

Robotics

5 credits - Honors

Grades: 10-12

Prerequisites: Minimum grade of 80% in previous year's honors science course(s) and honors math (or a minimum grade of 90% in the corresponding level 1 course).

This laboratory course in robotics provides the student an opportunity to develop appropriate problem-solving skills and to employ those skills in conjunction with the technology learned in the course. Through activity-based study of electronics, computer programming, and mechanics, students gain a thorough understanding of robotics.

PROFICIENCIES

Upon completion of this course students will be able to:

- 1. Demonstrate knowledge of computer programming by successfully programming microcontrollers for desired tasks.**
- 2. Utilize basic concepts of computer aided design and prototyping by completing assignments utilizing CAD programs along with CNC machines where possible.**
- 3. Build and program a working VEX robot to compete in an in class competition.**
- 4. Demonstrate knowledge of the basic principles of electricity and electrical components through experimental observations and construction of electrical circuits.**
- 5. Present research, consider and evaluate contemporary technologies including societal demands and concerns.**
- 6. Understand Artificial Intelligence (AI) and the ethical and societal concerns of this concept.**