



## Sub Committee - Specialization for Curriculum Development

### Under Graduate

**Course Title:** Software Testing

**Course Code:** T3608

**Number of Credits:** 4

**Level:** 3

**Learning Objective(s):** Software Quality is a major concern in the software industry to get the customer satisfaction. To ensure the software product quality student has to understand the process of Software verification and validation. This course will emphasises on following aspects with the help of developed software by the student

Use of testing methods, approaches, tools and techniques  
Understanding of software product quality concepts.  
Learn and apply software product quality standard (ISO 9126).

**Learning Outcome(s):** On successful completion of this course, student will be able to Write Software quality assurance plan.

Perform unit, integration and system testing on the project developed in SEP course.  
Use testing tools on developed project  
Adopt ISO 9126 standard for assessing the quality of developed product.

#### **Pedagogy:**

Lectures  
Case Studies  
Flipped classroom  
Discussions

**Pre-learning:** Understanding of courses - Software Engineering Practices, Software Project Practices

#### **Course Outline:**

Sr.No.	Topic	Hours
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1	Basic Testing Vocabulary: Quality Assurance versus Quality Control, Scope of Testing, Testing Constraints, Life Cycle Testing, Independent Testing, Levels of Testing, The "V" Concept of Testing	5
2	Testing Techniques: - Structural versus Functional Technique Categories Verification versus Validation Static versus Dynamic Testing Software Testing Methodologies - White Box Testing & Black Box Testing	10
3	Methods and Techniques in designing test cases for Black Box Static Techniques: Informal Reviews ,Walkthroughs ,Technical Reviews , Inspection Dynamic Techniques, Structural Techniques, Statement Coverage Testing, Branch Coverage Testing, Path Coverage Testing, Conditional Coverage Testing ,Loop Coverage Testing Black Box Techniques, Boundary Value Analysis, Equivalence Class Partition, State Transition Technique, Cause Effective Graph Decision , Table, Use Case Testing	10
4	Functional Testing :- Unit Testing, Integration Testing, System Testing, User Acceptance Testing, Sanity/Smoke Testing, Regression Test, Non Functional Testing, Performance Testing, Memory Test. Scalability Testing, Compatibility Testing, Security Testing, Cookies Testing, Session Testing, Recovery Testing, Installation Testing, Compliance Testing	10
5	Introduction to Software Quality Factors, MC'Calls Quality Triangle, FURPS, ISO 9126 (internal and external quality of the product) Software quality measures and metrics	5
6	Preparation of software quality assurance plan, Test Plan and test cases writing. Case study on using testing tools for Object-Oriented Applications. Web Application Testing Mobile Application Testing	15
7	Use of Defect Classification and management tools, Use of manual and automated tools.	5
	<b>Total</b>	<b>60</b>

### Books Recommended:

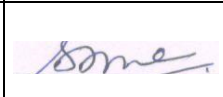
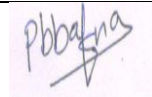
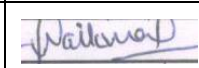
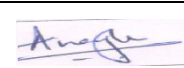
1. The art of software testing by G J Myers
2. Software testing in the real world by Edward Kit
3. Introduction to Personal Software Process by Watts Humphrey
4. Effective methods for software testing by William Perry
5. Managing the software process by Watts Humphrey

### Suggested Evaluation Methods:

On line Test  
Class test  
Assignments  
Case study Presentation

### Parallel/Similar courses the existing curriculum:

S.No.	Name of the course	Institute where it was offered

Name of Member	Shubhashri Waghmare	Prafulla Bafna	Ms Hema Gaikwad	Anagha Vaidya	
Designation	Asst. Professor	Asst. Professor	Asst. Professor	Asst. Professor	
Org. / Inst.	SICSR	SICSR	SICSR	SICSR	
Signature					

Name of the Expert:

Signature of Dean:

Date:

