Software Testing Curriculum

1: **Fundamentals of Software Testing**

(i) What is Software Testing?

(ii) Software Engineering History

- History of Software development pre-QA

- The role of software in today's society: Software in phones, cars, shops, stores, planes, watches etc

(ii) Why is Software Testing Necessary?

(iv) Testing and Software Development Lifecycle

(v) The Mindset of a Software Tester

(vi) Principles of Software Testing

2: **Test Design Techniques**

(i) Agile and Software Testing

- Agile Manifesto/Principles

- Agile Types (Scrum, Extreme Programming, Kanban)

- Agile Team (Scrum Master, Product Owner, Other team members)

- Product Backlog, Planning meeting (Story, sizing – story point) , Sprint, Sprint Backlog, Daily

(ii) Black-box

Boundary Value Analysis

- For example Bank Machine

(iii) Use case

(iv) Static Analysis

(v) Test Cycles

(vi) Types of testing:

- Unit

- Functional (System)

- System Integration Testing

- Performance

- User Acceptance Testing

- Regression

- Smoke (Sanity)

- Exploratory Testing

3: **Test Execution and Management**

(i) Test Deliverables

(ii) Test Progress Communication

(iii) Test Estimation Technique

(iv) Risk Management

(v) Change Control Management

4: **SDLC Management**

(i) Defect and defect management
(ii) Jira and scrum practice

5. Web & Mobile Testing

(i) Web browser

(ii) Mobile testing

(iii) Types of mobile testing
(iv) Mobile testing tools: Mobile device vs Simulator vs Emulator

6. API Testing

(i) SOAP and REST API

(ii) Web services and web services data types

(ii) XML: XML tree, XML schema
(iii) JSON data structure
(iv) SOAP webservice testing
(v) REST web service testing
(vi) Testing Restful API: URL, Endpoint, Resources, Methods, Parameters
(vii) REST Status code
(viii) Postman demo

7. Non-Functional – Performance Testing

(i) Introduction to Performance Testing
(ii) Types of performance testing (load testing, stress testing, endurance testing, etc.)
(iii) Performance testing tools: Apache JMeter, LoadRunner, Gatling
(iv) Test environment setup and configuration
(v) Performance test planning and execution
(vi) Analyzing and interpreting performance test results
(vii) Performance tuning and optimization

8. **Automation testing**: JavaScript Programming Language and CYPRESS Testing Framework

(i) JavaScript introduction
(ii) Output, syntax, comment, statements
(iii) Variables: const, let, and var
(iv) Operators
(v) Data Types
(vi) Functions, objects, event, and strings
(vii) Introduction to E2E Testing with Cypress
(viii) Writing first E2E Test with Cypress
(ix) API Automation with Cypress