FACULTY OF COMPUTER APPLICATIONS
Bachelor of Computer Applications

- **Sem.** : 5
- **Subject Code** : 05BC3501
- **Subject** : Software Engineering
- **Course Objectives** :

1. To understand the software engineering discipline and development practices.
2. To understand the concepts of various software Engineering Process Models.
3. To analyze and understand user's requirements for development process.
4. To understand how to Analyze, Design, Build an architecture of a software with attractive & effective user interface.
5. To understand and implement various software testing techniques.

- **Prerequisites** : Knowledge of Software Development Life Cycle.

Unit No	Topics Covered	No of lectures required
1	**Introduction** Evolution—From an Art Form to an Engineering Discipline, Software Development Projects, Exploratory Style of Software Development, Emergence of Software Engineering, Notable Changes in Software Development Practices, Computer Systems Engineering.	6
2	**Software Life Cycle models** A Few Basic Concepts, Waterfall Model and its Extensions, Rapid Application Development (RAD), Agile Development Models, Spiral Model	12
3	**Requirements Analysis and Specification** Requirements Gathering and Analysis, Software Requirements Specification (SRS), Formal System	8

	Specification, Axiomatic Specification, Algebraic Specification, Executable Specification and 4GL	
4	**Software Design** Overview of the Design Process, How to Characterise a Good Software Design? Cohesion and Coupling, Layered Arrangement of Modules, Approaches to Software Design User Interface Design Characteristics of a Good User Interface, Basic Concepts, Types of User Interfaces, Fundamentals of Component-based GUI Development, A User Interface Design Methodology	**10**
5	**Testing** Testing, Unit Testing, Black-box Testing, White-Box Testing, Debugging, Program Analysis Tools, Integration Testing, Testing Object-Oriented Programs, Smoke Testing, Some General Issues Associated with Testing	**9**

Course Outcomes :

1. Student will understand software engineering discipline with various best practices in the software development process.
2. Student will understand various process models available for software engineering and its difference.
3. Students will be able to analyze and document the requirement specifications for a software project.
4. Students will be able to develop & design the attractive user interface by using standard tools and methodologies.
5. Students will be ensure about quality of the software by applying various testing technique & debugging process after development of software.

Course Outcomes – Program Outcomes Mapping Table :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1		L		M		L			L		
CO2	L		M	L				M		M	
CO3	M				M		L			L	
CO4		L		H		H					M
CO5			M		L		H	L	M		

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Text Book :

1. Fundamentals of Software Engineering, Rajib Mall, PHI Learning, 4th Edition

Reference Books :

1. Software Engineering, A Practitioner's Approach, Roger Pressman, McGraw Hill, 8th Edition
2. Software Engineering, Ian Sommerville, Addison-Wesley, 9th Edition
3. Object-Oriented and Classical Software Engineering, Stephen Schach, McGraw Hill, 8th Edition

Web References :

1. https://onlinecourses.nptel.ac.in/noc20_cs68/preview
2. https://onlinecourses.swayam2.ac.in/cec20_cs07/preview

App References :

1. Learn Software Engineering
2. Software Engineering

Syllabus Coverage from text /reference book & web/app reference:

Unit #	Chapter Numbers
1	1
2	2
3	4
4	5,9
5	10.4 to 10.13