

4/4 B.Tech - FIRST SEMESTER

IT7T6C**SOFTWARE DESIGN PATTERNS****Credits:3****Lecture: 3 Periods/week****Internal assessment: 30 marks****Practice/Interaction: 1Period/week****Semester end examination: 70 marks****Objectives:**

- To introduce the fundamental concepts of design patterns.
- To explain principles, practices and approaches to make good designs using design patterns.
- To provide knowledge on various design patterns such as composite, iterator, observer, factory method and strategy

Outcomes:

Students will be able to

- Understand the basic components of design pattern.
- Understand the role of design patterns to design document editor.
- Gain knowledge on creational patterns.
- Gain knowledge on structural patterns.
- Understand the implementation of behavioral patterns in various situations.

Prerequisites:

Software Engineering, OOAD.

Syllabus:**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 Patterns: Adapter, Bridge, and Composite, Decorator, Façade, Flyweight, Proxy.

UNIT-V

Behavioral Patterns : Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns, What to Expect from Design Patterns, A Brief History, The Pattern Community An Invitation, A Parting Thought.

Case study: Document Editor

Text Book:

1. Design Patterns, Erich Gamma, Pearson Education.

Reference Books:

1. Pattern's in JAVA Vol-I By Mark Grand , WileyDreamTech.
2. Pattern's in JAVA Vol-II By Mark Grand , WileyDreamTech.
3. JAVA Enterprise Design Patterns Vol-III By Mark Grand ,WileyDreamTech.
4. Head First Design Patterns By Eric Freeman-Oreilly-spd.
5. Design Patterns Explained By Alan Shalloway, Pearson Education.

e-Learning Resources:

1. <http://nptel.ac.in/courses/106101061/15>