

Design Patterns

Course Code	19CS4601C	Year	III	Semester	II
Course Category	Program Elective-II	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Databases and Object oriented design and programming.
Continuous Internal 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 concept of Design patterns for problems and solutions.	L2
CO2	Apply creational patterns in software design for class instantiation.	L3
CO3	Apply structural and behavioral patterns to develop design solutions.	L3
CO4	Analyze design solutions by using structural patterns for given case studies.	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					1	1		1	1			1	
CO4		3				1	1							2

Syllabus		
Unit No.	Contents	Mapped CO
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: Abstract Factory, Builder, Factory Method, Prototype, Singleton.	CO1, CO2
III	Structural Patterns: Adapter, Bridge, Composite, Decorator, Façade, Flyweight, Proxy.	CO1, CO3,CO4
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,CO3
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

Learning Resources
Text Book
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 Sreenivasa Rao, Narasimha Karumanchi, First Edition, 2017, CareerMonk Publications.
3. JAVA Enterprise Design Patterns Vol-III, Mark Grand , 2001, Wiley Dream Tech.
e-Resources and 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-ebook .