

CSE 3421 Software Design Methods (3 credits)

Primary instructor: Keith Gallagher

Supporting instructor: Cem Kaner

Textbooks and references:

C. Larman, Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development (3rd Edition). Upper Saddle River, NJ, USA: Prentice Hall PTR, 2004. (T)

Course information:

2014–2015 Catalog description: CSE 3421 Software Design Methods (3 credits). Explores methods for the design of software systems. Includes formal specifications of software behavior, object-oriented analysis/design and structured analysis/design. Prerequisites: CSE 2410.

Prerequisites by topic: Basic knowledge of concepts in software engineering and software development

Place in program:

Computer Science Program: Advanced elective

Software Engineering Program: Required

Course outcomes & related student outcomes: The student will be able to

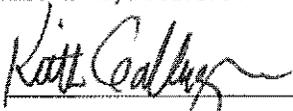
1. Understand and use multiple methods for the design of software systems. (4c: Trade-offs in design choices)
2. Perform object-oriented analysis and create object-oriented designs. (1: Fundamental knowledge)
3. Develop use cases to capture and understand requirements. (4b: Satisfaction of requirements)
4. Develop domain modules as a basis for design. (1: Fundamental knowledge)
5. Use design patterns to develop software designs. (4c: Trade-offs in design choices)
6. Practice software design in team environment. (8: Effective teamwork)

Topics covered:

1. Object-oriented analysis and design, the unified process (6 hours)
2. Inception (envision of product scope, vision, and business case) (2 hours)
3. Domain models, system sequence diagrams, operation contracts, requirements-to-design-to-implementation (4 hours)
4. Models (4 hours)

5. Interaction diagrams (4 hours)
6. GRASP patterns (4 hours)
7. Model refinement and generalization (4 hours)
8. Statechart diagrams, architecture, and package organization (4 hours)
9. Architectural analysis and additional use cases (4 hours)
10. Persistence (3 hours)

Approved By: Keith Gallagher, Associate Professor, Director of Software Engineering Programs & Cem Kaner, Professor

Signature:  Date: 2 FEB 15

Signature:  Date: 2/2/15