BEIT503T SOFTWARE ENGINEERING

(Theory Credit: 04)

Teaching Scheme:	Examination Scheme:
Lecture: 3 Hours/week	Theory: T (U): 80 Marks T (I): 20 Marks
Tutorial: 1 Hour/week	Duration of University Exam. : 03 Hours

UNIT I:

Basics: Introduction to Software Engineering, Software Myths, Software Engineering- A Layered Technology, Software Process Framework, Software Process Models: The Waterfall Model, Incrernental Process Models, Evolutionary Process Models, Specialized Process Models, Agile Process Models

UNIT II:

Measures Metrics and Indicator, Metrics for process & projects: Software measurement, metrics for software quality, metrics for small organization, Estimation: Software scope and Feasibility, Resources, Software project estimation, Decomposition Techniques, Empirical Estimation Models, Make-buy Decision, Project scheduling

UNIT III:

System Engineering: Hierarchy, Business Process Engineering, Product Engineering, System Modeling, Requirements Engineering: Requirements Analysis, Analysis Modeling Approaches, Data Modeling, Object-Oriented Analysis, Scenario-Based Modeling, Flow-Oriented Modeling, Class-based Modeling, Behavioral Model, Metrics for Analysis Models

UNIT IV:

Design Engineering Concepts, Design Model, Pattern-Based Software Design, Architectural Design, Mapping data flow into software architecture, Cohesion, Coupling, User interface analysis and Design,
Metrics for Design Models

UNIT V:

Unit Testing, Integration Testing, Validation Testing, System Testing, Art of Debugging, Software Testing Fundamentals, Black-Box Testing, White-Box Testing, Metrics for Source Code, Metrics for Testing & Maintenance

UNIT VI:

Risk Management: Risk strategies, Software risks, Risk identification, Risk refinement, RMMM Quality Management: Quality Concepts, Software Quality Assurance, Software Reviews, Formal Technical Review, Software Reliability, Change Management: Software Configuration Management, SCM Repository, SCM Process, Reengineering: Software reengineering, Reverse Engineering, Restructuring, Forward Engineering

Text Books:

1. Software Engineering-A Practitioner's Approach (Sixth Edition) by Roger Pressman (TMH)
2. Software Engineering (Ninth Edition)-Ian Summerville (Pearson)
3. Software Engineering for students (4th Edition)- Douglas Bell(Pearson)

Reference Books:

1. Schaum's Outline of Theory and Problems of Software Engineering by David Gustafson (TMH)
2. Software Engineering (Third Edition) by K. K. Aggarwal and Yogesh Singh (New age International Publishers)
3. Software Engineering, Theory and Practice(4th Edition)- Pfleeger, Atlee(Pearson)

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