Grand Blanc High School Robotics Team

First Year Training - Deliverables
Assemble a VEX Robot Speed Build or HERO Bot

If you run into roadblocks while working on this training:

ALWAYS REMEMBER: If you get stuck or have questions…

a. Try to find an answer within the resources provided to you. Re-Read the Instructions. Re-Watch the videos. Check out the resources posted in this document or in Google Classroom. Check the REC Library & VEX Library.
b. Check the #deliverables-first-year Slack to see if someone else has already asked the question you have
c. Ask a Veteran Student on your (or another) VEX Team BEFORE you approach a Mentor.

For this training, you will be working with YOUR VEX TEAM:

1. IMPORTANT NOTE: Your VEX Team will need to work together over the course of multiple meetings to complete this task. Your ENTIRE TEAM should be WORKING TOGETHER to complete the work for this Deliverable - each person should be a contributing member, even if you choose to divide and conquer this task.
2. If you have not been assigned a VEX Team, or have not been given a VEX V5 brain/controller, please talk to Clinton, and he will get you what you need.
3. All materials for this deliverable MUST BE LEFT AT PREMIER. You may NOT take Team-owned materials home without permission from Brandi, Clinton or Cathy.

Before Beginning This Training:

1. Read these instructions COMPLETELY - start to finish - before beginning work.
2. You'll be taking notes in your **DIGITAL NOTEBOOK** while you are working, so have your document out and ready:
    1. Each person on your Team must complete their own, individual Engineering Notebook Entry. You MAY NOT just write one entry and copy/paste it for each person. We WILL be checking for plagiarism.
    2. You may choose to utilize the template available in VEX's Notebooking Library Article or create your own.
    3. If you are creating your own Engineering Notebook template, use this naming format: FIRST NAME LAST NAME - YEAR - NAME OF THIS DELIVERABLE
    4. As you work, jot down anything that you think might be important, helpful, or interesting to you.
    5. You will also need to take photos or videos to document your assembly, and include them in your notebook.
    6. There are several questions listed below the build instructions. Be sure to answer those after you're done building.
3. You'll need to do a PEER REVIEW before you submit your Digital Engineering Notebook:
    1. Any Veteran Student (someone who has completed a year of FRC) can do your peer review
    2. Once your entry is complete, ask a Veteran Student to take a look at your responses and documentation, and request some feedback from them.

First Year Training - Deliverables
Assemble a VEX Robot Speed Build or HERO Bot

4. There are THREE Build options for this Deliverable, you may choose which one you'd like to build:
    1. Speed Bot - a simple build without an intake or game piece manipulator. Best for beginning builders, or Students who don't really enjoy the mechanical building aspect of Robotics. Upper structures can be designed and added to this later.
    2. HERO Bot - a more advanced version of the speed bot that includes an upper structure and game piece manipulator. Good for Teams that are new to the build, and want some help with design ideas.
    3. Free Build/Hybrid - Use some combination of the above builds, along with your own creativity and design

Set Up and Background Information for this Training:

1. You will need a large, flat, clean surface, such as a table or workbench, to complete this training
    a. NOTE: There are a lot of small pieces and fasteners, please keep them together and accounted for.
    b. We recommend using a tray or bowl to hold components between steps.
2. You will need a storage solution:
    a. Ask a Mentor or Veteran Student to help find you a tote/bin for your robot and pieces while you're building.
    b. Dedicate a place in the BACK ROOM to store your tote and materials between meetings, where everyone on your Team can access it, and knows the location

OPTION ONE - **Speed Bot Build**:

1. Bring up the SPEED BOT BUILD INSTRUCTIONS on an internet-connected device: https://content.vexrobotics.com/docs/Speedbot-BI.pdf
2. Work together with your VEX Team to follow the instructions and correctly assemble the robot.
3. Make sure your fasteners are installed and tightened appropriately, and you've done a quality job of assembly.
4. Once you have completed assembly, take a selfie with your Team, including the finished robot. Put the photo into your Engineering Notebook. Bonus points for creativity.
5. **IMPORTANT: DO NOT** disassemble the robot - complete AND SUBMIT your Digital Engineering Notebook entry before disassembling or modifying your robot

OPTION TWO - **HERO Bot Build**:

6. Find the HERO BOT BUILD INSTRUCTIONS for this years' game on the VEX Website: https://www.vexrobotics.com/v5/downloads/build-instructions
7. Note that there are several links to more information on introduction, modifications, programming, etc. If these pique your interest, then read them. If not, then skip them. But realize that it's great information that could really help you and your Team.
8. Work together with your VEX Team to follow the instructions and correctly assemble the robot.

9. Make sure your fasteners are installed and tightened appropriately, and you've done a quality job of assembly.
10. Once you have completed assembly, take a selfie with your Team, including the finished robot. Put the photo into your Engineering Notebook. Bonus points for creativity.
11. **IMPORTANT: DO NOT** disassemble the robot - complete AND SUBMIT your Digital Engineering Notebook entry before disassembling or modifying your robot

OPTION THREE - **Hybrid/Free Build**:

1. Bring up the Hero Bot and Speed Bot instructions, and see what you like about each
2. Discuss with your Team Members which parts of each build you like, and what you'd like to change
3. Create your own design and document it in your engineering notebook

Engineering Notebook Entry Instructions:

1. Entries should be developed while you are building, and document some of the assembly processes.
2. Create an entry in your Engineering Notebook, using whatever style you like best. You can make an outline, flow chart, illustration, etc., or you can just write paragraphs. Whatever works for you, as long as it's organized and easy for someone to follow the flow of information.
3. Please consider the following points when creating your entries:
    a. Entries should reflect learning and dedication to improvement.
    b. If someone who hasn't read the instructions for this training is looking at your notebook, would they know what your task was? Did you accurately describe what you're doing?
    c. It's okay to dislike completing a task or to suggest improvements to a task. As long as you are gracious, we will always listen to your suggestions. Continuous improvement is one of the ethe of the EngiNERDs

Engineering Notebook Questions:

Answer the following questions, using COMPLETE SENTENCES (feel free to copy paste these questions):

1. Which Robot build did your Team choose to build?
2. What was your role in the assembly process? Specifically, what did you do to contribute?
3. Did you enjoy putting together the robot? Why or why not?
4. What has this assembly taught you that will be helpful in prototyping and designing other robots?
5. What improvements would you make to the robot to make it a better design and why?
6. Do you see yourself participating in the mechanical sub-section of the VEX or FRC Team(s)? Why or why not?
7. Who completed the Peer Review of your entry?
    a. What changes did you make because of their guidance?
    b. What is the most valuable thing you learned during your peer review?
8. *Feel free to add any additional details or professionally stated opinions to your entry.*

First Year Training - Deliverables
Assemble a VEX Robot Speed Build or HERO Bot

To Complete Your Deliverable:

1. Ensure that your Engineering Notebook entry is done, and all questions are answered USING COMPLETE SENTENCES
2. If you have inserted any photos or videos into your DIGITAL notebook, make sure you have granted view access to the following email addresses: team2337@gbcs.org
3. Follow the instructions in Google Classroom to submit your entry.