**Department of Computer Science**

# CS 4470Y - Software Maintenance and Configuration Management
## Course duration: September to April (of the following year)
## Course Outline - Fall 2020 – Winter 2021

## 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. mobile applications, physics simulations, processing large amounts of data, computer music, healthcare, medical equipment, social, legal, improving software development, and more), the context in which the software system will be running (e.g., business, hospital, govt. department, etc.), the users of the system, 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.).
- **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.

**Class time:**
**Fall / Winter:** Monday 11:30 - 12:30pm online.
(See later below for specific class meeting days)

**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.*

## Instructor Information

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|---|---|
| **Instructor:** | Nazim Madhavji |
| **Office:** | MC 381 |

**Office Hours:** emails, anytime

**E-Mail:**        madhavji <<<at>>> <gmail>>> <<<com>>>

## Course Texts

There are no required texts for this course. To assist with project development, there are many excellent references available online.

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## Lectures

Lecture time will not be used for the delivery of lectures in the traditional sense. Instead, this time will be primarily used for organizing and tracking the status of project deliverables and milestones in the course. It is important to note that there may not be class held each week for the duration of the course; further details on class scheduling will be posted on OWL.

### Course Webpage and OWL

The CS4470Y webpage is accessible through the departmental website. Class and project information and announcements will be posted on OWL. 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 senior undergraduate computing facility, GAUL.
In accepting the GAUL account, a student agrees to 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 Information Technology Services (ITS), i.e. your e-mail address @uwo.ca. It is each student's responsibility to read this e-mail on a frequent and regular basis, or to have it forwarded to an alternative e-mail address if preferred. See the ITS website for directions on forwarding e-mail.

However, you should note that e-mail at ITS (your UWO account) and other e-mail providers may have quotas or limits on the amount of space they can use. If you let your e-mail accumulate there, your mailbox may fill up and you may lose important e-mail from your instructors. Losing e-mail that you have forwarded to an alternative e-mail address is not an excuse for not knowing about the information that was sent.

Wherever you receive e-mail, be sure to configure your spam filter to allow e-mail from the instructor's e-mail address given above. Otherwise, important messages could get trapped by your spam filter and missed. This is also not an excuse for not knowing about information that has been sent.

# 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.

**Accommodation and Accessibility**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 240, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Link to policy on Accommodation Consideration for Student Absences
www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf
(which includes a link to the Student Medical Certificate)

# Project

**Milestones and Deliverables**

| Milestones | Deliverable Description*** | Due date | Weight % |
|---|---|---|---|
| 1 | Progress Report (PR) 1 | 19th November, 2020 | 10 |
| 2 | PR 2 | 3rd February, 2021 | 10 |
| 3 | FINAL Report | 29th March, 2021 | 40 |
| 4 | Project presentation | TBA | 40 |
| | *Classes end* | *5th April, 2021* | |

**\*\*\* <u>EXTREMELY IMPORTANT</u>:**
**(1) All deliverables are mandatory. A course grade of zero will be recorded for the group if there are any missing deliverables.**

**(2) Please note that final report date and presentation date (TBA) are FIXED without exception (only university exception applies). <u>THESE ARE (or will be) FIRM DATES</u>. Failing to deliver these on the due date will result in the course grade of zero marks; no exception will be made.**

**(3) Presentations: All presentations will be online. (Details to be accounced via OWL.)**
**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 course if not present during group presentation. No employment reasons, family trips, or other reasons that preclude you from making your presentation will be acceptable.**

**About the Milestones and Assessment**
- Milestones 1-3 are meant to thrust the project towards completion and will involve core software development aspects (program code, architecture and design, testing, project management, documentation, etc.) and technologies. Milestone 4 is project presentation which will be scheduled at a later date.
- The specification of the deliverables will be posted on OWL.

- Any clarification or revision to the deliverables will also be posted on OWL. It is your responsibility to monitor this closely.
- The weight of each milestone is indicated above.

**Use of Third Party software artefacts**
- Use of third party software artefacts (e.g., code, architecture, requirements, etc.) is permitted subject to any restrictions indicated at source.
- Use of third party artefacts must be explicitly declared in your documentation, giving citation of the source of the material used.
- If you use third party software artefacts not permitted at source, you may be charged with an academic offence.

**Submission of Milestones**
- All milestone deliverables will be submitted to OWL.

**Late Submissions**

- <span style="color:red">**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.**</span>

- If you have serious medical or compassionate grounds for an extension, you **must** take supporting documentation to the Academic Counselling unit of your faculty for advice.

## Regulations

- Projects will be carried out in groups as specified in the proposal. 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 join their group (subject to the size limit in the project proposal).

- The project topic can be changed (**only with the same supervisor**) subject to the approval of the course instructor.

- There are other specific issues to do with physical presence for final presentation, late submission, etc. These are not listed here.

- 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.

## Ethical Conduct

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what
constitutes a Scholastic Offence, at the following Web site:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

**Plagiarism:** Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence. Please note, however, that students are not allowed to make use of the work of others unless explicitly instructed to do so in the description of an assignment.

All projects are to be exclusively your own work. While project work requires you to work in teams, each team is expected to act individually. You may discuss approaches to problems among yourselves; however, the actual details of the work (coding, documentation, etc.) must be an individual effort. Incidents that are judged to be the result of academic dishonesty will be reported to the Undergraduate Chair. The selection of penalty to be applied is up to the Chair, with consultation of the instructor.

The standard departmental penalty for assignments that are judged to be the result of academic dishonesty is, for the student's first offence, a mark of zero for the assignment, with an additional penalty equal to the weight of the assignment also being applied. You are responsible for reading and respecting the Department of Computer Science's policy on Scholastic Offenses. and Rules of Ethical Conduct.

The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com/).

**Accessibility Statement**

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

**Support Services**

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counseling.

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

The website for Registrarial Services is  http://www.registrar.uwo.ca.

**University Students' Council**
Link to services provided by the University Students' Council: http://westernusc.ca/services/