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Date Student Name/ Period

Dear Parent/ Guardian;

Your student is enrolled in the Engineering Design program at this school. My name is Courtney Bryant. I am a member of the staff at Drew and feel privileged to have the opportunity to work with you and your student. I wanted to take a moment to introduce myself and the vision for our program at Drew Charter School.

Your student has a unique learning opportunity. While academically rigorous, this class is quite relevant to a wide variety of career opportunities and academic disciplines. Please permit me to inform you about some of the features of our program. Also, please complete the informational section of the last page.

**Coursework:** This class will complement and extend the learning that occurs throughout Drew. Students will learn through Project Based Learning. Much like being an engineer or designer in the real world, students will be given a problem to solve and will be asked to work towards a solution using the design process outlined by the James Dyson Foundation and Georgia Tech’s College of Architecture. Students will research, make sketches, create prototypes, test their ideas, and evaluate to improve. Students will find that other academic disciplines will be interwoven into the fabric of this course.

**Environment:** The lab in which your child will work is spacious, well-equipped, and inviting. It is different from other classrooms in the school. It features an area for group work, presentations, and demonstrations, and we will have access to laptop computers for conducting research and generating presentation materials such as 3-d drawings of their models. There is also an area of the room called the design lab, where design prototypes may be produced (tools will be used) and tested. Please review the safety information included along with the syllabus with your student and stress the importance of maintaining a safe work environment. I invite you to visit our space whenever you are able.

**Responsibility:** Course requirements are explained to students in advance and in detail. Students are given sufficient time to complete all assignments. Although your child is given some freedom to work at his/her own pace in this environment, such freedom requires personal responsibility. As in the workplace, each student is responsible for his/her own behavior and performance. Safe behavior is expected at all times and students must achieve a score of 100% on their safety test before utilizing any tools or equipment in the design lab.

Once again let me say that it is my privilege to work with your student this year and I look forward to getting to know you as well. I have an open door policy and encourage you to be a part of your student’s engineering and design education. Please encourage your child to demonstrate their personal maturity, individual responsibility, and educational curiosity in this class. Technology *is* their future – education gets them there. They have begun an incredible, almost limitless journey.

Your education partner,

Courtney Bryant

# Engineering Design - Syllabus

|  |  |  |  |
| --- | --- | --- | --- |
| **Instructor** | Ms. Bryant | **E-mail** | [Courtney.bryant@drewcharterschool.org](mailto:Courtney.bryant@drewcharterschool.org) or teacherbryant@gmail.com |

### Course Description:

This Engineering Design course complements and extends the learning that occurs throughout your coursework at Drew Charter. Skills obtained in this course will provide a foundation for students’ abilities in the field of engineering and design. Students will participate in hands-on studio and computer activities to explore thematic units based on the elements and principles of design as well as the development of creative problem solving strategies.

Through individualized and group instruction, this course provides guided development of technical skills with specific 3-demsional design materials. Students will critique designers’ work of the past and present, as well as learn how to give and receive peer-level criticism. Engineering Design sharpens students’ critical/creative thinking skills and increases students’ confidence in their own ability/creativity.

### Goals/Objectives:

Students should be able to:

1. Understand the history of technology and its implications for society and the environment.
2. Understand the career opportunities available within the design field.
3. Understand and utilize the processes involved with invention, innovation, and entrepreneurship.
4. Develop proficiency in the use of design tools and materials by working safely, intelligently, and efficiently.
5. Successfully communicate ideas visually, orally, and through written communication.
6. Creatively solve a given problem in a visually pleasing manner through the use of a combination of art, math, science and technology.
7. Learn how to learn: become true research and development experts.
8. Develop leadership skills while working in teams.

### Text(s):

Material for this course will be taken from multiple sources, including textbooks, media, the Internet, and handouts.

### Grading:

Grades will be weighted in the following manner:

Projects and tests 40%

Participation and critique 10%

Homework and warm-ups 20%

Quizzes 20%

Sketch book 10%

### Requirements:

The final grade for each project will be based on timely submission of a thoroughly completed rubric/ assessment sheet. Additionally, students in this course will be required to keep a sketchbook.

* + Sketchbooks will be provided to each student, and will be stored in the classroom when not in use during class.

### Behavioral Expectations:

Rules are posted in the classroom. Please follow them to ensure positive consequences. Failure to do so will result in negative consequences, also posted in the classroom. It is expected that students will:

Work hard.

Try new things, even if they seem surprising or odd.

Get along with others.

Speak up even when unsure or scared.

Be prepared out of respect for yourself and your classmates.

Additionally, all Engineering Design policies for dress code and behavior (see below) will align with the Charles R. Drew Student Handbook.

• Leave all backpacks, food items, drinks, Ipods, headphones, cell phones (or other electronic devices) in your locker/or previous class. These items are dangerous in a design lab.

• Be on time and start right away with the warm-up activity.

• Take care of personal business (ex. bathroom breaks & locker visits) before coming to class.

### Course Outline:

Below is a list of topics to be covered in this class. The order of their presentation may vary.

1. Introduction to class/ Using a sketchbook
2. History of technology/ researching for design
3. Tool/ Design Lab Safety
4. Product design (market study/ sketching/ computer rendering/ prototyping)
5. Presentation Skills (utilized in each unit)
6. Critique (throughout each unit)

*Parents/Guardians please note that students will be using computers, power tools, and sharp instruments to make their prototypes/models—especially as we progress this quarter. Students will be given instruction in the safe usage of these tools and are asked to exercise individual responsibility. Please support me in stressing safe behavior in the design lab and feel free to contact me with any questions.*

**Design Lab Safety Contract**

**PREPARE FOR LABORATORY WORK**

* Study laboratory procedures prior to class.
* Never perform unauthorized tasks.
* Keep your lab bench organized and free of apparel, books, and other clutter.
* Know how to use the eye-wash and first aid kit.

**DRESS FOR LABORATORY WORK**

* Tie back long hair.
* Do not wear loose sleeves or clothing as they tend to get in the way.
* Wear shoes with tops.
* Wear safety goggles during all laboratory sessions.

**AVOID CONTACT WITH CHEMICALS/ ELECTRICAL HAZARDS**

* Never taste or "sniff" chemicals.
* Never carry dangerous chemicals or hot equipment near other people.
* To unplug items pull by the plug not the cord.

**AVOID HAZARDS**

* Keep combustibles away from open flames
* Use caution when handling hot materials, sharp tools or materials, or electrical equipment.
* Do not bend or cut glass unless appropriately instructed by teacher.
* Do not stand in the “operator zone” unless you are the one using the equipment.
* Wait until all blades have stopped moving before touching materials or equipment.
* Check equipment for proper function before using.

**CLEAN UP**

* Consult teacher for proper disposal/storage of chemicals.
* Wash hands thoroughly following design lab work.
* Leave laboratory bench clean and neat.

**IN CASE OF ACCIDENT**

* Report all accidents and spills immediately.
* Place broken glass in designated containers.
* If chemicals get in your eyes, wash them for at least 15 minutes with eyewash.

I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, agree to: (a) Follow the teacher’s instructions, (b) protect my eyes, face, hands and body during laboratory, (c) conduct myself in a responsible manner at all times in the laboratory, and (d) abide by all of the safety regulations specified above.

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent's (Guardian's) Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent's (Guardian's) Emergency Phone Number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent’s (Guardian’s) Email Address\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_