

PROFESSIONAL DEVELOPMENT OPPORTUNITY

Using Robotics To Enhance The Curriculum

Educating Students "Outside The Box"

Overview:

Robotics is a fun, highly engaging platform that fosters the core skills required for successful life long learning in the 21st century. Robotics reinforces the core skills found in our standard math, applied science and technology curriculum while teaching leadership, teamwork, time management, and organizational and design skills.

Students learn how to engineer complex mechanical devices while simultaneously learning how to program a robot to complete a number of tasks and challenges. Working together in engineering teams, students solve tasks and challenges, and then compete against other teams in class or group competitions. Robotics can be easily tailored to meet the needs of a diverse learning community (girls in science, gifted, First Nations, at risk, and academically motivated students).

Professional Development Opportunities:

Workshop participants will be introduced to the highly acclaimed and popular Lego NXT Mindstorms, and other platforms. See sidebar for more information. Send an email to info@gearbots.org if you are interested in learning more.

About the GEARBOTS Robotics Engineering Program:

Thanks to the generous support from the Mitchell Odyssey Foundation, BCIT's School of Manufacturing, Electronics and Industrial Processes, and Yale Secondary School, the GEARBOTS Engineering Program is able to offer an innovative program that promotes *STEM* education to students ages 9-14+. GEARBOTS currently offers high school courses, non-credit after school courses, and an annual summer camp at Yale Secondary School.

GEARBOTS Robotics Engineering Program "Engineering For The Mind"



WORKSHOPS:

OPTION A:

Title: Introduction to Robotics

Session Length: 1.5 hours

Topics: General overview of robotics, theory behind the initiative, philosophical approach used, appropriate learning / teaching style to use, platform options, sample curriculum to implement, possible suppliers, setting up a lab and other logistics, creation of competitions / challenges for assessment, and possible funding options.

OPTION B:

Title: Introduction to Programming in NXT-G Language

Session Length: 5 hours

Prerequisite: Completion of **Option A**

Topics: Basic overview of engineering and programming in NXT environment: motor blocks (measured distance and degree turns), sensor blocks (calculating thresholds), and completion of an introduction challenge.

OPTION C:

Title: How to make your robotics program sustainable

Session Length: 5 hours

Prerequisite: Completion of **Options A and B**

Topic: This session will deal with the logistical aspects of making your robotics program sustainable. Topics include: leveraging resources and funding and how to set up a school based or district challenge.

OPTION D:

Title: Advanced Programming in NXT-G Language

Session Length: 5 hours

Prerequisite: Completion of **Options A and B**

Topics: making logic blocks, math blocks, condition statements, variables, multiple tasks, cascading switches, my blocks, and data hubs.

OPTION E:

Title: Introduction to Science and Data Logging

Session Length: 5 hours

Prerequisite: Completion of **Option A and B**

Topic: How to use the NXT platform to support inquiry-based activities for teaching science concepts such as motion, heat, sound, light and colour.

Special Thanks To Our Program Sponsors



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For More Information:

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