CSCI-1130: Hands-On Programming for Beginners
(Fall, 2008: 1:25pmW/F)

Description (Theme: Mechanics and Behaviors)
A hands-on introduction to computers and computer programming using the LEGO MindStorms System. Programming language concepts are introduced using languages that control a small mobile robot.

Instructor: Don Potter
Office: GSRC-113 (enter through 111), Phone: 542-0361, Email: potter@uga.edu
Hours: By Appointment, Drop In, or __(hours to be determined)__
Notes: Be sure to leave a note/voice-mail/email if I'm not in. If you stop by and the door to 111 is locked, it is possible that I am in the office. Ring the doorbell and wait several seconds.

Text/Robot (required):
1) *LEGO MindStorms NXT*

References:
1) *Robotic Explorations: A Hands-On Introduction to Engineering*, by Martin
2) *Mobile Robots: A Practical Introduction*, by Nehmzow
3) Current literature, texts, and plus items on reserve in the Science Library

What you need to bring to class:
LEGO MindStorms – NXT
Your Laptop (Windows preferred)

Grading:

Assignments	45%	Lab reports/behaviors
Participation	15%	Group discussion involvement
Midterm Exam	15%	around Oct 9th
Final Exam	25%	Thursday Dec 13th: 8am

Policies:
- All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. Be sure you are familiar with the departmental policy as well (see attached or visit: http://www.cs.uga.edu/~potter/ArtIntell/AcademicHonesty.htm.
- No make-up exams are given.
- Attendance is required.

NOTE: The course syllabus is a general plan for the course; deviations announced in class by the instructor may be necessary.

COURSE NOTES / EXPECTED LEARNING OUTCOMES

Students completing *Hands-On Programming for Beginners* will be exposed to a number of lecture topics as well as many practical topics. The course will consist of lectures and lab-style activities. Students will be graded on the standard A to F grading scale, and will provide end of course evaluations of the instruction and course content following established Computer Science Department course evaluation procedures.

Note that the course may be managed using a team approach where teams of 2 to 4 students work with one LEGO MindStorms Kit. Decisions of this type will be made based on student input, background experiences, and technical proficiency.

Students will be expected to purchase their own LEGO MindStorms Kits and to use them throughout the course. Students are also expected to bring to class their own laptop to use while programming their robots. There may be several available departmental laptops for student use in special circumstances.

This is an introduction to programming class, not a robotics class. It turns out that the LEGO kits provide a very engaging environment for teaching programming methodology, getting immediate feedback, and sparking interest in computing that might otherwise go untapped. Students will not (nor should they expect to) be professional quality programmers when they finish the class but they will at least have some idea of what it takes to make computers do things we want them to do.

TOPICAL OUTLINE

(Each major topic item is covered at a comprehensive rate. However, due to the dynamic nature of the in-class activities, it is very likely that there will be substantial variation from this schedule.)

Robotics and Problem Solving
Software, Firmware, and Hardware
Solution Design
Languages to Control Machines
Simple Robot Construction
Simple Robot Control
Sensors and Motors
Using the Block Language
Sequences, Loops, and Conditions
Variables and Constants
Reading Sensor Input
Controlling Motor Output
Simple and Compound Modules
Development Environment Settings
NQC

Computer Science Departmental Policy Statement: Academic Honesty

The Computer Science Department recognizes honesty and integrity as necessary to the academic function of the University. Therefore all students are reminded that the CS faculty requires compliance with the conduct regulations found in the University of Georgia Student Handbook. Academic honesty means that any work you submit is your own work.

Common forms of academic dishonesty against which students should guard are:

1. Copying from another student's test paper or laboratory report, or allowing another student to copy from you;
2. Fabricating data (computer, statistical) for an assignment;
3. Helping another student to write a laboratory report or computer software code that the student will present as his own work, or accepting such help and presenting the work as your own;
4. Turning in material from a public source such as a book or the Internet as your own work.

Three steps to help prevent academic dishonesty are:

1. Familiarize yourself with the regulations.
2. If you have any doubt about what constitutes academic dishonesty, ask your instructor or a staff member at the Office of Judicial Programs.
3. Refuse to assist students who want to cheat.

All faculty, staff and students are encouraged to report all suspected cases of academic dishonesty. All cases of suspected academic dishonesty (cheating) will be referred to the Office of Judicial Programs. Penalties imposed by the Office of Judicial Programs may include a failing grade in the course and a notation on the student's transcript. Repeated violations are punishable by expulsion from the University. For further information please refer to the UGA Code of Conduct, available at the URL below.

http://www.uga.edu/judicialprograms/2006-07%20Code%20of%20Conduct.pdf

Revised 8/2006