

Software Engineering II

Introduction to the Module

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Today's Plan

1. Course Logistics.
2. Review of object orientation.

Course Objectives

- Introducing the basics of **Object Oriented Analysis** and **OO Design**.
- Introducing the reuse landscape.
- **Design Patterns**.
- **OO Design Principles**.
- & tentatively: **OO Testing** (probably using the Junit **framework**).

Tentative Weekly Plan

- Object oriented modelling using UML
- Object Oriented analysis
- Object Oriented design
- Software reuse landscape
- Object Oriented design principles
- Design patterns: Singleton, Read only Interface , Abstraction Occurrence
- Design patterns: Façade , delegator and Adapter.
- Design patterns: Strategy and State.
- Design patterns: Observer , Chain of responsibility.
- Design patterns: Composite and Iterator
- Introduction to OO testing.

Course Assessments

- Group Project
- Lab. Tests (both written and practical quizzes)
- Midterm Written Exam
- Final Written Exam

Textbooks

For OO Design Principles, Analysis & Design, UML Modelling:

- Bernd Bruegge, Allen H. Dutoit , **Object-Oriented Software Engineering: Using UML, Patterns and Java**, 3rd Edition, Prentice Hall 2009.

For the Design Patterns:

- Vlissides, J., Helm, R., Johnson, R. and Gamma, E., 1995. **Design patterns: Elements of reusable object-oriented software**. Reading: Addison-Wesley.

And / Or

- Freeman E, Freeman E, Robson E, Bates B, Sierra K. **Head first design patterns**. O'Reilly Media Inc., 2004.

Course Instructors

- *Module Leader*
Dr. Amr Ghoneim
- *Teaching Assistants:*
Mr. Mohamed Hosny