

Oakland University
Robotics Phase II
Workshop Description and Learning Outcomes
Fall 2020

Dates: M, W, F; 3:30 - 5 PM from 11/2/2020 - 12/18/2020

Format: Online via Zoom, Synchronous

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Workshop Description:

This workshop is designed to prepare high school teachers to dedicate to building robots, programming robots, assembling the track for robots, practicing how to move the robots and changing controls, understanding the rules to a competition, and automating robots for competition. The workshop will include all instructions as pre-recorded videos. Therefore, online videos will allow individual outreach as well as a flexible work speed for the teachers. No previous knowledge of building robots is required.

Teachers will be provided with:

- 1x Vex IQ Full Field & Game Element Kit per classroom, this will feature all the required field parts, competition goals, and competition pieces needed for practice.

- 1x Super Kit which contains all necessary parts to build and control the competition robot. This kit will be a 1 per team, with 4 students ideally on a single team. These kits are able to create multiple robot styles allowing for alternative uses that would benefit after school clubs.

As the teacher begins to work with the students, their role will be to guide the students alongside the video presentations on building the robot from the kits and instruction booklets provided. Following along with the schedule to program the robot for the directional input and wireless controllers. The students can then become familiar with how to control the robots, engaging in inter-team play. This is also an ideal time to adjust teams, discover who works best with each other, and even have some fun with elimination style mini-tournaments.

As the high school students get real hands-on experience, they will develop an understanding of the rules within the competition. This will allow the teacher and students to begin a simple autonomous programming portion of the competition with sensors.

The high school level will gain access to sensors such as sonar, bump sensors, color sensors, and gyroscopes. This will allow for an entire autonomous section of the competition which is much more in depth.

Workshop Outcomes:

- Teachers will gain a knowledge of building robots of advanced level.
- Teachers will gain a knowledge of programming a robot.
- Teachers will gain a knowledge how to assemble a track for a robot.
- Teachers will practice moving robots.
- Teachers will gain a knowledge of the rules to the competition.
- Teachers learn automating robots for competition.