GREATNESS STEMS FROM IOWANS

GOVERNOR'S STEM ADVISORY COUNCIL

FIRST Robotics Competition

2016-2017 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." Under strict rules, limited resources and an intense, six-week time limit, 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 difficult field game against like-minded competitors. 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. Each season ends with an exciting *FIRST* Championship.

Program Objectives and Description

- Involve more students in this real-world engineering challenge
- Increase partnerships between schools and local community businesses. Students benefit from working next to and learning from professionals. Communities benefit with employees mentoring students to develop a future workforce with essential STEM and teamwork skills
- Develop 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 an opportunity to directly apply classroom STEM learning in a real-world setting
- Form teams during the fall with the official season kicked off by a January release of the new robot game. Teams have six weeks to design and build their robot followed by regional competitions in March and April.

What does the program provide to the educator?

- Funding of $6,000 to register their team. With registration, the team is provided with a kit of parts to build a basic competition robot
- A $2,000 stipend for the coach to cover their expenses and time for the training workshop
- Training workshop to teach essential robot programming and design concepts, team organization principles, build season planning suggestions and competition planning suggestions
- On-going support provided by *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?

- Arrange 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 a three-day training session in August 2016
- 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