1. Subject Code: CO301 Course Title: Software Engineering

2. Contact Hours : L: 3 T: 0 P: 2

3. Examination Duration (ETE)(Hrs.) : Theory 3 Hrs Practical 0

4. Relative Weightage : CWS 15 PRS 15 MTE 30 ETE 40 PR 0

5. Credits : 4

6. Semester : IV

7. Subject Area : DCC

8. Pre-requisite : Nil

9. Objective : To introduce fundamentals of software engineering

including requirement specifications, software

design, testing and maintenance.

10. Details of Course

| S.No. | Contents | Contact Hours |
|-------|--|------------------|
| 1. | Introduction: Introduction to software Engineering, Software characteristics, Software components, Software applications, Software Engineering Principles, Software metrics and measurement, monitoring and control. Software development life-cycle, Water fall model, prototyping model, Incremental model, Iterative enhancement Model, Spiral model. | 8 |
| 2. | Software Requirement Specification: Requirements Elicitation Techniques, Requirements analysis, Models for Requirements analysis, requirements specification, requirements validation. | 8 |
| 3. | System Design: Design Principles: Problem partitioning, abstraction. Top down and bottom up — design, structured approach. Functional versus object oriented approach of design, design specification, Cohesiveness and Coupling. Overview of SA/SD Methodology, structured analysis, data flow diagrams, extending DFD to structure chart. | 6 |

| 4. | Software project Management: Project planning and Project scheduling. Software Metrics: Size Metrics like LOC, Token Count, Function Count. Cost estimation using models like COCOMO. Risk management activities. Software Reliability and Quality Assurance: Reliability issues, Reliability metrics, reliability models, Software quality, ISO 9000 certification for software industry, SEI capability maturity model. | 8 |
|-------|---|----|
| 5. | Testing: Verification and validation, code inspection, test plan, test case specification. Level of testing: Unit, Integration Testing, Top down and bottom up integration testing, Alpha and Beta testing, System testing and debugging. functional testing, structural testing, Software testing strategies. | 8 |
| 6. | Software Maintenance : Structured Vs unstructured maintenance, Maintenance Models, Configuration Management, Reverse Engineering, Software Re-engineering. | 4 |
| TOTAL | | 42 |

11. Suggested Books

| S.No. | Name of Books / Authors/ Publishers | |
|-----------------|---|--|
| Text Books | | |
| 1. | R. S. Pressman, "Software Engineering – A practitioner's approach", 3 rd ed., McGraw Hill Int. Ed,1992 | |
| Reference Books | | |
| 1. | K. K. Aggarwal & Yogesh Singh, "Software Engineering", 2 nd Ed., New Age International,2005 | |
| 2. | Sommerville, "Software Engineering", Addison Wesley,2001 | |

1. Subject Code: CO 303 Course Title: Theory of Computation

2. Contact Hours : L: 3 T: 1 P: 0

3. Examination Duration (ETE)(Hrs.) : Theory 3 Hrs Practical 0

4. Relative Weightage : CWS 25 PRS 0 MTE 25 ETE 50 PR 0

5. Credits : 4

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