

Branch Name:	COMPUTER ENGINEERING (Software Engineering)
Program Code:	ET203
Course Title:	Software Architecture and Design Pattern
Course Code:	2ET2030207T
Pre-requisite Course:	Familiarity with Structural patterns and MVC architectural pattern

Course Objectives: After successful completion of the course, student will be able to

- 1. Understand the architecture, creating it and moving from one to any, different structural patterns.
- 2. Analyze the architecture and build the system from the components.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

Course Contents:

Unit No	Topics	Total Hours	Weightage (%)
1	Introduction: what is a design pattern? describing design patterns, the catalog of design patterns, organizing the catalog, how design patterns solve design problems, how to select a design pattern, how to use a design pattern. A Notation for Describing Object-Oriented Systems	10	25
2	Analysis a System: overview of the analysis phase, stage 1: gathering the requirements functional requirements specification, defining conceptual classes and relationships, using the knowledge of the domain. Design and Implementation, discussions and further reading	10	20
3	Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.	08	20
4	Interactive systems and the MVC architecture: Introduction, The MVC architectural pattern, analyzing a simple drawing program, designing the system, designing of the subsystems, getting into implementation, implementing undo operation, drawing incomplete items, adding a new feature, pattern-based solutions	10	20
5	Designing with Distributed Objects: Client server system, java remote method invocation, implementing an object-oriented system on the web (discussions and further reading) a note on input and output, selection statements, loops arrays.	10	15

Text Books:

1. Brahma Dathan, Sarnath Ramnath, Object-oriented analysis, design and implementation, Universities Press,2013
2. Erich Gamma, Richard Helan, Ralph Johman, John Vlissides , Design Patterns, Pearson Publication,2013

Reference Books:

1. Frank Bachmann, RegineMeunier, Hans Rohnert “Pattern Oriented Software Architecture” – Volume 1, 1996
2. William J Brown et al., "Anti-Patterns: Refactoring Software, Architectures and Projects in Crisis", John Wiley, 1998.

Course Learning Outcomes (CLO):

Course Outcomes	Description	Bloom's Taxonomy Level
COL1	Understand the basic concepts to identify state & behaviour of real world objects	Understanding (2) Applying (3)
COL2	Apply Object Oriented Analysis and Design concepts to solve complex problems	Applying (3)
COL3	Construct various UML models using the appropriate notation for specific problem context.	Applying (3)
COL4	Design models to Show the importance of systems analysis and design in solving complex problems using case studies.	Applying (3)
COL5	Study of Pattern Oriented approach for real world problems.	Applying (3)

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M		M											
CLO2	H	M			M							L				
CLO3	H	M	M		M											
CLO4	M	M	M		M							L				

H: High, M: Medium, L: Low