Carleton University  
Department of Systems and Computer Engineering  
SYSC4106 Software Product Management  
Winter 2019

Course Outline

Professor: Samuel A. Ajila, PhD, P.Eng., SMIEEE, SMACM  
Office: MC 7038

Office Hour: Tuesday 10:00 to 11:00 am

Tentative Teaching Assistants:  
Daniel Afriyie, danielafriyie@cmail.carleton.ca  
Devinder S. Saggu, saggusingh@cmail.carleton.ca  
Enrique Reveron, enriquereveron@cmail.carleton.ca

Lecture: Tuesday and Thursday – 1:00 pm to 2:30  
Classroom: CO 372

Course Web page: A cuLearn page will be maintained for the course

Calendar Description

Stages of the life cycle of software products and their implications for architecture definition, requirements specification, variety, target market segmentation, adoption, roll-out plans, documentation, maintenance, skills, building prototypes, testing, feature prioritization, quality and tools infrastructures.

Lectures three hours a week

Prerequisite(s): SYSC 3020 or SYSC 3120 (SYSC 3020 and SYSC 3120 can be taken concurrently) or COMP 3004.

Students who have not satisfied the prerequisite for this course must either (a) withdraw from the course, (b) submit a prerequisite waiver through to the associate deans’ office (FED or Faculty of Science) or (c) will be deregistered from the course after the last day to register for courses in winter term.

Course Objectives

The objective of this course is to examine the theory, processes, methods, and tools for software project management. The perspective emphasized is that of a Software Engineer and/or Computer Scientist in the role of a project manager responsible for planning and controlling the activities that result in the delivery of software products. What are learned from this course are topics that are fundamental for managing the ever-increasing complexity of software projects. In addition this course is designed to build capacity and knowledge in the management of large, complex, and changing software systems. Successful completion of the course will enable participants to better manage: (i) the synchronization among the various technical and managerial activities that lead to the delivery of software and (ii) the interactions of the development team with other stakeholders such as clients, product planning, and marketing.

Learning Outcomes

The intended learning outcomes are:

1. ability to discuss the specific problems of software product management and the reasons for failure, and the need for different approaches;
2. able to apply basic techniques of cost estimation, risk analysis, and project planning techniques for software development projects;
3. familiarity with the principles and practice of quality management for software projects;
4. awareness of the problems associated with managing human resources in software projects; and
5. familiarity with the management implications of using different software processes and the need for software process improvement.
Graduate Attributes (GA’s)
The five course learning outcomes listed above are used to develop competencies related to the Canadian Engineering Accreditation Board (CEAP) Graduate Attributes (GAs). In this course, we have identified four GAs with the following six indicators:

3.5 → Interpretation of data (synthesis) and discussion (activities related to learning outcome 2)
9.2 → Sustainable design; life-cycle planning (activities related to learning outcomes 1 and 2)
10.2 → Professional, accountable, and ethical conduct (activities related to learning outcomes 4 and 5)
11.2 → Engineering economics (activities related to learning outcomes 2 and 3)
11.4 → Risk and change management (learning outcome 2)
11.5 → Project definition and management techniques (activities related to learning outcome 5)

Data obtained from the course group term project will be used to measure students’ progress towards indicators 9.2, 10.2, and 11.5. Course case studies data will be used to map 3.5 and 11.2. Different sections of the course final exam will be used in part for 11.2 and fully for 11.4.

Textbooks

Grading Scheme
A maximum of 100 marks will be available. The division is as follows:

<table>
<thead>
<tr>
<th>Group Projects</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUR (4) case studies – 5% each (group and individual)</td>
<td>20%</td>
</tr>
<tr>
<td>Closed book final exam – The scheduling TBD</td>
<td>60%</td>
</tr>
</tbody>
</table>

Note: To pass this course a student MUST pass the final exam i.e. obtain a minimum of 50% in the final exam. This is in addition to passing the relevant portions of the course assessment.

1. Project presentation dates: March 26; March 28; April 2; April 4; and April 9

2. Note that late hand-in of case studies will be accepted with the penalty as follows: a 20% penalty per day with a maximum of two late days after which the grade of 0 is assigned. The penalty starts 5 minutes after due time and the 2nd penalty 24 hours after that 5 minutes pass due date. The assignment is graded zero (0) 48 hours after due time.

3. There is no deferred case study and project submissions, and project presentation. Absence from scheduled project presentation will be graded zero (0).
4. Note that the Professor reserved the right to set final exam (and deferred exam if necessary) to cover all the materials (i.e. lecture notes, books, handouts, teaching, and reference materials) examined and covered in class and during project.

5. Note also that all inquiries relating to the final exam will be answered in class (at least 1 week before the exam) and the professor will not discuss or provide responses to these inquiries over the phone or E-mail.

6. Final Exam: The final examination is for evaluation purposes only and will not be returned to students. You will be able to make arrangements with the instructor or with the department office to see your marked final examination after the final grades have been made available.

7. Students who miss the final exam may be granted permission to write a deferred examination. Section 2.5 of the Academic Regulations of the University applies in case of deferred final exam.

Tentative Outlines – the outlines are likely to evolve during the term

Weeks 1, 2, and 3
- Introduction to Project Management
- Software Life Cycle
- WBS, Software Planning and Scheduling

Weeks 4, 5, and 6
- Risk Analysis and Management
- Software Project Organization
- Software Size Estimation and Reuse

Weeks 7, 8, and 9
- Software Effort Estimation
- Software Cost Estimation and Contract Rates
- Software Cost Control and Contract Types

Weeks 10 and 11
- Software Process Metrics
- Software Project Teams, Communication, and Intellectual Property
- Project presentations

Week 12 and 13
- Project Presentations

Get help early if you are having difficulty with the course content.
Ways to get help are:
- Ask question in class or during the lab. This is the best way to clear things up.
- Ask professor during office hours.
• Note that Email is not the best medium for technical questions! Questions submitted by Email will be answered at the beginning of the next class.

General Regulations

Attendance: Students are expected to attend all lectures and lab periods. The University requires students to have a conflict-free timetable. For more information, see the current Undergraduate Calendar, Academic Regulations of the University, Section 1.2, Course Selection and Registration and Section 1.5, Deregistration.

Health and Safety: Every student should have a copy of our Health and Safety Manual. A PDF copy of this manual is available online: http://sce.carleton.ca/courses/health-and-safety.pdf

Deferred Term Work: Students who claim illness, injury or other extraordinary circumstances beyond their control as a reason for missed term work are held responsible for immediately informing the instructor concerned and for making alternate arrangements with the instructor and in all cases this must occur no later than three (3.0) working days after the term work was due. The alternate arrangement must be made before the last day of classes in the term as published in the academic schedule. For more information, see the current Undergraduate Calendar, Academic Regulations of the University, Section 2.6, Deferred Term Work.

Appeal of Grades: The processes for dealing with questions or concerns regarding grades assigned during the term and final grades is described in the Undergraduate Calendar, Academic Regulations of the University, Section 2.7, Informal Appeal of Grade and Section 2.8, Formal Appeal of Grade.

Academic Integrity: Students should be aware of their obligations with regards to academic integrity. Please review the information about academic integrity at: https://carleton.ca/registrar/academic-integrity/. This site also contains a link to the complete Academic Integrity Policy that was approved by the University's Senate.

Plagiarism: Plagiarism (copying and handing in for credit someone else's work) is a serious instructional offense that will not be tolerated.

Academic Accommodation: You may need special arrangements to meet your academic obligations during the term. You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at http://www.carleton.ca/equity/ For an accommodation request, the processes are as follows:

- Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf
- **Religious obligation**: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see [https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

- **Academic Accommodations for Students with Disabilities**: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult [https://carleton.ca/pmc/students/dates-and-deadlines/](https://carleton.ca/pmc/students/dates-and-deadlines/) for the deadline to request accommodations for the formally-scheduled exam (if applicable).

- **Survivors of Sexual Violence**: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton’s Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: [https://carleton.ca/sexual-violence-support/](https://carleton.ca/sexual-violence-support/).

- **Accommodation for Student Activities**: Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see [https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf](https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf)

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