



## SABIS® Robotics 3 (levels I – K)

**Time needed:  
2 sessions /week**

### COURSE DESCRIPTION:

- The SABIS® Robotics curriculum teaches students core computer programming logic and reasoning skills through a robotics-engineering context.
- The SABIS® Robotics 3 course is comprised of two chapters (Chapter 6: *The ArmBot* and Chapter 7: *Omni Directional Robots*).
  - According to the pacing chart, each chapter is broken down into units that teach key robotics and programming concepts.
- Within the course, there are semi-open-ended mini-challenges that ask students to use the skills they have just learned to solve a relevant small portion of the final unit challenge.
  - Each unit challenge is based on the original robot’s problem, for students to solve as an exercise and demonstration of their mastery of the concept.
- The total time to cover Robotics 4 is 10 weeks. There are 2 sessions per week, each lasting 90 minutes.

### COURSE PRE-REQUISITES:

- The successful completion of SABIS® Robotics 2 course.

### COURSE OBJECTIVES:

Upon completion of the course, students will:

- learn the basic and intermediate concepts of programming from commands and sequences to loops and decision making structures.
- be exposed to engineering practices through building solutions to real world problems, implementing problem solving strategies, and being efficient in a teamwork environment.

### HARDWARE:

- The VEX IQ robotics kit includes all the necessary robot hardware and building instructions.
  - It is recommended that every kit be used by a group of 2 or 3 students.
- Each kit can be used to build four different types of robots, each with specific functionalities. Hence, the same robotic kit(s) may be used for SABIS® Robotics 1, 2, and 3 courses.
- 1 PC is needed for every VEX IQ kit, where every group of 2 or 3 students are working together.
  - PC compatibility: Windows 7 and Later.

### SOFTWARE:

- RobotC, free with the purchase of the VEXIQ robotic kits.
- Web service robotics programming is available when programming “Virtual Robot”. This is provided with the VEX IQ curriculum license, upon the purchase of VEX IQ robotic kits.



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**RESOURCES:**

- The SABIS® Robotics 3 curriculum package includes a pacing chart, tutorial videos and animations, step-by-step lessons designed to help students learn behavior-based programming, and corresponding Interactive White Board (IWB) flipcharts/presentations.
  - In addition, assignments include quizzes, mini-challenges and challenges at the end of every unit and module.
  - All lessons are self-contained and include many built-in opportunities to self-assess progress.

**DELIVERY OPTION:**

- Recommended as an After School Club, taught in a lab-like environment.
- Videos and Interactive Whiteboard (IWB) flipcharts will be the main instructional materials, available within the SABIS® Robotics 3 curriculum.

**CLASSROOM REQUIREMENTS:**

- Spacious tables/desks arranged for students (in groups of 2 or 3) to build their robots.
- A computer for every group of students to program and test their robots.
- An Interactive Whiteboard for teaching the course using the available IWB flipcharts.