

Software Design and Architecture		
Credit Hours:	3 (2-1)	Prerequisites: Software Requirement Engineering
Course Learning Outcomes (CLOs):		
At the end of the course the students will be able to:	Domain	BT Level*
1. Understand the role of design and its major activities within the OO software development process, with focus on the Unified process.	C	1
2. Comprehend the advantages of consistent and reliable software design.	C	2
	C	3
	C	4
3. Design OOD models and refine them to reflect implementation details	C	5
4. Apply and use UML to visualize and document the design of software systems.		
5. Implement the design model using an object-oriented programming language.		
* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A=Affective domain		

Course Content:

Software Design Concepts, Design principles, Object-Oriented Design with UML, System design and software architecture, Object design, Mapping design to code, User interface design, Persistent layer design, Web applications design, State machine diagrams and modeling, Agile software engineering, Design Patterns, Exploring inheritance, Interactive systems with MVC architecture, Software reuse. Architectural design issues, , Software Architecture, Architectural Structures & Styles-, Architectural Patterns, Architectural & Design Qualities, Quality Tactics, Architecture documentation, Architectural Evaluation, Model driven development.

Teaching Methodology:

Lecturing, Written and Lab Assignments, Project, Report Writing

Course Assessment:

Sessional Exam, Home and Lab Assignments, Quizzes, Project, Presentations, Final Exam

Reference Materials:

1. Software Engineering: A Practitioner's Approach, Roger S. Pressman, Bruce R. Maxim, 8th Ed, McGraw-Hill Education, 2015.
2. Object-Oriented Analysis, Design and Implementation, Brahma Dathan, Sarnath Ramnath, 2nd Ed, Universities Press, India, 2014.
3. Software Modeling and Design: UML, Use Cases, Patterns, and Software Architectures, Hassan Gomaa, Cambridge University Press, 2011.
4. Head First Design Patterns, Eric Freeman, Elisabeth Freeman, Kathy Sierra and Bert Bates, O'Reilly Media, Inc. 2004.