FIRST of the Great Lakes Bay Region

2014 FRC Workshop Schedule and Class List

Room / Time	Engineering Lab	Primary Classroom	Machine Shop	Playing Field	Chem Lab	Secondary Classroom	Cam Lab	Welding	Auto Tech	Auto Collision
Capacity	35	25	25	45	30	25	15	30	25	25
9:00 to 9:20	---	---	---	*Intro To FIRST (Rookie)*	---	---	---	*Intro To GLBR (Veteran)*	---	---
9:30 to 10:20	Intro to Labview Programing	Snack & Break Room	Basic Machining Hosted by 217	Drive Systems	2015 Robot Controller	Build/Competition Season Schedule	Scholarships (20min)	Imagery	Scouting	Programing FRC robots with C++
10:30 to 11:20	Motors and Gearing			Robot Networking	2015 Robot Controller	Parts Acquisition		Safety	Travel and Student Requirements	Student Recruitment and Retention
11:30 to 12:20	Intro to 3D Modeling (CAD)		Advanced Machining Hosted by 217	Robot Programing	Pnumatics & Sensors	Administrative Tasks	Scholarships (20min)	Rookie Topics	Awards/Judge Interaction	Loading and running C++
12:30 to 1:20				Mechanical Q&A, Labview Hands-on	2015 Robot Controller	Mentor Meetup		Fundraising		Open lab with the roboRIO & C++
1:30 to 1:50	------- *Final Survey, Misc Questions* --------									
					280	Estimated Seats				

Class List:

--- "Mechanical Block" Classes --- *(listed in Orange)*

- **Basic Machining: Hosted by Team 217 –** 15 year veteran, and 2 time world champion Team 217 "ThunderChickens" have graciously offered to put on a four hour class on the topic of machining for robotics. The first half of the course will feature building with basic hand tools then handheld power tools.
- **Advanced Machining: Hosted by Team 217 –** The second half of Team 217 machining class will include advanced part manufacturing using Mills and Lathes and more.
- **Drive Systems: Types & Construction -** This class will address a variety of topics related to FRC robot drive systems, including gearbox options, chassis type varieties, linkage options, and construction & assembly tips.
- **Motors and Gearing -** This class is intended to help explain the features, uses, and differences between FRC-legal motors as well as how to use and gear motors for various applications.

--- "Programming Block" Classes --- *(listed in Red)*

- **Intro to Labview Programming -** This class will outline data types, and basic control structures, and will include some hands on work with making an actual program.
- **Robot Programing: Labview -** This class will outline the Basic design, structure, and functionality of the basic robot code including Teleoperation code, Autonomous Code, and some Labview programming basics.
- **Network, and Network Tools -** This class will outline the tools, ideas, and information behind the robot, and its networked devices, including IP addresses, Wireless security, Robot Camera, Radio, and cRio. Tools including the Radio Setup, CRIO Imaging, and basic command prompt tools.

- **Programming FRC Robots with C++** - An Introduction to Code Version Management and Simple C++ programing of the 2015 RoboRIO.
- **Loading and running C++** - Configuring the RoboRIO out of the box and loading and running C++ robot programs.
- **Open lab with the roboRIO & C++** - Hands-on simple C++ programing, compiling, loading, and running in the RoboRIO.

--- "Electronics Block" Classes --- *(listed in Light Green)*

- **2015 Robot Controller** - This class will introduce the new control system for the 2015 season: the National Instruments RoboRIO. The class will also feature the basics of an FRC robots electrical power systems and how to properly wire a robot.
- **Pneumatics & Sensors** - In this class we will introduce the basics of pneumatic systems, as well as their implementation. We will also address a variety of sensors available for FRC robots that can help improve robot performance and autonomous operation.

--- "Administrative Block" Classes --- *(listed in Yellow)*

- **Build/Competition Season Schedule** - This class will cover the FIRST Robotics season, from the local kickoff, through build season, to "bag day", and through the competitions; as well as important dates and deadlines.
- **Administrative Tasks -** This class covers essential administrative tasks that team leads need to know to effectively run and compete with an FRC team.
- **Parts Acquisition -** This class will provide information on some of the best places to buy and order parts for building your teams robot.
- **Student Recruitment & Retention -** As its name implies, this class will cover a variety of methods to recruit new students to your program and keep existing students interested long-term.
- **Mentor Meet-up -** This session is a sort of sit down Q&A for FRC mentors. Bring any questions you might have about FRC, and we'll try to answer them!

--- "General Topics Block" Classes --- *(listed in Blue)*

- **Rookie Topics -** This class covers a variety of "need to know" topics for first year FRC teams.
- **Team Safety -** This class addresses the issue of safety as it relates to FRC, not only while building a robot, but also while traveling and when at competitions.
- **Fundraising** - In this class, we will address the basics of how to raise money for your team. Including student-run fundraisers and sponsor acquisition.
- **Imagery -** This class covers the development of a team image, from ideas for logos, T-Shirts, banners and more. Additionally it touches on ideas for getting your teams name visible in your community.

--- "Competition Planning Block" Classes --- *(listed in Pink)*

- **Travel & Student Requirements -** This class addresses a variety of important topics regarding traveling to FRC Team events, as well as common requirements for team students in order to attend events.

- **Scouting** - The class covers the essentials of match scouting at the competitions, including pre-match strategy planning and generating an elimination round “pick list”.

- **Awards/Judge Interaction** - An introduction to FRC competition awards, how to qualify for them, and how to interact with award judges.

--- Other Classes ---

- **Intro to 3D Modeling: AutoDesk Inventor *(Listed in Light Blue)* -** This class teaches some of the basics of using AutoDesk Inventor to create 3D models of robot parts, how to use those parts to create a virtual robot assembly, and the benefits of designing with 3D models.
- **Mechanical Q&A, Labview Hands-On *(Listed in Dark Orange)* -** This block features two classes in the same place due to space reasons.
    - ***Mechanical Q&A*** will provide participants with the opportunity to ask any mechanical questions they may have regarding FIRST robotics.
    - ***Labview Hands-On*** is an opportunity to get hands-on with Labview programming and the new RoboRio.

--- Schedule FAQ ---

- **What is the "Intro to FIRST"? -** Intro to FIRST is a brief session we have planned at the beginning of our workshop to introduce new teams and new students from existing teams to the basics of the FIRST Robotics competition. It will also be a good opportunity to meet other attendees from the various teams in the area.

- **What is the "Intro to FIRST in the GLBR"? -** Intro to FIRST in the GLBR is a brief session we have planned at the beginning of our workshop to introduce Veteran teams and students to the basics of FIRST in the GLBR, as well other information relating to non-rookies.

- **What are "Class Blocks"? -** Many of our classes have been grouped into "blocks" (basically categories) in order to keep similar classes together in one location (with a few exceptions) instead of having to move around between classes. Having blocked classes also allows the schedule to be more flexible as it is possible for one class in a block to run over the time of another in the same block without much impact on the schedule.