BABU MADHAV INSTITUTE OF INFORMATION TECHNOLOGY, UTU

Integrated M.Sc.(IT)

Semester-IV

060010413 | CC13 Software Engineering | Lesson Plan

Unit	Sub Unit	No. of Lecture(s)	Topics	Reference Chapters/ Additional Reading	Evaluation Parameter
1		**7**	**Introduction to Software Engineering, Object-Oriented Methodology and Life Cycle**		Unit Test: 01
	1.1	1	Software Engineering:	TB1 - Ch.01 Pg. 02 – 06	
			1.1.1 Definition		
			1.1.2 Program vs. Software		
			1.1.3 Complexity of Software		
			1.1.4 Characteristics of Software		
	1.2	1	Object-Oriented Basic Concepts:	TB1 - Ch.01 Pg. 06 – 16	
			1.2.1 Classes and Object		
			1.2.2 Messages and Attributes		
			1.2.3 Encapsulation		
			1.2.4 Inheritance		
			1.2.5 Polymorphism		
			1.2.6 Responsibility and Abstraction		
			1.2.7 Object Composition		
	1.3	1	Object-Oriented Methodologies:	TB1 - Ch.01 Pg. 16 – 20	

			1.3.1	Coad and Yourdon Methodology		
			1.3.2	Booch Methodology		
			1.3.3	Rumbaugh Methodology		
			1.3.4	Jacobson Methodology		
	1.4	1	Conventional Software Life Cycle Models:		TB1 - Ch.02 Pg. 34 – 40	
			1.4.1	Waterfall		
			1.4.2	Prototyping		
		1	1.4.3	Iterative Enhancement		
			1.4.4	Spiral Model		
	1.5	1	Agile Model:		TB1 - Ch.02 Pg. 40 – 43	
			1.5.1	Extreme Programming		
			1.5.2	Scrum		
	1.6	1	Object-Oriented Software Life Cycle Models:		TB1 - Ch.02 Pg. 43 – 54	
			1.6.1	Fountain Model		
			1.6.2	Rational Unified Process Model		
2		**9**	**Software Requirement Elicitation and Analysis**		TB1 - Ch.03 Pg. 63 – 65	Unit Test: 01
	2.1	1	Software Requirement			
	2.2	1	Requirements Elicitation Techniques		TB1 - Ch.03 Pg. 65 – 66	
			2.2.1	FAST		
			2.2.2	Prototyping		
	2.3	1	Initial Requirement Document		TB1 - Ch.03 Pg. 71 – 72	

	2.4	1	Use Case Approach:	TB1 - Ch.03 Pg. 73 – 77	
			2.4.1 Creating Use Case Diagram for Requirement		
			2.4.2 Use Case Description	TB1 - Ch.03 Pg. 78 – 80	
		1	2.4.3 Scenario Diagrams	TB1 - Ch.03 Pg. 80 – 81	
		1	2.4.4 Scenario Matrix	TB1 - Ch.03 Pg. 81 – 82	
	2.5	1	Characteristics of Good Requirement	TB1 - Ch.03 Pg. 82 – 86	
	2.6	2	Software Requirement Specification Document	TB1 - Ch.03 Pg. 86 – 111	
3		**4**	**Object-Oriented Software Estimation**		Unit Test: 02
	3.1	1	Need of Object-Oriented Software Estimation	TB1 - Ch.04 Pg. 124	
	3.2	1	Loren and Kidd Estimation Method	TB1 - Ch.04 Pg. 124 – 125	
	3.3	1	Use case point estimation Method	TB1 - Ch.04 Pg. 126 – 127	
	3.4	1	Risk Management:	TB1 - Ch.04 Pg. 146 – 148	
			3.4.1 Introduction to Risk Management		
			3.4.2 Framework for Managing Risk		
4		**4**	**Object-Oriented Analysis**		Unit Test: 02
	4.1	1	Structured v/s Object oriented analysis	TB1 - Ch.05 Pg. 174 – 175	
	4.2	1	Types of Classes and Its Identification	TB1 - Ch.05 Pg. 175 – 179	
	4.3	1	Identification of Relationship:	TB1 - Ch.05 Pg. 180 - 184	
			4.3.1 Association		
			4.3.2 Aggregation		
			4.3.3 Multiplicity		

			4.3.4	Composition		
			4.3.5	Dependency		
			4.3.6	Generalization		
	4.4	1	Identifying State and Behaviour:		TB1 - Ch.05 Pg. 187 - 189	
			4.4.1	Attributes		
			4.4.2	Operations		
5		**7**	**Object-Oriented Design and Implementation**			Internal
	5.1	1	Need of design phase		TB1 - Ch.06 Pg. 203 – 204	Exam
	5.2	1	Interaction Diagrams		TB1 - Ch.06 Pg. 204	
	5.3	1	Sequence Diagrams		TB1 - Ch.06 Pg. 205 – 222	
	5.4	1	Collaboration Diagrams		TB1 - Ch.06 Pg. 222 – 226	
	5.5	1	Activity Diagrams		TB1 - Ch.07 Pg. 260 – 268	
	5.6	1	State Chart Diagrams		TB1 - Ch.07 Pg. 268 – 275	
	5.7	1	Object-Oriented Design Principles for Improving Software Quality		TB1 - Ch.06 Pg. 244 – 275	
6		**5**	**Software Quality and Testing**			Internal
	6.1	1	Software Quality and Its Attributes		TB1 - Ch.08 Pg. 287 – 289	Exam
	6.2	1	Software Quality Models:			
			6.2.1	Capability Maturity Model	TB1 - Ch.08 Pg. 301 – 303	
	6.3	1	Software Testing:		TB1 - Ch.09 Pg. 348 – 349	
			6.3.1	Verification		
			6.3.2	Validation		

	6.4	1	Functional and Structural Testing	TB1 - Ch.09 Pg. 356 TB1 - Ch.09 Pg. 385 - 393	
	6.5	1	Levels of Testing:	TB1 - Ch.09 Pg. 403 – 405	
			6.5.1 Unit Testing		
			6.5.2 Integration Testing		
			6.5.3 System Testing		
			6.5.4 Acceptance Testing		

Text Books:

1. Yogesh Singh, Ruchika Malhotra, “Object-Oriented Software Engineering” - PHI.

Reference Books:

1. Blaha M. R., Raumbaugh J. R.,(2005) Object oriented Modeling and Design with UML, Pearson
2. Booch G., Raumbaugh J. R., Jacobson I., The Unified Modeling Language User Guide, Pearson Education
3. Mall R., Fundamental of Software Engineering, PHI