GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
SOFTWARE TESTING METHODOLOGIES
(Professional Elective –IV)

Course Code: GR20A4058 **L/T/P/C:3/0/0/3**
IV Year I Semester

Prerequisites:

1. Students should have finished a course on Software Engineering.
2. Basic Knowledge about Object oriented design

Course Objectives:

1. Identify types of bugs and adopt a model for testing various bugs.
2. Apply path testing strategies various application software's
3. Techniques to test a given application using various dataflow and transaction flow testing techniques.
4. Design of decision tables for the given logic of a program subsystem.
5. Realization of graph matrices for given state diagrams.

Course Outcomes:

1. Create a model for testing and criticize various consequences of bugs.
2. Apply Path testing Strategies to conduct as part of White Box Testing.
3. Apply various Data flow testing techniques for exploring Data Bugs and Domain Bugs.
4. Design test cases based on decision tables for a given logical construct.
5. Attribute graph matrices techniques for the simplification of graphs and simplify testing process.

UNIT I

Introduction: Purpose of testing, Dichotomies, Model for testing, Consequences of bugs, Taxonomy of Bugs.

UNIT II

Flow Graphs and Path Testing: Basics concepts of Path Testing, Predicates, Path Predicates and Achievable Paths, Path Sensitizing, Path Instrumentation, Application of Path Testing.
Transaction Flow Testing: Transaction flows, transaction flow testing techniques.

UNIT III

Dataflow testing: Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.
Domain Testing: Domains and paths, Nice & ugly domains, Domain Testing, domains and interfaces testing, domain and interface testing, domains and testability.

UNIT IV

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

State, State Graphs and Transition testing: State graphs, good & bad state graphs, state testing, Testability tips.

Graph Matrices and Application: Motivational overview, matrix of graph, relations, power of a matrix, Node Reduction algorithm.

TEXT BOOKS:

1. Software Testing techniques – Boris Beizer, Dreamtech, 2nd Edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

REFERENCE BOOKS:

1. The craft of software testing - Brian Marick, PearsonEducation.
2. Software Testing Techniques –SPD(Oreille)
3. Software Testing in the Real World – Edward Kit,Pearson.
4. Effective methods of Software Testing, Perry, JohnWiley.
5. Art of Software Testing – Meyers, JohnWiley.