



Department of Computer Science

CS 4470Y - Software Maintenance and Configuration Management

Course duration: September to April (of the following year)

Course Outline - Sep. 2026 – Apr. 2027

Course Description

At the core, software maintenance involves taking existing software artefacts, understanding them, and then modifying or extending the code and/or other work products associated with the software (such as requirements, design and test suites). Other aspects, such as migrating a system from one platform to another, reverse-engineering (i.e., extracting higher-level artefacts such as design from code), and inter-connecting existing systems for inter-operability, are also part of this field. It is estimated that 60-70% of the software development effort in industry is maintenance and evolution. In this course, students will get practical experience in this field, working in a team, and addressing real-world issues of third-party systems.

Software maintenance requires at least three kinds of knowledge:

- **Domain knowledge:** knowledge about the area of application of the software (e.g. bus transportation in the city, management of physical plants, “smart city” operations, analysing genres of music, healthcare management, extracting relevant information from legal documents, improving software development, to name a few), the users of the system, other systems interacting with the one being maintained, and other.
- **Technology knowledge:** knowledge about the various software tools, languages, packages and technologies used in the software (e.g., iOS, Android, PHP, Java, application-specific technologies, etc.), Machine Learning, data processing techniques, etc.
- **Code knowledge:** knowledge about the actual code, documentation, test cases and so on.

Students are anticipated to acquire all these three types of knowledge as appropriate for their projects.

Instructor	Email	Office	Phone	
Dr. Nazim Madhavji (Course Coordinator)				

Class time: Mondays 11.30 AM – 12.30 PM.

Classes to be held online as announced on OWL Brightspace.

Prerequisites:

Computer Science 3307A/B/Y; plus 1.5 courses from: Computer Science 3305A/B, 3331A/B, 3340A/B, 3342A/B, 3350A/B; plus registration in the Minor in Software Engineering

Note: *Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.*

Course Texts

There are no required texts for this course.

Lectures

Lecture time will not be used for the delivery of lectures in the traditional sense. Instead, this time will be primarily used for status checks of various projects. Apart from the dates indicated above, further in-person or online classes will be announced on OWL as needed.

Course Webpage

The CS4470Y webpage is accessible through the departmental website. Class and project information and announcements will be posted on OWL Brightspace. You are responsible for reading this information on a regular basis.

Computing Facilities

Each student will have access to an account on the Computer Science Department undergraduate computing facility and abide by the department's [Rules of Ethical Conduct](#)

Note: *After-hours access to certain Computer Science lab rooms is by student card. If a student card is lost, a replacement card will no longer open these lab rooms, and the student must bring the new card to the Systems Group. Likewise, if a student card ceases to provide access where it should, it should be brought to the Systems Group as well.*

E-Mail Contact

We will occasionally need to send e-mail messages to the whole class, or to students individually. E-Mail will be sent to the UWO e-mail address assigned to students by Western Technology Services (WTS).

Student Evaluation

Grades will be based on group project work, divided across the specified set of milestones as indicated in the table below. If for any reason the project schedule given below cannot be adhered to, the project marks will be prorated accordingly.

IMPORTANT – Groupwork is assessed as a composite.

- Presentation and documentation are assessed to form an integrated mark.
- **Individuals in a group will NOT be graded separately.**
- All members of the group are expected to contribute equitably.
- **Significant disparity in the work-effort/contribution against any group member MUST be notified BY EMAIL to the supervisor (with a copy to the course coordinator) AT THE EARLIEST POINT IN TIME (and no more than THREE DAYS of the RECOGNITION OF THE OCCURRENCE OF THE DISPARITY) during project execution.**
 - o **Claim concerning disparity in work-effort more than three days priori will be ignored.**
 - o **A complaint email MUST include at least the following:**
 - Names and email addresses of ALL the group members of the project.
 - Work dates affected by the complaint (up to the previous three days only).
 - No work PRIOR to three days of the claim will be taken into account for any investigation, and the claim will be REJECTED immediately.
 - Name of the group member against whom the claim is being made.
 - Names of the group members openly **in favour** of this claim.
 - Names of the group members, if any, openly **against** this claim.
 - Names of the group members, if any, **abstaining** from this claim.
 - A succinct description of the project work involved in the claim (e.g., specific requirements involved, development tasks assigned to the accused, record of email communications with the accused, other pieces of evidence in support of the claim), etc.
 - o **Regardless of the disparity in work-effort within the project, the project must be completed under the direction and supervision of the supervisor. The supervisor has the right to rescope the project to see it to completion.**
 - o **Claim by any individual of putting in more effort than others in the group (and hence deserving of extra marks) will be ignored.**
 - o **Upon investigation by the supervisor (in conjunction with the coordinator), A GROUP MEMBER IDENTIFIED AS DELINQUENT WILL BE FORCEFULLY REMOVED FROM THE CLASS.**

Project

Milestones and Deliverables ***

Milestones	Deliverable Description	Due date	Weight %
1	Progress Report (PR) 1 Submitted to both the supervisor AND OWL Brightspace.	23 rd November, 2027	Completeness check. *** Minus 10% for late submission.
2	PR 2 Submitted to both the supervisor AND OWL Brightspace.	8 th February, 2027	Completeness check *** Minus 10% for late submission.
3	FINAL Report - Submitted to both the supervisor AND OWL Brightspace. SOFTWARE ARTEFACTS AND DOCUMENTATION <i>All project documentation,</i>	29th MARCH, 2027	50

	<i>software artefacts (such as design, test cases, program code, etc.), Project results, etc., are to be delivered to the supervisor.</i> Without this delivery, a mark of zero will be given for the course.		
4	PRESENTATION - Project presentation: online (Please schedule this with the supervisor) - Please be ready for making the presentation during the assigned time period.	BEFORE 9th April, 2027 Late presentation will NOT be accepted.	50
	<i>Classes end</i>	<i>9th April, 2027</i>	

***** EXTREMELY IMPORTANT:**

(1) All deliverables are mandatory. A course grade of zero will be recorded for the group if any deliverable is missing.

(2) Please note that final report delivery date and presentation date (see the table above) are FIRM (exception being through university accommodation).

(3) Presentations: All presentations will be online between the Group and their supervisor.

- Treat the presentation as EXAM.
- The group to make a presentation arrangement with the supervisor.
- Please make sure that EACH GROUP MEMBER is present for the date and time of your presentation.
- A member will receive a grade of zero mark for the presentation component if not present during group presentation.
- A prerecorded presentation will not be accepted.
- No employment reasons, family trips, or other reasons that preclude you from making your presentation will be acceptable. Exceptions only as per the university policy.

Use of Third Party software artefacts

- Use of open source third party software artefacts (e.g., code, design, architecture, requirements, etc.) is permitted subject to any restrictions indicated at source. Illegal use of third party material will result in an academic offence AND a grade of zero for the course.
- Use of third party artefacts must be explicitly cited in the project documentation.

Use of Generative AI Tools

- The use of generative AI tools (e.g., ChatGPT, Copilot, Gemini, and others) is permitted only as follows:
 - First, create your own solution or description without any use of the AI tools.
 - Then, optionally, you can use AI tools to produce a competitive solution or description (or part thereof).
 - Thirdly, if you do use the AI tools for creating a partial or full solution then you must:
 - do a “**comparative analysis**” of your initial solution (see 1) against the AI generated solution (see 2).
 - Document explicitly WHAT you have learnt** in the solution creation by using the AI tools.
- NOTE: Using AI tools without carrying out step (3) above will result in reducing the mark of the deliverable concerned by 50%.**
 - Recommendation: use external tools to LEARN and be better and not to CHEAT!**

Submission of Milestones

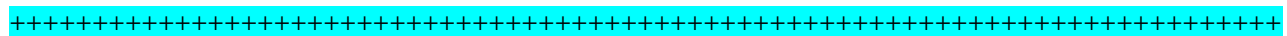
- All milestone deliverables will be submitted to OWL.

Late Submissions

- **Please note: Late milestones submissions will not be accepted. Final report and presentations will take place firmly on the scheduled date. No extensions will be possible.**
- If you have serious medical or compassionate grounds for an extension, please see the accommodation Policy below.

Core Regulations

- Projects will be carried out in groups formed at the outset. However, the Dept. reserves the right to take exceptional measures. Student requests for single-person group will not be entertained.
- Project supervisor can be changed only PRIOR to an agreement is made with the supervisor. The supervisor-student-group relationship is bound once the agreement has been made.
- Supervisor selection is an asynchronous process. Any group of students or an individual student can contact any supervisor independently.
- Student acceptance by a supervisor is the prerogative of the supervisor; the course instructor will not interfere in that process.
- Any individual student (or group) can solicit another student to form or join their group (subject to the size limit in the project description and subject to the acceptance by the supervisor if committed already).
- The project topic can be changed (**only with the same supervisor**) subject to the approval of the supervisor and acceptance by the course coordinator.
- Further regulations (implicit or discovered in real-time): There may be other issues that may crop up that are not listed above. The course instructor reserves the right to make the final decision on those issues and they may not be appealed.



Additional Statements

Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - <https://www.edi.uwo.ca>

Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.