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Future Vision

By K B Hemanth Raj

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SOFTWARE ARCHITECTURE AND DESIGN PATTERNS
[As per Choice Based Credit System (CBCS) scheme]
(Effective from the academic year 2017 - 2018)
SEMESTER – VI

Subject Code	17CS652	IA Marks	40
Number of Lecture Hours/Week	3	Exam Marks	60
Total Number of Lecture Hours	40	Exam Hours	03

CREDITS – 03

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	**8 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.	**8 Hours**
Module – 3	
Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.	**8 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.	**8 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.	**8 Hours**

Course outcomes: The students should be able to:

- Design and implement codes with higher performance and lower complexity
- Demonstrate code qualities needed to keep code flexible
- Illustrate design principles and be able to assess the quality of a design with respect to these principles.
- Explain principles in the design of object oriented systems.
- Understand a range of design patterns.
- Discuss suitable patterns in specific contexts

Question paper pattern:
The question paper will have TEN questions.
There will be TWO questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer FIVE full questions, selecting ONE full question from each module.

Text Books:
1. Object-oriented analysis, design and implementation, brahma dathan, sarnathrammath, universities press,2013 2. Design patterns, erich gamma, Richard helan, Ralph johman , john vlissides ,PEARSON Publication,2013.
Reference Books:
1. Frank Bachmann, ReginеMeunier, 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.