Design Patterns

Course Code	20CS4601A	Year	III	Semester	II
Course Category	PEC	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Object Oriented and Analysis of Design, 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 fundamental concepts of Design patterns for problems	L2
CO2	Apply creational patterns in software design for object creation	L3
	Apply structural patterns to assemble objects and classes in software design	
CO3	Apply behavioral patterns to identify common communication patterns among	L3
CO4	objects in software design Analyze design solutions by using suitable patterns for given case studies.	L3
CO5		L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	3													
CO3													3	
CO4													2	
CO5		3				1			1	1				

Syllabus		Mapped CO
Unit No.	**Contents**	
I	**Introduction:** What Is a Design Pattern? Design Patterns in Smalltalk MVC, 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.	**CO1**
II	**Creational Patterns:**stract Factory, Builder, Factory Method, Prototype, Singleton.	**CO1,CO2,CO5**
III	**Structural Patterns:**Adapter, Bridge, Composite, Decorator, Façade, Flyweight, Proxy.	**CO1, CO3,CO5**
IV	**Behavioral Patterns:** Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, Strategy, Template Method, Visitor. Conclusion: What to Expect from Design Patterns, The Pattern Community.	**CO1, CO4,CO5**
V	**A Case Study:** Designing a Document Editor: Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations, Spelling Checking and Hyphenation.	**CO1,CO2, CO3,CO4,CO5**

Learning Resources
Text Books
1. Design Patterns Elements of Reusable Object-Oriented Software, Erich Gamma, First edition, 1995, Pearson Education.
References
1. Head First Design Patterns, by Eric Freeman, Elisabeth Robson, First Edition, 2004, O'Reilly Media, Inc. 2. Peeling Design Patterns, by Prof. Meda Srinivasa Rao, Narasimha Karumanchi, First Edition, 2017, Career Monk Publications. 3. JAVA Enterprise Design Patterns Vol-III, Mark Grand , 2001, Wiley Dream Tech.
e-Resources & other digital material
1. https://www.coursera.org/learn/design-patterns. 2. https://www.coursera.org/learn/uml. 3. https://www.coursera.org/learn/object-oriented-design. 4.https://sourcemaking.com/design-patterns-ebo