Software Engineering

Course Code	19CS3501	Year	III	Semester	I
Course Category	Program Core	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	
Continuous Internal Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the fundamentals of Software Engineering	L2
CO2	Apply various life cycle activities for a project.	L3
CO3	Apply Risk and Quality management Strategies.	L3
CO4	Analyze and choose appropriate process Model based on User requirements.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	3								1	1			1	1
CO3	3												2	2
CO4		3				1	1							

Syllabus		
Unit No.	**Contents**	**Mapped CO**
I	**Introduction to Software Engineering**: Software, Software Engineering, The changing nature of software, Software myths. **A Generic view of process:** Software engineering-A layered technology, a process framework, CMMI. **Process models:** The waterfall model, Incremental process models, Evolutionary process models, Unified Process Model.	**CO1,CO4**
II	**Requirements engineering:** Requirements engineering tasks, initiating the requirements engineering process, Eliciting requirements, Negotiating requirements, validating requirements. **Analysis mode l:** Requirements Analysis, Data modelling concepts, Scenario-Based Modelling, Flow-Oriented Modelling, Class-Based Modelling, Creating a behavioural model.	**CO1, CO2**
III	**Design Engineering**: Design process and Design quality, Design concepts, the design model. **Creating an architectural design**: Software architecture, Architectural styles and patterns. **Performing User interface design:** Golden rules.	**CO1, CO2**
IV	**Testing Strategies:** A strategic approach to software testing, Test strategies for conventional software- Unit testing, Integration testing, Validation testing, System testing **Testing tactics:** Software testing fundamentals, White-Box testing – Basis path testing, Control structure testing, Black-Box testing – Methods	**CO1, CO2**
V	**Risk management:** Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. **Quality Management:** Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews	**CO1, CO3**

Learning Resources
Text Book
1. Software Engineering: A Practitioner's Approach, Roger S. Pressman, Seventh edition, 2009, McGraw Hill, International Edition.
References
1. Software Engineering, Ian Sommerville, Seventh edition, 2004, Pearson,India 2. Software Engineering, K.K. Agarwal &Yogesh Singh, 2007, New Age International Publishers. 3. Software Engineering Principles and Practice, Waman S Jawadekar, 2004, McGrawHill. 4. Fundamentals of Software Engineering, Rajib Mall, Fourth edition, 2009, PHI.
e-Resources and other Digital Material
1. https://onlinecourses.nptel.ac.in/noc20_cs68