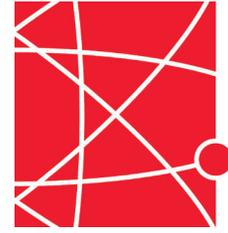


THE ART OF ENGINEERING



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Course Description

Art and engineering have often been presented as disciplines at opposite ends of the spectrum of human endeavors, when in fact they are more similar than we realize. Both are creative enterprises requiring training, planning, and skilled execution.

The actual definitions of both terms are somewhat vague and controversial.

The word ‘engineering’ comes from the Latin *ingenium*, which implies cleverness and *ingeniare*. It has been characterized as the application of scientific, economical, social, and practical knowledge in order to invent, design, build, maintain, and improve structures, machines, devices, systems, materials and processes. It clearly implies the process of creativity.

Art has been characterized as something that is created with imagination and skill, that is beautiful or expresses important ideas or feelings. The Latin meaning of ‘art’ indicates ‘skill’ or ‘craft,’ and people who engage in art are often referred to as ‘artists’ or ‘artisans.’ It has been argued that art needn’t be either aesthetically pleasing or express any idea. Another interpretation of art states that it is anything made or modified by humans.

Considering both descriptions of the terms, the similarities become apparent. Both are creative processes and both require skill. Today, art is typically associated with creativity and not necessarily practical applications. Engineering is typically associated with science and mathematics, but not necessarily with aesthetics or implied ideas.

The purpose of this class is to explore the idea that art and engineering are very similar human endeavors, which can enhance and integrate with one another. All too often, the apparatuses we use in our lives are functional, but do little to address the aesthetic appeal.

Conversely, many of the decorative items in our lives have no practical function. When engineers practice their craft with aesthetics in mind, the products they design are more likely to succeed commercially. Consider the iPhone and the new Volkswagen Beetle or the furniture of Charles and Ray Eames to see how these disciplines relate to one another.

Artists must often use principles of engineering to accomplish their work as well. A sculpture must be supported, and a mobile must balance. Both disciplines require skill and planning. In this class, we will explore the aesthetics typically associated with art using the principles of design and engineering. In the process, you will understand that two of the most fundamental of human activities are closely related. They are but different sides of the same coin.

“Design begins when engineering ends”

Walter Gropius

“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination.”

Albert Einstein

“The design is an expression of the purpose. It may (if it is good enough) later be judged as art”

Charles Eames

Course Expectations & Policies

Classroom Conduct

This is a community focused on learning through the engineering design process. Students are expected to respect each other and materials. Disrespect of anyone will not be tolerated. Disrespect will result in immediate dismissal from class and a parent teacher meeting before being readmitted to class.

Attendance

The most important thing you can do to be successful in any class is to be there. You need to come to class ready to learn and engage in our class activities. Several absences, excused or unexcused, will mean you are missing essential background material, class discussion, and studio time. More than two absences each quarter will impact your ability to keep up in this class.

Make-up Work

When you are absent from class, it is your responsibility to find out what you have missed. You have one week after returning from an absence to make-up any missing assignments or projects. After one week has passed the make-up work will be considered late. Exceptions will be made for special circumstances or long-term illnesses.

Late Work

Learning to manage your time and meet deadlines is an important part of college readiness. You are expected to complete assignments and projects on time.

- On Time=Eligible for Full Credit
- Turned in within 24 Hours of Due Date=10% Off Total Score
- Turned in within 1 Week of Due Date=20% Off Total Score
- After 1 Week of Due Date=40% Off Total Score

Please Note: There will also be a Mid-Term and End of Term cut-off date after which late work will no longer be accepted for credit. Due dates are announced regularly in class. You should also keep track of upcoming due dates in your planners.

Re-Doing Work

You always have the option to rework, rethink, reorganize, or revisit any assignment or project and turn it back in for additional credit. Revising assignments and projects is an important part of learning.

Material Fee

Materials will be provided for students. Every effort is made to keep the cost of materials to a minimum. The material fee is \$60.00, If you are unable to pay the fee please come see us and we can make arrangements based on need. We do not want the material fee to stand in the way of a student having an art and engineering experience at AMES.

Grading Policies

Your final grade will be based on your effort, participation, and quality of work. All projects must be done in class. The Art & Engineering Studio is available for student use before/after school or during lunch. **NOTE: Any projects completed outside class will receive a minimum grade of a "C".**

Final projects will be graded according to the 4 C's:

- Concepts Taught
- Craftsmanship—Structural Engineering & Design
- Challenge
- Collaboration

Grading Categories:

- 40% Projects
- 30% Daily Log & In-Class Assignments
- 30% Participation

Ethics, Plagiarism & Cheating

All work submitted must be original. If you use someone else's work or image as a basis for your own piece, there must be significant alteration to the piece for it to be considered original. It is important for you to make every effort to give credit when using other people's ideas and words. If you have questions about originality or plagiarism you should see me. The penalty for plagiarism and/or cheating is an "F".

Please return this portion
Art of Engineering

Student Name (Please Print legibaly): _____

I have read and I understand the syllabus:

(Print Parent Name) (Parent Signature) (Date)

(Print Student Name) (Student Signature) (Date)

Parent Contact Information

The best way to reach me is by:

Telephone : _____

E-mail: _____

Other: _____