

SOFTWARE ARCHITECTURE & DESIGN PATTERNS

Course Code	23CS4701A	Year	IV	Semester	I
Course Category	Professional Elective-IV	Branch	CSE	Course Type	Theory
Credits	3	L – T – P	3-0-0	Prerequisites	Software Engineering
Continuous Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Understand the basic concepts to identify state behavior of real world objects	L2
CO2	Apply Object Oriented Analysis and Design concepts to solve complex problems	L3
CO3	Apply various UML models using the appropriate notation for specific problem context	L3
CO4	Apply models to Show the importance of systems analysis and design in solving complex problems using case studies	L3
CO5	Analyze Study of Pattern Oriented approach for real world problems	L4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3												
CO2		3	3										
CO3	2	2											
CO4	2	3		3									
CO5		3	3										3

Syllabus		
Unit No.	CONTENTS	Mapped CO
I	Introduction: What is a design pattern? Describing design patterns, the catalog of design pattern, organizing the catalog, how design patterns solve design problems, how to select a design pattern, how to use a design pattern What is object oriented development? key concepts of object oriented design other related concepts, benefits and drawbacks of the paradigm	CO1
II	Analysis of 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	CO1,CO2

III	Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.	CO1,CO3
IV	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	CO1,CO4
V	Designing with Distributed Objects: Client server system, java remote method invocation, implementing an object oriented system on the web, Web services (SOAP, Restful), Enterprise Service Bus	CO1,CO5

Learning Resources	
Text Books	
1. Object oriented analysis, design and implementation, brahma dathan, sarnath rammath , universities press,2013 2. Design patterns, Erich Gamma, Richard helan , Ralph johman , john vlissides, PEARSON Publication,2013	
Reference Books	
1. Frank Bachmann, Regine Meunier , 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	
E-Resources & other digital material	
1. https://archive.nptel.ac.in/courses/106/105/106105224/ 2. https://www.coursera.org/learn/design-patterns	