NAME OF DEPARTMENT: School of Computing

Subject Name: Software Engineering **Subject Code:** TBC 504

Course Name: Bachelor of Computer Applications (BCA)

1 **Contact Hours:** 45 **L** 3 **T** **P** 0

2 **Examination Duration (Hrs):** **Theory** 0 3 **Practical** 0 0

3 **Relative Weightage:** **CWE:** 25 **MTE:** 25 **ETE:** 50

4 **Credits:** 0 3

5 **Semester:**

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Autumn	**Spring**	**Both**

6 **Pre-Requisite:** **Knowledge of Software development**

7 **Subject Area:** **Computer Application**

8 **Objective:** **To familiarize students with the Software Engineering**

9 **Course Outcomes:** A student who successfully fulfills the course requirements will be able to:

CO 1	Understand software, role, application, development and development challenges.
CO 2	Understand the software development process and models.
CO 3	Analyze the life cycle approach and software project management.
CO 4	Understand the role of Software testing techniques and challenges.
CO 5	Understand about Software Quality and quality assurance.

10 Details of the Course:

Unit No.	**CONTENT**	**CONTACT HOURS**
1	**Introduction:** Introduction to software engineering, Importance of software, The evolving role of software, Software Characteristics, Software Components, Software Applications, Software Crisis, Software engineering problems, Software quality & its relevance, Software Development Life Cycle. Model: Waterfall Model, Prototyping, Incremental Model, RAD, Spiral Model.	9
2	**Software Requirement Engineering:** Requirements elicitations, Problem Analysis, Requirement specifications, SRS plan and documentation.	9

	Software-Design: Design principles, problem partitioning, abstraction, top down and bottom up-design, Structured approach, functional versus object-oriented approach, design specifications and verification, Monitoring and Control, Cohesiveness, coupling, Fourth generation techniques, Functional independence.	
3	**Coding:** structured programming, programming style and internal documentation. **Testing:** Testing principles, Levels of testing, functional testing, structural testing, test plane, test case specification, reliability assessment, software testing strategies, Verification & validation, Unit testing, Integration Testing, Alpha & Beta testing, system testing and debugging, Software Maintenance.	9
4	**Software Reliability & Quality Assurance:** Reliability issues, Reliability metrics, Role of matrices and measurement, Reliability growth modeling, Software quality, ISO 9000 certification for software industry, SEI capability maturity model, and comparison between ISO & SEI CMM.	9
5	**Software Project Management:** The Management spectrum- (The people, the product, the process, the project), cost estimation, project scheduling, staffing, software configuration management, quality assurance, project monitoring, risk management, Role of management in software development**.** **CASE (Computer Aided Software Engineering):** CASE and its Scope, CASE support in software life cycle, Documentation, Project Management, internal interface, Reverse Software Engineering, Architecture of CASE environment.	9
	TOTAL	**45**

11 Suggested Books:

Sl. NO.	**NAME OF AUTHORS/BOOKS/PUBLISHERS**	**YEAR OF PUBLICATION**
1	Roger S. Pressman: Software Engineering, 5th Edition, Tata McGrew Hill.	2001
2	Ian Sommerville: Software Engineering, 9th Edition, PHI.	2011
3	Pankaj Jalote: An Integrated Approach to Software Engineering, 3rd edition, Springer.	2005