Pace University

The School of Computer Science and Information Systems

## CIS 102Q Problem Solving With LEGO Robotics

**Course Number:** CIS 102Q

**Course Credit:** 3 hrs credit

**Prerequisites:** None

**Course Title**: Problem Solving With LEGO Robotics

**Description:** This course is a basic introduction to building mobile robots. Students will learn how to

design and construct a mobile robot within time, materials and cost constraints. Using project component kits (e.g. LEGO Mindstorm) they will learn how to program the robot and determine how the robot reacts to its environment. Inputs, Outputs, Sensors, loops and simple programming constructs will be covered through the use of robotic-based projects.

**Course Objectives:** After successfully passing this course, the student will be able to:

* Analyze, design and construct robots using Mindstorms NXT-G
* Differentiate between firmware, software, and hardware
* Troubleshoot simple robotic systems
* Demonstrate the use of input sensors and output devices, and the Infrared Transmitter
* Evaluate the broader effects of programming, and engineering
* Identify connections between technology and economics, politics, culture, social structure and other areas

**Grading:**  Quizzes 10%

 Programming Projects 25%

 Midterm Exam 15%

 Service Learning Component 20%

 Final Project 30%

**Projects:**  Students are expected to complete 8-10 programming projects outside of class.

You are free to develop on your home PC, or another computer to which you have access as well as Pace’s computer labs. Programming projects should be completed on time. Late projects are charged 10 points per day. However, to provide some flexibility, each student is given five free late days. These can be spent on any project in any combination. Free days are not transferable and expire at the start of the final exam.

**Attendance:** Pace University’s class attendance policies as described in the college

catalog will be enforced. Absences may be excused for illness of other appropriate cause. Exams missed due to circumstances beyond the student’s control may be made up at a mutually agreeable time and place. Adequate documentation of the cause of an absence may be required.

**Academic Honesty:** In a computer class individual effort is expected. Student misconduct not

only includes cheating on tests, but also extends to copying or collaborating on programming assignments, projects, lab work or research unless otherwise specified by the instructor. Using other people’s accounts to do your work or having others do your work is prohibited. Close proximity in lab does not mean collaboration is permitted. NOTE: Discussing logical solutions to problems is acceptable, exchange or code, pseudocode, designs, or procuring solutions from the Web, other texts, the Internet or other resources on or off campus is not acceptable.

First offense: grade of 0 for all parties involved unless the guilty party can be determined.

Second offense: grade of F in the course.

**Dropping A Course: Last Drop Date –**

Students cannot withdraw after this date with a W (passing) unless the three following criteria are met:

* Extenuating circumstances (clearly outside the student’s control)
* Passing the course at the time of withdrawal
* Does not have excessive absences at the time of withdrawal

**Incomplete Grades:** An Incomplete may be given to a student who has been providentially

hindered from completing work required in a course, provided that:

1. semester attendance requirements have been met;
2. most of the required work has been done;
3. the student is doing passing work; and
4. the student has made prior arrangements with the professor to complete the remaining work at a later date.

The grade of I must be removed promptly or it becomes an F; it cannot be removed by repeating the course.

**Special**  If you need special accommodations due to learning, physical,

**Accommodations:** psychological, or other disabilities, please contact the Counseling and Career Development Center.