SOEN 6461 Software Design Methodologies

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Course Web Site:
http://users.encs.concordia.ca/~gregb/home/soen6461-f2018.html

Course Description

SOEN 6461 Software Design Methodologies (4 credits)
Introduction to software design processes and their models. Representations of design & architecture. Software architectures and design plans. Design methods, object-oriented application frameworks, design patterns, design quality and assurance, coupling and cohesion measurements, design verification and documentation. A design project.

Lectures: Mondays 1745–2015 H-920
Programmer-on-Duty: 2 hours per week

Design Assignments:	Three @ 10% = 30%
Quizzes:	Two @ 10% = 20%
Final Examination:	One @ 50% = 50%

You must pass each component to pass the course!

Read the Course Outline!

Objectives: Design principles, formalisms, methodologies, documentation, evaluation
Prerequisite Knowledge: OOP, SE process, UML, tools
Graduate Attributes: Problem analysis, Design, Communication skills
Resources: Larman book, Gamma et al, Buschmann et al
Evaluation: Design assignments, Quizzes, Final Examination; Code of Conduct; Academic Integrity
Final examination includes a question to create a small design!
Design Assignments: Design document (5 subsections); Marking scheme; Length Penalty; Late penalty
Lecture Schedule:

Course Outline is the *official contract* with students.

Course web site has details and announcements.

Design Assignments

Submit *concise* **design document** as pdf to EAS
https://fis.encs.concordia.ca/eas/

1. **Problem Description**
2. **Design Description** using text and UML diagrams, where necessary.
3. **Major Design Decisions**
4. **Design Evaluation**
5. **Glossary** of important definitions for the design.

Practice design.

Practice review and evaluation of designs.

Practice concise communication of designs.
Decide what is *"important"* and what is *"obvious"*

Design Assignments — Fall 2018 — Undergraduate Student Schedule

1. StudentClassSchedule class design.

2. Consistency checking of schedule.

3. Heuristics to create a schedule.

Advice

Scope the problem so it is do-able.
Decide what information the program needs.
Decide which qualities are critical to success of the design.
Hand-execute a few simple examples of the problem.
How do you know the design works?
How do you know the design has desired qualities?

More on the design assignments during the course ...

Main Topics

Design in Context; Design in Overview

Object-oriented design

Responsibility-driven design; use case realization

Functional design

Design patterns

Software architecture; architectural styles and patterns

Review and evaluation of designs and architectures

Documentation of designs and architecture

Getting Assistance with the Course

Read recommended books; consult web

Course web site: Read lecture slides; read references

All the answers should be on the course web site!

Course Lectures: Attend; Listen; Think; Ask questions in class

Course laboratory: Attend; Ask questions

Fellow Students: Discuss, debate, clarify

But no plagiarism!

Office Hours: Mondays 1600–1700; or by appointment (email me)