

## **I. PART I**

### **1. Safety**

Class Rules

### **2. What is a robot?**

The first week of class covers classroom organization and an overview of what students will learn in your class. A key concept that students should have when they leave this course is: “What a robot?”. In today’s world, robots are everywhere, we just don’t call them robots. . Have the students identify as many technologies that fit that description as possible and sort them into industry sectors (i.e. banking, manufacturing, entertainment, healthcare...). Have students select an industry sector and answer the following question: How has robotics affected that industry sector? Or assign them the general topic: What is a robot?

First Assignment - “What is a robot?”

### **3. Goal**

Game 10 point

- Soccer match
- Bottle relay
- Option: Challenge –to be able to complete maze without using remote control

( Work at home)

Team work: 5 point

Creative: 5 point - Build or create what ever you want

Presentation: 5 point -

### **4. Team divided**

### **5. Introduction programmer and machine**

Programmer and Machine - an instructional video that introduces the new programmer to how they need to think to translate their ideas into a language that a machine can understand

Video below for understand the relationship machine & programmer.

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/1-1IntroductiontoProgramming1.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/1-1IntroductiontoProgramming1.html)

## **6.-Robot Building Instructions**

- Clawbot build instruction:

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/media\\_files/clawbot\\_base.pdf](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/media_files/clawbot_base.pdf)

- How to setup and configure VEX Cortex wireless communications
- How to configure a wired system

## **II> PART 2:**

### 1. Basic rules on how to think about programming and syntax

#### 1. Planning and Behaviors

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/1-1IntroductiontoProgramming2.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/1-1IntroductiontoProgramming2.html)

#### 2. RobotC rules Part 1

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/1-1IntroductiontoProgramming3.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/1-1IntroductiontoProgramming3.html)

#### 3. RobotC Rules Part 2

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/1-1IntroductiontoProgramming4.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/1-1IntroductiontoProgramming4.html)

2. How to download a sample program
3. How to use Robot Virtual Worlds
4. How to program the VEXnet Joystick

## **III.PART 3**

Challenge or Advance:

- 1> Pseudo code and flowchart

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/media\\_files/hp\\_pseudo\\_flow.pdf](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/media_files/hp_pseudo_flow.pdf)

- 2>Program Movement

### Moving Forward

a. Program Dissection

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-2MovingForward1.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-2MovingForward1.html)

b. Reversing Motor Polarity

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-2MovingForward2.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-2MovingForward2.html)

c. Renaming Motors

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-2MovingForward3.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-2MovingForward3.html)

d. Timing

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-2MovingForward4.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-2MovingForward4.html)

### Speed and Direction

a. Motor Power Levels

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-3SpeedandDirection1.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-3SpeedandDirection1.html)

b. Turn and Reverse

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-3SpeedandDirection2.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-3SpeedandDirection2.html)

c. Manual Straightening

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/3-3SpeedandDirection3.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/3-3SpeedandDirection3.html)

## **Robotic merit badge**

<http://www.boyscouttrail.com/boy-scouts/meritbadges/robotics-merit-badge.asp>

<http://learn.cs2n.org/course/view.php?id=30>

Robotic work book

<http://usscouts.org/mb/worksheets/Robotics.pdf>

Work at home using virtual world

<http://cs2n.org/activities/courses/robot-virtual-worlds-boy-scout-robotics-merit-badge>

How to down load virtual world:

<http://learn.cs2n.org/mod/page/view.php?id=2077>

Note: The free version or ROBOTC Robot Virtual Worlds is free for 60 , days. You can purchase an annual license of the Robot Virtual World software \$19, this is a \$30 savings using this promotional code: **RVWFALL11**

- o **Go to <http://www.robotc.net/purchase/rvw/> and select single license. Select the "add the promo code" and type in RVWFALL11.**

[http://www.education.rec.ri.cmu.edu/products/cortex\\_video\\_trainer/lesson/index\\_fundamentals.html](http://www.education.rec.ri.cmu.edu/products/cortex_video_trainer/lesson/index_fundamentals.html)

[file:///C:/Users/thuyd/Documents/ROBOTIC/teacher\\_guide.pdf](file:///C:/Users/thuyd/Documents/ROBOTIC/teacher_guide.pdf)