

CS8494

SOFTWARE ENGINEERING

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OBJECTIVES:

- To understand the phases in a software project
- To understand fundamental concepts of requirements engineering and Analysis Modeling.
- To understand the various software design methodologies
- To learn various testing and maintenance measures

UNIT I SOFTWARE PROCESS AND AGILE DEVELOPMENT 9
Introduction to Software Engineering, Software Process, Perspective and Specialized Process Models –Introduction to Agility-Agile process-Extreme programming-XP Process.

UNIT II REQUIREMENTS ANALYSIS AND SPECIFICATION 9
Software Requirements: Functional and Non-Functional, User requirements, System requirements, Software Requirements Document – Requirement Engineering Process: Feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management-Classical analysis: Structured system Analysis, Petri Nets- Data Dictionary.

UNIT III SOFTWARE DESIGN 9
Design process – Design Concepts-Design Model– Design Heuristic – Architectural Design - Architectural styles, Architectural Design, Architectural Mapping using Data Flow- User Interface Design: Interface analysis, Interface Design –Component level Design: Designing Class based components, traditional Components.

UNIT IV TESTING AND MAINTENANCE 9
Software testing fundamentals-Internal and external views of Testing-white box testing - basis path testing-control structure testing-black box testing- Regression Testing – Unit Testing – Integration Testing – Validation Testing – System Testing And Debugging –Software Implementation Techniques: Coding practices-Refactoring-Maintenance and Reengineering-BPR model-Reengineering process model-Reverse and Forward Engineering.

UNIT V PROJECT MANAGEMENT 9
Software Project Management: Estimation – LOC, FP Based Estimation, Make/Buy Decision COCOMO I & II Model – Project Scheduling – Scheduling, Earned Value Analysis Planning – Project Plan, Planning Process, RFP Risk Management – Identification, Projection - Risk Management-Risk Identification-RMMM Plan-CASE TOOLS

TOTAL :45 PERIODS

OUTCOMES:

On Completion of the course, the students should be able to:

- Identify the key activities in managing a software project.
- Compare different process models.
- Concepts of requirements engineering and Analysis Modeling.
- Apply systematic procedure for software design and deployment.
- Compare and contrast the various testing and maintenance.
- Manage project schedule, estimate project cost and effort required.

TEXT BOOKS:

1. Roger S. Pressman, -Software Engineering – A Practitioner’s ApproachII, Seventh Edition, Mc Graw-Hill International Edition, 2010.
2. Ian Sommerville, -Software EngineeringII, 9th Edition, Pearson Education Asia, 2011.

[Click Here](#) for **Software Engineering** full study material.

REFERENCES:

1. Rajib Mall, -Fundamentals of Software EngineeringII, Third Edition, PHI Learning PrivateLimited, 2009.
2. Pankaj Jalote, -Software Engineering, A Precise ApproachII, Wiley India, 2010.
3. Kelkar S.A., -Software EngineeringII, Prentice Hall of India Pvt Ltd, 2007.
4. Stephen R.Schach, -Software EngineeringII, Tata McGraw-Hill Publishing Company Limited,2007.
5. <http://nptel.ac.in/>.