Advance Energy Vehicle (AEV) Showcase

Welcome students and congratulations on making it to the Engineering 1182/1188 Showcase! Note: At least 2 team members must be present from 10am – 4pm. Here is the schedule to help guide you through the day's activities:

Monday, 21 April 2014

8:00 – 10:00am  Setup (Physics Research Building Atrium (PRB))
This is when you come and set up your poster at your designated table (see backside of this sheet) and provide any last minute touches to your AEV for the competition.

10:00am – 2:00pm  AEV Showcase and Judging (PRB)
This is when judges from different departments and industry personnel will come and judge how well you present your AEV design. They will also look at how organized the poster is at telling the whole AEV design cycle and how well documented you (as a team) were in your project notebook.

2:00 – 4:00pm  AEV Performance Track Competition (PRB)
This is when you will compete on the three scenarios. Remember, only the top fifteen teams can continue on to scenario 2 and the top five teams will complete on the last scenario for first, second, and third place. Once the competition is over, please help in the tear down of your displays (poster and the turning in your AEV kit).

5:30 – 6:30pm  Awards Ceremony (Knowlton 250)
This is when awards will be given for top three student teams that completed the AEV Performance Track Competition. Also awards will be given out for the top three AEV videos and top three teams that provided the best AEV documentation.

Again, congratulations on making it to today's AEV showcase. If you have any questions, don't hesitate to ask anyone in a GRAY or RED polo shirt!
Advance Energy Vehicle (AEV) Showcase Scenarios

You will be only allowed to run once on the track during the competition time to make sure your AEV codes are ready to go prior to the AEV showcase! Note: You MUST include a brake(4); goFor(5000); at the end of your Arduino program to ensure we get all the necessary information from your track run!

Scenario 1: This is an accuracy test. We want to see how close your AEV can hit an indicated location in a designated amount of time. You will have to travel 17 feet in 10 seconds. If your group is successful, and is able to score in the top 15 teams, you will be asked to proceed on to scenario #2.

Scenario 2: This scenario tests your AEV design. We need to see if your AEV can handle various loads. Now with a load attached, your AEV must travel 12 feet in 15 seconds. If your group is successful and finishes in the top 5 teams, you will proceed to the final scenario.

Scenario 3: This final test examines the efficiency of your design. Your AEV will have to traverse to one end of the track (25 ft.), pick up a caboose, and travel back to the beginning of the track. The AEV design with the highest efficiency will be the winner and receive a contract for deployment over the next year into the distribution cycle.

After you finish your track run, make sure to upload the data to the computer near the competition track so you can see your results real-time and how you compare against the other competitors.

Scoring: For the first two scenarios, the teams will be graded based upon the distance traveled and the time required to complete the mission. The equation is as follows:

\[
Score = 100 \times \left[ 1 - \frac{abs(s_{\text{Total}} - s_{\text{Ideal}})}{s_{\text{Ideal}}} \right] \times \left[ 1 - \frac{abs(t_{\text{Total}} - t_{\text{Ideal}})}{t_{\text{Ideal}}} \right]
\]

For the final scenario, the team with the lowest energy/weight ratio will be declared the winner. If there is a tie for the lowest ratio, the team who completes the mission first will be declared the winner.
Figure 1: AEV Showcase Layout at the Physics Research Building

AEV Competition Table where the results are recorded

Cookie Table and refreshments are served here

Advanced Energy Vehicle (AEV) Showcase – Spring 2014