SE 5550: SOFTWARE ARCHITECTURE AND DESIGN

Semester Hours: 3.0  
Contact Hours: 3
Coordinator: Michael Decker
Text: Pattern-Oriented Software Architecture, A System of Patterns: Vol 1
Author(s): FRANK BUSCHMANN
Year: 2000

SPECIFIC COURSE INFORMATION

Catalog Description:
Principles and concepts of analyzing and designing large software systems. Analysis of software systems. Designing software systems using design patterns and object-oriented techniques. Prerequisite: Grade of C or better in SE 3540 or Admission to MS in Computer Science program. Credit cannot be earned for both SE 4550 and SE 5550. Approved for distance learning.

Course type: ELECTIVE

SPECIFIC COURSE GOALS

- I can select and use appropriate design patterns.
- I can specify a software system's architecture using UML.
- I can understand separation of concerns and its impact on software design.
- I can architect a software system based on the given requirements.
- I can perform a design review on a software system.
- I can analyze relevant research and communicate my findings.

LIST OF TOPICS COVERED

- Introduction and Importance of Design
- Software Architecture
  - Components and connectors
  - Constraints
  - Composition
• Unified Modeling Language
• Software Design
  o Design reviews
  o Inter-operability
  o Separation of concerns
• Object-oriented Design
  o Design patterns
  o Information hiding
  o Interfaces
  o Inheritance and polymorphism