SOFTWARE ENGINEERING

	L	T/P	C
Paper Code: ETCS-303	**L**	**T/P**	**C**
Paper: Software Engineering	**3**	**1**	**4**

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 improvise the concept to build any software.

UNIT – I

Introduction:

Software Crisis, Software Processes, Software life cycle models: Waterfall, Prototype, Evolutionary and Spiral models, Overview of Quality Standards like ISO 9001, SEI-CMM.

Software Metrics:

Size Metrics like LOC, Token Count, Function Count, Design Metrics, Data Structure Metrics, Information Flow Metrics. **[T1][R1][R2][No. of Hrs.: 10]**

UNIT – II

Software Project Planning:

Cost estimation, static, Single and multivariate models, COCOMO model, Putnam Resource Allocation Model, Risk management.

Software Requirement Analysis and Specifications:

Problem Analysis, Data Flow Diagrams, Data Dictionaries, Entity-Relationship diagrams, Software Requirement and Specifications, Behavioural and non-behavioural requirements, Software Prototyping. **[T1][R1][R2][No. of Hrs.: 11]**

UNIT – III

Software Design:

Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, User Interface Design.

Software Reliability:

Failure and Faults, Reliability Models: Basic Model, Logarithmic Poisson Model, Calendar time Component, Reliability Allocation. **[T1][R1][R2] [No. of Hrs.: 12]**

UNIT – IV

Software Testing:

Software process, Functional testing: Boundary value analysis, Equivalence class testing, Decision table testing, Cause effect graphing, Structural testing: Path testing, Data flow and mutation testing, unit testing, integration and system testing, Debugging, Testing Tools & Standards.

Software Maintenance:

Management of Maintenance, Maintenance Process, Maintenance Models, Reverse Engineering, Software Reengineering, Configuration Management, Documentation.

[T1][R1][R2] [No. of Hrs.: 11]

TEXT BOOKS:

[T1] R. S. Pressman, “Software Engineering – A practitioner’s approach”, 3rd ed., McGraw Hill Int. Ed., 1992.

[T2] K.K. Aggarwal & Yogesh Singh, “Software Engineering”, New Age International, 2001

Reference:

[R1] R. Fairley, “Software Engineering Concepts”, Tata McGraw Hill, 1997.

[R2] P. Jalote, “An Integrated approach to Software Engineering”, Narosa, 1991.

[R3] Stephen R. Schach, “Classical & Object Oriented Software Engineering”, IRWIN, 1996.

[R4] James Peter, W Pedrycz, “Software Engineering”, John Wiley & Sons

[R5] I. Sommerville, “Software Engineering”, Addison Wesley, 1999.