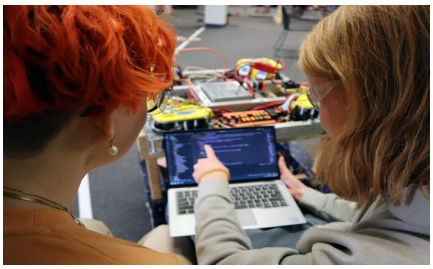
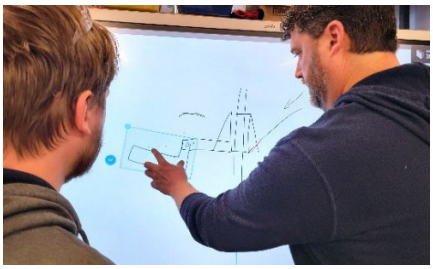
FIRST® Robotics Competition Guided Experience

Course Overview

The *FIRST* Robotics Competition Guided Experience is a classroom-ready training program that helps students build the knowledge and skills used across a complete team year. Twelve modules combine interactive online instruction with guided activities, team challenges, templates, and authentic robotics work. Educators, coaches, and mentors can use the full sequence as a STEM, CTE, or robotics course or select modules to support onboarding, build season, competition preparation, and team sustainability.







CAREER CLUSTERS AND SUBCLUSTERS		
• **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. These sample programs of study could use this course as part of its sequence:

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

Outcomes

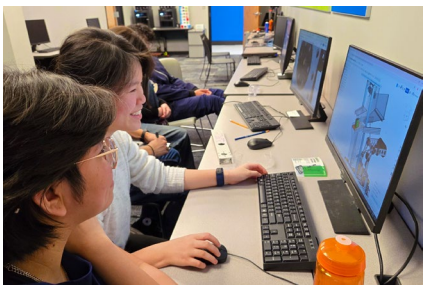
- Understand the mission, values, culture, and complete lifecycle of a *FIRST* Robotics Competition season.
- Design, build, program, test, and refine competitive robots using sound engineering practices, technical skills, and iterative problem solving.
- Analyze games, develop effective robot and match strategies, and apply data to improve design and competition performance.
- Contribute to successful team operations through project management, fundraising, branding, outreach, awards, communication, and event preparation.
- Collaborate effectively, demonstrate professionalism, and strengthen long-term team sustainability through leadership, reflection, and continuous improvement.

Course Outline

PRESEASON FOUNDATIONS	BUILD, COMPETITION, AND POSTSEASON
• **Module 1:** Intro to *FIRST* Robotics Competition • **Module 2:** How Do *FIRST* Robotics Competition Robots Work? • **Module 3:** Intro to CAD and 3D Printing • **Module 4:** Fabrication Tools and Safety • **Module 5:** Rapid Prototyping • **Module 6:** Preparing for Build Season	• **Module 7:** Kickoff: Game and Robot Strategy • **Module 8:** Design and Mechanical • **Module 9:** Electrical and Programming • **Module 10:** Business, Awards, Marketing, and Media • **Module 11:** Preparing for Competition • **Module 12:** End of Season Activities

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 *Training Path* can also obtain an additional **Training Path Certificate of Completion**.







Standards Alignments at a Glance

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:** 1-12
INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION STANDARDS (ISTE)	**INTERNATIONAL TECHNOLOGY & ENGINEERING EDUCATORS ASSOCIATION STANDARDS (ITEEA)**
Students: 1.1: a-d; 1.2: a-b, d; 1.3: a-d; 1.4: a-d; 1.5: a-c; 1.6: a-d; 1.7: a-d	**STEL:** 1.N-R, 2.T-Z, 3.H-J, 4.O-P, R-T, 5.H-J, 6.F-J, 7.W-DD, 8.N, P-R
COMMON CORE STATE STANDARDS – ENGLISH LANGUAGE ARTS (CCSS.ELA)	**COMMON CORE STATE STANDARDS – MATHEMATICS (CCSS.MATH)**
RST: 9-10.1-4, 7, 9; 11-12.1-4, 7, 9; **WHST:** 9-10.2, 4-9; 11-12.2, 4-9; **SL:** 9-10.1, 4-6; 11-12.1, 4-6	**MP:** 1-8; **N:** Q.1-3; **A:** CED.1-4, REI.3; **F:** IF.4, 6; **G:** CO.1-2, 12-13, MG.1-3; **S:** ID.5-6
COMPUTER SCIENCE TEACHER ASSOCIATION STANDARDS (CSTA)	
3A: CS-01-03, NI-04, 06-07, DA-09-12, AP-13, 15-23, IC-24-30; **3B:** CS-02, NI-03-04, DA-05-07, AP-08, 10-24, IC-25-27	