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**	Object Oriented Programming
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 and make an effective report	**L3**
CO3	Apply Risk and Quality management Strategies	**L3**
CO4	Analyze and choose appropriate process Model based on User requirements	**L4**

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 model:** 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. http s://onlinecourses.nptel.ac.in/noc20_cs68