3. Dorothy Graham, Erik Van Veenendaal, Isabel Evans and Rex Black (2008). Foundations of Software Testing: ISTQB Certification, Cengage
4. Rex Black (2008). Advanced Software Testing Vol. 1, SPD
5. Paul C Jorgensen (2008). Software Testing: A Craftsman's Approach, Auerbach Publications