Introduction to ENSF 480

Principles of Software Design

Contact Information

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    - **ENSF 480** – followed by your choice of subject
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Objectives

The focus of this course is on three levels of principles of software design:

- Code level element of software design, with the focus on C++.
- Principles of software design patterns (Java and C++)
- Application and high-level principles of software analysis, design, and architecture.
  - Software analysis and design, using object-oriented methodology

Pedagogical Approach

- This course has adopted a “Active Learning Approach”, which has three phases:
- What is Active Learning?
  - Active learning is a pedagogical approach that involves actively engaging students with the course material through discussions, problem solving, case studies, and other methods.
    - Promotes higher order of thinking skills.
    - Enables students to apply and transfer knowledge better.
    - places a greater degree of responsibility on the learner than passive approaches.
    - Active learning activities may range in length from a couple of minutes to whole class sessions or may take place over multiple class sessions.

In-Class Activities

- Twice a week (75 minutes each session). Will include:
  - Introduction to a new software design topic or concept
  - Followed by group discussions.
    - Class will be divided into groups of 4 or 5, randomly
  - Elaboration of the concept by a case study or an example
- Please be on time during the lecture.
  - Participation in this sessions are very important.
- You are strongly advised to take notes from these sessions (particularly from solution to the class exercises)

Post-Class Activities

- More online/asynchronous activities. These activities will help students for better understanding, extending the learning of the key concepts, and finally evaluating their strength and weaknesses.
- This phase includes:
  - Lab exercise that is part of your weekly assignments , posted on the D2L.

Lab Assignments

- Instructions for assignments and their associated files will be posted on the D2L.
- An electronic copy of your exercises must be submitted as your lab report on the D2L, **ONLY** in **PDF** format.
- Please follow the instructions posted on the D2L, about how to submit your lab reports. Teaching assistants may deduct marks for cases that the submission instructions are not followed.

Lab Assignments (continued)

- For some exercises you might be asked to submit your source code plus your lab report.
  - Please make sure to follow the instruction for preparing your lab reports.
  - Marks will be deducted for improper file format, missing cover page (with your name, your student ID, lab assignment number, and submission date).
  - Follow the following naming convention to name your PDF file that must be submitted:
    - YourLastName_LabAssignment#_LabSectionB..
      - Example: Smith_LabAssignment1_LabSectionB01
- Some lab assignments might an individual or group assignment. **By-default they are individual** assignment, unless that explicitly lab instructions indicates as a “Group Assignment”.

Course Evaluation

- Evaluation is based on:
  - Lab Assignments 20%
  - Midterm-I Exam: 30%
  - Midterm-II Exam 25%
  - Term Project: 20%
  - Quizzes 5%

Term-project

- The term project helps you to practice a full development cycle, from analysis, to design and architecture, and finally implementation. Examples of type of the projects includes:
  - A Property Rental Management Application
  - A Smart Shopping Cart
  - Etc.