Robotics: Programming and Design

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Facebook: Dallas High RoboNerds <-------- Please like for dates and announcements!
Office Hours: Tues-Friday 10:10-11:00 and 3:00-3:30. Additional times by arrangement.

1. **Course Description:**
In this course, you will explore robotics, programming, construction, and technology, while using concepts from engineering and physics. Along with building, and programming robots, you will develop useful skills in design, prototyping, teamwork, and troubleshooting.

2. **Grading:**
Your final grade will be based on a point grading system. There are several opportunities to earn points (see attached scoring system) and will be taken out of 100 total points. For example, if you earn 91 points, you will get a 91%, an "A-". This applies to both Academic and Personal Management grades.
Some points are earned collectively as a team (blog, robot scoring) and others are earned individually (competitions, demos).

3. **Blog:**
One way to earn points is by posting your team's progress to a blog on blogger.com (or site of your choice). Each posted blog counts as 1 point. In order to count as "point worthy" a blog must meet the following criteria:
   - It must contain a description of progress made that day; including reflections (Did it work? What still needs to be done?). Should be at least one paragraph.
   - It must (at least) contain either 3 photos relevant to the posting, or a video
   - Must be time stamped no more than 2 days after the day the posting is about. For example, postings about Tuesday afternoon must happen by Thursday afternoon. (No writing 30 posts the last day of the semester)

4. **Robot Scoring:**
You can receive points based on how well your robot scores, and what goals it scores in. First semester robot scoring will be based on tele-op (remote control) and second semester will be based on autonomous (no control). In order to earn the points, your robot must be able to score in the particular goal 3 consecutive times without touching the robot. You will only get 2 attempts per day.
In order to be scored, a robot MUST be built sturdily and correctly.

5. **Competitions:**
There will be approximately 4 competitions on Saturdays during Dec, Jan, and Feb. There is also a separate competition in May. In order to earn the points for competing, YOU must attend and either act as a coach or driver.

6. **Projects:**
The goal of this class is to give students experience in programming, construction, design, engineering, and manufacturing. During second semester, a student or team of students (depending on rigor of project) may propose a project to be completed during the course of the semester. Students must create a project proposal, grading rubric, and timeline before their project can be approved.
Some basic materials can be provided for student projects, but larger purchases will be the responsibility of the team.

7. **Public Demo**
If you will not be able to earn enough points from the other options, you will be able to pick up some extras by putting on a public demonstration.
A public demo counts as showing your robot to a crowd of non-family members. Some examples would be taking the robot to the middle or elementary school, showing off in an assembly, or presenting at a school board meeting.
In order to qualify, your demo must be pre-approved with Mr. Jones

8. **Science Olympiad:**
In April (usually) will be the Science Olympiad Completion on a Saturday. This competition features 17 separate events that students can compete in. Events include robotic arms, gliders, forensics, circuits, and forestry. Some events involve building and competing with a device, others preparing and studying to take a team test or lab. Each separate event can be participated in by 2 students, with only a total of 15 students per school, only 7 of which can be seniors. To earn points, you must attend an event. If multiple students want to compete in the same event, a "mini-competition" will be held and the winner will get to compete in the main event.

Standards to Be Assessed:

Big Idea: Engineering Design- ***How do engineers solve problems?***

- What is a design for?
- What are the criteria and constraints of a successful solution?
- How can the various proposed design solutions be compared and improved?

Career Related Learning Standards: Career-related learning standards (CRLS) are fundamental skills essential for success in employment, college, family, and community life. We have integrated the Personal Management standard from the CRLS into all courses at DHS.**This standard will be assessed and communicated independent of the academic grade**. It is included below and mainly includes behaviors that will be assessed in this course.

- **Personal Management Standard**: Exhibit appropriate work ethic and behaviors in school, community and workplace.
    - Students will identify tasks that need to be done and initiate action to complete the tasks.
    - Students will plan, organize and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
    - Students will take responsibility for decisions and actions and anticipate consequences of decisions and actions.
    - Students will maintain regular attendance and be on time daily.
    - Students will maintain appropriate interactions with colleagues.

Grading and Assessment:

Student's final grade for each course will be broken down into two categories:

1) **Academic:** based on assessments, tests, projects and performances that measure learning.
2) **Personal Management:** based on homework completion and other behaviors measuring the CRLS personal management standard.

The Final grade is calculated as follows: 75% of the course grade will be based on the **Academic** grade and **25%** on the **Personal Management** grade.

- Any items included in the Academic grade (PA) may be retaken and the higher grade recorded. Teachers may extend the retake time period, but as a rule all retakes need to be done within 2 weeks of the initial assessment.
- Students will complete extra preparation before retaking an assessment.
- Personal management work turned in late may be reduced by up to 50% credit.
- Retakes are not allowed on Personal Management assignments.

Check out for this year's competition: www.vexforum.com/wiki/index.php/Toss_Up

Parents: **Please keep the rest of the syllabus**. By signing this form, you acknowledge that you have read and fully understood the expectations, rules, and standards associated with Robotics. If you have questions, please call 503-623-8336 ext 3910 or email using the email address provided in this document.

Parent Name: _____

Parent Signature: _____

Parent email Address: _____

Parent Phone: _____

Student Name: _____

Student Signature: _____

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Calendar of Events! Competitions will take place on the following dates at the locations list. Teams MUST attend the DHS event on 2/1 and the State Finals. Teams can pick up to 2 other events to compete in. Keep in mind, not all students must attend, only their "team".

Friends and family are more than welcome and encouraged! Come check out the robots and cheer our teams on!

12/7 – West Salem
12/14 – Sandy
1/11 – Evergreen Space Museum
1/24 and 1/25 – West Salem
2/1 – Dallas High School
TBA– Medford
2/22 and 2/23– State Finals: North Marion High