

<b>Devi Ahilya University, Indore, India Institute of Engineering &amp; Technology</b>			<b>II Year M.E. (Computer Engineering Sp. in Software Engineering )  (Part Time)</b>				
<b>Subject Code &amp; Name</b>	<b>Instructions Hours per Week</b>			<b>Credits</b>			
<b>SEP4C6 Software Testing &amp; QA</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>
<b>Duration of Theory Paper: 3 Hours</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>5</b>

**Learning Objectives:** To develop a skill in developing good quality in the software product.

**Pre requisites:** Basic knowledge of software Engineering and programming.

### **COURSE CONTENTS**

#### **UNIT-I**

**SOFTWARE TESTING PRINCIPLES:** Need for testing - Psychology of testing - Testing economics – Various software development Life cycles (SDLC) –Principles of testing.

#### **UNIT-II**

**WHITE BOX TESTING** White box testing techniques - Statement coverage - Branch Coverage - Condition coverage - Decision/Condition coverage - Multiple condition coverage - Dataflow coverage - Mutation testing - Automated code coverage analysis

#### **UNIT-III**

**BLACK BOX TESTING:** Black box testing techniques - Boundary value analysis - Robustness testing - Equivalence partitioning -Syntax testing - Finite state testing - Levels of testing – Unit testing- Integration Testing

#### **UNIT-IV**

**TESTING STRATEGIES:** System testing - Functional testing-non-Functional testing-acceptance testing-performance testing –Factors and Methodology for Performance testing, Regression testing-Methodology for Regression-testing.

#### **UNIT-V**

**ADVANCE SOFTWARE TESTING METHOD (OBJECT ORIENTED TESTING):** Syntax testing - Finite state testing - Levels of testing - Unit, Integration and System Testing. Challenges - Differences from testing non-OO Software - Class testing strategies - State-based Testing Software quality Assurance: ISO 9000; CMM and Test Management Issues; Quality Assurance personnel Issues.

**Learning Outcomes:** To learn to Software Testing & QA concepts and its approaches to software Testing and QA.

#### **BOOKS RECOMMENDED:**

- [1]. Srinivasan Desikan&Gopalswamy Ramesh “Software testing Principles and Practices” Pearson education, 2006
- [2]. R. Patton; Software Testing; Techmedia (SAMS) 2000
- [3]. GlenfordJ.Myers, " The Art of Software Testing ", John Wiley & Sons, 1979.
- [4]. Boris Beizer, Black-Box Testing: “Techniques for Functional Testing of Software and Systems ", John Wiley & Sons, 1995.
- [5]. P.C.Jorgensen, “Software Testing - A Craftsman’s Approach ", CRC Press, 1995.