# Software Testing

## Syllabus

**Duration: 120 Hours**

1. **Unit 1: Introduction to Software Testing**
    - **Definition of Software Testing**
    - **Need for software Testing**
    - **Various approaches to Software Testing**
    - **Defect distribution**
    - **Software Testing Fundamentals**
    - **General characteristics of testing**
    - **Seven principles of testing**

2. **Unit 2: Software testing strategies**
    - **Testing strategies in software testing**
    - **Basic concept of verification and validation**
    - **Criteria for completion of testing and debugging process.**

3. **Unit 3: Software development life cycle and testing**
    - **Water fall model**
    - **V-model, Spiral model**
    - **Agile model**
    - **Life cycle testing concepts**
    - **Testing methods**
    - **Testing levels.**

4. **Unit 4: Static Testing and dynamic testing**
    - **Static Testing**
    - **Static analysis tools**
    - **Dynamic testing**
    - **White box testing**
    - **Black box testing**
    - **Regression testing**
    - **Dynamic testing tools.**

5. **Unit 5: Functional testing**
    - **Functional testing concepts**
    - **Equivalence class partitioning**

- Boundary value analysis
- Decision tables
- Random testing
- Error guessing

6. Unit 6: Test management
    - Test planning
    - Cost-benefit analysis of testing
    - Test organization
    - Test strategies
    - Test progress monitoring and control- test reporting
    - Test control
    - Specialized testing

7. Unit 7: Testing tools
    - Test automation approach
    - Testing frame work
    - Types of testing tools

8. Unit 8: Object-Oriented testing
    - Object-Oriented testing challenges
    - Unit testing for Object-Oriented programming
    - Integration testing (top-down, bottom-up)
    - Cluster testing.

9. Unit 9: Software quality and software quality assurance
    - Introduction to software quality and software quality assurance
    - Basic principles about the software quality and software quality assurance.
    - Planning for SQA
    - Composition of SQA plan and organizational initiatives required for a SQA.

10. Unit10: Product quality and Process quality “Product quality” and “process quality”, various models for software product quality and process quality.

11. **Unit 11: Software Configuration Management Software configuration management activities like software configuration identification, software configuration control, software configuration auditing.**

12. **Unit 12: Software Testing Report**
    - **Access Project Management Development Estimate and status**
    - **Requirement Phase Testing**
    - **Design Phase Testing program Phase Testing**
    - **Execute Test and record results**
    - **Acceptance Test Report Test results**
    - **Testing Software Installation**
    - **Test Software Change**
    - **Evaluate Test Effectiveness**
    - **Testing calculating model(TCM)**

13. **Unit 13: Testing Specialized Systems and Application**
    - **Client/Server Systems, RAD**
    - **System Documentation**
    - **Web based systems**
    - **Off-the self-software**
    - **Multi-platform environment**
    - **Security**
    - **Data Warehouse.**

14. **Unit 14: Selecting and Installing Software Testing tools**
    - **Testing tools-hammers of testing**
    - **Selecting and using the test tools**
    - **Appointing managers for testing tools**

15. **Project Work**

16. **Placement Assistance Sessions**
    - **Mock Interviews**
    - **GDs**
    - **Preplacement Talks**
    - **Industry Exposer Sessions**

17. **Internship**


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