Robotics Syllabus

Instructor: Mr. Wilson

I was born and raised in Houston. I earned my high school diploma from Ross Sterling High School, then received my BS in Physics from Texas Southern University and my Master’s in Educational Leadership from Prairie View A&M University. Before becoming a teacher, I worked in the Survey Division of Oceaneering helping oil companies move jack-up rigs from one site to the next in the Gulf of Mexico. Over the years, I have taught STEM classes and various Math classes, however this is my first class teaching strictly Robotics so I will be able to do levels beyond Lego Robotics.

Contact Information:
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EMAIL - percy.wilson@houstonisd.org

Course Information

In this course we will be utilizing Lego Mindstorm kits, Robolab software and various Lego Robotics materials. 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 development, building and programming of a LEGO Mindstorm robot. Students will work hands-on in teams to design, build, program 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 robots will be programmed to compete in various courses as developed by First Lego League.

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

Course Objectives

Students will learn, understand and know the following -

- How to collaborate in groups and teams
- How to design robots for specific activities and scenarios
- How to use Robolab programming software
- Gears, pulleys, torque, friction, timing, sensors, and program loops
- To design, develop and complete robotic activities and challenges

Classroom Policies

Students are expected to follow all Madison High School and HISD policies as outlined in the 2020 – 2021 Student Handbook. Students will be expected to follow all computer rules including having signed an Acceptable Use Policy (AUP) for Internet access.
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 self-motivated and stay on task with all lectures, web based instruction and activities.

Student Data Storage

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 work deadlines for this class. 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 without staying after school.

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 IBM computers, Robolab software and Lego Mindstorm Lego 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 Houston Independent School District and students are not allowed to make copies, share or change programs in any way.

LEGO Mindstorm Kits

Each Lego Mindstorm kit will be inventoried by each group before and after each trimester. You as the student are responsible for all of the Lego 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 charges to you as the student. Please be very careful of your Lego kits as they are expensive and can be costly to replace missing pieces.

Grading

Students will be graded on the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Daily Lab Grade</td>
<td>30%</td>
</tr>
<tr>
<td>Projects</td>
<td>30%</td>
</tr>
<tr>
<td>Weekly Journal</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes/ tests</td>
<td>20%</td>
</tr>
</tbody>
</table>
Each activity is assigned points and accumulates toward a point total. The grade is calculated as follows from the total points:

<table>
<thead>
<tr>
<th>Points Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% - 90%</td>
<td>A</td>
</tr>
<tr>
<td>89% - 80%</td>
<td>B</td>
</tr>
<tr>
<td>79% - 70%</td>
<td>C</td>
</tr>
<tr>
<td>69% - 60%</td>
<td>D</td>
</tr>
<tr>
<td>59% - Lower</td>
<td>F</td>
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</tbody>
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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.**

Attendance Policies

Students and parents are advised to be aware of the attendance policies that are found in the HISD policies as outlined in the 2020 – 2021 Student Handbook. Students that are absent MUST bring a note to the teacher within 2 class periods of being absent to be excused so that they may receive credit for work they missed. Students having NO NOTE will not receive credit for the day(s) absence(s). Students tardy to class (first 15 minutes) will be marked tardy. After three tardies, the parent of the student will receive a call or other disciplinary action. Students tardy after 15 class minutes will be marked absent for the day.

Student Responsibilities

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. Students who go to lockers or the restroom during the class period risk losing class credit for the day.
3. Students are expected to stay in their seat til the bell rings. Standing by the classroom door is not allowed!
4. Students are responsible for their computer equipment. Any problems – notify your teacher.

Classroom Rules

1. Students are expected to pay attention and stay on task while in class.
2. Respect the computers, textbooks and classroom materials.
3. Respect your peers and others property.
4. Students must stay with programs taught in class and are not allowed to “SURF the Net.”
5. Food and drinks are NOT ALLOWED in the computer rooms!

Consequences/Discipline
All school policies are followed in this classroom and enforced with the guidelines in the HISD 2020–2021 Student Handbook and Madison High School.
Today’s Assignment

Please take this course description home for you and your parents to read over and understand. Return this page with the following information filled out completely for extra credit on the next class period ONLY!

Student’s Name ______________________________________________ (print please)

Home Address ________________________________________________

Home Telephone ______________________________________________

Parent’s Name ________________________________________________

Parent Signature ______________________________________________

Student Email Address: _________________________________________

Parent Email Address: _________________________________________