CAPILANO UNIVERSITY COURSE OUTLINE	
Term: **Fall 2014**	Course No. **COMP 106**
Course: **PROGRAMMING WITH ROBOTS**	Credits: **4.0** Section:
Office: Tel: email:	

COURSE FORMAT: Three hours of class time, two lab hours plus an additional hour of supplemental activity delivered through on-line or other activities for a 15 week semester, which includes two weeks for final exams.

PREREQUISITES: Applications of Math or Foundations of Math 11or Principles of Math 11 or Pre-calculus 11 or BMTH 044 or BMTH 048 or Math Placement Test (MPT).

COURSE OBJECTIVES:

General: To introduce students, with little or no previous computer experience, to the basic concepts of hardware, software, and computer programming using Lego Mindstorm robots as a teaching tool. In addition to fundamental programming concepts, students will also be exposed to different topics in Computer Science, including robotics, hardware, operating systems, communication, and social issues.

Instructional: Upon successful completion of the course, the student will be able to:

- understand the relationship between hardware and software;
- write programs (in NXT as well as NXC code) to control the Lego Mindstorm robots with motors and sensors;
- understand the foundations of computer programming, including algorithms, variables, loops, etc;
- exhibit problem-solving skills by developing algorithms and implementing them in multiple programming environments; and
- exhibit an understanding of the following topics in Computer Science:
    - Robotics
    - Computer hardware
    - Operating system
    - Communication
    - Social and ethical issues

REQUIRED COURSE MATERIALS:

Equipment: A home PC (Windows based) for each workgroup (3 students maximum).

Materials: Secondary storage devices to transfer files between home and University.

COURSE CONTENT: The following topics will be covered in the course (not necessarily in the listed order):

Weeks	Topics
2	Introduction to computer hardware and software, programming languages
2	Problem solving and algorithms
2	Lego Mindstorm programming - controlling motors and sensors
2	Variables and control structures
2	Functions, parameters and scope
1	Operating system, multitasking, resource allocation
1	Social and ethical issues
1	Review and Testing
2	Exam Period

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Assignments/Tutorials	30%
Term Tests	30%
Final Exam	35%
Performance Evaluation	5%
TOTAL	100%

PERFORMANCE EVALUATION:

In the absence of exceptional circumstances, which are at the instructor's discretion, the performance evaluation component of the final grade will be pro-rated to the rest of the grade using the profile above. The most common circumstance justifying an increased performance evaluation mark is an improved performance in the final examination relative to the tests during the term, which the instructor feels justifies an elevated grade.

SUPPLEMENTAL 4TH HOUR ACTIVITY:

Supplemental activity might be a scheduled tutorial, an on-line activity, a group meeting, or some other activity as indicated by your instructor.

GRADING PROFILE: Letter grades will be assigned according to the following guidelines:

A+ 90 - 100%	B+ 77 - 79%	C+ 67 - 69%	D 50 - 59%
A 85 - 89%	B 73 - 76%	C 63 - 66%	F 0 - 49%
A- 80 - 84%	B- 70 - 72%	C- 60 - 62%	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

OPERATIONAL DETAILS:

University Policies: Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other education issues. These and other policies are available on the University website.

Attendance: Attendance at lectures, labs and tutorials is expected. You are responsible for all information given in the lectures, labs and tutorials, including the times of tests and deadlines for assignments.

Computer Access: Drop-in access to the University computers is available during the hours posted outside each lab, subject to computer availability. Please respect the instructor's directions if asked to leave the lab due to a class booking. The University's Student Conduct Policy and Misuse of Computer System Policy provided on the University website will be strictly enforced.

Assignment Marks: Assignments may have different weights. Late assignments will be penalized 10% if submitted late on the due date, then 20% for each succeeding day until solutions are available, and will not be accepted thereafter.

Missed Exams: Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In some exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks.

The situations in which a score of zero may be avoided are those for which the student meets **all** of the following conditions:

1. Circumstances clearly beyond the control of the student caused the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. They do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.

2. The student has notified the instructor (or the Pure and Applied Science office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc.

Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, lab, etc.

3. Proof of the circumstances is provided. Proper proof of illness or injury requires a medical certificate from a doctor, who may also be consulted.

4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. **Fully participating means attending almost all of the classes and turning in almost all assignments in the course.**

The options offered to the student who meets the four conditions are decided by the instructor. They will not necessarily meet the convenience of the student.

Final Exam Period: Students should note that the final exam period is from _____, and that they can expect to write exams at any time during this period. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

Cheating/Plagiarism: Students caught cheating on a test will normally receive a grade of "F" for the course and may be expelled from the University. Plagiarism (including the copying of any part of assignments, laboratory reports and essays) is a serious offence and is a form of cheating.

Incomplete Grades: Incomplete grades ("I") are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare.

Final Letter Grade: All registered students will receive a final letter grade unless they have officially withdrawn (see the University Calendar for the withdrawal date).

English Usage: Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile.   Please refer to the guidelines provided in the Capilano Guide to Writing Assignments (available from the University bookstore).

Emergency Procedures: Please read the emergency procedures posted on the wall of the classroom.