|  | Date | Initials |
|---|---|---|
| **Prepared by Instructor** | 04-Sep-21 | MM |
| **Approved by Head** |  |  |

## 1. Calendar Information

**ENSF 607**
**Software Design and Architecture I**

A study of software design topics including: abstraction, modularity, design patterns, software modeling, architectural patterns.

Course Hours:        3 units; H (3-2)
Academic Credit:        3
Calendar Reference:        http://www.ucalgary.ca/pubs/calendar/current/engineering.html

## 2. Learning Outcomes

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

1    Understand some of the advanced low-level design concepts, such as abstraction, modularity, coupling and cohesion, and usage of concepts such as inheritance, aggregation/composition, polymorphism, delegation, etc in Java

2    Applying miscellaneous programming concepts in Java such as generic types, and multi-threading

3    Design and develop client-server application

4    Understand the elements of designing for non-functional requirements

5    Have a deep understanding and practical knowledge of software architecture models and documentation.

6    Have a deep understanding and practical knowledge of non-functional requirements and how to identify and include them in design of a software system.

7    Know various software architectural styles and will be able to select a style fitting to a particular problem

8    Be able to perform software reverse engineering by demonstrating it through their course project

9    Know the concept of service-oriented and cloud-based architectures and will be able to demonstrate it by modifying architecture of a conventional software system to become cloud-based

10    Have project management, and teamwork experience in working on a large-scale software project.

## 3. Timetable

| Section | Day(s) of the Week | Time | Location |
|---|---|---|---|
| L01 | TuTh | 9:30 AM - 10:45 AM | Web-based |
| B01 | Fr | 11:00 AM - 12:50 PM | Web-based |

## 4. Course Instructors

Course Coordinator

Other Instructors

| Section | First Name | Family Name | Phone | Office | Email |
|---------|-----------|-------------|-------|--------|-------|
| 1 | Mohammad | Moshirpour | 403-220-68-64 | ICT 345 | mmoshirp@ucalgary.ca |

Teaching Assistants

## 5. Examinations
The following examinations will be held in this course:

1. There will be a midterm exam for this course.

Note: The timetable for Registrar Scheduled exams can be found at the University's Enrolment Services website, http://www.ucalgary.ca/registrar/.

## 6. Use of Calculators in Examinations

## 7. Final Grade Determination
The final grade in this course will be based on the following components:

| Component | Learning Outcome(s) Evaluated | Weight |
|-----------|-------------------------------|--------|
| Assignments | 1-10 | 50% |
| Project | 1-10 | 25% |
| Midterm Examination | 1-9 | 25% |
| | | |

**Total:** 100%

Notes:

a) 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- | 87.0% ≤ T < 90.0% |
| B+ | 84.0% ≤ T < 87.0% |
| B | 80.0% ≤ T < 84.0% |
| B- | 77.0% ≤ T < 80.0% |
| C+ | 74.0% ≤ T < 77.0% |
| C | 70.0% ≤ T < 74.0% |
| C- | 67.0% ≤ T < 70.0% |
| D+ | 64.0% ≤ T < 67.0% |
| D | 60.0% ≤ T < 64.0% |
| F | T < 60.0% |

## 8. Textbook
The following textbook(s) is required for this course:

| Title | Core Java Volume II – Advanced Features |
|---|---|
| Author(s) | Cay S. Horstmann |
| Edition, Year | 11th, 2018 |
| Publisher | Prentice Hall |

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

| Title | Core Java Volume I – Fundamentals |
|---|---|
| Author(s) | Cay S. Horstmann |
| Edition, Year | 11th, 2020 |
| Publisher | Prentice Hall |

## 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.

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<u>*MEDIA RECORDING (if applicable)</u>
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
• Safewalk

## 10. Statements Specific to Fall 2020

<u>Course Format and Scheduling</u>

Course content will be delivered through synchronous online learning. Synchronous learning will take place online during the registrar-scheduled class times for this course. Students are expected to join the class at the designated time, just as they would attend an in-person class. Please see the following pages for details on accessing the synchronous class sessions.

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:
-Having the camera on during synchronous sessions (unless advised otherwise by instructor)
-Keeping the microphone on mute unless called on by the instructor (or participating in oral discussion)
-Using the features and tools in Zoom as requested by the instructor
-Communicating in a professional and respectful manner at all times
If it appears that you are not actively engaged in the class (for example, not responding to the instructor, not joining breakout rooms, etc.), your instructor reserves the right to remove you from the Zoom session.

Guidelines for Completing and Submitting Coursework
Please submit all assignments electronically using the dropbox in D2L. Assignments should have a folder name as follows: "First Name Last Name Assignment Number" (e.g., Alex Smith Assignment 2). Assignments must be submitted by 11:59pm on their due date. It is the student's responsibility to keep a copy of each submitted assignment and to ensure that the proper version is submitted

# 11. Additional Course Information