

SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES

III MCA - I Semester

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16MCA315B

DESIGN PATTERNS

Course Objective

- To provide an understanding of hands on experience with the principles and process of gathering requirements for, formally specifying, designing, implementing, testing and maintaining a large software system.
- To gain experience with designing a project in order to make division of labor and concurrent development possible.

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 & Structural Pattern Part-I

One of a kind Object(Singleton), Baking with OO Goodness(Factory Pattern), Builder, Prototype, Structural Pattern Part-I - Adapter, Bridge, Composite.

UNIT IV : Structural Pattern Part-II & Behavioral Patterns Part-I

Decorator, Facade, Flyweight, Proxy. Behavioral Patterns Part-I - Chain of Responsibility, Command, Interpreter, Iterator.

UNIT V : Behavioral Patterns Part-II

Mediator, Memento, Observer, State, Strategy, Template Method ,Visitor, Better Living with Pattern: Pattern in the Real world.

Course Outcome

- An ability to apply knowledge of computing, mathematics, science and engineering.
- An ability to design and conduct experiments as well as to analyze and interpret data.
- An ability to design, implement and evaluate a computer based system process, component, or program to meet desired needs, within realistic constraints specific to the field.
- An ability to function effectively on multi-disciplinary teams.
- An ability to analyze a problem and identify, formulate and use the appropriate computing and engineering requirements for obtaining its solution.
- An ability to communicate effectively with a range of audiences.
- The broad education necessary to analyze the local and global impact of computing and engineering solutions on individuals, organizations and society.
- A recognition of the need for and an ability to engage in continuing professional development and life - long learning.
- A knowledge of contemporary issues.
- An ability to apply design and development principles in the construction of software systems or computer systems of varying complexity.

TEXT BOOKS :

1. Design Patterns, Erich Gamma, Pearson Education
2. Head First Design Patterns, 5/e, Eric Freeman, O'reilly, SPD Publishers, Mumbai.

REFERENCE BOOKS :

1. Design Patterns Explained, 2/e, Alan Shalloway, Pearson Education, New Delhi.
2. Design Pattern in Java Software, 2009, Steven John & Wake, Pearson Education, New Delhi.
3. Elements of Re-usable Object Oriented Software, 2010, Erich Gamma, Pearson Education, New Delhi.
4. Pattern Oriented Software Architecture, F.Buschmann & others, John Wiley & Sons.

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