

# OHHS Robotics and Automation Course Syllabus



**Course Name:** Robotics and Automation  
**Course Code:**

## **Course Description:**

Robotics and automation is a one trimester / one half credit, one hour course in which students will apply science concepts through the completion of a series of challenges in robotics. Students will work with in teams in a “hands-on” environment to design, model, construct, and test robotic applications. Students will design and build robots that can navigate through difficult terrain, “intelligently” analyze and overcome challenges, and aid in the workplace and industry. Students will learn about engineering, computer programming, robotics and artificial intelligence.

## **Prerequisites**

None (Algebra Recommended)

## **Course Resources**

EV3 Lego Mindstorms Robotics Kit  
EV3 Robot Educator Lessons (Online Curriculum)  
The internet and other web resources  
Various trade magazines and industry publications

## **Course Fees**

None

## **Course Outline/Instructional Units**

1. Safety in a Robotics Lab
2. Basic Electronics
  - a. Identifying Safety Factors
  - b. Calculating Basic Electronic Relationships
  - c. Measure Circuit Values in a DC Circuit

- d. Interpret Simple Schematic Diagrams
- e. Analyze Diode and Transistor Circuits
- 3. Introduction to Robotics (Robot Educator Lessons)
- 4. Hardware and Software (Line Following)
- 5. Sensors and Simple Machines (Robot Sumo)
- 6. Variable Environments (Lego FTC Challenge)
- 7. Sensors and Programming With Loops (Variable Challenge)
- 8. Advanced Robotics Project (With instructor approval)

**Major Assessments**

Daily work

- 1. 4 – Robot Projects
- 2. 12 – Chapter Questions
- 3. 4 – Quizzes

Exam Grades

- 4. 9 – Competencies
- 5. Midterm

Professionalism

- 6. Gracious Professionalism (Employability Skills Assessment)

**Professionalism Grade is earned by:**

- Be Here
- Be On time – Arrive to class before the last bell stops ringing.
- Be Prepared– Project out, safety goggles on, clothing for work is safe - no open toed shoes...
- Be On Task - working during period, conversations are on topic
- Be Respectful – listen during instruction, use positive comments when speaking with peers, word questions and comments appropriately during discussions

**Weighted Categories**

Set department categories and weighting

Category	Percentage of Overall Grade
Exams Quizzes	80%
Daily Work	10%
Professionalism	10%

**Extra Help**

Students may attend tutoring after school on Tuesdays and Thursdays to get extra help during the 7th period class.

**RE-DO POLICY:**

OHHS is an effort based school where we believe all students can learn. We also know that students learn at different rates. Thus, we are implementing a re-do policy that recognizes the needs of individual learners.

- Assessments are eligible for redo up to 100%
  - Students are eligible to redo assessments when key supporting assignments are complete. Key assignments provide evidence that students are ready to show mastery of a standard
- Students are eligible to redo key assignments as long as they have excused absences.
- There are assignments that may not be redone because they do not bear enough weight or the learning target for that assignment will be measured on another larger assignment.

### Weighted Categories

<b>Category</b>	<b>Percentage of Overall Grade</b>
Daily Work	20%
Exams and Competencies	70%
Professionalism	10%

### Grading Scale:

<b>Regular Scale</b>	
<b>Letter Grade</b>	<b>Percentage</b>
<b>A</b>	<b>93% and Above</b>
<b>A -</b>	<b>90%-92.99%</b>
<b>B+</b>	<b>87%-89.99%</b>
<b>B</b>	<b>83%-86.99%</b>
<b>B-</b>	<b>80-82.99%</b>
<b>C+</b>	<b>77%-79.99%</b>
<b>C</b>	<b>73-76.99%</b>
<b>C-</b>	<b>70-72.99%</b>
<b>D+</b>	<b>67%-69.99%</b>
<b>D</b>	<b>60%-66.99%</b>
<b>F</b>	<b>59.99% and Below</b>

**OHSD PLAGIARISM POLICY:**

Any student, who knowingly turns in any work that has been done by someone other than himself or herself, and fraudulently represents it as his/her own, shall be considered to have cheated. Cheating also includes: aiding someone else in cheating, the use or preparation of written, pictorial, electronic or other materials not authorized by the instructor during a test or assignment, the use of testing materials obtained previous to the test date, or plagiarism of any kind. Students found cheating will also be subject to an office referral, which could result in a suspension. As an effort based school, students who have plagiarized/cheated must still demonstrate their learning. Thus, students will be given the opportunity to complete the work. This will fall under the "Late Work Policy" of the teacher where total possible points may be reduced.