

AC –
Item No. –

As Per NEP 2020

**Tolani College of
Commerce
(Autonomous)**



Knowledge is Supreme

Title of the Course: Software Engineering

**Programme: B.Sc. (Information Technology)
Semester-IV**

Syllabus for 2 credits

From the academic year-2024-2025

Sr. No.	Heading	Particulars
1	Description the course :	Software engineering is the branch of computer science that deals with the design, development, testing, and maintenance of software applications.
2	Vertical :	Minor
3	Type :	Theory and Practical
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks Continuous Evaluation =20 Semester End =30
7	Course Objectives: <ol style="list-style-type: none"> 1) To provide the idea of decomposing the given problem into Analysis, Design, Implementation, Testing and Maintenance phases. 2) To provide an idea of using various process models in the software industry according to given circumstances. 	
8	Course Outcomes: <ol style="list-style-type: none"> 1) Learners should be able to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. 2) Learners should be able to communicate effectively with a range of audiences. 	

9	Modules:-
	Module 1: Introduction, Software Requirements and Agile software development (15 hours)
	<ul style="list-style-type: none"> • What is software engineering? Software Development Life Cycle, Requirements Analysis, Software Design, Coding Testing, Maintenance etc. • Functional and Non-functional, requirements, User Requirements, System Requirements, Interface, Specification, Documentation of the software requirements. Software Development Process Models. Waterfall Model. Prototyping. Iterative Development. Rational Unified Process. The RAD Model. Time boxing Model. • Agile methods, Plan-driven and agile development, Extreme programming, Agile project management, Scaling agile methods.
	Module 2: Requirements Engineering Processes, Architectural Design:, Verification and Validation (15 hours)
	<ul style="list-style-type: none"> • Feasibility study, Requirements elicitation and analysis, Requirements Validations, Requirements Management. • Architectural Design Decisions, System Organisation, Modular Decomposition Styles, Control Styles, Reference Architectures. • Planning Verification and Validation, Software Inspections, Automated Static Analysis, Verification and Formal Methods.

10	Reference Books: Author: Pankaj Jalote Title: Software Engineering, edition,, Publisher: Narosa Year : 2005 Author: KL James Title: Software Engineering, Publisher: PHI EEE Year : 2009																																										
11	Internal Continuous Assessment: 20%	Semester End Examination : 30%																																									
12	Continuous Evaluation through:	Practical																																									
13	Format of Question Paper: <p style="text-align: center;">Scheme of Evaluation Pattern Table 1A: Scheme of Continuous Evaluation (CE/Practical) Scheme of Evaluation Pattern</p> <table border="1" data-bbox="326 716 1458 877"> <thead> <tr> <th>Sub-components</th> <th>Maximum Marks</th> <th>Conditions for passing</th> </tr> </thead> <tbody> <tr> <td>11) Practical exam</td> <td>15</td> <td rowspan="3">A learner must be present for each of the sub-components.</td> </tr> <tr> <td>12) Journal and Viva</td> <td>5</td> </tr> <tr> <td>Total</td> <td>20</td> </tr> </tbody> </table> <p style="text-align: center;">Table 1B: Scheme of Semester End Examination (SEE) Evaluation Question Paper Pattern for Semester End Examination (SEE) Maximum Marks: 30 Duration: 1 Hrs. Note: All questions are compulsory. Each question has an internal choice.</p> <table border="1" data-bbox="326 1100 1393 1629"> <thead> <tr> <th>Question Number</th> <th>Nature of Questions</th> <th>Maximum Marks</th> </tr> </thead> <tbody> <tr> <td>1)</td> <td>Attempt any 3</td> <td></td> </tr> <tr> <td></td> <td>a)</td> <td rowspan="5">15</td> </tr> <tr> <td></td> <td>b)</td> </tr> <tr> <td></td> <td>c)</td> </tr> <tr> <td></td> <td>d)</td> </tr> <tr> <td></td> <td>e)</td> </tr> <tr> <td>2)</td> <td>Attempt any 3</td> <td></td> </tr> <tr> <td></td> <td>a)</td> <td rowspan="5">15</td> </tr> <tr> <td></td> <td>b)</td> </tr> <tr> <td></td> <td>c)</td> </tr> <tr> <td></td> <td>d)</td> </tr> <tr> <td></td> <td>e)</td> </tr> </tbody> </table>		Sub-components	Maximum Marks	Conditions for passing	11) Practical exam	15	A learner must be present for each of the sub-components.	12) Journal and Viva	5	Total	20	Question Number	Nature of Questions	Maximum Marks	1)	Attempt any 3			a)	15		b)		c)		d)		e)	2)	Attempt any 3			a)	15		b)		c)		d)		e)
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