

SOFTWARE ARCHITECTURE AND DESIGN PATTERNS [As per Choice Based Credit System (CBCS) scheme] (Effective from the academic year 2016 -2017) SEMESTER – VII			
Subject Code	15IS72	IA Marks	20
Number of Lecture Hours/Week	4	Exam Marks	80
Total Number of Lecture Hours	50	Exam Hours	03
CREDITS – 04			
Course objectives: This course will enable students to			
<ul style="list-style-type: none"> • Learn How to add functionality to designs while minimizing complexity. • What code qualities are required to maintain to keep code flexible? • To Understand the common design patterns. • To explore the appropriate patterns for design problems 			
Module – 1			Teaching Hours
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			10 Hours
Module – 2			
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.			10 Hours
Module – 3			
Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.			10 Hours
Module – 4			
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.			10 Hours
Module – 5			
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.			10 Hours
Course outcomes: The students should be able to:			
<ul style="list-style-type: none"> • Design and implement codes with higher performance and lower complexity • Be aware of code qualities needed to keep code flexible • Experience core design principles and be able to assess the quality of a design with respect to these principles. • Capable of applying these principles in the design of object oriented systems. • Demonstrate an understanding of a range of design patterns. Be capable of comprehending a design presented using this vocabulary. • Be able to select and apply suitable patterns in specific contexts 			
Question paper pattern:			

The question paper will have ten questions.
There will be 2 questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:

1. Object-oriented analysis, design and implementation, brahma dathan, sarnath rammath, universities press,2013
2. Design patterns, erich gamma, Richard helan, Ralph johman , john vlissides ,PEARSON Publication,2013.

Reference Books:

1. Frank Bachmann, RegineMeunier, Hans Rohnert “Pattern Oriented Software Architecture” –Volume 1, 1996.
2. William J Brown et al., "Anti-Patterns: Refactoring Software, Architectures and Projects in Crisis", John Wiley, 1998.