VEER NARMAD SOUTH GUJARAT UNIVERSITY – SURAT

S Y B. Sc. (Computer Science)

Syllabus for T. Y. B. Sc. Semester-VI

Effective From: June-2022

Course: 607-4: Software Test Automation

Course Code	**607-4 GENERIC ELECTIVE (IDS)**
Course Title	Software Test Automation
Credit	2
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2019
Purpose of Course	• This course imparts the knowledge of • Software Testing. • The concepts of • Software testing • Role of testing • Testing tools and reporting are covered in this course. • The course is aimed to give inner depth of Software testing.
Course Objective	To make students understand concepts of testing and testing practices. To make students understand test automation process. To make students understand Testing tools. To make students writing and tracking test cases.

Pre-requisite	Concepts of Software Engineering
Course Outcome	At the end of the course, student is expected to have clear concepts about C01: Testing Concept and terminology C02: Learn various Testing Types C03: Learn software testing activities C04: Able to create various test case C05: Able to use Various testing tools.

Mapping Between COs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					

Course Content

Unit 1. Fundamentals of Testing

1.1 Testing concepts

1.1.1 Terminology - Error, Fault, Failure, Bug, Cost of bug, Testing, Testcase, Test Data, Test Result, Test suite, Test Reports

1.1.2 Testing life cycle, Test Exit criteria

1.1.4 Testing and debugging, software reliability

1.1.5 Test driven development

1.2 Testing practices

1.2.1 Overview of testing types - Ad-hoc testing, Gorilla testing, Random testing and Systematic testing, Static testing and Dynamic Testing, Functional, Non functional and Behavioural

	Testing, Usability Testing, Configuration Testing and Compatibility Testing 1.2.2 White box testing - Data and code coverage testing techniques 1.2.3 Black box testing - Equivalence partitioning, Boundary value Analysis 1.2.4 Levels of testing - Unit, Integration, System and Acceptance testing 1.2.5 Smoke testing, Sanity Testing and Regression Testing 1.2.6 Practices for static testing **Unit 2. Test Automation** 2.1 Manual Testing vs. Test Automation-advantages and limitations. 2.2 Automation of various testing activities and related test tools – Win runner, JMETER, Test director, IBM Rational, Load runner 2.3 Criteria for selecting test tools **Unit 3. Testing Tools-1** 3.1 Testing tools for White box testing 3.1.1 Testing tools for code coverage 3.1.2 Testing tools for Data coverage 3.2 Testing tools for Unit Testing 3.2.1 Writing and executing test cases with NUnit- NUnit framework, Test Fixture, Test, Septp & Tear Down, Asserts and Exception 3.2.2 Writing and executing test cases with JUnit- JUnit framework, Test Fixture, TestCase, Septp & Tear Down, Asserts and Exception **Unit 4. Testing Tools-2** 4.1 Testing tool for Blackbox testing 4.1.1 Test recording and playback using Selenium 4.2 Testing tool for Bug tracking and Bug reporting-case study of BugZilla 4.3 Testing tool for Test Management- case study of Testlink

Reference Books:	1. Ron Patton ―Software Testing‖, Techmedia Publication, 2000 2. Dr. K.V.K.K prasad, ―Software Testing Tools‖, Dreamtech, 2006 3. Srinivas D and Gopalswamy R, ―Software Testing: Principles and Practices‖. Pearson Education, 2013 4.K. Mustafa and R.A Khan, ―Software Testing -concepts and practices‖, Narosa, 2012 5.Bill Hamilton, ―NUnit: pocket Referance‖, SDP-OReilly, , 2004 6.Andrew Hunt and David Thomus, ―Pragmatic Unit Testing in Java with JUnit‖, SPD, 2006 7.Testing with JUnit by Frank appeal PACKT Publishing 8.Software testing Principal and practices by Naresh Chauhan – OXFORD 9.Software testing (A Practical approach) by Rajiv Chopra – S K Kataria & Sons (KATSON Books) 10 Software testing and quality assurance Theory and practice by Kashirasagar Naik and Priyadarshini Tripathy – Wiley india Pvt Ltd. 11. Software testing by Hitesh Gupta – International book house P. ltd 12. Fundamentals of Software Testing by Aditya P. Mathur – Pearson
Teaching Methodology	Discussion, Seminars and Assignment
Evaluation Method	30% Internal assessment and
	70% assessment is based on end semester written examination.