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Grand Blanc High School Robotics Team 2015 Programming Deliverable Beginning-Level Autonomous Programming Challenge



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Mentors to ask if you have questions about this Challenge: Clinton Bolinger, Sean Lynch and Robin Barrie

IMPORTANT NOTE: if you will be completing this task in the lunchroom, Team Members are required to sit so ALL laptop screens are visible from the lunchroom entrance.

Gather the following Materials:

- Team Programming laptop with RobotC installed (with charger)

Challenge Instructions:

You will be using one of the Team's computers to complete this Challenge. We do not have enough licenses for Team Members to install our software on their computer(s).

1. Open RobotC Robot Virtual Worlds-VEX 4.x (make sure you don't use the graphical version)
2. Click on "Open File"
3. Navigate to "C:\Program Files (x86)\Robomatter Inc\ROBOTC Development Environment 4.x\Sample Programs\VEX2\Templates"
4. Open Vex_Competition_Template_2337_2015 and save a copy of your program on the team server in your folder as follows:
 1. Click on File -> Save as
 2. Browse to Z:\Students*"your name"* (create a folder if you don't have one)
 3. Create a new folder inside your folder called "VEX Curriculum"
 4. Open that folder and create another folder inside it called "Programming"
 5. Save your code
5. From "C:\Program Files (x86)\Robomatter Inc\ROBOTC Development Environment 4.X\Sample Programs\VEX2\Templates" copy the file "Vex_Competition_Includes_2337" to Z:\Students*"your name"*\VEX Curriculum\Programming.
6. Click on "Download to Robot" to open the Virtual World Curriculum Companion.
7. Log in as guest
8. Select the "ROBOTS" tab and select "VEX Clawbot". This will bring up a window identifying what ports items are *connected* to the virtual cortex.
9. Switch back to the ROBOTC window, select "Robot -> Motors and Sensors Setup" to open the setup window]
10. Using the information on the Curriculum Companion window for the VEX Clawbot, setup the left and right motors using VEX 393 motors.
 1. TIP: use descriptive names and the camelCase naming convention (i.e. leftMotor).
11. Click on OK and then validate that lines 1 & 2 of your program have been updated with motor definitions. NOTE: This is where all your motors and sensors get defined in your code.
12. In the Autonomous section of the template, write code to make the robot:
 1. Move forward at ½ speed for 6 seconds
 2. Move backward at full speed for 2 seconds
 3. Turn clockwise around the robot's center for 3 seconds
 4. Turn counterclockwise around the left set of wheels for 3 seconds
 5. Tip: You can refer to sample programs for sample code
13. Download code to robot. If any errors (red X's) appear, fix and then re-deploy code
14. Click on the "Remote Control" tab.
15. Select "RoboWriter" to choose the field.
16. Click on Start Activity to open the virtual worlds field.
17. Click on the arrow icon on the left hand side to start your program in the virtual world field.
 1. Tip: For troubleshooting your programming you can update your program in RobotC and click Download code to robot again to reload the code into virtual world.



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2. Tip: The refresh icon under the arrow icon will reset the field and your program.
18. When completed and validated, save your working program in your share folder under \\VEX_Curriculum\Programming as "Vex_Competition_Includes_2337_Beginning_Auton_Complete."

Engineering Notebook Entry Instructions:

Write an entry in your engineering notebook, **USE COMPLETE SENTENCES:**

1. While you are working, detail your observations and document your process
2. Answer the following questions:
 1. What problems or frustrations did you encounter while trying to write and/or deploy your code?
 2. Did you enjoy this programming task? Why or why not?
3. List the functions and commands you utilized to complete this challenge and what they are used to accomplish.

To Complete Your Challenge:

1. Print a copy of your code (use the EngiPRINTER), and add it to your Engineering Notebook entry (scissors and glue sticks are available for use while in the conference room),
2. Ensure that your Engineering Notebook entry is complete, and all required questions have been answered,
3. Open the laptop (or PC) you used to write the code, with RobotC visible and running. Ensure that your code has been deployed and is "working",
4. Ask Clinton, Sean, or Robin to approve your Engineering Notebook entry and have your deliverables checklist validated,
5. Put the laptop, charger, and mouse away in the designated backpack, and return the bag to the appropriate bin in the conference room (if used),
6. Put all of the materials and resources back in the designated bin in the conference room,
7. Leave your workspace cleaner than it was when you found it.