WATERLOO
ENGINEERING

COURSE SYLLABUS

SE 101: Introduction to Methods of Software Engineering

Fall 2012

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Required Text and other equipment

M. Northey and J. Jewinski, *Making Sense, A Students Guide to Research and Writing*, 4rd ed. Oxford University Press Canada, 2012.

G. C. Andrews, J. D. Aplevich, C. MacGregor, and R. A. Fraser, *Introduction to Professional Engineering in Canada*,. 3rd ed. Pearson Education, Canada, 2008.

I-Clickers are required for this course.

Course Description

The following Course description is reproduced from the University Course Descriptions, Undergraduate Calendar 2012-2013.

SE 101: Introduction to Methods of Software Engineering

Course ID: 010030

Course credits: 0.25

An introduction to some of the basic methods and principles used by software engineers, including fundamentals of technical communication, measurement, analysis, and design. Some aspects of the software engineering profession, including standards, safety and intellectual property. Professional development including résumé skills, interview skills, and preparation for co-op terms. [Offered: F].

Course Prerequisites

Software Engineering students only.

Tentative Schedule

Lectures 11:30-12:20, Tuesday, CPH 1346.

Seminars 12:30-01:20, Tuesday, CPH 1346.

Labs 11:30-01:20, Thursday, CPH 1346.

Scheduled make up lecture times

Monday September 17, October 1, November 12 November 19 and November 26; 8:30 am to 9:20 am, B1–271.

Course calendar

WEEK	DATE	LECTURE	SEMINAR	LAB
		Tues 11:30-12:20 CPH 1346	Tues 12:30-1:20 CPH 1346	Thurs 11:30-1:20 CPH 1346
1	Sept 10-14	Introduction to SE101		Class rep elections
2	Sept 17-21	Engineering Design Process	Project Management	Robot Project Launch. email groups to TA
3	Sept 24-28	Computational Decision Making		Robot Project
4	Oct 1-5	Professional Engineers I	Case study introduction	Quiz #1 Robot Project Proposal Project Due (1:20 pm)
5	Oct 8-12	Professional Engineers II (Engineering Ethics)		Robot Project -Case study Due (8:00 pm)*
6	Oct 15-19	Cancelled for midterms	Cancelled for midterms	Cancelled for midterms
7	Oct 22-26	Measurements, Units and Measurement Error		Quiz #2 Robot Project
8	Oct 29-Nov 2	Error in Computed Quantities	Co-op Fundamentals for Engineering 1	Robot Project
9	Nov 5-9	Safety, Risk Management & Environmental Factors	Co-op Fundamentals for Engineering 2	Quiz #3 Robot Project
10	Nov 13-17	Basic Statistics	Co-op Fundamentals for Engineering 3	Robot Project
11	Nov 19-23	Intellectual Property/ Engineering Law		- Projects demo
12	Nov 26-30	Diversity Workshop	Diversity Workshop	Quiz #4 - Projects demo - Project report due (8:00 pm)*

*** The penalty for late submission is 20% of the deliverable's maximum value per day (including weekend days)**

Labs

In the labs will be used Scribblers S2 robots to experience designing control software. The control software will be implemented using Python. Each student will work in a team group formed with a minimum of five (5) members and a maximum of six (6) members. On September 20, 2012, during the lab session, each team will sign-out a Scribbler S2 robot, a Bluetooth dongle, six rechargeable batteries, and a battery charger. This equipment will remain in the team's possession and must be returned on the day each team demo their final project. All team members are equally responsible for integrity of the borrowed equipment. Failure in returning any piece of equipment or damaging it will result in a grade of INC for all team members. This grade will remain until the team members replace the component with an identical one. In case the same component is not available, it should be replaced by an equivalent one, previous approval of the instructor. In each of the lab sessions, the team members must attempt to complete the goals for the specific session according with each team project plan. Additionally by September 27, October 11, November 1, November 22 and November 29 all teams must to complete the following goals.

Laboratory Date	Goals
Sept 27	Control the basic functions on the robot including moving forward, moving backswords, turning left, turning right, and taking pictures.
Oct 11	Control more advanced functions such as following straight lines, following curved lines, detecting obstacles and avoiding them, etc.
Nov 1	Present the advances on the project functionality to the TAs.
Nov 22 and Nov 29	Project demos

For the project demos will be graded the quality and performance of their software designs. Hence each team will be required to demonstrate their working software to a teaching assistant during the lab session and then submit the software design online using Desire2Learn. In addition to the D2L submission, all teams must to update a clean copy of their source code at their team repository failure to upload the source codes before **December 3 2012**.

Lateness

The penalty for late submission is 20% of the deliverable's maximum value per day (including weekend days). Deliverables that are submitted 5 or more days after the submission deadline will be assessed for acceptability.

Failure to submit an acceptable attempt at a deliverable will result in an overall course grade of INC (Incomplete) which reverts to a grade of 32 if the deliverable is not completed within 4 months of the end of the course.

Grading Policy

This course is evaluated considering five main elements, four quizzes, one project, one case study, class participation and the Co-op Fundamentals assignments. The final grade is evaluated considering the marks in your Project average, Quizzes average, Case Study grade, class participation, and Co-op Fundamentals grade.

Every time you participate in the classroom using your i-clicker you receive one point, if your response is correct, you receive an additional point. At the end of the term will be calculated your participation percentage p. In case you decide no participate using i-clickers, the 4% corresponding to class participation will be added to quizzes weight.

$$Participation\ weight = \begin{cases} 4 & if\ p \geq 60\% \\ 0 & if\ p < 60\% \end{cases}$$

$$Project\ Average = \frac{10}{40} \times Functionality + \frac{5}{40} \times Creativity \frac{25}{40} \times Final\ Report$$

$$Quizzes\ average = \begin{cases} \frac{12.5}{50} \sum_{i=1}^{4} l_i & if\ p \geq 60\% \\ \frac{13.5}{54} \sum_{i=1}^{4} l_i & if\ p < 60\% \end{cases}$$

$$Project\ weight = \begin{cases} 40 & if\ Quizzes\ average \geq 60 \\ (Quizzes\ average - 40) * 2 & if\ 40 \leq Quizzes\ average < 60 \\ 0 & if\ Quizzes\ average < 40 \end{cases}$$

$$Quizzes\ weight = \begin{cases} 90 - Project\ weight & if\ p \geq 60\% \\ 94 - Project\ weight & if\ p < 60\% \end{cases}$$

$$\begin{aligned} Final\ grade = {} & \frac{Project\ weight}{100} \times Project\ average + \frac{Quizzes\ weight}{100} \times Quizzes\ average \\ & + participation\ weight + \frac{2}{100} \times Case\ Study\ grade \\ & + \frac{4}{100} Co\text{-}op\ Fundamentals\ grade \end{aligned}$$

Students must complete their training on the Workplace Hazardous Materials Information System (WHMIS) other case a grade of INC will be assigned.

The instructor reserves the right to use variations of this scale in special circumstances.

No Extra Credits

There is **NO** extra credit work and there is **NO** opportunity for makeup assignments or examinations under any circumstances.

Examination Policy

There will be four written quizzes in this course. They will be held on October 4, October 25, November 8 and November 29 at the beginning of the lab sessions. All quizzes are closed-book., only standard no programmable calculators without long-term memory, which cannot store text, are allowed. During the quizzes, the proctors will not answer questions to be fair with all the students. Failure in writing two or more Quizzes will result on a DWE grade.

Refer to the Examination Regulations and Related Matters website for additional information:

http://www.registrar.uwaterloo.ca/exams/ExamRegs.pdf

Collaboration

For the laboratories work all team members should collaborate in the development of the lab studies. No sharing codes among teams is allowed, however, you can discuss (without writing) a section of code or the approach to solve a problem. You can discuss a solution in the abstract. You can help others to debug sections of their code but you must not copy or modify previous or this year submissions. **Plagiarism will not be tolerated.** Any inappropriate use of others intellectual property will be graded with **zero** and reported for further investigation. In case of doubt about what is and is not allowed you should ask the course instructor, academic advisor, or the undergraduate Associate Dean. You can benefit by reading this tutorial on Academic integrity at: http://www.lib.uwaterloo.ca/ait/

Plagiarism Detection Software

"Plagiarism detection software (Turnitin) will be used to screen assignments in this course. This is being done to verify that use of all materials and sources in assignments is documented. Students will be given an option if they do not want to have their assignment screened by Turnitin. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin in this course".

The case study report, project source code and final design report will be screen with Plagiarism detection software (Turnitin). In case your team opt for not having their assignment screened by Turnitin, your team must write a formal letter to the course instructor explaining the team reasons and asking your assignments to be screened manually.

Attendance Policy

Although, course attendance is not graded in SE 101, class participation is grade with 5% marks. You should contact a physician, if you are ill or don't feel well. In case you miss an assignment or examination deadline because of health issues, a physician must complete the UW Verification of Illness Form during your medical appointment. This form should be presented at your department undergraduate office for verification.

If you anticipate you will miss an assignment or examination deadline for non-medical reasons, please contact the course instructor as soon as possible. Notifying the instructor in advance, could help to find alternative arrangements. Alternative arrangements are at the instructor discretion.

http://www.healthservices.uwaterloo.ca/Health_Services/verification.html

Disability Access Statement

The Office for Persons with Disabilities (OPD) looks for equitable opportunities for persons with disabilities. It is located in Needles Hall building, room 1132. It provides information, academic accommodations and support services to ensure that persons with disabilities have access to a comprehensive array of services both on campus and in the surrounding community. If you require the OPD services, please contact them at the beginning of the term.

http://www.studentservices.uwaterloo.ca/disabilities/

Telephone of the OPD reception: 519-888-4567 x35082

UW Policies

As member of the University of Waterloo community, it's important that you know the University policies, procedures and guidelines. Academic integrity will be enforced, please review the following policies links that explain some of your rights and duties:

Student Petitions and Grievances:	http://secretariat.uwaterloo.ca/Policies/policy70.htm
Student Discipline:	http://secretariat.uwaterloo.ca/Policies/policy71.htm
Student Appeals:	http://secretariat.uwaterloo.ca/Policies/policy72.htm