



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS &  
SCIENCE**

*Autonomous*

**Siddhartha Nagar, Vijayawada-520010**

*Re-accredited at 'A+' by the NAAC*

**Offered to: M.Sc. (Computer Science)**

**22CS4E9: SOFTWARE TESTING & PROJECT MANAGEMENT**

<b>CourseName</b>	Software Testing & Project Management	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>CIA</b>	<b>SEE</b>	<b>TM</b>
<b>CourseCode</b>	22CS4E9	4	0	0	4	30	70	100
<b>Year of Introduction:</b> 2022	<b>Year of Offering:</b> 2022	<b>Year of Revision:</b> Nil		<b>Percentage of Revision:</b>				
L-Lecture, T-Tutorial, P-Practical, C-Credits, CIA-InternalMarks, SEE-ExternalMarks, TM-TotalMarks								

**CourseDescriptionandPurpose:** Software Testing & Project Management (22CS4E9) is a course that illustrates Introduction of Software Testing, Software Testing Activities, Software Verification, Metrics and Models in Software Testing, Functional Testing, Structural Testing and Object Oriented Testing.

**Course Objectives:** This course will help enable the students to understand and learn fundamentals of Software Testing, Software Testing Activities, Software Verification, Metrics and Models in Software Testing, Functional Testing, Structural Testing and Object Oriented Testing.

**Course Outcomes:**

On successful completion the students should be able to

**CO1:** Remember Object Oriented Testing Methodologies.

**CO2:** Understand Fundamentals of Software Testing and Testing Activities.

**CO3:** Apply various Functional Testing Strategies.

**CO4:** Analyze Software Verification Methods and Metrics and Models in Software Testing.

**CO6:** Create Structural Testing Methods.

CO-PO MATRIX							
COURSE CODE	CO-PO	PO1	PO2	PO3	PO4	PO5	PO6
	CO1	M				M	
	CO2	M				M	
	CO3	M		M			
	CO4	M	M				
	CO6	M		M			

**UNIT-I (12 Hours)**

**Introduction:** Some Software Failures, Testing Process, Terminologies, Limitations of Testing, The V Shaped Software Life Cycle Model.

**Software Testing Activities:** Levels of Testing (Unit Testing, Integration Testing, System Testing, Acceptance Testing), Debugging, Software Testing Tools, Software Test Plan.

**UNIT-II (12 Hours)**

**Software Verification:** Verification Methods, SRS Document Verification, SDD Document Verification, Source Code Reviews, User Documentation Verification.

**Metrics and Models in Software Testing:** Software Metrics, Categories of Metrics, Object Oriented Metrics used in Testing, What should we measure during Testing?

**UNIT-III (12 Hours)**

**Functional Testing:** Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause-Effect Graphing Technique.

**UNIT-IV (12 Hours)**

**Structural Testing:** Control Flow Testing, Data Flow Testing, Slice Based Testing, Mutation Testing.

**UNIT-V (12 Hours)**

**Object Oriented Testing:** What is Object Orientation? , What is Object Oriented Testing? , Path Testing, State based Testing, Class Testing.

Prescribed Text Book			
S.No	Author	Title	Publisher
1	Yogesh Singh	Software Testing	Cambridge University Press, 2012 ISBN: 978-1-107-01296-7

Reference Text Book			
S.No	Author	Title	Publisher
1	Aditya P.Mathur	Foundations of Software Testing	2 <sup>nd</sup> Edition, Pearson Education, 2013 ISBN: 978-8131794760



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**M.Sc.(Computer Science)**

**Semester :IV**

**Course Code: 22CS4E9 Course Name: Software Testing & Project Management**

**Time: 3 Hours**

**Max Marks: 70**

**SECTION-A**

**Answer the following questions. (5×4=20Marks)**

1. (a) Explain YK2 Failure. (CO2, L2)  
(or)  
(b) Explain Acceptance Testing (CO3, L2)
2. (a) Explain issues related to Acceptance Testing. (CO2, L1)  
(or)  
(b) Explain the Quality of Software Code. (CO4, L2)
3. (a) Summarize Do-Not-Care condition of Rule Count. (CO6, L2)  
(or)  
(b) Explain procedure to create Equivalence Classes. (CO3, L2)
4. (a) How do u create Program Slices. (CO4, L1)  
(or)  
(b) Write about Control Flow Testing. (CO4, L1)
5. (a) List Various Levels of Testing. (CO4, L4)  
(or)  
(b) List various issues related to Class Testing (CO4, L4)

**SECTION-B**

**Answer the following questions.(5×10=50Marks)**

6. (a) Explain Why, Who & What is Testing? (CO1, L2)  
(or)  
(c) Discuss (i) Unit Testing (ii) Integration Testing. (CO3, L2)
7. (a) Discuss significance of SRS Document. (CO4, L6)  
(or)  
(b) Build various Object Oriented Metrics used in Testing. (CO1, L6)
8. (a) Explain Cause Effect Graphing Techniques. (CO6, L5)  
(or)  
(b) Evaluate Boundary Value Analysis. (CO3, L5)
9. (a) Explain Data Flow Testing. (CO6, L5)  
(or)  
(b) Explain Mutation Testing. (CO2, L5)
- 10 (a) Explain various aspects of Object Oriented Testing. (CO1, L5)  
(or)  
(b) Explain the significance of State Based Testing. (CO6, L5)

