# CSE-474 Software Design & Architecture

## Course Introduction

Dr. Awais Majeed

February 7, 2011

# Introduction

- Introduction
- Aims & Objectives
- Topics covered
- Grading scheme
- Plagiarism and academic dishonesty
- Reading material & Resources

# Objectives

- Clarify basic design principles associated with software systems
- Understand and apply recurring design problems by using design patterns
- Study various system architectures in detail and apply them to various case studies
- Observe latest research trends in the domain of software design and architecture

# What you must know (Pre-req)?

- Core software engineering concepts (requirements, analysis, design, implementation, testing)
- Data flow diagrams, ER diagrams, flow charts
  - Refer to the appropriate chapters of the Pressman or Sommervilla book

# Course Outline

- Introduction to Software Design
- Architectural Design
- Architectural Patterns
- Architecture Creation
- Architecture Analysis
- Introduction to Detailed Design
- Object-Oriented Design & UML
- Software design strategies and methods
- Design Patterns
- Software Design Quality Analysis

# Assessment and Marks distribution

- Assessment will be based on:
  - Assignments & Quizzes
  - Mid-term and final examination
- Distribution of marks

| Quizzes | 10 |
|---|---|
| Assignments | 10-20 |
| Mid-term | 30 |
| Final exam | 40-50 |
| Total | 100 |

# Plagiarism & Academic Dishonesty I

- Plagiarism is the theft or use of someone else's work without proper acknowledgment, presenting the material as if it were one's own.
- Plagiarism is a serious academic offence and the consequences are severe.
- In case of assignments and laboratory work, tasks assigned to individuals or groups must be carried out on their own.
- It is not acceptable to copy the results, discussions or reports from one another even if individuals/groups are working on the same task and may obtain same results

# Plagiarism & Academic Dishonesty II

- **Plagiarism also includes the use of work of another student of the same class or the previous class even with proper referencing and acknowledgment for an assessed work**
- Any case of plagiarism will be treated seriously and is an act of academic dishonesty
- In case of absence of a comprehensive departmental policy, following rules will be applied:
  - An individual/group may be assigned **0** mark if the submitted assessed work (lab work, assignment or quiz) is copied from another individual/group or from any other source (books, research papers, web sites).

# Assignments

- All assignments **must be** submitted by the due date/time
- In case of late submissions, marks will be deducted
- In case of essays/reports you **must** submit both soft copies (MS Office documents/OpenOffice documents) and printed copies. Main text of the documents should not be less than 12pt Times font or 10pt for modern fonts (Verdana, Arial). Multiple pages must be bounded together in an appropriate manner (either stapled or put in a file).

# Resources & Reading Material

- There is no text book for the course.
- Reading material will be provided based on individual lectures.

## Reading Resources


1. Len Bass, Paul Clements, Rick Kazman, "Software Architecture in Practice", 2nd Ed.
2. Craig Larman (2005), "Applying UML and Patterns; An Introduction to Object-Oriented Analysis and Design and Iterative Development", 3rd Ed., Prentice-Hall.
3. Erich Gamma, Richard Helm, Ralph Johnson, John M. Vlissides, "Design Patterns: Elements of Reusable Object-Oriented Software".
4. David Budgen (2003), "Software Design", 2nd Ed, Pearson Education Ltd.