COURSE OUTLINE
FALL 2021

	Date	Initials
Prepared by Instructor	29-Aug-21	MM
Approved by Head	3-Sep-21	amk

1. Calendar Information

ENSF 614
Advanced Systems Analysis and Software Design

Advanced topics on principles of system analysis, system thinking, requirements engineering, essential elements of quality software design, design patterns, and system-level software analysis.

Course Hours: 3 units; H(3-1)
Academic Credit: 3
Calendar Reference: https://www.ucalgary.ca/pubs/calendar/current/software-engineering-for-engineers

2. Learning Outcomes

At the end of this course, you will be able to:

1 Understand typical software lifecycle, and major phases of software development
2 Understand some of the key operations in software engineering
3 Understand fundamentals of systems analysis and software requirements analysis
4 Understand details of the basic elements of software design: abstraction,
5 Understand and apply principles of modelling techniques such as UML, SSAD
6 Understand and apply well-known software architectures and systematic methods
7 Understand the concept of design patterns
8 Understand the basic elements of non-functional software requirements

3. Timetable

Section	Day(s) of the Week	Time	Location
LEC 1	MWF	17:00-17:50	WEB-BASED / ST 139*
LAB B01	T	17:00-17:50	WEB-BASED / ICT 320

Note: Lectures, will be delivered online via zoom, by the course instructor. However, classrooms ST 139 wiil be available for students who are on the campus and interesed to watch the lectures on
the screen, live. Zoom recordings will be also posted on the D2L.

4. Course Instructors

Course Coordinator

Section	First Name	Family Name	Phone	Office	Email

Other Instructors

Section	First Name	Family Name	Phone	Office	Email
L01, B01	Mahmood	Moussavi	(403) 220-6231	ICT 537	moussam@ucalgary.ca

Teaching Assistants

Section	First Name	Family Name	Phone		Office	Email		
TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA

5. Examinations

Three quizzes will be held in this course:
Quiz I - Friday Oct 8, 5 PM
Quiz II - Friday Oct 29, 5 PM
Quiz III - Friday Nov 26, 5 PM
All quizzes will be delivered online, on D2L. Quizzes will be designed to be completed in 50 minutes during the scheduled class time.
You will need access to a computer and Internet, as well as an ability to scan and upload hand-drawn diagrams or electronic files. Microsoft Office Lens is recommended when using a smartphone or tablet to scan your diagrams.
All test in this course are open-book and open-notes. You are permitted to access your own course notes, the textbook, and the course D2L site. You are not permitted to search the internet, and communicate with classmates.

6. Use of Calculators in Examinations

No electronic devices or calculators are allowed

7. Final Grade Determination

The final grade in this course will be based on the following components:

Component	Learning Outcome(s) Evaluated	Weight
Assignments	1-8	20%
Three Midterm Quizzes	1-8	45%
Final Projects	1-6	35%

Total: 100%

Notes:
a) It is not necessary to earn a passing grade on the final exam in order to pass the course as a whole.

b) Conversion from a score out of 100 to a letter grade will be done using the conversion chart shown below. This grading scale can only be changed during the term if the grades will not be lowered.

Letter Grade	Total Mark (T)
A+	T ≥ 95.0%
A	90.0% ≤ T < 95.0%
A-	85.0% ≤ T < 90.0%
B+	80.0% ≤ T < 85.0%
B	75.0% ≤ T < 80.0%
B-	70.0% ≤ T < 75.0%
C+	65.0% ≤ T < 70.0%
C	60.0% ≤ T < 65.0%
C-	56.0% ≤ T < 60.0%
D+	53.0% ≤ T < 56.0%
D	50.0% ≤ T < 53.0%
F	T < 50.0%

8. Textbook

There are no textbook(s) required for this course:

The following textbook(s) is recommended for this course:

Title	UML Distilled, A brief guide to the standard object modeling language
Author(s)	Martin Flower
Edition, Year	Third
Publisher	McGraw Hill

Title	Software Engineering: A Practitioner's Approach
Author(s)	Roger Pressman
Edition, Year	Latest
Publisher	McGraw Hill

Title	Object-oriented Software Engineering, Practical Software Development
Author(s)	Timothy C. Lethbridge, Robert Laganiere
Edition, Year	Latest
Publisher	McGraw Hill

Title	Head First Design Pattern
Author(s)	Elisabeth Freeman, Eric Freeman
Edition, Year	Latest
Publisher	O' Reilly

9. University of Calgary Policies and Supports

*SSE ADVISING AND POLICIES

All Schulich School of Engineering students have access to a D2L site titled “Engineering Student Centre”. Students have a responsibility to familiarize themselves with the policies available on this site.

*ACADEMIC MISCONDUCT

Academic Misconduct refers to student behavior which compromises proper assessment of a student’s academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor’s expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

For information on the Student Academic Misconduct Policy and Procedure please visit:
https://ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf
https://ucalgary.ca/policies/files/policies/student-academic-misconduct-procedure.pdf
Additional information is available on the Academic Integrity Website at
https://ucalgary.ca/student-services/student-success/learning/academic-integrity.

*ACADEMIC ACCOMODATION

It is the student’s responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations.
Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (https://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities.pdf). Students who require an accommodation in relation to their coursework based on a protected ground other than Disability should communicate this need in writing to their Instructor.
SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/ .

*INSTRUCTOR INTELLECTUAL PROPERTY

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

*FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

*COPYRIGHT LEGISLATION

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (https://www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright-policy.pdf) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy https://www.ucalgary.ca/pubs/calendar/current/k.html.

*MEDIA RECORDING (if applicable)

Please refer to the following statement on media recording of students: https://elearn.ucalgary.ca/wp-content/uploads/2020/05/Media-Recording-in-Learning-Environments-OSP_FINAL.pdf

**Media recording for lesson capture*

The instructor may use media recordings to capture the delivery of a lecture. These recordings are intended to be used for lecture capture only and will not be used for any other purpose. Although the recording device will be fixed on the Instructor, in the event that incidental student participation is recorded, the instructor will ensure that any identifiable content (video or audio) is masked, or will seek consent to include the identifiable student content to making the content available on University approved platforms.

**Media recording for self-assessment of teaching practices*

The instructor may use media recordings as a tool for self-assessment of their teaching practices. Although the recording device will be fixed on the instructor, it is possible that student participation in the course may be inadvertently captured. These recordings will be used for instructor self-assessment only and will not be used for any other purpose.

**Media recording for the assessment of student learning*

The instructor may use media recordings as part of the assessment of students. This may include but is not limited to classroom discussions, presentations, clinical practice, or skills testing that occur during the course. These recordings will be used for student assessment purposes only and will not be shared or used for any other purpose.

SEXUAL VIOLENCE POLICY
The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf

*OTHER IMPORTANT INFORMATION
Please visit the Registrar's website at: https://www.ucalgary.ca/registrar/registration/course-outlines for additional important information on the following:
- Wellness and Mental Health Resources
- Student Success
- Student Ombuds Office
- Student Union (SU) Information
- Graduate Students' Association (GSA) Information
- Emergency Evacuation/Assembly Points

10. Statements Specific to Fall 2020

Course Format and Scheduling
Course content will be delivered through a combination of both synchronous and asynchronous online learning. Some course material will be covered in real-time online sessions held during registrar-scheduled class times for the course, and other content will be covered through asynchronous online learning, which students can access at times convenient to them. Students are responsible for all content covered in both types of delivery. Students are expected to attend synchronous class sessions at the designated time, and to engage with asynchronous material in a timely manner in order to keep up with course content and deliverables. Please see the following pages for details on the delivery of course content.

Expectations for Attendance and Engagement in Online Sessions
Active engagement in class and with course material is essential in any course. In the online context, students must take increased ownership of their learning.
Expectations for attendance at synchronous sessions are the same as they are in a face-to-face course. Students are expected to actively attend synchronous sessions and adhere to class norms. These include:
- Keeping the microphone on mute unless called on by the instructor (or participating in oral discussion)

Guidelines for Completing and Submitting Coursework

Please submit all assignments electronically using the dropbox in D2L. Assignments must be submitted in PDF format, or as instructed in lab assignments instruction document. Assignments should have a file name as follows: “First Name Last Name Assignment Number” (e.g., Alex Smith Lab Assignment 2). It is the student's responsibility to keep a copy of each submitted assignment and to ensure that file is not corrupted, and the proper version is submitted.

11. Additional Course Information