Weatherly Institute for Robotics and Engineering(W.I.R.E.)
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For children and young adults our current offerings are as follows:

JrFLL (Junior FIRST Lego League): Ages 6 - 9: A non-competition environment where the young can learn about building robots with lego parts. These are real robots and do require basic programming suitable to the age group. Along the way, the students learn by hands on projects about basic engineering skills,(how to keep things from falling apart), and about basic life skills,(Teamwork, Manners, Respect for others, etc...)

FLL (FIRST Lego League): Ages 9 - 14: This is a competitive environment where children face the challenge offered by FIRST (For Inspiration and Recognition of Science and Technology).This year's competition is based on the need for the United States to develop an efficient and an environmentally sound mass transit system. The competition requires the building of robots capable of performing tasks on a 8' x 10' competition table and the development of a presentation based on the competition parameters that will be judged by a panel of adults. This competition develops many engineering skill sets and requires close teamwork to succeed.

FTC (FIRST Tech Challenge): Ages 11 - 18 (grades 8 - 12): This is a competitive environment, where these children and young adults learn more about mechanics and system engineering. The programming component of this competition is much more advanced and requires dedication by the learner. W.I.R.E. is fortunate to be hosting the PA State FTC Championship again this year on March 6, 2010 at the Weatherly Area Middle School Complex, in Weatherly PA. Teams come from all over the Eastern Seaboard to compete for a chance to go on to the National Championship in May. These are Metallic Robots and require some basic machine shop configurations.

FRC (FIRST Robotics Competition):Ages 14 - 18 (grades 9 - 12): This is the big robots that range in size up to 120 lbs, and that run up to 45 mph. The basic knowledge developed in the FTC program is expanded, to include major machine shop usage and sophisticated electronics, mechanics, and programming skill sets. This is a three day competition that usually takes place at Drexel University in Philly on or around the end of March. It is also the most expensive and the students are required to aid in raising the funds to go.

Over and above all of these W.I.R.E. teaches the following for these age groups during the calendar year:

Basic and Advanced Electronics: These courses take the students from identifying basic electronic components to the development of sophisticated motor control units. The advance course requires the use of soldering guns, testing equipment, such as multimeters and frequency generators and others. These courses are usually held after robotics competitions are completed for the year, (generally April-the beginning of June)

Animechtronics: This course takes the students from building skeletal models of dinosaurs and creating mechanical and electronic devices which allow these "creatures" to become mobile and life like. There is no fixed period of time for this course, once begun it requires the dedication by the students involved to complete the project.

Aerospace Engineering: New this year. I have taught this as a summer camp for Montgomery County Community College in Blue Bell and I will be opening it up for students in our area this year. We will take the students from paper airplanes, gliders, rubber band power flight, kites, hot air balloons to radio controlled flight with model airplanes and helicopters. Involved in the projects will be the Laws of Aerodynamics. In the second part of the class we will discuss space, the various space programs throughout the world, Newton’s Laws, basic action reaction experiments and then we will build rockets, water rockets and solid fuel rockets.

Submersible Robotics: High School Students: This program is a continuing effort to create a small submersible robotic vehicle capable of going at least twenty feet deep and retrieving data such as follows: Depth, pressure, temperature, light, PH and video. This data will then be analyzed on computers and documented. The goal of this class is to produce the vehicle but also to develop and underwater competition format that will invite high schools and junior colleges to compete here in Weatherly in the summer of 2011.

The Unmanned Robotic Vehicle Competition, Using Hydrogen Fuel Cells as a power source: Once again a brand new program in which W.I.R.E. has been invited to host and coordinate the State Championship in 2010- 2011. This is a complex problem solving competition that requires all of the skill sets developed in the FRC and in addition the new technologies required by the use of alternative energy sources such as Solar and Hydrogen Fuel Cells. Its target is high school and junior college and is an outdoors event.

These are all of the youth oriented programs developed by W.I.R.E. and offered to help instill the desire for young people to take up the challenge of science and technology. Through our FIRST programs the Institute is able to offer the chance of 9.8 million dollars in available scholarships to the students that participate in the programs. These are competitive scholarships but the pool of students is very small and the chances of achieving them are great.

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