4/4 B.Tech. SECOND SEMESTER
DESIGN PATTERNS
Required

CS8T1   **Credits: 4**

Lecture: 4 periods/week   **Internal assessment: 30 marks**
Tutorial: 1 period /week   **Semester end examination: 70 marks**
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Course Context and Overview: This course introduces the fundamental concepts of Design Patterns With this foundation students can gain knowledge on various design patterns they prepare in the software projects

Prerequisites: C LANGUAGE, I/O ANALOG AND DIGITAL INTERFACING, AND PERIPHERALS

Learning outcomes:

Ability to:

1. Identify the appropriate design pattern to solve object oriented design problems.
2. Develop design solution using creational patterns.
3. Apply structural patterns to solve design problems.
4. Construct design solutions by using behavioural patterns.

UNIT–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.

UNIT-II

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, Summary.

UNIT-III

Creational Patterns: Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.

UNIT-IV

Structural Pattern Part- : Adapter, Bridge, Composite.

UNIT-V

Structural Pattern Part-II: Decorator, açade, Flyweight, Proxy.

UNIT-VI

Behavioral Patterns Part-I: Chain of Responsibility, Command, Interpreter, Iterator.

UNIT-VII

Behavioral Patterns Part-II: Mediator, Memento, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns.

UNIT-VIII

What to Expect from Design Patterns, A Brief History, The Pattern Community An Invitation, A Parting Thought.

Learning Resources

Text Books:
1. Design Patterns By Erich Gamma, Pearson Education
2. Design Patterns Explained By Alan Shalloway,Pearson Education.

Reference Books:

1. Pattern's in JAVA Vol-I By Mark Grand ,Wiley DreamTech.
2. Pattern's in JAVA Vol-II By Mark Grand ,Wiley DreamTech.
3. JAVA Enterprise Design Patterns Vol-III By Mark Grand ,Wiley DreamTech.
4. Head First Design Patterns By Eric Freeman-Oreilly-spd