JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech (CSE)– III-II Sem

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(20A05604a) SOFTWARE TESTING
(Professional Elective Course-II)

Course Objectives:

- Introduce the fundamentals of various testing methodologies.
- Describe the principles and procedures for designing test cases.
- Teach debugging methods.

Course Outcomes :

After completion of the course, students will be able to

- Understand the basic testing procedures.
- Develop reliable software
- Design test cases for testing different programming constructs
- Test the applications by applying different testing methods and automation tools

UNIT I Introduction Lecture 8Hrs

Introduction: Purpose of Testing, Dichotomies, Model for Testing, Consequences ofBugs, Taxonomy of Bugs.

Flow graphs and Path testing: Basics Concepts of Path Testing, Predicates, PathPredicates and Achievable Paths, Path Sensitizing, Path Instrumentation, Application ofPath Testing.

UNIT II Flow Testing Lecture 9Hrs

Transaction Flow Testing: Transaction Flows, Transaction Flow Testing Techniques.

Dataflow testing: Basics of Dataflow Testing, Strategies in Dataflow Testing, Application of Dataflow Testing.

UNIT III Domain Testing Lecture 9Hrs

Domain Testing: Domains and Paths, Nice & Ugly Domains, Domain testing, Domainsand Interfaces Testing, Domain and Interface Testing, Domains and Testability.

UNIT IV Logic Based Testing Lecture 8Hrs

Paths, Path products and Regular expressions: Path Products & Path Expression,Reduction Procedure, Applications, Regular Expressions & Flow Anomaly Detection.**Logic Based Testing:** Overview, Decision Tables, Path Expressions, KV Charts,Specifications.

UNIT V Graph Matrices and Application Lecture 8Hrs

State, State Graphs and Transition Testing: State Graphs, Good & Bad StateGraphs, State Testing, Testability Tips.

Graph Matrices and Application: Motivational Overview, Matrix of Graph, Relations,Power of a Matrix, Node Reduction Algorithm, Building Tools.

Textbooks:

1. Boris Beizer, “Software testing techniques”, Dreamtech, second edition, 2002.

Reference Books:

1. Brian Marick, “The craft of software testing”, Pearson Education.
2. Yogesh Singh, “Software Testing”, Camebridge
3. P.C. Jorgensen, “Software Testing” 3rd edition, Aurbach Publications (Dist.by SPD).
4. N.Chauhan, “Software Testing”, Oxford University Press.
5. P.Ammann&J.Offutt, “Introduction to Software Testing” , Cambridge Univ. Press.
6. Perry, “Effective methods of Software Testing”, John Wiley, 2nd Edition, 1999.

Online Learning Resources:
http://www.nptelvideos.in/2012/11/software-engineering.html
https://onlinecourses.nptel.ac.in/noc16_cs16/preview
https://nptel.ac.in/courses/117105135