

stop. If some requests occur during going up or coming down they should be ignored.

**Note: In the examination *each* student picks one question from the lot of *all* 12 questions.**

## V SEMESTER

### SOFTWARE ENGINEERING

**Subject Code: 10IS51**  
**Hours/Week : 04**  
**Total Hours : 52**

**I.A. Marks : 25**  
**Exam Hours: 03**  
**Exam Marks: 100**

#### PART – A

##### UNIT – 1 6 Hours

**Overview:** Introduction: FAQ's about software engineering, Professional and ethical responsibility.

Socio-Technical systems: Emergent system properties; Systems engineering; Organizations, people and computer systems; Legacy systems.

##### UNIT – 2 6 Hours

**Critical Systems, Software Processes:** Critical Systems: A simple safety-critical system; System dependability; Availability and reliability.

Software Processes: Models, Process iteration, Process activities; The Rational Unified Process; Computer Aided Software Engineering.

##### UNIT – 3 7 Hours

**Requirements:** Software Requirements: Functional and Non-functional requirements; User requirements; System requirements; Interface specification; The software requirements document.

Requirements Engineering Processes: Feasibility studies; Requirements elicitation and analysis; Requirements validation; Requirements management.

##### UNIT – 4 7 Hours

**System models, Project Management:** System Models: Context models; Behavioral models; Data models; Object models; Structured methods.

Project Management: Management activities; Project planning; Project scheduling; Risk management.

#### PART - B

**UNIT – 5****7 Hours**

**Software Design :** Architectural Design: Architectural design decisions; System organization; Modular decomposition styles; Control styles. Object-Oriented design: Objects and Object Classes; An Object-Oriented design process; Design evolution.

**UNIT – 6****6 Hours**

**Development:** Rapid Software Development: Agile methods; Extreme programming; Rapid application development. Software Evolution: Program evolution dynamics; Software maintenance; Evolution processes; Legacy system evolution.

**UNIT – 7****7 Hours**

**Verification and Validation:** Verification and Validation: Planning; Software inspections; Automated static analysis; Verification and formal methods. Software testing: System testing; Component testing; Test case design; Test automation.

**UNIT – 8****6 Hours**

**Management:** Managing People: Selecting staff; Motivating people; Managing people; The People Capability Maturity Model. Software Cost Estimation: Productivity; Estimation techniques; Algorithmic cost modeling, Project duration and staffing.

**Text Books:**

1. Ian Sommerville: Software Engineering, 8<sup>th</sup> Edition, Pearson Education, 2007.  
(Chapters:- 1, 2, 3, 4, 5, 6, 7, 8, 11, 14, 17, 21, 22, 23, 25, 26)

**Reference Books:**

1. Roger.S.Pressman: Software Engineering-A Practitioners approach, 7<sup>th</sup> Edition, McGraw Hill, 2007.
2. Pankaj Jalote: An Integrated Approach to Software Engineering, Wiley India, 2009.

**SYSTEM SOFTWARE****Subject Code: 10CS52****Hours/Week : 04****Total Hours : 52****I.A. Marks : 25****Exam Hours: 03****Exam Marks: 100****PART – A****UNIT – 1****6 Hours**