Software Engineering

1.1 Course Number: CS331

1.2 Contact Hours: 3-0-0 Credits: 9

1.3 Semester-offered: 3rd Year-Odd

1.4 Prerequisite: Data Structures, Programming Languages

1.5 Syllabus Committee Member: Dr. Sushum Biswas, Dr. Daya Sagar Gupta & Dr. Gargi Srivastava

2. **Objective:** To understand and adhere to professional ethical standards in the system development and modification process, especially by accepting responsibility for the consequences of design decisions and design implementations. Basically the main objectives are how to develop software in an efficient way in terms of cost, effort and quality.

3. **Course Content:**

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction	Phases in Software development, software development process models, role of metrics and measurement.	4
2	Software Requirement specification (SRS)	Role of SRS, problem analysis, requirement specification, validation of SRS document, metrics, monitoring and control, Object-Oriented analysis.	6
3	Planning a software Project	Cost estimation, project scheduling, staffing and personnel planning, team structure, software configuration management, quality assurance plans, monitoring plans, management.	8
4	System Design	Objective, principles, module level concepts, coupling and cohesion, methodology- structured and object oriented, Design specification and verification, Metrics, Object-Oriented Design.	8
5	Detailed Design	Specification, design language, verification, Monitoring and control. Coding: Practice, documentation, verification, correctness proving, metrics, monitoring and control. Testing: Fundamentals, functional and structural testing, test plans, test case specifications, test case execution and analysis.	14
		Total	**40**

4. Readings

4.1 Textbook:

1. Software Engineering Roger Pressman, McGraw-Hill Science
2. Fundamentals of Software Engineering, Rajeev mall, PHI
3. Software Engineering: Theory and Practice, 2nd ed., S. L. P fleeger, Pearson Education.

4.2 Reference books:

1. SOFTWARE ENGINEERING CONCEPTS by Richard Fairley, McGraw-Hill Science
2. An Integrated Approach to Software Engineering, Pankaj Jalote, Springer Science & Business Media.

5 Outcome of the Course:

After successfully completing this module the student will be able to explain the software engineering principles and techniques that are used in developing quality software products.