

SOFTWARE TESTING

Paper Code: ETIT-413
Paper: Software Testing

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INSTRUCTIONS TO PAPER SETTERS:

MAXIMUM MARKS: 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objective: To introduce the students about the knowledge of software testing, types of testing and testing tools.

UNIT I

Introduction: What is software testing and why it is so hard?, Error, Fault, Failure, Incident, Test Cases, Testing Process, Limitations of Testing, No absolute proof of correctness, Overview of Graph Theory.

[T1, T2][No. of Hours: 10]

UNIT II

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

Structural Testing: Path testing, DD-Paths, Cyclomatic Complexity, Graph Metrics, Data Flow Testing, Mutation testing.

[T1, T2][No. of Hours: 11]

UNIT III

Reducing the number of test cases:

Prioritization guidelines, Priority category, Scheme, Risk Analysis, Regression Testing, Slice based testing

Testing Activities: Unit Testing, Levels of Testing, Integration Testing, System Testing, Debugging, Domain Testing.

[T1, T2][No. of Hours: 11]

UNIT IV

Object Oriented Testing: Issues in Object Oriented Testing, Class Testing, GUI Testing, Object Oriented Integration and System Testing.

Testing Tools: Static Testing Tools, Dynamic Testing Tools, Characteristics of Modern Tools.

[T1, T2][No. of Hours: 10]

Text Books:

- [T1] William Perry, "Effective Methods for Software Testing", John Wiley & Sons, New York, 1995.
- [T2] Cem Kaner, Jack Falk, Nguyen Quoc, "Testing Computer Software", Second Edition, Van Nostrand Reinhold, New York, 1993.
- [T3] Boris Beizer, "Software Testing Techniques", Second Volume, Second Edition, Van Nostrand Reinhold, New York, 1990.
- [T4] Louise Tamres, "Software Testing", Pearson Education Asia, 2002

Reference Books:

- [R1] Roger S. Pressman, "Software Engineering – A Practitioner's Approach", Fifth Edition, McGraw-Hill International Edition, New Delhi, 2001.
- [R2] Boris Beizer, "Black-Box Testing – Techniques for Functional Testing of Software and Systems", John Wiley & Sons Inc., New York, 1995.
- [R3] K.K. Aggarwal & Yogesh Singh, "Software Engineering", New Age International Publishers, New Delhi, 2003.
- [R4] Marc Roper, "Software Testing", McGraw-Hill Book Co., London, 1994.
- [R5] Gordon Schulmeyer, "Zero Defect Software", McGraw-Hill, New York, 1990.
- [R6] Watts Humphrey, "Managing the Software Process", Addison Wesley Pub. Co. Inc., Massachusetts, 1989.
- [R7] Boris Beizer, "Software System Testing and Quality Assurance", Van Nostrand Reinhold, New York, 1984.
- [R8] Glenford Myers, "The Art of Software Testing", John Wiley & Sons Inc., New York, 1979.