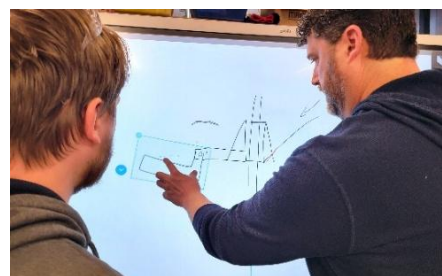# FIRST® Robotics Competition Guided Experience

Course Overview

The FIRST® Robotics Competition Guided Experience is a dynamic, classroom-ready training program designed to help students build essential skills for a successful robotics season. With 12 interactive modules featuring hands-on guided activities, team-based challenges, and downloadable resources, it fits seamlessly into the school day—whether used in a STEM class, CTE program, or robotics elective. Educators and mentors can follow the full training path or customize lessons to support pre-season learning, build season preparation, or onboarding new team members. This course provides a flexible way to engage students and the entire team in real-world problem solving, collaboration, and technical skill development.

CAREER CLUSTERS AND SUB-CLUSTERS		
• **Advanced Manufacturing** • **Arts, Entertainment & Design** • **Construction** • **Digital Technology** • **Management & Entrepreneurship**	• Design & Digital Arts • Engineering • IT Support & Services • Production & Automation	• Project Management • Robotics • Skilled Trades • Software Solutions

This year-long course could fit into Career and Technical Education Programs of Study. Below are sample programs of study where this course could be used as part of the sequence:

- **Robotics**
- **Robotics Engineering**
- **Pre-Engineering**
- **Engineering & Design**
- **STEM**
- **Engineering & Robotics**

Outcomes

- Develop a clear understanding of the mission, values, and structure of FIRST Robotics Competition.
- Identify and describe the major subsystems of a FIRST Robotics Competition robot including mechanical, electrical, and software components.
- Gain foundational skills in CAD design and 3D printing for prototyping and fabrication.
- Demonstrate safe and effective use of common fabrication tools and fasteners.
- Apply the engineering design process to build and iterate low- and high-fidelity prototypes.
- Organize team resources and create a budget and fundraising plan to support build season activities.
- Practice reading and analyzing a Game Manual through a mock kickoff experience.
- Collaborate with teammates to solve problems, share ideas, and build a sustainable team.

Course Outline

PRE-SEASON TRAINING PATH AVAILABLE OCTOBER 2025	BUILD SEASON TRAINING PATH AVAILABLE JANUARY 2026
• **Module 1:** Introduction to *FIRST* Robotics Competition • **Module 2:** How do *FIRST* Robotics Competition Robots Work • **Module 3:** Introduction to CAD & 3D Printing • **Module 4:** Fabrication Tools & Safety • **Module 5:** Rapid Prototyping • **Module 6:** Preparing for Build Season	• **Module 7:** Kickoff Strategy & Game Analysis • **Module 8:** Mechanical Systems & Design • **Module 9:** Electrical Systems & Programming Integration • **Module 10:** Business, Branding, & Media • **Module 11:** Preparing for Competition & Scouting • **Module 12:** Season Reflection & Sustainability Planning

Through the **FIRST** ® **Training** Learning Management System (LMS), students who complete a module's online instruction can earn a **Training Certificate of Completion**. Those who complete all modules in the *Pre-Season Training Path* and *Build Season Training Path* can also obtain additional **Training Path Certificates of Completion**.

Standards Alignments (Pre-Season Training Path)

NEXT GENERATION SCIENCE STANDARDS (NGSS)	ADVANCE CTE CAREER READY PRACTICES (CRP)
HS-ETS: 1-1, 1-2, 1-3, 1-4; **HS-PS:** 1-1, 1-3, 2-1, 2-6, 3-1, 3-3	**CRP:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION STANDARDS (ISTE)	**INTERNATIONAL TECHNOLOGY & ENGINEERING EDUCATORS ASSOCIATION STANDARDS (ITEEA)**
Students: 1.1: a-d, 1.2: b, 1.3: a-c, 1.4: a-c, 1.5: a-d, 1.6: a-b, 1.7: a-d	**STEL:** 1.N–R, 2.T–Z, 3.I–J, 4.P, 4.R–T, 5.H–I, 6.F–J, 7.W–DD, 8.N, 8.P–R
COMMON CORE STATE STANDARDS- ENGLISH LANGUAGE ARTS (CCSS.ELA)	**COMMON CORE STATE STANDARDS- MATH (CCSS.MATH)**
RST: 9-10.3, 11-12.7; **SL:** 9-10.1, 9-10.4, 11-12.4; **W:** 9-10.4, 11-12.4; **WHST:** 9-12.2, 11-12.2,	**MP**: 1- 6; **N**: Q.1-3, VM.1-5; **A**: SSE.1, CED.1-4, REI.3, 5-6; **F**: IF.1-7, 9, BF.1, 3, LE.1-3, 5, TF.1-7; **G**: CO.1-8, 12-13, MG.1-3; **S**: ID.5, IC.1-6
COMPUTER SCIENCE TEACHER ASSOCIATION STANDARDS (CSTA)	
3A-CS-03, 3A-AP-17, 3A-AP-22, 3A-AP-23, 3A-IC-24, 3B-IC-25	