

Industrial Automation and Robotics

Instructor: Chad LeDune

Room: 316

Contact information: cledune@swest.k12.in.us

Course Number: 4728

Course Description:

Robotics Design and Innovation allows students to design, program, and test innovative technological designs related to robotic systems. Topics involve mechanics, pneumatics, control technologies, computer fundamentals, and programmable control technologies. Students design, build, and optimize robots to perform a variety of predesignated tasks. Individuals or small teams may choose to participate in organized robotic competitions or develop their own events during the course. Through this course, students will investigate exciting career and collegiate programs of study.

Recommended Grade Level: 9, 10, 11, 12

Recommended Prerequisites: none

Credits: 1 or 2 semester course, 1 credit per semester, 2 credits maximum Counts as a Directed Elective or Elective for all diplomas

Course Objectives:

- Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study
- Students will develop an understanding of the characteristics and scope of technology.
- Students will develop an understanding of the role of society in the development and use of technology.
- To engage the students in computer programming and problem solving activities to encourage creativity and initiative.
- To support and foster interest in various aspects related to robotics; in particular, mechanical design
- Students learn teamwork, leadership, engineering/product, design problem solving, strategy, self confidence, robotics career opportunities

Technology/Software used in Class;

- Lego WeDo
- LittleBits
- Lego Mindstorm
- VEX EDR
- VEX IQ
- Arduino
- CodeCombat

Projects Completed during 2 Semester Course;

- 4 Grade period design process challenges utilizing various robotics technologies
- 2 Semester design process challenges utilizing VEX Robotics Competition materials and official game pieces and board
- Weekly Arduino Challenges
- Grade period coding goals
- 1 year-long robotics project allowing students to design, build, and test a robot of their own design

Grading and Evaluation:

Students are graded on the Southwest School Corporation adopted grading scale;

A = 100-93%

A- = 92-90%

B+ = 89-87%

B = 86-83%

B- = 82-80%

C+ = 79-77%

C = 76-73%

C- = 72-70%

D+ = 69-67%

D = 66-63%

D- = 62-60%

F = 59-0%