Course 302: Software Engineering

Course Code	302
Course Title	Software Engineering
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2021
Medium of Instruction	English
Purpose of Course	Computer software engineers apply the principles and techniques of computer science, engineering, and mathematical analysis to the design, development, testing, and evaluation of the software and the systems that enable computers to perform their many applications.
Course Objective	1. To make students understand how to engineer the software. 2. To make students understand various components of software process model and their working. 3. To make students understand various ways to test software.
Pre-requisite	Prior knowledge of types of software and their application areas.
Course Out come	After learning this subject, students are expected to get the knowledge about designing and testing of software.
Course Content	**Unit 1. Introduction** 1.1 Concepts of Software. 1.2 Software characteristics. 1.3 Software Engineering: definition. 1.4 Types of Software **Unit 2. Software Process Model** 2.1 Waterfall Model 2.2 Prototype Model 2.3 Incremental Model 2.4 Spiral Model **Unit 3. Requirement analysis** 3.1 Introduction. 3.2 Requirement gathering techniques & Fact Finding, Recording Outcome. 3.3 Effort distribution. 3.4 Importance of Requirement Specifications. 3.5 SRS Characteristics. 3.6 Software Requirement Specification Document. **Unit 4. System Design** 4.1 UML (Class Diagram, Use Case) 4.2 DFD, Data Dictionary and Process Specification. 4.3 Design model. 4.4 Principal and Concepts. 4.5 Functional Independence. 4.6 Effectiveness of Modular Design.

	Unit 5. Software Testing 5.1 Testing Fundamentals and principals. 5.2 Types of Testing. 5.2.1 Black Box & White Box 5.2.2 Unit Testing 5.2.3 Integration Testing 5.2.4 System Testing 5.3 Introduction to change Over 5.3.1 Types of change over
Reference Books	1. Software Engineering - A Practitioners' approach, R. S. Pressman – McGraw Hill. 2. Software Engineering concepts, Richard Fairley – McGraw Hill. 3. An Integrated Approach to Software Engineering, Pankaj Jalota – Narosa. 4. Software Engineering a Concise Study, Kelkar – PHI. 5. Fundamentals of Software Engineering, 4th Edition, Rajib Mall – PHI. 6. Software Engineering, Ian Sommerville - Pearson Education. 7. System Analysis & Design in changing world, Satzinger, Jackson, Burd – Course Technology. 8. Object Oriented Modelling and Designing with UML, Michael R Blaha & James R Rumbaugh - Pearson 9. System Analysis & Design, Elias M – Galgotia Publications. 10. System Analysis & Design & Introduction to S/W Engineering, Prof. S. Parthasarthy & Prof. B. W. Khalkar
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.