Carleton UNIVERSITY | Department of Systems and Computer Engineering

SYSC 4106
The Software Economy and Project Management

Calendar description

Introduction to software project management and economics; Return on software investments; Software life cycle; Work breakdown structure, scheduling and planning; Risk analysis and management; Product size and cost estimation; Earn value management; Statistical process control; Managing project team and process improvement; Bidding and contract types.

Lectures three hours a week.

http://calendar.carleton.ca/undergrad/courses/SYSC/

Prerequisites

SYSC 3120 (may be taken concurrently) or COMP 3004, and enrolment in Software Engineering or the Bachelor of Computer Science.

Prior knowledge

Students should have knowledge of:

- The art of software development including problem solving and programming.
- Software requirements engineering or a concurrent registration in a similar course.
- Basic knowledge in calculus, statistics, and probability theory.
- A working knowledge of an OO programing language.

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 in the role of a project manager (or project lead) 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 building capacity and knowledge in the management of large, complex, and changing software systems and its environments.

List of topics

- Introduction to Project Management
- Software Life Cycle

- WBS, Software Planning and Scheduling
- Risk Analysis and Management
- Software Project Organization
- Software Size Estimation and Reuse
- Software Effort Estimation
- Software Cost Estimation and Contract Rates
- Software Cost Control and Contract Types
- Software Process Metrics
- Software Project Teams, Communication, and Intellectual Property
- Discussions, readings, and writings

Learning outcomes

By the end of this course, students should be able to:

- Discuss the specific problems of software product management and the reasons for failure, and the need for different approaches.
- Apply basic techniques of cost estimation, risk analysis, and project planning techniques for software development projects.
- Have familiarity with the principles and practice of quality management for software projects.
- Have awareness of the problems associated with managing human resources in software projects.
- Familiarity with the management implications of using different software processes and the need for software process improvement.

Graduate Attributes (GAs)

The Canadian Engineering Accreditation Board requires graduates of engineering programs to possess 12 attributes at the time of graduation. Activities related to the learning outcomes listed above are measured throughout the course and are part of the department's continual improvement process. Graduate attribute measurements will not be taken into consideration in determining a student's grade in the course. For more information, please visit: https://engineerscanada.ca/.

Graduate Attribute	Learning outcome(s)
3.5: Investigation: Developed: Interpretation of data (synthesis) and discussion	2
9.2: Impact of Engineering on Society and the Environment: Developed: Sustainable design; life-cycle planning	1, 2
10.2: Ethics and Equity: Applied: Professional, accountable, and ethical conduct	4, 5
11.2: Economics and Project Management: Applied: Engineering economics	2, 3
11.4: Economics and Project Management: Developed: Risk and change management	2
11.5: Economics and Project Management: Applied: Project definition and management techniques	5

Accreditation Units (AUs)

For more information about Accreditation Units, please visit: https://engineerscanada.ca/.

The course has a total of 49 AUs, divided into:

- Complementary Studies: 100%

Instructor and TA contact

Specific to course offering (tbd)

Textbook (or other resources)

Specific to course offering (tbd)

Evaluation and grading scheme

Specific to course offering (tbd)

Breakdown of course requirements

Specific to course offering (tbd)

Tentative week-by-week breakdown

Specific to course offering (tbd)

General regulations

Specific to course offering (tbd)