MET CS665 O2 (Spring2 2025) - Software Design and Patterns (Online)

Instructor

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Course Description

The course covers the following: Software design principles, the object-oriented paradigm, unified modeling language; creational, structural, and behavioral design patterns; OO analysis and design; software architectures and frameworks; code refactoring. Laboratory course. All programming examples for the lectures will be in Java.

Course Prerequisites

MET CS 526 or MET CS 622 and one of the following (MET CS 341, MET CS 342, MET CS 520, or MET CS 521). Or instructor's consent.

Course Grading Policy

The course grade will be based on assignments (30%), discussion topics (10%), proctored final exam (30%), and a term project (30%). Assignments are expected to be submitted by their respective due dates. Late submissions carry a penalty.

Course Web Site

- **https://learn.bu.edu**

References

Reference Text Books

- *Software Design: From Programming to Architecture* , by Eric J. Braude, Wiley, 2003. ISBN13: 9780471204596
- *Head First Design Patterns: Building Extensible and Maintainable Object-Oriented Software, 2nd Edition* , by Eric Freeman and Elisabeth Robson, O'Reily, 2020. ISBN13: 9781492078005
- *Design Patterns: Elements of Reusable Object-Oriented Software*, by Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides

Student Conduct Code

Please review the academic conduct code

Tentative Course Schedule

- Module 1
  - Principles of Software Design
  - Unified Modeling Language
- Module 2
  - Overview of Design Patterns
- Module 3
  - Creational Design Patterns
  - Structural Design Patterns
- Module 4
  - Behavioral Design Patterns
- Module 5
  - Software Architectures and Frameworks
  - Case Studies: Spring Boot, Hibernate
- Module 6
  - Code Refactoring
  - Anti-patterns
- **Term Project Presentation**
- **Final Exam**