

BAA Education Day Training Sessions for November 3rd, 2012

JHU/APL Kossiakoff Center 8:30 am – 4 pm

Welcome, members of BAA and other FRC Team, to our annual training session, hosted by JHU/APL and sponsored by the Baltimore Area Alliance of FRC Teams along with your local Maryland FIRST representatives!

This list of sessions is broken down into several topic areas, and each will be in a different room in the JHU/APL Kossiakoff Center. Please see <http://www.jhuapl.edu/aboutapl/visitor/directions.asp> for directions to APL and <http://www.jhuapl.edu/aboutapl/visitor/mapcampus.asp> for directions to the Kossiakoff Center. Please park in the lot labeled APL Staff and Education Center parking. Handicapped persons may park in spaces directly in front of the Kossiakoff Center. Welcome and wrap-up sessions will be in the Auditorium to the left of the guard's desk. Lunch will be in the dining area directly behind the guard's desk. Sessions will be in the classrooms directly to the right of the guard's desk.

Auditorium – Welcome, Labview, and Wrap-Up	
8:45 – 9 am	Welcome <i>Milnes, Beatty, Shade, Duncan</i> A short welcome and introduction to the sponsors for the day. Details about the event and any changes and updates will be provided. All are encouraged to attend, so check-in will start not later than 8:30 to accommodate a timely start to the day.
(AM) 9 – 11:45 (PM) 1- 3:45 (two separate sessions)	Labview <i>Jayesh Jariwala</i> This session will be for students/mentors who are interested in learning about the NI LabVIEW environment. Each session (morning and afternoon) will start at the basics of programming within LabVIEW through working with FRC code. Due to space, the class will be limited to 48 attendees with no more than 4 per team. Attendees are encouraged to bring laptops pre-installed with FRC 2012 LabVIEW software (with all updates) plus a power strip. Laptops are NOT required but will provide attendees with a chance to work with the software. It was decided to split this workshop into 2 different sessions, but Jayesh will be flexible. The afternoon session may include opportunities for more questions and advanced topics depending on the needs of the participants attending the morning session.
4 – 4:15 pm	Wrap-Up <i>Milnes, Beatty, Shade, Duncan</i> Summary of day's events and last chance to ask any burning questions.

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Dining Area – All About Building Your Robot -1		
9 – 9:50 am	Motors 101 This session will cover the basics of selecting the motors to use for various applications, the types of limitations imposed by FIRST on the number and type of motors, and the parameters of motors which team members need to be aware of during design and build. Some recommendations for working within typical FRC constraints of the game as well as physical constraints will be discussed. This will provide a foundation for the drive train system discussion, and relate to manipulator design as well.	<i>Tom Milnes</i>
10 – 10:50 am	Drive Train Systems The performance of your robot's drive train will be determined by a number of factors including the number and selection of motors, gear ratios, 2-wheel vs. 4-wheel drive, wheel selection, and the choice to implement a gearshift mechanism. This course presents a spreadsheet tool that you can use to explore the performance of the robot (torque, acceleration, speed) under a variety of scenarios. The spreadsheet encapsulates the basic mechanical equations that determine those performance measures for a particular drive train design	<i>Matt Eastman</i>
11 – 11:50 am	Pneumatics Systems This session will be a beginner level introduction to pneumatics with a focus on the pneumatic system used in the FIRST robot. The benefits and shortcomings of using pneumatic devices on your robot will be presented, along with design suggestions for using pneumatics, with a focus on how pneumatics are frequently applied to various manipulators of the type used in FIRST Robotics.	<i>Mark Eastman</i>

Dining Area – Lunch and Robot Demonstrations		
12 – 12:50 pm	Lunch The menu for lunch is a variety of BBQ sandwiches from Famous Dave's, sides and water. A \$5/person charge will help offset costs and assist with planning. Payment due on the day of the event, <u>but preregistration is required no later than Oct. 30 if you want lunch.</u>	<i>Anne Kellerman</i>
12 – 12:50 pm	Robot Demonstrations Robot Demonstrations by JHU/APL Staff.	<i>JHU/APL Staff</i>

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Dining Room – All About Building Your Robot - 2		
<i>1 – 1:50 pm</i>	Electricity and Electronics Basics of electricity and an introduction to electronics will be presented. This session is a general introduction to electronics as it applies to FIRST robotics.	<i>Tom Diviney</i>
<i>2 – 2:50 pm</i>	Electrical Wiring and Systems for FRC How to wire everything in order to control your FRC robot. The wiring and safety requirements for various devices – motors, pneumatics, sensors, lights – you want to use on your robot.	<i>David Desportes</i>
<i>3 – 3:50 pm</i>	Putting It All Together Members of Team 2199 discuss the evolution of their robot, drive train, bump jumper, bridge tipper, ball shooter, and autonomous mode for 2012 including both failures and triumphs.	<i>Team 2199</i>

Classroom 3 – Organization and Team Building 1		
<i>9 – 9:50 am</i>	Roboparents: Parent Involvement on FRC Teams The audience for this session is team leaders (student and adult), mentors, administrators, and parents. This session will cover barriers to parent involvement, a menu of ideas for how parents can get involved with the team, sample agenda for parent meetings, and a brief discussion of parent handbooks and booster clubs. There will also be a discussion of the resources available through NEMO (Non-Engineering Mentor Organization) www.firstnemo.org	<i>Jenny Beatty</i>
<i>10 – 10:50 am</i>	Rookie of The Year FRC can seem quite daunting to the rookie team, member, or mentor. Veteran 10 year US FIRST mentor and Woodie Flowers Award Winner, Marco Ciavolino, founder of TechBrick Robotics (techbrick.com) will describe the path Team 3941 took on the way to winning the Rookie All-Star Award at the Chesapeake Regional, thereby winning a berth at the World Championships. He will also discuss steps TechBrick is taking to improve for 2013.	<i>Marco Ciavolino</i>
<i>11 – 11:50 am</i>	Year Round FRC Systems Planning A look at year round planning, as well as team organization and sustainability, utilizing systems thinking. Through looking at a team as a system of systems, we learn we can apply similar problem solving and planning methods throughout team operations, leading to a sustainable and easily transferable system for team management. Will build concepts through discussion of challenges FRC teams face and solutions we all have encountered.	<i>Ashley Cowall</i>

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Classroom 3 – Organization and Team Building 2		
1 – 1:50 pm	Branding & Entrepreneurship Making your team stand out, marketing tips, key things to know about FIRST as a 'brand' and how to attract sponsors through image.	<i>Ashley Cowall</i>
2 – 2:50 pm	Fundraising Experienced mentors from Teams 2199 and 2534 will discuss the keys to a long term, sustainable fundraising strategy. Will cover techniques used by their teams and other successful FRC teams.	<i>Anne Kellerman and Rose Young</i>
3 – 3:50 pm	Mentoring Roundtable Panel discussion followed by open sharing of experiences among mentors regarding the philosophy and practical considerations of mentoring a FIRST team. The issues will include those facing new teams, as well as veteran teams.	<i>Anne Kellerman and Rose Young</i>

Classroom 4 – “Game Day” Advice and Preparation		
9 – 9:50 am	Preparing for Competition So the robot’s in the bag. What next? How to prepare for competition including practice, training, other preparations, and the items to bring on Game Day.	<i>Anne Shade</i>
10 – 10:50 am	Getting Through Inspection Experienced FRC robot inspectors will present a capstone session for the technical presentations. This is a unique opportunity to hear about the do's and don'ts from the inspectors' point of view, and ask questions to help focus your efforts in quality, design and systems for the 2012 season.	<i>Anne Shade</i>
11 – 11:50 am	Judging 101 The audience for this session is both rookie and veteran mentors and students. It will cover the mechanics of judging, including the Chairman’s Award process, how the teams can help the judges do their jobs and hints for how the students can be great ambassadors for their team.	<i>Jenny Beatty</i>

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Classroom 4 – Organization and Team Building 3	
1 – 1:50 pm	Web Resources for FIRST Robotics Competition <i>Matt Eastman & Others</i> Inventing a robot completely from scratch is probably not the best way to go. Chances are someone has done or knows how to do what you want to do robotically. This session will cover the many Web Resources available to you, including the who, why, where, what and what not of Chief Delphi. How to use this tremendous resource to shorten your design, development, and construction cycle by picking the brains of the best teams in FIRST Robotics.
2 – 2:50 pm	Web Site and Video Production <i>Team 836 RoboBees</i> The ABC's of award winning web-site and video production from concept, to development and final editing from one of Maryland's top teams.
3 – 3:50 pm	Chairman's Award How To's and Panel Discussion <i>Team 836 and Friends</i> Back to back Chesapeake Regional Chairman's Award winner Team 836 will briefly share their ideas on Chairman's Award preparation, interviews, and submissions and then open up the floor for discussions on what makes a Chairman's Award winner.

Classroom 5 – Organization and Team Building 3	
9 – 9:50 am	New to FIRST <i>Mike Dennis</i> Are you on a Rookie Team or a Rookie on an Established Team. This is a session for students and mentors who are new to FIRST. What's it all about. FIRST Jargon - Decoding the acronym soup. Review of Standard and Best Practices that the veterans all know.
10 – 10:50 am	FIRST Scholarships <i>Mike Kaurich</i> Did you know that \$16 Million in Scholarships are available from FIRST sponsors in 2013? FIRST Alumni and 2013 Volunteer In Service To America (VISTA) to Maryland FIRST Mike Kaurich will cover FIRST Scholarships from A to Z.
11 – 11:50 am	FIRST Strategy <i>Steve Shade</i> In warfare, superior strategy can allow an inferior combatant to challenge or overcome a superior one. The same is true for FIRST robotics. Learn how to use strategy to maximize your robot's and alliance's performance from the Chesapeake Regional Head Referee.

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Classroom 228 – All About Autodesk Inventor	
<i>All day – teams should assign members to an appropriate level. 12 seats per session max.</i>	<p>Autodesk Inventor <i>Ron Karpinski</i></p> <p>This session will be a basic introduction to Computer Aided Design (CAD) using the Autodesk Inventor software. Autodesk is a long time supporter of <i>FIRST</i> and generously offers free software to <i>FIRST</i> participants. This session will explore the basics of designing components and assemblies in Autodesk Inventor. This class will be limited in attendance to 12 students per session due to the number of computers. Laptops with Autodesk Inventor may also be used, but space in the room is very limited. Three levels of instruction have been included, each one twice during the day. Adjustments will be made on the day of the training, and any open seats will be filled first-come, first-served. Pre-registration is highly recommended –Send the team number and student names to : Ron Karpinski (karpiron@comcast.net)</p>
<i>9 – 9:50 am</i>	Autodesk Inventor 101 for those new to Inventor.
<i>10–10:50 am</i>	Autodesk Inventor 102 will explore features and tools to make parts.
<i>11– 11:50 am</i>	Autodesk Inventor 103 will allow students to make assemblies using constraints.
<i>1 – 1:50 pm</i>	Autodesk Inventor 101 for those new to Inventor.
<i>2 – 2:50 pm</i>	Autodesk Inventor 102 will explore features and tools to make parts.
<i>3 – 3:50 pm</i>	Autodesk Inventor 103 will allow students to make assemblies using constraints.