20ITT53 -SOFTWARE ENGINEERING

Programme & Branch	B. Tech & Information Technology	Sem.	Category	L	T	P	Credit
Prerequisites	Nil	5	PC	3	0	0	3

Preamble	This course promotes the practice of software engineering concepts at a higher level of abstraction which is to be acquired by software engineers and developers. It also covers software engineering principles that are applicable to the analysis, design, development and testing of software systems.	
Unit - I	**Process Models**	**9**
Software process structure – Process models - Waterfall model, Incremental process models, Evolutionary process models, Specialized process models – Unified Process - Agile development: Agile process - Extreme programming – Scrum.		
Unit - II	**Requirement Gathering and Analysis**	**9**
Requirements engineering – Eliciting requirements, Developing use cases – Building the analysis model – Negotiating requirements – Requirements monitoring – Validating requirements – Requirements analysis.		
Unit - III	**UML Modeling**	**9**
Introduction – Unified Modeling Language – Static model – Dynamic model – UML diagrams– UML class diagram– Use case diagram – UML dynamic modeling – UML interaction diagrams –UML state chart diagram – UML activity diagram – Implementation Diagrams –Component diagram –Deployment diagram.		
Unit - IV	**Software Design**	**9**
Design concepts and model – Architectural design: Software architecture, Architectural styles – Architectural design – Component level design: Designing class-based components, Conducting component level design – User interface design: User interface analysis and design – Interface analysis –Interface design steps – Design patterns.		
Unit - V	**Software Testing Fundamentals**	**9**
Software testing strategies: Strategic approach – Issues – Test strategies for conventional and Object Oriented software – Validation and System testing – Debugging – Testing conventional applications: White box testing – Basis path testing – Control structure testing – Black box testing – Software configuration management – SCM repository – SCM process.		

Total: 45

TEXT BOOK:

1. Roger S. Pressman, Bruce R. Maxim, "Software Engineering: A Practitioner's Approach", 8th Edition, McGraw-Hill Education, India, 2019.

REFERENCES:

1. Ali Bahrami, "Object Oriented Systems Development", 1st Edition, Tata McGraw-Hill, New Delhi, 2008.
2. Jalote Pankaj, "An Integrated Approach to Software Engineering", 3rd Edition, Narosa Publishing House, New Delhi, 2000.