Robotics 10 Course Outline
W.H. Croxford High School
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By the end of this course you will build and program a simple wheeled robot using microcontrollers, motors and sensors. But, it will take a lot of work (and fun) to get there! As we are building the robots almost from scratch, we first need to learn some fundamentals of electronics, sensors, computer programing, and robotics theory. When you eventually build your robot, you will use an Arduino microprocessor as the brain of your robot, wire it to motors and sensors, and use C as the programming language. The programming and electronics learned in this course also teach the introductory skills and concepts to create a very large range of applications such as video game programming, creating interactive art installations, building electronic musical instruments or automating your house.

The course is taught through hands-on projects, online interactive activities, and some direct notes.

The modules we will be working on in this course are:
- CSE1110: STRUCTURED PROGRAMMING 1
- ELT1010: ELECTRO-ASSEMBLY 1
- ELT1030: CONVERSION & DISTRIBUTION
- CSE1240: ROBOTICS PROGRAMMING 1
- ELT1130: ROBOTICS 1
- CSE1910: CSE PROJECT A

Most assignments and projects in this course will cover parts of two or three of these modules.

Module Descriptions:

CSE1110: STRUCTURED PROGRAMMING 1
Students are introduced to a general programming environment in which they write simple structured algorithms and programs that input, process and output data, use some of the more basic operators and data types, and follow a sequential flow of control.
Prerequisite: None

ELT1010: ELECTRO-ASSEMBLY 1
Students apply basic fabricating and servicing techniques to construct and test electronic and electromagnetic devices and cables.
Prerequisite: None

ELT1030: CONVERSION & DISTRIBUTION
Description: Students experiment and work with principles of electrical energy conversion and distribution.
Prerequisite: None

CSE1240: ROBOTICS PROGRAMMING 1
Students use an appropriate Robot Control Language (RCL) to design, develop, implement and debug robotics programs that employ standard structured programming constructs and simple data structures. In the process, they develop a general understanding of robots and the robotics environment.
Prerequisite: CSE1110: Structured Programming 1

ELT1130: ROBOTICS 1
Students apply the fundamentals of robotics systems and basic robotics functions.
Prerequisite: None

CSE1910: CSE PROJECT A
Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.
Prerequisite: None