III Year II Semester	L	T	P	C
Code: 20DS6661	**3**	**0**	**0**	**3**

SOFTWARE DESIGN AND SYSTEM INTEGRATION (Honors)

COURSE OBJECTIVES:
This course is designed to:
1. Understand different levels of integration.
2. Understand the challenges of maintaining a consistent global state.
3. Describe the differences among various types of middleware.
4. Describe different types of integration patterns.
5. Identify and avoid some of the pitfalls of integrating legacy systems.

COURSE OUTCOMES:
This course will enable the students to:
1. Understand design pattern concepts
2. Define and analyze systems requirements
3. Learn about Design pattern catalog
4. Understand Interactive systems and the MVC architecture
5. Design of Distributed Objects using Remote Method Invocation

UNIT-I
Introduction: what is a design pattern? describing design patterns, the catalog of design pattern, organizing the catalog, how design patterns solve design problems, how to select a design pattern, how to use a design pattern. What is object-oriented development? , key concepts of object oriented design other related concepts, benefits and drawbacks of the paradigm.

UNIT-II
Analysis a System: overview of the analysis phase, stage 1: gathering the requirements functional requirements specification, defining conceptual classes and relationships, using the knowledge of the domain. Design and Implementation, discussions and further reading.

UNIT-III
Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.

UNIT-IV
Interactive systems and the MVC architecture: Introduction, The MVC architectural pattern, analyzing a simple drawing program, designing the system, designing of the subsystems, getting into implementation, implementing undo operation, drawing incomplete items, adding a new feature , pattern based solutions.

UNIT-V
Designing with Distributed Objects: Client server system, java remote method invocation, implementing an object-oriented system on the web (discussions and further reading) a note on input and output, selection statements, loops arrays.

TEXT BOOKS:
1. Fowler, Martin, *UML Distilled*, Third Edition, Addison-Wesley, 2004
2. Freeman, Eric & Robson, Elisabeth, Head First Design Patterns, First Edition, O'Reilly, 2004

REFERENCES:
1. John Vlissides, *Pattern Hatching - Design Patterns Applied*, Addison-Wesley, 1998.