Program	BACHELOR OF VOCATION (B.Voc.)	**Semester - 4**
Type of Course	-	
Prerequisite		
Rationale	-	
Effective From A.Y.	2025-26	

Teaching Scheme (Contact Hours)				Examination Scheme				
				Theory Marks		**Practical Marks**		**Total Marks**
Lecture	**Tutorial**	**Lab**	**Credit**	**SEE T**	**IAT**	**SEE P**	**CCE**	
3	1	0	4	50	-	-	20	70

SEE - Semester End Examination, *IAT* - Internal Assessment Test, *CCE* - Continues & Comprehensive Evaluation

Course Content			
		T - Teaching Hours	**W** - Weightage

Sr.	Topics	T	W
1	**Module 1** **Introduction:** Introduction to software engineering, software process, software process models, software product **Requirement Engineering Principles:** Introduction, what is requirement engineering? Importance of requirements, Types of requirements, Steps involved in requirements engineering. **Requirement Analysis Modeling:** Analysis modeling approaches, Structured analysis, Object-oriented analysis	11	20
2	**Module 2** **Design and Architectural Engineering:** Design process and concepts, Basic issues in software design, Characteristics of a good design, Software design and software engineering, Modularity, cohesion, coupling, layering **Object-Oriented Concepts:** Introduction, Fundamental parts, Data hiding, and class hierarchy creation	10	20
3	**Module 3** **User Interface Design**: Concepts, Elements, Designing, Evaluation, Golden rules, Models, Usability **Software Coding:** Introduction, Programming principles, Programming guidelines, Coding conventions, Key concepts.	7	20
4	**Module 4** **Risk Analysis and Management:** Introduction, Software risk, Types of risk, Plan risk management **Communication and Team Management:** Introduction, Dimensions of communication, Forms of communication, Process of communication, Handling communication in a project, Project performance report, Managing the project team.	9	20
5	**Module 5** **Introduction to Software Testing:** Introduction, Psychology of testing, Software testing scope, objectives, strategic approach, Types of software testing **Introduction to Agile Software Development:** What is Agile? Various characteristics, Manifesto, Generic Agile project life cycle, Agile concepts, Epics, Features, User stories, Communication in Agile projects, Different Agile methodologies	8	20
	Total	45	100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy			
Level	Remembrance	Understanding	Application
Weightage	10	20	20

NOTE : This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes

At the end of this course, students will be able to:

CO1	To understand the concepts of software engineering, software process model and requirement engineering, analysis, modeling
CO2	To understand architectural design, object-oriented design and related implementation
CO3	To understand User Interface design and software coding
CO4	To understand risk analysis, communication and team management
CO5	To understand software testing and Agile software development

Reference Books

1.	**Software Engineering – A Practitioner's Approach** By Roger S. Pressman | McGraw Hill Publications
2.	**Software Engineering** By Ian Sommerville | Pearson Education Asia | 10th
3.	**Software Engineering– Principles and Practices** By Waman S. Jawadekar | TMGH Publication
4.	**Object Oriented Modeling and Design with UML** By Blaha, Rumbaugh | Pearson | 2e
5.	**Pankaj Jalote's Software Engineering: A Precise Approach** By Pankaj Jalote | Wiley
6.	**Software Engineering Fundamentals** By Behhforoz & Frederick Hudson | OXFORD
7.	**Fundamentals of Software Engineering** By Rajib Mall | Prentice Hall India Learning Private Limited | 4th