Mr. Holmes
Mechatronics I

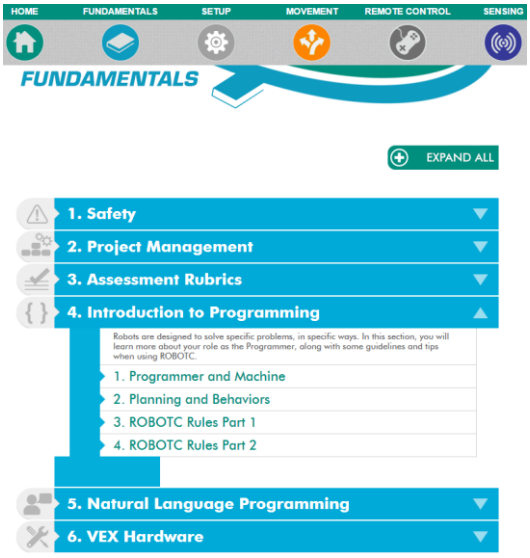
VEX/RobotC Video Trainer Assignments

To view the VEX videos assigned for homework, click on the following link to access the Vex Video Trainer:

http://www.education.rec.ri.cmu.edu/products/teaching_robotc_cortex/

Assignment #1: (Intro to Programming)

In the VEX Video Trainer, select the **FUNDAMENTALS** button on the top of the page and then select **INTRODUCTION TO PROGRAMMING** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day.
E-mail me any questions or concerns.

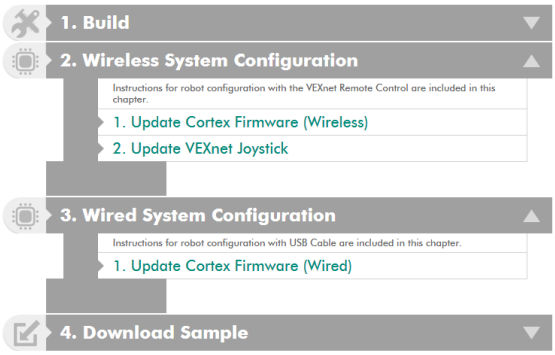


Watch these clips:

- "Programmer and Machine"
- "Planning and Behaviors"
- "RobotC Rules Part 1"
- "RobotC Rules Part 2"

Assignment #2: (Firmware Updates)

In the VEX Video Trainer, select the **SETUP** button on the top of the page and then select **WIRELESS SYSTEM CONFIGURATION** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day.
E-mail me any questions or concerns.



Watch these clips:

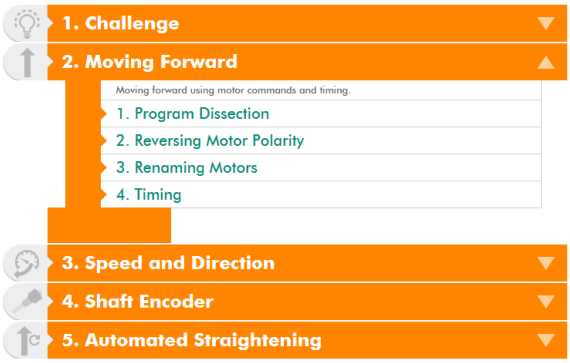
- " Update Cortex Firmware (Wireless)"
- " Update VEXnet Joystick"

Then select **WIRED SYSTEM CONFIGURATION** from the same **SETUP** menu and watch this clip:

- "Update Cortex Firmware (Wired)"

Assignment #3: (Moving Forward w/Time)

In the VEX Video Trainer, select the **MOVEMENT** button on the top of the page and then select **MOVING FORWARD** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day.
E-mail me any questions or concerns.

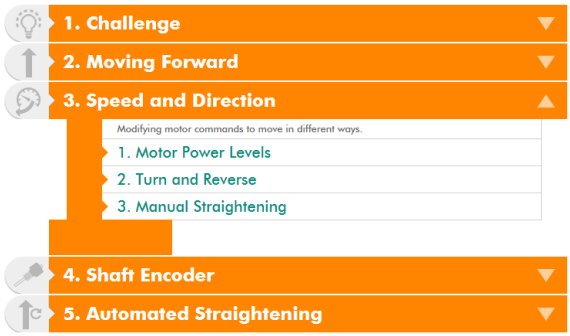


Watch these clips:

- "Program Dissection"
- "Reversing Motor Polarity"
- "Renaming Motors"
- "Timing"

Assignment #4: (Speed Direction)

In the VEX Video Trainer, select the **MOVEMENT** button on the top of the page and then select **SPEED & DIRECTION** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.



Watch these clips:

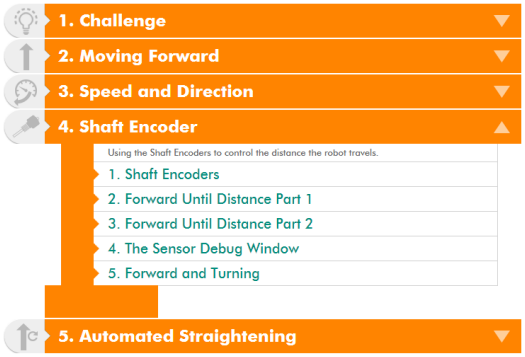
- "Motor Power Levels"
- "Turn and Reverse"
- "Manual Straightening"

Assignment #5: (Shaft Encoders)

In the VEX Video Trainer, select the **MOVEMENT** button on the top of the page and then select **SHAFT ENCODER** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "Shaft Encoders"
- "Forward for Distance Part 1"
- "Forward for Distance Part 2"
- "The Sensor Debug Window"
- "Forward and Turning"

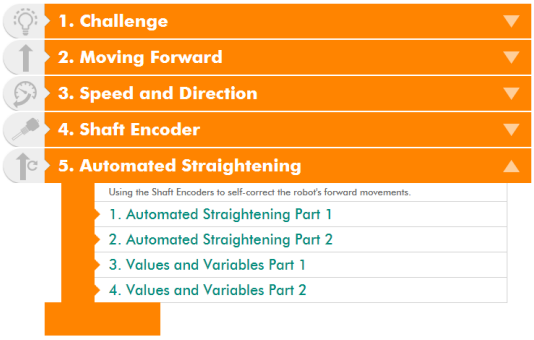


Assignment #6: (Automated Straightening)

In the VEX Video Trainer, select the **MOVEMENT** button on the top of the page and then select **AUTOMATED STRAIGHTENING** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "Automated Straightening Part 1"
- " Automated Straightening Part 2"
- "Values and Variables Part 1"
- "Values and Variables Part 2"

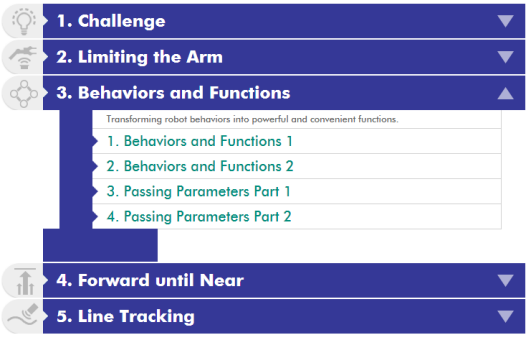


Assignment #7: (Behaviors and Functions)

In the VEX Video Trainer, select the **SENSING** button on the top of the page and then select **BEHAVIORS AND FUNCTIONS** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "Behaviors and Functions 1"
- "Behaviors and Functions 1"
- “Passing Parameters Part 1”
- “Passing Parameters Part 2”

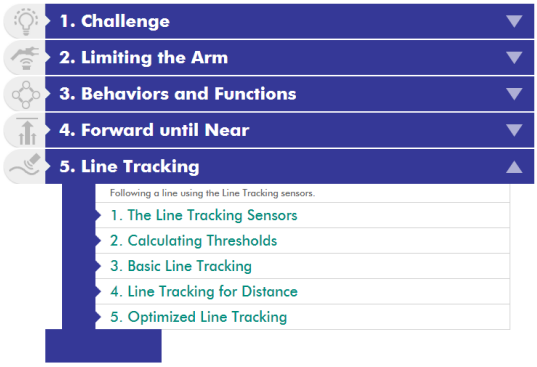


Assignment #8: (Line Tracking)

In the VEX Video Trainer, select the **SENSING** button on the top of the page and then select **LINE TRACKING** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "The Line Tracking Sensors"
- "Calculating Thresholds"
- "Basic Line Tracking"
- "Line Tracking For Distance"
- "Optimized Line Tracking"

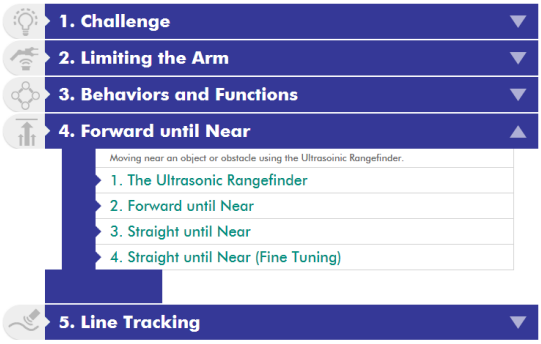


Assignment #9: (Ultrasonic Rangefinder)

In the VEX Video Trainer, select the **SENSING** button on the top of the page and then select **FORWARD UNTIL NEAR** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "The Ultrasonic Rangefinder"
- "Forward Until Near"
- "Straight Until Near"
- "Straight Until Near (Fine Tuning)"

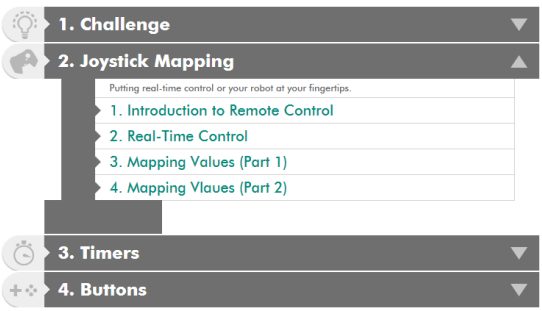


Assignment #10: (Remote Control)

In the VEX Video Trainer, select the **REMOTE CONTROL** button on the top of the page and then select **JOYSTICK MAPPING** from the list on the left. In your Engineering Notebook, take notes on all videos. Be sure to bring these notes to class each day. E-mail me any questions or concerns.

Watch these clips:

- "Introduction to Remote Control"
- "Real-Time Control"
- "Mapping Values (Part 1)"
- "Mapping Values (Part 2)"



Assignment #11: (FINAL EXAM)

The instructions for the Final Exam were distributed in class to each student and should currently be in their Engineering Notebooks. Please keep mind of the due dates for each portion of the Final Exam assignment. Remember, you may choose to either complete the "Technical Report" or the "Presentation Video." Good luck and please let me know if you need help with anything!

Be sure to keep all notes in your ENGINEERING NOTEBOOKS. The notebooks will be checked for video assignments #1 - #7 on or around 5/2/15 and each Friday for the remainder of the school year for daily journal entries. Daily entries are required but may be short and to the point. Simple sketches or a list of what you accomplished that day will suffice. The grades for your Engineering Notebook will count towards 15% of your final course grade.

NEW

We will meet each Wednesday from 4PM - 7PM to catch up on any missing in-class assignments or to work on your final project. Each group that attends will be assigned a member of the WAHS robotics club as a mentor to help guide them through the final project.