SENG350: Software Architecture and Design

Course Dates

CRN(s):	Section A01 CRN: 12848 Section A02 CRN: 12849
Term:	Fall 2019
Course Start:	2019-09-04
Course End:	2019-12-21
Withdrawal with 100% reduction of tuition fees:	2019-09-17
Withdrawal with 50% reduction of tuition fees:	2019-10-08
Last day for withdrawal (no fees returned):	2019-10-31

Scheduled Meeting Times (M=Mon, T=Tue, W=Wed, R=Thu, F=Fri)

Section:	Location:	Classes Start:	Classes End:	Days of week:	Hours of day:	Instructor:
A01	COR A221	2019-09-04	2019-12-04	MWR	15:30-16:20	Neil Ernst
A02	COR A221	2019-09-04	2019-12-04	MWR	15:30-16:20	Neil Ernst
B01	ELW B238	2019-09-09	2019-12-04	T	13:30-15:20	
B02	ELW B238	2019-09-09	2019-12-04	T	15:30-17:20	
B03	ELW B238	2019-09-09	2019-12-04	W	12:30-14:20	

Instructor(s)

Name: **Neil Ernst**
Office: ECS 560
Phone: (250) 472-5746
Email: nernst at uvic dot ca

Office Hours:	Comments
Wed 11:30am-02:30pm	

Course Overview

An introduction to analysis and design of software architectures with UML (Unified Modelling Language) and their subsequent synthesis at the program level. Topics include requirements analysis, analysis and design of static and dynamic view points of architectures and model driven engineering. Design patterns are introduced and applied as solutions to recurring design problems. Students are familiarized with component reuse, event-driven programming and computer-aided software engineering tools. The course includes a major design project.

Course Objectives And Learning Outcomes

Upon completion of the course, students will be able to:

- Apply software patterns and architectural styles to solve design problems
- Understand the value of quality attributes and scenarios in testing potential designs
- Analyse architectural approaches using rigorous techniques
- Understand what decisions are the architecturally significant decisions, and which should be left to developers.
- Languages and notations, including the UML, for abstracting design models.

Textbooks

Required: Software Architecture in Practice, 3rd ed.
Authors: Len Bass, Paul Clements, Rick Kazman
Publisher: Addison-Wesley

Labs

This course has dedicated lab hours to introduce tools and allow student groups to jointly work on their projects. PLEASE ATTEND THE LAB YOU HAVE REGISTERED FOR. Lab attendance is part of the participation mark.

Project

This course has a substantial group project. The schedule for the milestones is available on the course page.

The project includes a major teamwork component and students should expect to work in a large group and learn and apply teamwork skills. Failure to do so might result in course failure.

Exams

There will be one midterm exam worth **25%**, scheduled tentatively for Oct 31, 2019.

For courses which have final exams, students are strongly advised not to make final plans for travel or employment during the exam period since special arrangements will not be made for examinations that may conflict with such plans.

Quizzes

There will be 5 quizzes during the term, each worth 2%.

Grading

Coursework	Weight (out of 100%)
5 Quizzes	10%
Midterm Exam	25%
Project	55%
Class Participation	10%

Important: You must pass EACH of the Midterm Exam and the Project component to pass the course.

The **Project grade** accounts for your teamwork skills as well as individual contribution to the project. Your Project grade does not rely solely on the group performance but will be adjusted to reflect your individual contribution to the group project. Your individual contribution is assessed twice during the semester by your group peers.

The **Class Participation** accounts for your active engagement with the lecture, project material and discussions during lectures, and it goes beyond mere attendance to lectures. Most classes do include in-class project work, reflection and presentations to the class and therefore attendance to classes is highly recommended. You will be graded on your participation in class activities, including showing up on time, attending all classes, completing class activities, reports and presentations, and discussions. The criteria used for grading Class participation include "Critical thinking", "Effective involvement and communication", "Professionalism" and "Respectful Engagement".

Attending the two lectures in the first week is mandatory because we are forming project groups and it will count towards the class participation mark.

Course Material

See Github Course Repo for up to date information and project info. We will communicate via Slack. You may opt out of these services by discussing with the instructor in the first 2 weeks of class.

Grading System

The University of Victoria follows a percentage grading system in which the instructor will submit grades in percentages. The University will use the following Senate approved standardized grading scale to assign letter grades. Both the percentage mark and the letter grade will be recorded on the academic record and transcripts.

F	D	C	C+	B-	B	B+	A-	A	A+
0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100

Grades	Description
A+, A, A-	**Exceptional**, **outstanding** or **excellent** performance. Normally achieved by a minority of students. These grades indicate a student who is *self-initiating*, *exceeds expectation* and has an *insightful* grasp of the subject matter.
B+, B, B-	**Very good**, **good** or **solid** performance. Normally achieved by the largest number of students. These grades indicate a *good* grasp of the subject matter or *excellent grasp in one area balanced with satisfactory grasp in the other areas*.
C+, C	**Satisfactory**, or **minimally satisfactory**. These grades indicate a *satisfactory performance and knowledge* of the subject matter.
D	**Marginal Performance**. A student receiving this grade demonstrated a *superficial grasp* of the subject matter.
F	**Unsatisfactory performance**. Wrote final examination and completed course requirements; no supplemental.

Posting of Grades

Typically marks for assignments, examinations, and provisional final grades, are made available through conneX, or CourseSpaces where each student will be able to view only their own grades. Sometimes numerical marks/grades may be posted publicly to the entire class. In that case, full student numbers or names will not be included with the posted information.

Course Experience Survey (CES)

I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to the CES site

You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. I will remind you closer to the time, but please be thinking about this important activity, especially the following three questions, during the course.

- What strengths did your instructor demonstrate that helped you learn in this course?
- Please provide specific suggestions as to how the instructor could have helped you learn more effectively.
- Please provide specific suggestions as to how this course could be improved.

Csc Student Groups

The Computer Science Course Union (https://onlineacademiccommunity.uvic.ca/cscu/) serves all students who are either in a computer science program or taking a class in computer science. Please sign yourself up on their mailing list if you would like to be informed about their social events and services.

The Engineering Students' Society (ESS) serves all students registered in an Engineering degree program, including Software Engineering (BSEng). For information on ESS activities, events and services navigate to http://www.engr.uvic.ca/~ess .

Course Policies And Guidelines

Late Assignments: No late assignments will be accepted unless prior arrangements have been made with the instructor **at least 48 hours before** the assignment due date.
Coursework Mark Appeals: All marks must be appealed **within 7 days** of the mark being posted.
Attendance: We expect students attend all lectures and labs. It is entirely the students' responsibility to recover any information or announcements presented in lectures from which they were absent.
Electronic devices in labs and lectures: No unauthorized *audio* or *video* recording of lectures is permitted.
Electronic devices in midterms and exams: Calculators are only permitted for examinations and tests if explicitly

authorized and the type of calculator permitted may be restricted. No other electronic devices (e.g. cell phones, pagers, PDA, etc.) may be used during examinations or tests *unless explicitly authorized*.
Plagiarism: Submitted work may be checked using plagiarism detection software. Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the link given below for the UVic policy on academic integrity. Note that the university policy includes the statement that "A largely or fully plagiarized assignment should result in a grade of F for the course."

The Faculty of Engineering Standards for Professional Behaviour are at
http://www.uvic.ca/shared/shared%5fengineering/docs/professional-behaviour.pdf
U.Vic guidelines and policy concerning fraud and academic integrity are at
http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html
U. Vic Privacy Policy: If any student has concerns about their private information being stored or accessed outside of Canada, they are required to inform the course instructor about their concerns before the end of second week of classes.

Equality

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning (formerly the Resource Centre for Students with a Disability) located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.