

3/3 MCA First Semester

CA5T5A

DESIGN PATTERNS

Credits : 4

Lecture Hours : 4 periods / week

Internal assessment : 30 Marks
Semester and Examination: 70 Marks

Course Description:

Design patterns are standard solutions to common software design problems. Instead of focusing on how individual components work, design patterns are a systematic approach that focus and describe abstract systems of interaction between documents, creational patterns and structural patterns flow.

This course explores advanced principles of Design patterns by studying key software design patterns. The patterns are drawn from a variety of sources and illustrated through examples and case studies.

Course Objective:

- Student will learn the appropriate feature of Design Pattern.
- Student will know the case study of Designing a Document Editor.
- Student will understand the Maximum Level of Creational Patterns.
- Student able to understand the Structural Pattern.
- Able to learn various Behavioral Pattern for Recognition of Documents and its applications.

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-I : 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:

Expect Design patterns: 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, 1/e, 2002.

Reference Books:

1. Pattern's in JAVA Vol-I By Mark Grand ,Wiley DreamTech, 2/e, 2002.
2. Pattern's in JAVA Vol-II By Mark Grand ,Wiley DreamTech, 2/e, 2002.
3. JAVA Enterprise Design Patterns Vol-III By Mark Grand ,Wiley DreamTech, 1/e, 2006.
4. Head First Design Patterns By Eric Freeman-Oreilly-spd, 2005.
5. Design Patterns Explained By Alan Shalloway,Pearson Education, 2/e, 2005.