SN		Course Name: SOFTWARE TESTING (Theory)	L	T	P	S	C	CH	Course Type
7.		Course Coordinator: Sanjeev	2	0	2	0	4	6	Program Elective
PRE-REQUISITE		--Software Testing and Quality Assurance							
CO-REQUISITE		--Software Engineering							
ANTI-REQUISITE		--							

a. **Course Objectives**

1. To test software in structured, organized ways.
2. To design quality tests effectively.
3. To implement testing strategies to real-world applications

b. **Course Outcomes**

CO1	Comprehend the basics of software development life cycle and software testing
CO2	Implement the test strategies using JIRA software
CO3	Analyze the relationship between software modules during integration testing.
CO4	Monitor test progress of healthcare applications using JIRA Software.
CO5	Design test cases to find software bugs.

c. **Syllabus**

Unit-1	**Fundamentals of Testing**	**Contact Hours:30**
Software Development Life Cycle	Software Development Life Cycle (SDLC), SDLC Models (Waterfall Model, V Model, Agile Model, Rapid Application Development), Impact of software bugs, Objective of testing, Testing principles	
Software Testing Life Cycle	Software Testing Life Cycle, establishing test policy, test factors and eleven steps of software testing process, Testing documentation using IEEE829, Test plan and Test Report, Test Metrics, Traceability Matrix	
Test Levels	Roles & Responsibilities of Quality Assurance Engineer, Test Levels (Unit, Component, Module, Integration, System, Acceptance, Generic), Software testing pyramid	
Unit-2	**Different approaches to Testing**	**Contact Hours:30**
Static Testing	Static Testing: Structured Group Examinations, Static Analysis, Control flow & Data flow, Determining Metrics	
Dynamic Testing	Dynamic Testing: Black Box Testing (Equivalence Class Partitioning, Boundary Value Analysis, Cause Effect Graphing and Decision Table Technique)	

White Box Testing	White Box Testing (Statement Coverage, Branch Coverage, Test of Conditions, Path Coverage), Gray Box Testing, Intuitive and Experience, Based Testing, Alpha, Beta, Performance, Load and Stress Testing, Key Performance Indicator (KPI's) of software testing	
SELF STUDY TOPIC	Exploratory testing and Planned testing	
Unit-3	**Test Management using JIRA**	**Contact Hours:30**
Introduction To JIRA	Introduction To JIRA, Test Management In JIRA, Advanced Search and Introduction to JQL (JIRA Query Language), different types of issues in JIRA (sub-task, bug, epic, improvement, new feature, story, task), Jira Dashboards, Different methods for creating issue	
Defect and Bug	Difference between Defect and Bug, Defect Life Cycle, Defect Tacking Tools, create a Bug Report, Severity & Priority	
Different types reports	Work Flows, plug-ins in JIRA, Use of Clone and Link in JIRA, Export and import data in Jira with different formats, Different types reports (Agile, Issue Analysis, Forecast & Management, etc.),	
SELF STUDY TOPIC	JIRA Agile	

d. **Self-study topics for Advance learners**:How to establish testing policy, ISO and IEEE standards for quality of products models, Exploratory testing and Planned testing, JIRA Agile,

e. **Textbooks / Reference Books**

TEXT BOOKS

T1 Software Testing by Ron Patton, Sams

T2 Software Quality Assurance, by Daniel Galin, Pearson Education

T3 Foundations of Software Testing by Aditya P Mathur, Pearson Education

REFERENCE BOOKS

R1 Testing and Quality Assurance for Component-based Software, by Gao, Tsao and Wu Artech House Publishers.

R2 Handbook of Software Quality Assurance, by G. Gordon Schulmeyer, JamesI.McManus, Second Edition, International Thomson Computer Press

R3 Software Quality, by Mordechai Ben-Menachem/Garry S. Marliss, by Thomson Learning publication.