

Software Engineering
[As per Choice Based Credit System (CBCS) Scheme]
(Effective from the Academic Year 2021-2022)

SEMESTER – V

Course Code	21BCA53	CIE Marks	50
Number of Lecture Hours Week	04	SEE Marks	50
Total Number of Lecture Hours	42	Exam Hours	03
Credits – 3			

Course Objectives:

- To Introduce The Concepts Of Software Engineering.
- Outline software engineering principles and activities involved in building large software programs.
- Describe the process of requirements gathering, requirements classification, requirements specification and requirements validation.
- Identify software quality parameters and quantify software using measurements and metrics.

Revised Bloom's Taxonomy Levels: L1 – Remembering, L2 – Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, and L6 – Creating.

Module 1	Teaching Hours	RBT Levels
Software Process: Introduction, software process models, process iteration, process activities, the rational unified process, Computer-Aided Software Engineering. Project Management: Management activities, project planning, project scheduling, risk management.	08	L1,L2, L3,L4
Module 2		
Software Requirements: functional and non-functional requirements, user requirements, system requirements, interface specification, the software requirements document. Requirements Engineering Process: feasibility studies, requirements elicitation and analysis, requirements validation, requirements management.	08	L1,L2, L3,L4
Module 3		
System Models: context models, behavioral models, data models, object models, structured methods. Architectural Design: Architectural design decisions, system organisation, modular decomposition styles, control styles, reference architectures.	08	L1,L2, L3,L4

Module 4

Rapid Software Development: Agile methods, extreme programming, rapid application development, software prototyping **Software Reuse:** the reuse landscape, application system reuse. **Software Evolution:** program evolution dynamics, software maintenance, evolution processes, legacy system evolution.

10

L1,L2,
L3,L4**Module 5**

Verification And Validation: planning verification and validation, software inspections, automated static analysis, verification and formal methods. **Software Testing:** System testing, component testing, test case design, test automation.

08

L1,L2,
L3,L4**Course Outcomes**

On successful completion of the course, the students will be able to

- How to apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design, construction, and deployment
- An ability to work in one or more significant application domains
- Work as an individual and as part of a multidisciplinary team to develop and deliver quality software
- Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle
- Demonstrate an ability to use the techniques and tools necessary for engineering practice

Question Paper Pattern

The Question Paper will have Ten Questions.

There will be two questions from each module.

Each question will have questions covering all the topics under a module.

The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:

1. Ian Sommerville: Software Engineering, 8th Edition, Pearson Education
2. K K Agarwal, yogesh singh, software engineering, newage international publication.
3. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Fundamentals of Software Engineering, Pearson Education.

Reference books:

1. Roger S. Pressman: Software Engineering-A Practitioners approach, 7th edition, Tata McGraw Hill.
2. Pankaj Jalote: An Integrated Approach to software Engineering, Wiley India