- Welcome!

Course Introduction and Evaluation Scheme

UE20CS400S1A: Software Testing

4 Credit Special Topic Course - 4 Units

Session: Aug-Dec 2023

Department of Computer Science and Engineering

UE21CS341A : Software Engineering - Course Objectives and Outcomes

Course objectives: The objectives of this course are to make the students:

1) • Concepts of Software Quality and Types of testing.
2) • Different levels of testing – Unit, Integration, System and Acceptance Testing.
3) • Non-functional Testing and Regression Testing.
4) • Software testing tools.

Course Outcomes: At the end of the course, the student must be able to:

1) • Apply the concepts of Quality Engineering.
2) • Understand cost of quality.
3) • Apply proper testing techniques at different phases of development.
4) • Gain exposure to testing tools.

UE21CS341A : Software Engineering - Syllabus

Unit 1: Introduction to Software Quality and Testing **- 7 hours**

Introduction to **Software Quality** and its importance: Quality Philosophy and Concepts, Quality Management, Cost of Quality. **Verification and Validation**. Importance of Testing in different SDLC models. Modified V Model for testing requirements in a project. SQA processes, tools and techniques for Test Life Cycle. **Classification of testing types** based on method / requirement / target / needs.

Unit 2: Unit Testing & Integration Testing **- 7 hours**

Unit Testing: Definition, Test planning, methodology, code coverage testing. **Integration Testing:** Overview, Types - Top-down, Bottom-up, Functional, Bi-directional, System Integration, Scenario Testing. **System Testing:** Definition, reason and overview. Functional Testing, Test case generation. **Static Testing** – Manual, Automated (Tool-based), **Structural Testing** – Code complexity testing, advantages and disadvantages.

UE21CS341A : Software Engineering - Syllabus

Unit 3: Black Box and White Box Testing **- 7 hours**

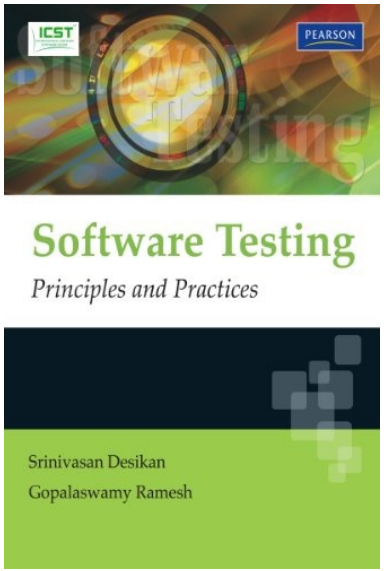
Black Box Testing: Definition and overview, Test Case Design techniques, Specification based test design and Requirements Traceability Matrix, Positive and Negative testing, Equivalence Partitioning, Boundary Value Analysis, Decision Tables, Advantages and disadvantages. **White Box Testing:** Definition and Overview. Gray box testing.

Unit 4: Acceptance, Non-functional and Regression Testing and Testing Tools **- 7 hours**

Acceptance Testing: Overview, Testing Approaches and Types. **Non Functional Testing:** Overview, Scalability, Reliability and Stress testing. **Performance Testing:** Overview, methodology for performance testing. **Regression Testing:** Definition, Types. **Testing Automation Tools:** Defect Management tools. Discuss testing tools and do a comparative study.

Tools / Languages: JUnit, JMeter, Selenium, Monkey Talk, Appium, Robotium, Selenium, Selendroid, UI Automator and Magneto.

UE20CS400S1A: Software Testing - Textbook

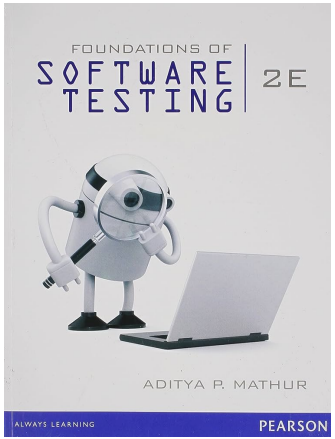


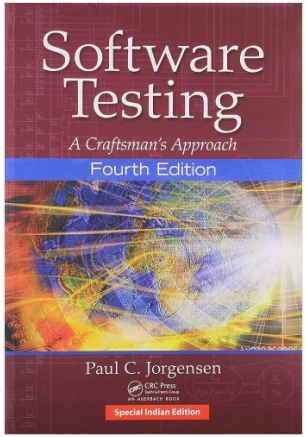
Software Testing – Principles and Practices
1st Edition**, Pearson**

Srinivasan Desikan

Gopalaswamy Ramesh

Reference Books





R1 **R2** **R3** **R4**

R1: Foundations of Software Testing, Aditya Mathur [2nd Edition]
R2: Software Testing, A Craftsman's Approach, Paul C. Jorgensen [4th Edition]

Content from other sources: Various Articles, Papers and Contents from Internet

ST Course Evaluation – Aug-Dec 2023

Sl. #		Marks	Reduced to	Remarks
1	ISA 1 [Units 1 & 2]	20	13	
2	ISA 2 [Units 3 & 4]	20	12	
3	**Total ISA**	**50**	**25**	
4	**ESA**	**50**	**25**	
5	**Total**	**100**	**50**	

PES UNIVERSITY
CELEBRATING 50 YEARS

THANK YOU

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Prof Raghu B A
Anchor