

FIRST Robotics Competition

2017-2018 STEM Scale-Up Program

Overview: Combining the excitement of sport with the rigors of science and technology, *FIRST* Robotics Competition is often called the ultimate “Sport for the Mind.”

Grade Levels: 9-12

Program Summary

High school students call it “the hardest fun you’ll ever have.” Teams of 10 or more students are challenged to raise funds, design a team brand, hone teamwork skills and build and program industrial-size robots to play a field game against like-minded competitors under strict rules and limited resources. It is as close to real-world engineering as a student can get. Volunteer professional mentors lend their time and talents to guide each team. Teams form during the fall. The official season kick-off and release of the new robot game is in January. Teams have six weeks to design and build their robot followed by regional competitions in March and April. Each season ends with an exciting *FIRST* Championship.

Program Objectives

- Involve more students in this real-world engineering challenge
- Develop participating students’ STEM and teamwork skills by working in a team, creating a business plan, communicating with stakeholders and designing, constructing, wiring and programming a robot
- Provide teachers with an opportunity to apply classroom STEM learning in a real-world setting
- Increase partnerships between schools and local community businesses. Students benefit from working next to and learning from professionals. Communities benefit from employees mentoring students to develop a future workforce with essential STEM and teamwork skills.

What does the program provide to the educator?

- Professional Development workshop at the University of Northern Iowa.
 - First-year teams will receive three days of professional development, including 2 hours of Graduate Credit, plus follow-up support for the Team’s lead coach. This training includes essential robot design and construction concepts, team organization principles, build season planning suggestions and competition planning suggestions.
 - Teams in year two or three will participate in a one-day workshop focusing on team growth.
- Team *FIRST* Registration - \$3,000-\$6,000* *FIRST* registration includes a kit of parts to build a basic competition robot and registration fee for one FRC Regional Competition.
 - First-year teams receive \$6,000 to cover all registration fees.
 - Teams in year two or three will receive \$3,000 to cover part of the \$5,000 registration fee.
- First-year teams will receive a supply kit full of helpful tools and commonly used robot parts.
- Ongoing support from *FIRST*, *FIRST* Senior Mentors, the Iowa *FIRST* Assistant Regional Director and veteran *FIRST* teams.

What is required by the educator in order to implement this program?

- Recruit additional team mentor(s)
- Recruit a minimum of 10 student team members
- Arrange a location for the team to use for meetings and building their robot
- Attend the Coaches Professional Development Workshop, July 27-29, 2017, for rookie teams and July 29, 2017 for veteran teams
- Arrange community partners and sponsors to cover additional costs to build a robot
- Register their team for and compete in at least one regional *FIRST* Robotics Competition Event

Website (with link to Standards Alignment): <http://www.firstinspires.org/node/5551>

Program Video: <https://www.youtube.com/watch?v=hcS7M4sY0fQ>