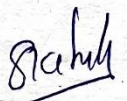


SOFTWARE ARCHITECTURE AND DESIGN PATTERNS (Effective from the academic year 2018 -2019) SEMESTER – VII			
Course Code	18CS731	CIE Marks	40
Number of Contact Hours/Week	3:0:0	SEE Marks	60
Total Number of Contact Hours	40	Exam Hours	03
CREDITS –3			
Course Learning Objectives: This course (18CS731) will 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			Contact 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. A Notation for Describing Object-Oriented Systems Textbook 1: Chapter 1 and 2.7 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. Textbook 1: Chapter 6 RBT: L1, L2, L3			08
Module 2			
Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy. Textbook 2: chapter 4 RBT: L1, L2, L3			08
Module 3			
BehavioralPatterns: Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Template Method Textbook 2: chapter 5 RBT: L1, L2, L3			08
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. Textbook 1: Chapter 11 RBT: L1, L2, L3			08
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. Textbook 1: Chapter 12 RBT: L1, L2, L3	08
Course Outcomes: The student will 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:	
<ul style="list-style-type: none"> • The question paper will have ten questions. • Each full Question consisting of 20 marks • There will be 2 full questions (with a maximum of four sub questions) from each module. • Each full question will have sub questions covering all the topics under a module. • The students will have to answer 5 full questions, selecting one full question from each module. 	
Textbooks:	
<ol style="list-style-type: none"> 1. Brahma Dathan, Sarnath Rammath, Object-oriented analysis, design and implementation, Universities Press,2013 2. Erich Gamma, Richard Helan, Ralph Johman, John Vlissides , Design Patterns, Pearson Publication,2013. 	
Reference Books:	
<ol style="list-style-type: none"> 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. 	


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