

FIRST[®] Tech Challenge Academy Professional Development

Course Description

The *FIRST[®]* Tech Challenge Academy professional development is a 40-hour course that gives attendees a deep understanding of a *FIRST* Tech Challenge season and how to implement the program to achieve science, technology, engineering, and math (STEM) learning objectives. In *FIRST* Tech Challenge, students learn to think like engineers. Teams design, build, and program robots to compete in an alliance format against other teams with a spirit of friendly competition. Many call it “the hardest fun you’ll ever have.” Participants in this course will walk through the season as they engage in these hands-on experiences and practice engineering principles such as fabrication, 3D printing, keeping an engineering notebook, and planning for interdisciplinary awards applications.

Course Requirements

FIRST[®] Provides:

- *FIRST[®]* Tech Challenge Robot kit - TETRIX *FIRST* Tech Challenge Set and REV Robotics Kit
- Control and Communication Set
- Electronics Module and Sensor Set

Participant Brings:

- Computer with internet access

Course Objectives

By the end of this course, you will:

- Participate in the *FIRST* experience from a student’s point of view
- Explore the essential components of the *FIRST* Tech Challenge program
- Feel comfortable using hardware and software components of *FIRST* Tech Challenge robotics kits in addition to fabrication techniques and 3D printing
- Understand how to code using Blockly programming software using autonomous and remote-control utilizing Tensor Flow, Inertial Measurement Units, and Sensors
- Learn how to facilitate hands-on activities for the classroom or after-school programs
- Be able to foster computational thinking, collaboration, and problem-solving skills in students
- Have experience with Project-Based Learning, the Engineering Design Process, and 21st Century Skills
- Learn to build teams, participate in robot game matches, and present to judges
- Utilize, model, and reinforce the *FIRST* Core Values