



Camas High School Robotics Engineering Program

Instructors: Matthew Chase - matthew.chase@camas.wednet.edu
Kelly Williams - kelly.williams@camas.wednet.edu

Contact Information:
CHS Phone - 360-833-5750 Fax 360-833-5751

Course Information

In the **Robotics 1** course we will be utilizing Pitsco Tetrax Prime and Tetrax Max hardware, Arduino, Ardublockly, and Robot C software along with various other robotics hardware and software. The objective of this course is to introduce the student to basic programming as well as problem solving strategies. This course will involve students in the task oriented atmosphere where their building and programming robotic systems in both a virtual world and real world. Students will work hands-on in teams to design, build, program, troubleshoot and document their progress. Topics may include motor control, gear ratios, torque, friction, sensors, timing, program loops, logic gates, decision-making, timing sequences, propulsion systems and binary number systems. Student designed robotic systems will often be built and programmed to complete various tasks developed by the robotics instructional team.

The **Robotics 2** course will expand on the students understanding and use of these systems and apply them to individual and group projects. Each student is required to do a group and individual project every 6 weeks. The students have individual goals that they are trying to achieve through the process of building and programming their robots. They will document research, build ideas, programming structures and time tables throughout the projects duration.

We expect that this class will provide motivation for students to continue in computer science and engineering courses.

Student/Teacher Expectations

This course is designed for the beginning to intermediate level computer user who has some experience using the computer. Students will work in-groups and teams to complete various course assignments and projects (challenges). Students will be expected to be self-motivated, stay on task, and seek help as needed with lab activities and instruction.

Course Objectives

Students will learn and develop skills in the following...

- Group collaboration and working in teams.
- Designing robots and systems to accomplish/demonstrate specific tasks and or lab problem scenarios.

- Troubleshooting and finding solutions for solving a variety of problem scenarios, challenges and lab tasks.
- How to use RobotC, Ardublock and Arduino programming, 3D Modeling software.
- Application of Gears, pulleys, torque, friction, timing, sensors, and program loops

Classroom Policies

Students are expected to follow all Camas High School policies as outlined in the student handbook/code of conduct. Students will be expected to follow all computer rules including having signed an Acceptable Use Policy (AUP) for Internet access.

Grading & Participation Policy

1. Your semester grade will be based on a point system and approximately on the following percentages.

- Daily Participation	30%
- Projects	30%
- Lab Inventory	10%
- Other	30%
2. Daily participation credit is worth 10 points daily. (Excused absences can be made-up)
3. A classroom tardy will result in loss of half the daily credit (5 pts.) Students not seated or located in their assigned area when the tardy bell rings and remain there until excused will be considered tardy.
4. Lab Assignments are to be done “in class” unless otherwise directed by the teacher.
5. Extra credit assignments may be available upon request.
6. Elective classroom leadership activities are available for extra credit.

Student Responsibilities and Classroom Rules

1. Students are expected to be in their assigned seat with paper, pencil and other needed materials BEFORE the tardy bell rings.
2. Come to class prepared.
3. Students are required to get teacher permission to leave the classroom and will use an appropriate signed hall pass.
4. Students are expected to be in their assigned seat or area at the end of the class period. Standing by the classroom door is not allowed!
5. Students are responsible for their lab and computer equipment. If you experience any problems please notify your teacher immediately.
6. Respect your peers and others property.
7. Cell phones use is not allowed during class time unless it’s part of a classroom activity or special permission is acquired..
8. Students are to use only software programs and websites outlined specifically for the class. Internet surfing/browsing is not allowed.
9. Food and drinks are NOT ALLOWED in the computer classroom labs!

Student Data Storage

Each student will be given disks and space on the school server to store their robotic programs and activities. Students are responsible for backing up all of their work and maintaining their data. No excuses will be accepted for losing work, since multiple ways are offered to back-up and save student work.

Deadlines

Deadlines are exactly what they mean! All work is due when asked for with limited exceptions. Enough time is given for students to complete their work and projects in class with some homework as needed. Students should not procrastinate on work deadlines for these classes. This policy is followed strictly with limited exceptions as determined by the teacher. Many of the activities are scheduled for certain days and students missing a class period may not be able to make-up an activity.

Computer Hardware and Software

All students will be expected to take care of and respect all school computer hardware and software while in their use. Students will have access to PC computers, RobotC and Arduino software and Tetrax Prime kits. Damages to any computer equipment by a student will be charged to the student. Students also understand that all software used for this course are the property of Camas School District and students are not allowed to make copies, share or change programs in any way. Each kit will be inventoried by each group before and after each semester. Students are responsible for all of the pieces, parts, batteries, booklets and any other materials that are needed to complete your kit. Any pieces lost or missing from your kit will be charged to you as the student. Please be very careful of your kits as they are expensive and can be costly to replace missing pieces.

Robotics 2 Grading

Students will be graded on the following categories based on a **Cumulative** point system:

Weekly Journal in Google docs	10 points/week
Daily Lab Participation	2 points/day
Group Project goals met	100 points/project (300pts/semester)
Individual Project goals met	100 points/project (300pts/semester)

Each activity is **assigned points and accumulates toward a point total**. The grade is calculated as follows from the total points:

100% - 90%	A	69% - 60%	D
89% - 80%	B	59% - Lower	F
79% - 70%	C		

Class work and Homework

Most work is completed in class since we will be using computers, but some assignments will involve homework that includes reading. **Deadlines are given for all assignments and homework; students should be aware of these and keep current with all work. Late work is not accepted unless you have a school field trip, excused absence or it has been arranged with the teacher prior to deadline.**

Consequences/Discipline

All school policies are followed in this classroom and enforced with the guidelines in the Camas High School 2016-17 Student handbook.