

**UkaTarsadiaUniversity**



**M.Sc. (C.A.)**

**Software Testing (040020110)**

**1<sup>st</sup>Semester**

**EFFECTIVE FROM JUNE-2014**

UKA TARSADIA UNIVERSITY  
M.C.A. (3<sup>rd</sup> Semester) Syllabus, 2014-2015

Course Code: 040020110

Course Title: Software Testing

Course Credits: 4

Total Hours: 48

[Lectures: 04, Tutorial: 00, Practical: 03]

Prerequisites: Software Engineering

Prerequisites By Topics:

Objectives: Provide Knowledge of Testing Techniques

- 1 Introduction [07 Hours]
  - 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 Hours]
  - 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 Hours]
  - 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 Hours]
  - 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 Hours]
  - 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 Hours]
  - 6.1. Maintainability Testing
  - 6.2. Planning Issues in Maintenance
  - 6.3. Adaptability
  - 6.4. Replace Ability
  - 6.5. Installation

## 6.6. Co-existence

### Activities/Practicum:

The following activities shall be carried out by the students.

- ❖ Recent trend in software testing.
- ❖ How to become software tester?
- ❖ Operative knowledge of popular software testing tools.

[Weightage to be given in Continuous Internal Evaluation]

The following activities shall be carried out by the teacher.

- ❖ Simulation/Demonstration of Testing Tools.
- ❖ Software testing concept demonstration.

### Text Book:

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

### Reference Books:

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