4. SOFTWARE ENGINEERING

Semester	Hours / Week			Total hrs	Credit	Max Marks		
	L	T	P		C	CIE	SEE	TOTAL
II	3	0	0	48	3	40	60	100

MODULE – 1 The Software Process **10H**

The Nature of Software, The Unique Nature of Web Apps, Software Engineering, The Software Process, Software Engineering Practice, Software Myths. A Generic Process Model, Process Assessment and Improvement, Prescriptive Process Models, Specialized Process Models, The Unified Process, Personal and Team Process Models, Process Technology, Product and Process. Agility and the Cost of Change, Agile Process, Extreme Programming.

MODULE -2 Modeling Concepts **10H**

Requirements Engineering, Eliciting Requirements, Developing Use Cases, and Building the requirements model, Negotiating Requirements, Validating Requirements. Requirements Analysis, Scenario-Based Modeling, UML Models that Supplement the Use Case, Data Modeling Concepts, Class-Based Modeling.

MODULE-3 Design concepts **10H**

Design with Context of Software Engineering, The Design Process, Design Concepts, The Design Model. Software Architecture, Architecture Genres, Architecture Styles, Architectural Design, Assessing Alternative Architectural Designs, Architectural Mapping Using Data Flow. Component, Designing Class-Based Components, Conducting Component-level Design, Designing Traditional Components, Component-Based Development.

MODULE-4 User Interface Design, Coding and Testing **9H**

Characteristics of a Good User Interface, Basic Concepts, Types of User Interfaces, Fundamentals of Component-based GUI Development, A User Interface Design Methodology. Coding, Code Review, Software Documentation, Testing, Unit Testing, Black-box Testing, White-Box Testing

MODULE-5 Software Quality & Product Metrics **9H**

Software Quality, Software Quality Management System, ISO 9000, SEI Capability Maturity **Model Product metrics:** Metrics for Requirements Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Total hours: 48 hours

Text Book(s):

1. Software engineering A practitioner's Approach, Roger S. Pressman, Seventh Edition, McGraw Hill International Education, 2016.
2. Fundamentals of Software Engineering, Rajib Mall, , Third Edition, PHI.

Reference Book(s):

1. Ian Somerville, Software Engineering, 9th Edition Pearson Education Asia,2011.
2. Pankaj Jalote, A concise introduction to software Engineering, Springer
3. PankajJalote, Software Engineering, A Precise Approach, Wiley India,2010