

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

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| Subject Code | 17IS72 | IA Marks | 40 |
| Number of Lecture Hours/Week | 4 | Exam Marks | 60 |
| Total Number of Lecture Hours | 50 | Exam Hours | 03 |
| CREDITS – 04 | | | |
| 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• Illustrate the code qualities needed to keep code flexible• Define core design principles and understand the importance to assess the quality of a design with respect to these principles.• List the capabilities 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.• Recall the suitable select and apply 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. | | | |

developer to focus on core features.

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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. Randy Connolly, Ricardo Hoar, "**Fundamentals of Web Development**", 1st Edition, Pearson Education India. (ISBN:978-9332575271)

Reference Books:

- 1) Robin Nixon, "**Learning PHP, MySQL & JavaScript with jQuery, CSS and HTML5**", 4th Edition, O'Reilly Publications, 2015. (ISBN:978-9352130153)
- 2) Luke Welling, Laura Thomson, "**PHP and MySQL Web Development**", 5th Edition, Pearson Education, 2016. (ISBN:978-9332582736)
- 3) Nicholas C Zakas, "**Professional JavaScript for Web Developers**", 3rd Edition, Wrox/Wiley India, 2012. (ISBN:978-8126535088)
- 4) David Sawyer Mcfarland, "**JavaScript & jQuery: The Missing Manual**", 1st Edition, O'Reilly/Shroff Publishers & Distributors Pvt Ltd, 2014 (ISBN:978-9351108078)
- 5) Zak Ruvalcaba Anne Boehm, "**Murach's HTML5 and CSS3**", 3rd Edition, Murachs/Shroff Publishers & Distributors Pvt Ltd, 2016. (ISBN:978-9352133246)

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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, Regine Meunier, 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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