CAMOSUN COLLEGE
Trades and Technology
Computer Science

Software Engineering Process, ICS125
Winter 2021

COURSE OUTLINE

The calendar description is available on the web @

http://camosun.ca/learn/calendar/current/web/ics.html

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a) Instructor	Dr. Michael Y. Liu		
(b) Office hours	Thursday 12:30AM-1:30PM, Friday 11:30AM -12:30PM		
(c) Location	Online in Collaborate		
(d) Phone	N/A	**Alternative:**	N/A
(e) E-mail	LiuM@camosun.bc.ca		
(f) Website	D2L		

2. Intended Learning Outcomes

Upon successful completion of this course a student will be able to:

· Explain the practices that are key components of various process models for software development such as waterfall, agile, scrum, and spiral;

· Use software development tools to troubleshoot and debug the programming code in an application;

· Apply the basic principles of software project management in a team environment;

· Compare a variety of strategies to test simple programs including white-box test, black-box test, stress test, smoke test, top-down and bottom-up tests;

· Identify methods that will lead to the creation of reusable software components and templates;

· Use software design patterns to help build and maintain a working 3-tier software application;

· Apply software development scripting tools to build and manage application development cycles using a version control framework;

· Think critically to evaluate information, solving problems, and making decisions as they relate to the use of software tools for software development; and

· Apply accepted standards to ensure security, privacy, and integrity of software while recognizing the ethical, legal, and social implications of software development.

3. Required Materials

(a) Texts

N/A (Course Slides)

(b) Other

Software Engineering by Rod Stephens, Wrox publisher.

The Unified Modeling Language User Guide by Grady Booch, James Rumbaugh, Ivar Jacobson

4. Course Content and Schedule

Week		Lab	Quiz
1	Lecture 1: Course Introduction; Java review: class, static, inheritance etc. Lecture 2: Introduction to Software Engineering	0	
2	Lecture 3: Software Engineering concepts + Lab1 Lecture 4: Software Project Management	1	
3	Lecture 5: Software Project Requirements + Lab2 Lecture 6: High Level Design	2	Quiz1
4	Lecture 7:Introduction to UML + Lab3 Lecture 8:Java Stack class	3	
5	Lecture 9: Java Swing and LayoutManagers + Lab4 Software Control Architecture Models Lecture 10:Low Level Design	4	Quiz2
6	Reading Break		
7	Lecture 11:Midterm Review Lecture 12:Midterm Exam in Class		
8	Lecture 13: Object oriented development + Lab5 Lecture 14: XML + JSON	5	
9	Lecture 15: Building systems for software applications + Lab6 Lecture 16: Reviews	6	
10	Lecture 17: Software Testing Introduction + Lab 7 Lecture 18: Software Bug Tracking	7	Quiz3
11	Lecture 19: Software Deployment Introduction Lecture 20: Reviews		
12	Lecture 21: Software Monitoring + Lab 8 Lecture 22: Holiday	8	

13	Lecture 23 Software Development Models Lecture 24: Reviews		Quiz4
14	Lecture 25: Agile Models Lecture 26: Final Exam Review		

Lab 1:

- You will use a local repository to learn basic git commands init, status, add, commit, diff, checkout, reset, and log.

- Follow the lab instructions and show the instructor your results (the final step in the write up). Complete the D2L quiz.

Lab 2:

- how to use NetBeans IDE to build and manage a local repository using git.

- how to create and manage git branches on a local repository.

Lab 3:

- how to clone a remote repository from the Camoson GitLab server to your own working repository

- how to push an updated project from a working copy to your own remote repository project on GitLab

- how to define basic Java Swing components JPanel, JTextBox, and JButton

- the benefit of employing a Model-View-Controller architecture in a software application through the Java Swing framework

- how to resolve a syntax error in the NetBeans IDE

- how user interface component actions in Java Swing are handled through the ActionListener class

Lab 4:

- how to use NetBeans IDE to debug and troubleshoot Java run time errors

- that Java interfaces are used to build new class definitions

- how the MVC architecture design is implemented in a Java Swing application

- how the JUnit tool are used to build test cases

- that Java generic class Stack can be used to create a simple RPN calculator

Lab 5:

- create a MVC-pattern Java application using NetBeans Swing components

- use the Java Foundation classes to read information from a text file

- implement JButton, JTextField, JPanel, JFrame, JLabel components

- construct listener classes for the Java Swing interactive components

- using GitLab to preserve project work

Lab 6:

- building upon previous lab work to implement additional panels, error-checking, and new business-logic functionality

- add in dialogs, spinner, and a combobox Java Swing control

- provide additional error checking

- using GitLab to preserve project work

Lab 7:

- add menu elements to the application to provide additional functionality

- using build scripts to construct an application automatically

Lab 8:

- integrate an Oracle database back-end as the model instead of the text file.

5. Basis of Student Assessment (Weighting)

Pre-requisite: ICS 114

Evaluation

a) Lab Assignments (8 Lab assignments), 30% weight.

- Must complete all labs.

- Must achieve a minimum average of **55%** on the overall labs.

- Late labs are subjected to a **40%** penalty, except by the instructor's prior written permission or in the presence of a dire and documented short-term medical or family emergency.

b) Midterm Exam (date: Friday, Feb 26th, 2021), 20% weight.

- Must achieve a minimum average of 55% on the midterm.

c) Quizzes and Participation, 20% weight.

- Must complete all quizzes.

- Must achieve a minimum average of **55%** on the overall quizzes.

- Late quizzes are subjected to a **40%** penalty, except by the instructor's prior written permission or in the presence of a dire and documented short-term medical or family emergency.

d) Final Exam (date and location TBD), 30% weight.

- Must achieve a minimum average of 55% on the final exam.

6. Grading System

| X | Standard Grading System (GPA)

| | Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Online references to the Java documentation, class notes provided through D2L

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

Department Policies:
Grade review: You have 7 days after marks are posted to review with your instructor.

Academic Dishonesty:

1st violation: minus the weight of the deliverable and a note on your departmental file.

2nd violation: F in the course

3rd violation: Student Conduct Policy E-2.5 is applied

Missed Examinations/Quizzes: If a student misses a quiz or an exam, a mark of zero will be assigned unless there are extenuating circumstances. In such cases, the proportion of grade assigned to the missed quiz or exam will be added to the proportion assigned to the final exam. The final exam will be held during exam week. NO consideration will be given to any student wishing to write the exam at any other time than that assigned.

Electronic Devices: The school's policy regarding electronic devices is that any student who has a cell phone or other unauthorized electronic device (ie. ipad, laptop,

playbook, etc.) on their person or around their desk during an exam will be guilty of cheating and will a grade of "F" for the course.

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. **GRADING SYSTEMS** *http://www.camosun.bc.ca/policies/policies.php*

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description

COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://www.camosun.bc.ca/policies/E-1.5.pdf for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.