SENG265: Software Development Methods

Course Dates

CRN(s):	Section A01 CRN: 13062 Section A02 CRN: 13063 Section A03 CRN: 13064 Section A04 CRN: 13065
Term:	2023
Course Start:	2023-09-06
Course End:	2023-12-20
Withdrawal with 100% reduction of tuition fees:	2023-09-19
Withdrawal with 50% reduction of tuition fees:	2023-10-10
Last day for withdrawal (no fees returned):	2023-10-31

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	HSD A240	2023-09-06	2023-12-04	MWR	15:30-16:20	Roberto Bittencourt
A02	HSD A240	2023-09-06	2023-12-04	MWR	15:30-16:20	Roberto Bittencourt
A03	BWC B150	2023-09-06	2023-12-04	TWF	12:30-13:20	Roberto Bittencourt
A04	BWC B150	2023-09-06	2023-12-04	TWF	12:30-13:20	Roberto Bittencourt
B01	ELW B238	2023-09-11	2023-12-04	M	12:00-13:20	
B02	ELW B238	2023-09-11	2023-12-04	M	14:00-15:20	
B03	ELW B238	2023-09-11	2023-12-04	W	16:30-17:50	
B04	ELW B238	2023-09-11	2023-12-04	R	11:30-12:50	
B05	ELW B238	2023-09-11	2023-12-04	R	13:00-14:20	
B06	ELW B238	2023-09-11	2023-12-04	R	16:30-17:50	
B07	ELW B238	2023-09-11	2023-12-04	F	11:30-12:50	
B08	ELW B238	2023-09-11	2023-12-04	F	13:00-14:20	

Instructor(s)

Name: **Roberto Bittencourt**
Office: ECS 458
Phone: (250) 472-5762
Email: rbittencourt at uvic dot ca

Office Hours:		Comments
Mon	04:30pm-05:30pm	
Wed	01:30pm-03:30pm	

Course Overview

Software engineering is more than just programming. There exists a set of concepts, techniques and tools that every new software engineer needs to learn and practice, and their use becomes essential once the software engineer begins working with others in non-trivial software projects. This course provides an introduction to this set, and further courses with both use and build on the topics covered this semester.

This course will be delivered in-person. Therefore students are expected to be physically present in the lecture room and in the lab room for their registered lab.

All students are expected to fully participate in lectures and labs of this course. This course requires reliable and consistent access to a relatively new computer (desktop or laptop, with at least 8GB of DRAM and at least 250 GB of disk space). You must also have a reliable internet connection, although we will do our best to ensure work on assignments can be completed on your computer. It will not be possible to adjust the course expectations, due dates or learning outcomes for students who do not have the technological resources available to complete this course. Information on student numbers, student grades, submitted work will be stored in file systems and computers under the physical control of UVic.

Topics

The topics covered by this course will include:

- Linux command-line basics
- Linux shell scripts
- Multi-version software development
- Git version control system
- C programming language
- Python 3 programming language (including more advanced language use)
- GDB debugging tool
- Build tools such as "make"
- Incremental software development and testing
- Software documentation
- Software evolution and the software life cycle

Course Objectives and Learning Outcomes

Students successfully completing SENG 265 will be able to:

- Define elementary software engineering terms.
- Describe elementary software engineering concepts.
- Construct solutions for small- to medium-sized problems using Python 3 and C.
- Organize development work using software configuration management tools such as git, make, and others.
- Explain the purpose of a software development process.
- Investigate the dynamic behavior of C programs using a debugger.
- Employ the bash-shell and the Linux operating system in the work of developing software.
- Identify and outline the test cases needed to give confidence in the correctness of a software development artifact.

Textbooks and Other Resources

This course has no required text. All resources required for this course will be posted at Brightspace course website.

Lectures

Lectures will be run in a dialogued format described below.

What you can expect in a lecture:

- The instructor presents a topic;
- Students may actively pose questions or comments during the presentation;
- The instructor may also present examples of problem solving;
- If needed, the instructor may pose challenges to improve content retention, and students may work on the challenges either on their own or in small groups.

Assignments

There will be **9** programming assignments which, together, will comprise **45%** of the total course mark. This schedule is subject to change. Please consult the course webpage for accurate due dates.

Assignment	Weight	Tentative Due Dates
Assignment 1	5%	September 15
Assignment 2	5%	September 22
Assignment 3	5%	October 10
Assignment 4	5%	October 17
Assignment 5	5%	October 24
Assignment 6	5%	November 3
Assignment 7	5%	November 10
Assignment 8	5%	November 24
Assignment 9	5%	December 1

We will do spot-check grading in this course. That is, all assignments are graded BUT only a subset of your code might be graded. You will not know which portions of the code will be graded, so all of your code must be complete and adhere to specifications to receive marks.

You should start assignments early enough to allow time to seek help if you encounter difficulties. **Late Assignments will not be accepted.**

Students are encouraged to discuss assignment problems with each other and form study groups. However, final assignment submissions must be generated independently, and you will only receive credit for your own work. We encourage you to augment your learning with external resources (e.g., textbooks, educational ebsites, forums, etc.). However, you can use these resources only for learning about the problem high-level solution strategies. You must develop your concrete solution independently. On some assignments, however, you may be permitted to use material from other sources **with proper attribution**. Submitting the work of others without proper acknowledgement will be considered a serious academic offense and may result in failure of the course.

We plan to experiment with the last four assignments with work performed in pairs to better reproduce software development practices, and more on this subject will be presented in the Brightspace course website when those assignments are posted.

The use of an editor or tutor, either paid or unpaid, to correct or augment your work is strictly prohibited.

Please consult the instructor if you are unsure whether or not you are following these guidelines when working on an assignment.

Labs

There will be **10** labs of equal weight which, together, will comprise **10%** of the total course mark. **See the course syllabus on Brightspace for the lab schedule.**

For each of the 10 labs, there will be a set of exercises to work through. You must demonstrate your work to a TA during your registered lab time. If so required in the lab instructions, you should also submit your work by the end of the lab. If you do not demonstrate the lab work during your scheduled lab time, you will receive a grade of zero for the lab. Your lab grade is recorded for each of the 10 labs and each lab contributes to the 10% lab component that is part of your overall course grade.

We will do spot-check grading in this course. That is, all lab work should be completed, BUT only a subset of your code might be graded. You will not know which portions of the code will be graded, so all of your code must be complete and adhere to specifications to recieve marks.

You are encouraged to elicit help from your TA during your allocated lab time. Do not look at the code written by any other student (sharing solutions electronically, visually, orally or by any other means is prohibited). Final lab submissions must be generated independently and you will only receive credit for your own work.

We encourage you to augment your learning with external resources (e.g., textbooks, educational Websites, forums, etc.). However, you can use these resources only for learning about the problem high-level solution strategies. You must develop your concrete solutions independently.

The use of an editor or tutor, either paid or unpaid, to correct or augment your work is strictly prohibited.

Exams

In this course, there will be one midterm exam (worth 15% of the course grade) and a final exam (worth 30%) scheduled by the university during the final exam period. All exams will be written in-person.

This schedule is subject to change. Please consult the Brightspace course website for accurate due dates.

Exam	Weight	Tentative Exam Date
Midterm	15%	October 18
Final Exam	30%	Final Exam Period

Students are strongly advised not to make final plans for travel or employment during the final exam period since special arrangements will not be made for examinations that may conflict with such plans.

Missed exams: A missed exam will be given a zero grade.
Concession for a missed exam is granted in extenuating circumstances (ie. illness) **only if** the following is provided to the instructor:

- notification by email (rbittencourt@uvic.ca) **before the date/time of the exam**
- Concession cannot be granted for more than one missed exam.

Plagiarism detection software will be used on exam submissions. Collaboration with other students in any form and the solicitation of answers from any outside source (electronically, visually, orally or by any other means) is strictly prohibited. Any instance of impersonation during an exam is considered a serious academic offence by both the student being impersonated and the impersonator.

Grading

Coursework	Weight (out of 100%)
Assignments	45%
Labs	10%
Exams	45%

In order to pass the course, students must **obtain a passing grade on the weighted average of all assignments** and **obtain a passing mark on the final exam.**

The mark for labs is based on lab participation (i.e., attendance may be determined -- in part -- by completion of certain in-lab exercises).

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.

Regrade policy

At times, you may feel that marks were unfairly deducted during an assignment, lab or exam. In this situation, you can submit your work for a regrade.

We will only take regrades if they are submitted within **7 days** of the marks for that assessment being released. Also note that we reserve the right to regrade the entirety of any submission. When requesting a regrade, your old grade will be removed and your new grade could be higher or lower.

To submit a regrade request, you must email the Instructor with the following information (requests missing any of this information will not be considered):

- Your name and student number;
- The submission that you would like regraded;
- The part you would like regraded;
- The reason for requesting a regrade. You must specify which parts of the grading rubric/tests you feel was graded incorrectly.
- Regrade requests need to point to a specific, clear error in grading not an argument about the allocation of marks in the rubric. We can only apply a consistent rubric and standard across all assignments.

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 a Learning Management System (LMS) like Brightspace, 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 and Computer Science Standards for Professional Behaviour are at https://www.uvic.ca/ecs/_assets/docs/student-forms/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 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.

Copyright Statement

All course content and materials are made available by instructors for educational purposes and for the exclusive use of students registered in their class. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Violations may result in disciplinary action under the Resolution of Non-Academic Misconduct Allegations policy (AC1300).