Course: BCA   **Semester:** 5

Prerequisite: Knowledge of Software Analysis and Design and Software Engineering.

Rationale: Basics of Software Testing which is an integral part to assure good quality software.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
4	0	2	-	5	40	-	20	60	30	150

SEE - Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Fundamentals** Introduction to quality, Software quality, Fundamentals of software testing, Types of Testing Manual Testing, Automation testing, Testing methods-Black Box Testing, White Box Testing, Grey Box Testing, VV model of testing. Regression Testing Vs Unit Testing	10	5
2	**Functional Testing** Boundary value testing, Equivalence class testing, Decision table based testing, Retrospection.	16	8
3	**Structural Testing** Path testing, Data flow testing, Retrospection.	15	7
4	**Levels of Testing** Integration Testing, System Testing, Interaction testing.	13	6
5	**Object Oriented Testing** Issues, Class testing, Object oriented integration testing, Object oriented system testing.	21	10
6	**Testing Process** Planning, Metrics and reports, Quantitative and qualitative analysis, Improvements. Overview of Software Testing Tools. Functional Testing Tool ±⦿Selenium: Fundamentals of Selenium, Advantages and Disadvantages, Selenium IDE basics, Locators, User Interaction Testing in Selenium. Overview of Web Based Testing Tools and Mobile Application Testing Tools.	25	12

Reference Books

1.	**Software Testing Principles, Techniques and Tools** By M.G. Limaye | TMH,2009
2.	**Software Testing A Craftman's Approach** By Paul C. Jorgensen | CRC Press | Second Edition 2014
3.	**Software testing** By Yogesh Singh | Cambridge University Press, 2012
4.	**Introduction to Software Testing** By Paul Ammann, Jeff Offutt | Cambridge University Press, , 2016
5.	**Managing the Testing Process: Practical Tools and Techniques for Managing Hardware and Software Testing** By Rex Black | Wiley, 2002
6.	**Software Testing** By Ron Patton | SAMS | Second Edition 2000
7.	**Software Testing** By Perry | Wiley India 2006
8.	**Software testing** By Sandeep Desai, Abhishek Srivastava | (PHI) EEE edition 2012

Course Outcome

After Learning the Course the students shall be able to:

1. Understand significance of software testing, quality and software reliability
2. Describe software testing life cycle, software testing levels and testing phases
3. Design and implementation of test cases
4. Understand concepts of Object Oriented Testing
5. Explain various quality assurance techniques and standards to produce high-quality software

List of Practical

1.	Downloading& Installing Selenium Webdriver.
2.	Launch any E-commerce website and print message on a screen using Selenium Webdriver.
3.	Refreshing WebPagewhile Automation Testing With Selenium Webdriver.
4.	Working with different Web Browsers using Selenium Webdriver.
5.	Handling following controls and events using Selenium Web driver. Controls: Drop down, File upload, Alert and PopUps, multiple windows. Mouse Events: Mouse Hover , Mouse Right click, Mouse Double Click and Drag and Drop.
6.	Working with implicit Wait, Explicit Wait and Fluent Wait using Selenium.
7.	Capturing Partial Screenshots using Selenium.
8.	Automate low-level interactions for automation testing using ActionChains() method.
9.	Open A Webpage In A New Tab With Selenium Webdriver.
10.	Extracting Results Of JavaScript Code With Selenium Webdriver.
11.	Reading data from Excel file and Writing data in Excel file using Selenium.