Course Planning of

Software Testing, Verification, Validation and QA

***Theory classes**: - (Note: 1 day is equiv. to 1.5 hours)*

Days count	***Topics to be covered***
1	1.1 Software Testing Background 1.2 Career in Software Testing
2 and 3	2.1 Testing 2.2 Significance of Testing(Software Systems Context, Causes of Software Defects, Role of Testing in Software Development, Maintenance and Operations, Testing and Quality, Ending Test)
4 and 5	2.3 Testing principles 2.4 Fundamental Test process (Test planning and control, Test Analysis and Design, Test Implementation and Execution, Evaluating Exit Criteria and Reporting, Test Closure Activities)
6	2.5 The Psychology of Testing 2.6 Code of Ethics
7	3.1 Software Verification: Walkthroughs, Inspections,Audits,Verification Process,Implementation of Verification Activities in Projects
8	3.2 Validation: Validation of Software Designs Validating the Product Specifications, Validating the Software Product,Testing Different Types of Software Products,Testing Basics,Approaches to Testing,Test Case Design,Test Environment,Testing Scenarios,Product Testing
9	3.3 Validating preliminary designs through prototyping
10	4.1 Software Development Models 4.2 Test levels (Unit testing, Integration testing, System testing, Acceptance testing)
11	4.3 Test types (Functional Testing, Non-functional Testing, Structural Testing, Re-testing and Regression Testing)
12	5.1 Static Techniques and the Test Process
13	5.2 Review Process (Activities of a Formal Review, Roles and Responsibilities, Types of Reviews, Success Factors for Reviews)
14	5.3 Static Analysis by Tools
15	6.1 The Test Development Process 6.2 Categories of Test Design Techniques
16	6.3 Specification-based or Black-box Techniques (Equivalence partitioning, Boundary Value analysis, Decision table testing, State transition testing, Use case testing)
17	6.4 Structure-based or White-box Techniques (Statement Testing and Coverage, Decision Testing and Coverage, Other Structure-based Techniques)
18	6.5 Experience-based Techniques
	6.6 Choosing Test Techniques

19	7.1 Project Analysis, Understanding Project (In-house projects, Projects for clients), Understanding Technology for better testing, Understanding Risk, Understanding Project Complexity and Size
20	7.2 Test Organization (Test Organization and Independence, Tasks of the Test Leader and Tester)
21	7.3 Test Planning and Estimation (Test Planning, Test Planning Activities, Entry Criteria, Exit Criteria, Test Estimation, Test Strategy, Test Approach)
22	7.4 Test Progress Monitoring and Control (Test Progress Monitoring, Test Reporting, Test Control)
23	7.5 Configuration Management
24	7.6 Risk and Testing (Project Risks, Product Risks) 7.7 Incident Management
25	8.1 Types of Test Tools (Tools for Testing, Static testing, Management testing, Test specification, Test execution, Performance)
26	8.2 Effective Use of Tools: Potential Benefits and Risks of Tools Support for Testing, Special Considerations for Some Types of Tools
27	8.3 Introducing a Tool into an Organization
28	9.1 Types of web applications, Impact of Technology and Frameworks on web application testing, Types and Levels of Test
29	9.2 Under Mobile Platform (General Checklist for mobile application testing, Testing with Emulator VS Testing with Real Device)
30	10.1 Measuring software quality 10.2 Software quality standards

Lab works:-

Practical classes of one and half hour (90 minutes) will be conducted once every week. The testing suite to be used for the purpose is Selenium IDE and Selenium Web Driver.

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