COMP 3700.002
Software Modeling and Design

Course Instructor
Dr. Shehenaz Shaik

Expectations from course…

- Programming
- Data structures
- Problem solving

- NO!

This course is about…

- Software Modeling and Design
  - Software
  - Design
  - Model
    - Object Oriented Approach
    - UML Representation

Course objectives

- Understand the role of analysis and design in the software engineering lifecycle.
- Develop object-oriented designs by applying established design principles.
- Develop use-case and scenario descriptions of the requirements.
- Develop richer descriptions of design models using UML diagrams.
- Understand the role and influence of design patterns and frameworks in software design.
- Evaluate the quality of design models.

Topics covered

- Introduction to software analysis and design (3 hours)
- Object-oriented analysis with use-case modeling (3 hours)
- Conceptual domain modeling (2 hours)
- Architectural styles and design (3 hours)
- Responsibility-driven object interaction design (3 hours)
- Class design diagrams depicting association, aggregation, inheritance (1.5 hours)
- Dynamic behavior modeling with UML state & activity diagrams. (3 hours)
- Component-based software design with UML component and deployment graphs (3 hours)
- OO frameworks and software design patterns (9 hours)
- Design quality evaluation using OO design metrics (3 hours)

Team Project

- Design and Development of software
- 5 Members / Team
  - Provide team details to GTA, by Wed 1/15.
- Partial submissions
- Final presentation

Homeworks

- 4-5 Homeworks
- Approx. 2 Weeks
- Individual submissions
- Late submission
  - Up to 24 hours past due date.
  - 25% grade penalty applied.
- Solutions released 2 days after due date.

Exams

- 2 Midterm Exams
- 1 Final Exam
  - Wed, Apr 29 8 AM – 10:30 AM
  - Comprehensive

- Closed book, closed notes
- No electronics

Course Grading

- Homeworks 20%
- Project 25%
- Exam #1 15%
- Exam #2 15%
- Final Exam 25%

- Letter grade assignments
  - [100, 90] A; [80, 90) B; [70, 80) C; [60, 70) D; [0, 60) F

Books

- Textbook
  - Object-Oriented Modeling and Design with UML, 2nd edition, Michael Blaha and James Rumbaugh, Prentice Hall, 2005.
- References
  - Design Patterns: Elements of Reusable Object-Oriented Software, 1st edition, Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, Grady Booch (Foreword), Addison-Wesley Professional, 1995.
  - Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development, 3rd edition, Craig Larman, Prentice Hall, 2005.

Canvas

- Course content
  - Posted after class.
  - Additional relevant information.
- Homework and Project submissions
- General updates
  - Associate with auburn mail

Course policies

- Attendance
  - Not monitored.
- Class participation
  - Recommended
- Accommodations
  - Meet before end of next week
- Communication
  - Piazza
  - Auburn mail

Course policies

- Academic honesty
- Classroom behavior
- Makeup work
- Grade appeals
  - Within one week after grade is posted.
  - Exception: Final grade.
- Emergency contingency
  - Class disruptions due to illness, emergency, or crisis situations
  - Course schedule may be modified.
  - Additional course information will be provided on canvas.

Contact Information

- Instructor
  - Dr. Shehenaz Shaik
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  - Office hours: MW 11AM-12PM, or by appointment
  - Ph: (334) 524-7973
  - E-mail: *szs0117@auburn.edu*
- Course GTA
  - Phong Vu
  - Dept of CSSE, 3136 Shelby Center
  - Office hours: TThF 2-3PM, or by appointment
  - E-mail: *pmv0006@auburn.edu*

Next sessions…

- Introduction
  - Software design
  - Visual modeling