



# GEARBOTS Robotics Engineering Program

Yale Secondary School, 34620 Old Yale Road, Abbotsford, BC, V2S 7S6  
(t) 604.853.0778 (f) 604.854.3754 (e) info@gearbots.org (w) gearbots.org

## Course (non-credit) Offerings for the 2011/12 School Year:

**GEARBOTS** provides a number of opportunities that promotes STEM education (science, technology, engineering and math) for students ages 9-14+. Visit [www.gearbots.org](http://www.gearbots.org) or check out the latest Abbotsford Recreation Guide to see when the courses are offered.

### NXT 100 - Introduction to Robotics

**Duration:** 6 classes (3:30pm-5pm) = 9 hours **Prerequisite:** None **Age:** 9-14 coeducation **Cost:** \$65.00

**When offered:** October 2011: 4, 6, 11, 13, 18, 20

January 2012: 10, 12, 17, 19, 24, 26

Using the NXT Mindstorms robotics platform, students will be introduced to the basic engineering and programming options needed to complete a number of engineering challenges. Students will learn how to program a robotic device with the following concepts: servo motors, measured distance, degree turns, thresholds, switches, if-then statements, and light sensor.

### NXT 140 - GEARBOTS Engineering Challenge - Open Lab Practice Time

**Duration:** 3 classes (3:30pm-4:30pm) = 3 hours **Prerequisite:** NXT 100 **Age:** 9-14+ coeducation **Cost:** \$25.00

**When offered:** April 2012: 3, 5, 10

**NOTE:** This session is only for students/teams participating in the Skills Canada challenge. Email [info@gearbots.org](mailto:info@gearbots.org) to learn more. This open lab session is for teams participating in the annual BC Skills Canada hosted by GearBots Educational Resources. Teams will get a basic overview of the skills needed to compete in the themed challenge. Rules, procedures and expectations of the event will be discussed.

### NXT 150 - Advanced Engineering Designs - Free Building Projects

**Duration:** 6 classes (3:30pm-5pm) = 9 hours **Prerequisite:** NXT 100 **Age:** 9-14 coeducation **Cost:** \$65.00

**When offered:** November 2011: 1, 3, 8, 10, 15, 17

Using the NXT Mindstorms robotics platform, students will have an opportunity to free build their own robotic device to complete a number of challenges and tasks. Students can either build from their own imagination or use reference materials provided to them.

### NXT 200 - NXT-G Advanced Programming Design

**Duration:** 8 classes (3:30pm-5pm) = 12 hours **Prerequisite:** NXT 100 **Age:** 10-14+ coeducation **Cost:** \$85.00

**When offered:** February 2012: 7, 9, 14, 16, 21, 23, 28, March 1

Using the NXT Mindstorms robotics platform, students will learn advanced programming features of the NXT-G computer language e.g. my blocks, data hubs, variables, calculations, logic loops, and additional advanced sensors.

### NXT 400 - Introduction to RobotC / NI LabVIEW Programming

**Duration:** 8 classes (3:30pm-5pm) = 12 hours **Prerequisite:** NXT 200 **Age:** 11-14+ coeducation **Cost:** \$85.00

**When offered:** May 2012: 1, 3, 8, 10, 15, 17, 22, 24

Using the NXT Mindstorms robotics platform, students will learn how to use a programming language used at university and in industry (RobotC designed by Carnegie Mellon University and National Instrument's LabVIEW programming language). This course contains a lot of theory and requires a high level of focus and attention to details. Only the very motivated / proficient student should attend this session.

### NXT Summer Camp 2012 (combined NXT 100 and 150 courses)

**Duration:** 15 hours (includes camp T-shirt, camp certificate and cool prizes) **Prerequisite:** None **Age:** 9-14 coeducation **Cost:** \$130.00

**When offered:** July 2012: 9-13 from 9:00am to 12pm

August 2012: 20-24 from 9:00am to 12pm

Each year, a specific theme (SMART City Challenge) is designed for the summer camp. Participants will use the NXT Mindstorms robotics platform and be introduced to the basic engineering and programming options needed to complete a number of engineering challenges. Students will learn how to program a robotic device with the following concepts: servo motors, measured distance, degree turns, thresholds, switches, if-then statements, and light sensor. Students will participate in a friendly challenge that involves completing a number of missions within a set time limit.

## SPECIAL THANKS TO THE FOLLOWING SPONSORS:



SCHOOL OF ENERGY

