20IT7402A - SOFTWARE TESTING & AUTOMATION

Course Category:	Programme Elective - 3	**Credits:**	3
Course Type:	Theory	**Lecture-Tutorial-Practice:**	2-0-2
Prerequisites :	20IT5302 : Software Engineering	**Continuous Evaluation:**	30
		Semester end Evaluation:	70
		Total Marks:	100

Course Outcomes	Upon successful completion of the course, the student will be able to:	
	CO1	Apply Black Box, White Box, and Selenium testing techniques in commercial environment for improving the quality of software product.
	CO2	Choose the techniques and skills for testing software projects using modern software testing tools
	CO3	Analyze V&V activities, software testing life cycle and methodologies, test automation life cycle and its frame work.
	CO4	Create test cases for manual and automation testing.

Contribution of Course Outcomes towards achievement of Program Outcomes (1-Low, 2-Medium, 3-High)	CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2											2		
	CO2	3				3								1	1
	CO3	1	2										2		
	CO4	2		3										2	2

Course Content

UNIT I:

Introduction to Software Testing : Introduction, Evolution of Software Testing, Software Testing – Myths and Facts, Goals of software Testing, Software Testing Definitions, Model for Software Testing, Effective software testing vs Exhaustive Software Testing.

Software Testing Terminology and Methodology: Software Testing Terminology, Software Testing Life Cycle(STLC), Software Testing Methodology

Verification & Validation : Verification and Validation(V & V) Activities, Verification, Verification of Requirements, Verification of High-level Design, Verification of Low-level Design, How to verify code, Validation.

UNIT II:

Black Box Testing Techniques: Boundary Value Analysis (BVA), Equivalence Class Testing, State Table based Testing, Decision Table based Testing, Cause -Effect Graphing based Testing.

White Box Testing Techniques: Need of White Box Testing, Logic Coverage

	Criteria, Basis Path Testing, Graph Matrices, Loop Testing, Data Flow Testing **Case study:** Income tax calculator
	UNIT III: **Test Automation:** Introduction, Test automation life cycle, Test automation approach, Test automation framework. **Agile Test Automation:** Agile automation, Agile automation framework. **Case study:** Design test cases for an enterprise application.
	UNIT IV: **Selenium:** Getting Started with Selenium IDE, Locators, Overview of Selenium WebDriver, Working with WebDriver **Case study:** Applying Selenium testing for an enterprise application.
Content beyond the syllabus	**Business process testing**
Text books and Reference books	**Text Book(s):** [1]. Naresh Chauhan, "Software Testing Principles and Practices, Oxford University Press, 2010. [2]. Rajeev Gupta, "Agile automation and unified functional testing", Pearson 2017. [3]. David Burns, "Selenium 2 Testing Tools Beginner's Guide", Published by Packt Publishing Ltd, 2012. **Reference Books:** [1]. Brian Marick , "The craft of software testing", Pearson Education, 2007 [2]. Edward Kit , "Software Testing in the Real World", Pearson.2002 [3]. Perry, "Effective methods of Software Testing", 3rd Edition, John Wiley,2006 [4]. Meyers, "Art of Software Testing, **3rd** Edition John Wiley. 2015 [5]. Dr.K.V.K.K.Prasad , "Software Testing Tools" , Dreamtech, 2009.
E-resources and other digital material	[1]. Prof. Rajib Mall, IIT Kharagpur, NPTEL SOFWARE Testing video. Available: https://nptel.ac.in/courses/106105150/, 2016 [2]. Software testing MIT. Available: http://ocw.mit.edu/courses/electrical-engineering-and-computer- science/6-912-introduction-to-copyright-law-january- iap-2006/video-lectures/lecture-4-software-licensing/ [3]. Gregory Gay. Associate Professor, Chalmers and the University of Gothenburg.Software Quality and Testing - Spring 2022, https://youtu.be/OLbo92_MgtU [4]. Sanjai Rayadurgam Director, https://www.coursera.org/lecture/introduction-software-testing /welcome-to-the-software-testing-and-automation-myKdt, 2020

Course coordinator	Dr.Y.Sangeetha	
Module coordinator	Dr.K.SithaKumari	
Program coordinator	Dr. G. Kalyani	

HOD:IT	Prof. M. Suneetha	