**Robotics 20 - Course Outline**

**Ms. Hill**

 Welcome to Robotics! This is an exciting new curriculum where you will be given the opportunity to make and program robots to perform a variety of tasks. The course has been designed to allow for students to work along at their own pace. There is a set minimum that students will be to complete in order to receive a credit but there is also a lot of opportunities to create your own learning experiences. The course is ever changing and will remain dynamic in order to meet the learning needs of each individual student. The semester will be broken up into manageable modules. Each module will have different resources that students will use to achieve the expected outcomes. The first few modules have video tutorials and step by step instructions. Later modules will utilize your textbook as well as additional resources.

 There are check points set up within each module where the student will need to get the okay from the teacher in order to move on to the next module. There is also a small online quiz that accompanies the end of each module, you must acquire a grade of 100% before you can move on. Each student will be given a container where they will be keep all of the robotics materials. This container will not leave the room- EVER.

# Purpose and Areas of Focus for Robotics

The purpose of the robotics curriculum is to have students construct knowledge and acquire skills used in the robotics industry and to become familiar with careers in robotics. Areas of focus identify the key components of what students are expected to know, understand, and be able to do upon completion of the learning in the robotics curriculum. Areas of Focus for robotics are:

* develop understandings and skills using tools and equipment necessary in robotics
* provide experiences and information regarding possible career pathways including post-secondary education and training, in the robotics industry
* develop communication skills and apply mathematical understanding used in the robotics
* develop the responsibility, understanding, and skills needed to work safely in the school setting and work environment
* develop and apply problem solving strategies to a variety of challenges in robotics.

**Resources:**

* Parallax Inc. - What’s a Microcontroller?
* Parallax Inc. – Robotics with the Boe-Bot
* Parallax Inc. – Basic Stamp Syntax and Reference Manual
* Robotics kits

**Evaluation**

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| --- | --- |
| **Type** | **Weighting** |
| Labs/ Projects | 60 % |
| Module Tests | 20 % |
| Final Activity | 20 % |

# Module Overview Chart

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| **Module Code** | **Modules** | **Suggested Time (hrs)** |
| ROBO 01 | Module 1: Lights On – Lights Off(Core) | 4-5  |
| ROBO 02 | Module 2: Digital Input - Pushbuttons(Core) | 4-5  |
| ROBO 03 | Module 3: Controlling Motion(Core) | 5-6  |
| ROBO 09 | Module 9: Your Boe-Bot’s Servo Motors(Core) | 9-10 |
| ROBO 10 | Module 10: Assemble at Test Your Boe-Bot(Core) | 6-7 |
| ROBO 11 | Module 11: Boe-Bot Navigation(Core) | 9-10 |
| ROBO 12 | Module 12: Tactile Navigation with Whiskers(Core) | 5-6 |
| ROBO 13 | Module 13: Navigating with Infrared Headlights(Core) | 9-10 |
| ROBO 15 | Module 15: Robot Challenges (Optional) | 5-50 |

\*Please note that this course is a work in progress and parts of the course may change as any point within the semester in order to accommodate needs to students. You will be informed of any possible changes and the class will make any decisions as a whole.