MVLA
2025-26
COURSE INFORMATION SHEET

Course Title: Robotics 2
CTE Pathway Sequence (if applicable): Engineering Design
School: Los Altos High School
UC/CSU requirement: Yes/Yes
MVLA Graduation requirement:
Textbook and/or other learning resources: No required text, supplemental materials will be provided

Course Description:

This is a second year class after students have completed Robotics I and it may be taken for multiple years. Students will create projects using computer-aided design software, learn manufacturing techniques and the use of both hand-held and large power tools, software programming, and assembly techniques. First semester focuses on building robotics skills in these areas. Second semester focuses on designing, building, testing, and coding a robot to compete in FIRST robotics. Students will have the opportunity to experience multiple competitions with the robot.
Students will engage in all engineering related fields that are required to build a modern robot. These disciplines broadly include computer 3D modeling (Computer Aided Design), manufacturing and machining, as well as programming and automation. Students enrolled in this class are considered to be the official team of our school's FIRST Robotics Team 114 Eaglestrike which is the LAHS competitive robotics team.

Course Outline/Units of Study/CTE Industry Standards(If applicable to your course):

Units of Study (Engineering and Architecture - Engineering Design)
All "units" cover all framework standards linked above. This class functions like a professional design team and follows a similar process to how a robotics product is designed, tested, and manufactured that all rely heavily on Engineering Design principles.

1. First Robotics Competition Off-Season
    a. Build a new robot based off last season's game
    b. Small group prototyping of general mechanisms to learn overall design process
    c. Small projects to improve team function and/or learn or practice skills
    d. Students are expected to attend competition trips with the team and participate fully while on the trips
2. First Robotics Competition Main Season
    a. All team members focused on design and build of new competition robot
    b. Students are expected to attend competition trips with the team and participate fully while on the trips

Students are expected to create and maintain a digital portfolio of major class projects. (C11.0)

Assessment and Grading (BP 5121 / AR 5121): To ensure that every student has an equal opportunity to demonstrate their learning, the course instructors implement aligned grading practices and common assessments with the same frequency.

1. **Grading categories and their percentage weights:**
   Projects: 45%
   Team Role: 30%
   Portfolio: 10%
   Professionalism: 15%

2. **Achievement evidence collected within each grading category:**

   Projects: This second year course is entirely project driven. Students will participate on teams to work on a variety of projects throughout the year. In the fall, projects will center around skill building and the practice of building a competition robot. Projects may be independent growth goals, single prototypes of mechanisms, or real mechanisms that go on an off-season robot to potentially take to competition in the fall. In the spring, the class focuses entirely on designing and building our new competition robot to meet the new seasonal game released in January. Evaluation of these projects is done through the completion of weekly reports where

students document their work and reflect on their process each week.

Team Role: This class not only builds an internationally competitive robot every year, it also engages students in an environment that reflects professional design teams in related industries around the world. Each individual student has an official role on the team, with different expectations associated with each role. This grading category reflects how a student is meeting the expectations of their assigned role.

Digital Portfolio: Major projects will be documented in each student's digital portfolio using Google Sites. Some students may have a digital portfolio already from a course they took last year and will add to it to help document their developing abilities in engineering. Otherwise, students will create their portfolio towards the beginning of the year.

Professionalism: A true engineering experience involves equipment that can be expensive but also potentially dangerous. Students are expected to show care and respect of their workspace by handling materials and tools appropriately as instructed. Maintaining a clean learning and working environment is vital to supporting effective and efficient workflow, as well as the learning of other students. Students will be expected to clean their workspace and any machines or tools they use during each class period.

3. **Grading scales:**
   A 90 to 100%
   B 80 to 90%
   C 70 to 80%
   D 60 to 70%
   F below 60%

4. **Homework/outside of class practices (AR 6154):**
   Students will be expected to complete all classwork on a daily basis. Classwork includes in-class individual assignments, homework, and group assignments or projects. All homework must be completed prior to the next class period. Each section of a unit may have a minor project where students are asked to demonstrate their understanding of the classwork through a practical and often hands-on design challenge. Each unit also has a major project that requires demonstration of understanding through a culmination of all skills and concepts from the unit and the prior units. Therefore staying caught up on classwork assignments is essential to success in this class. Students should expect between 30-45 minutes of homework after each class period.

5. **Excused absence make up practices (Education Code 48205(b)):**
   Students with excused absences will give additional days (the same amount as they were absent) to make up missed assignments for full credit.

6. **Academic integrity violation practices (LAHS Academic Integrity Policy):**
   Honesty, trust and integrity are vital components of the education process. The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, plagiarize or commit other acts of academic dishonesty. Students and families should understand and act upon the values of academic integrity and should encourage the highest standards of academic behavior from themselves and their peers. It is assumed that all work completed for a class is original work created for that class, for a specific assignment. Violations of Academic Integrity will be dealt with in a manner consistent with the MVLA-LAHS Academic Integrity Policy. Please refer to the Academic Integrity policy in the student handbook. For categories A and C, the 'V' will be worth zero. For violations in category B, there will be a process for students to learn the material and show mastery of the content. Check with your teachers if you are unsure or unclear about his/her expectations regarding the use of the Internet.

7. **Late work practices:**
   Late assignments will not receive full credit unless the student had an excused absence. It is the student's responsibility to find out what work is missing. All missed assignments are due within the same number of days as the absences.

8. **Revision practices:**
   This is primarily a project-based and experiential learning class. Projects are completed over multiple class periods which provide ample time for check in and guidance. Students are also encouraged to use all available resources to help them as they demonstrate skills and understanding. Therefore revision is not generally required or available in this class.

9. **Extra credit practices:**
   Extra credit will not be granted in this course.

10. **Additional grading practices:**
    Some of the work completed in this class, often larger projects, will be done in groups. Students will be assessed according to the group's final product, as well as their individual contributions. On all classwork assignments and even when working on group projects, students are never allowed to submit work "as a group" and must submit their own individually completed assignments. The required media to submit will vary depending on the assignment.

Other Course Information:

This course involves the use of potentially dangerous machines and equipment that require care and maturity to use safely. The teacher always reserves the ability to remove any students from the course that demonstrate the potential to cause harm to themselves or others.

Instructors' email addresses:

Stephen Hine: stephen.hine@mvla.net

Additional information:

This class is taught by a Career Technical Education certified teacher in the sector of Engineering and Architecture, with a single subject teaching credential in Science with a focus in Physics.