

Course: Enduring Design: The Art of Engineering

Course Developers: Dr. John Mirth, and Dr. Andrew Findley

Introduction:

This course is an exploration of the relationship between art and engineering. In this course, students will examine art through the lens of engineering achievement and engineering through the lens of artistic merit. With an emphasis on identifying the forms that capture the eye and the imagination, students will investigate the visual and functional elements that contribute to successful and enduring designs. Finally, this course aims to challenge students to see new opportunities that arise from the effective combination of form and function in existing objects and in original designs.

Course Objectives:

- To identify, understand, and appreciate the natural and historical integration of art and engineering.
- To explore the innovative potential that results from the merger of art and engineering.
- To identify, understand, and appreciate the enduring quality of objects that are derived from combinations of form and function.
- To observe successful design through the entire experience one has with an object.
- To explore the ways by which form impacts the implementation of function, especially in the initial development of an object, and in terms of creative problem solving.

Course Outcomes:

- Students have the ability to recognize the meanings and uses of form.
- Students have the ability to use form to create new opportunities for function.
- Students have the ability to “begin with form” when creating a design. (i.e. design the function around the form, which does not mean that this is how things are always done, but students should show the capability to do this and think like this).
- Students have the ability to identify and evaluate the elements of form that capture the eye and the imagination.

Requirements:

- Attendance and participation in class meetings.
- Weekly mini response papers and projects.
- 4 major assignments.
- 1 group project.
- Complete all reading requirements as specified by the instructor.
- Meet once (for 10 or 15 minutes) with Prof. Findley during the course of the semester.

Grading:

- Attendance and participation (including weekly response papers and projects) - 25%
- Assignments - 50%
- Final Project - 25%

Content and Format:

Classes will either take the format of a lecture or group discussion. In lecture classes, I will give a prepared presentation on a specific topic. In discussion classes the entire class will together discuss a topic based on assigned readings.

My job is to present lectures and lead discussions based on the reading assignments. Your job is to keep up with reading and participate in discussions.

Required Texts:

- There is no textbook for this course. Instead, students will be assigned readings from a variety of books and articles. These readings will be available on Moodle.
- It is imperative that students complete the readings before class on the day for which they are assigned.

Major Assignments and Group Project:

In this course, students will be tasked with completing 4 short but MAJOR (700 words maximum) writing assignments/projects and 1 longer group final project. Each will focus on one part of the common subject - the relationship between form and function in human-made material objects. The ultimate goal is to think about the relationship between art and engineering and consider ways in which the two may work in harmony through material products.

***All assignments are due by the beginning of class on the due date.** Digital copies are preferred for text.

****No late assignments accepted. No exceptions. All of the assignments are listed below and their due dates provided. You have plenty of time and ample warning.**

*****All assignments must adhere to standard grammar, spelling, punctuation, and decency.**

- *Individual Assignment #1* - Choose a typical object (from a list provided by the instructor) and discuss how it could be improved.
 - In 700 words (maximum), discuss the object, its use, and how it could be improved.
 - Include sketches and models to help illustrate your argument.
 - Due Week 2. Please submit an electronic copy (preferably word) of your completed assignment to the instructor or through MOODLE.

- *Individual Assignment # 2* - Choose a publicly visible object on campus that has a useful and necessary function, but which attractive design appears to not have been a concern in the engineering process.
 - In 700 words (maximum), discuss the object, its use, and how it could be improved in terms of its form and appearance. Would these formal changes provide new opportunities for function?
 - Include sketches and models to help illustrate your argument.
 - Due Week 4. Please submit an electronic copy (preferably word) of your completed assignment to the instructor or through MOODLE.

- *Individual Assignment #3* - Find an object that has an attractive form or design but not an obvious function. How may the function be something other than what you see as an engineer?
 - In 700 words (maximum), describe the object, its appearance and design, and discuss how it could be improved in terms of its function.
 - Include sketches and models to help illustrate your argument.
 - Advice - Look at objects of public art on campus, like sculptures, buildings, wall decorations. Spend some time in the presence of your object, pay attention to who interacts with it and how they do so.
 - Due Week 6 - Please submit an electronic copy (preferably word) of your completed assignment to the instructor or through MOODLE.

- *Individual Assignment #4* - Choose a typical object and discuss how it could be improved.
 - In 700 words (maximum), discuss the object, its use, and how it could be improved.
 - Include sketches and models to help illustrate your argument.
 - Advice - This is the same as Assignment #1. Look back at your submission for that assignment. Knowing what you now know, consider how you can approach the problem differently. Has your improvement emphasis changed?
 - Due Week 9 - Please submit an electronic copy (preferably word) of your completed assignment to the instructor or through MOODLE.

- *Group Project (Kitchen Design Challenge)* - “Experience Map” a kitchen and develop an accessory that will enhance the look and use of a kitchen for a consumer. Develop a brief proposal (400-700 words) and a basic SolidWorks model of the item.
 - **All potential topics must be approved by the instructor no later than week 5.**

- Advice - Think about your major and its purpose as *art*. Think backwards. Start with design, then consider how to establish function. Is it useful to approach an engineering project this way? Why or why not?
- Due Week 7 - Please submit a physical copy of your completed assignment to the instructor.

Weekly Guides:

Each Friday, Prof. Findley will provide a “Weekly Guide” for the next week. It will contain a day-to-day schedule for that week and list the corresponding reading assignments. In addition, the weekly guide will list important terms, names, and issues with which you should be familiar to participate fully in class. Finally, each Weekly Guide will include study questions for each class. You should be prepared to address and discuss these questions during the week. **In short, the Weekly Guides are your key to participating in the class. Use them well and earning full participation credit should be no problem.**

Weekly Response Papers and Projects:

As noted above, the Weekly Guides contain study questions (under the heading “Think” in the guides). You are required to provide a written response to the study questions for *one* class per week. Your response need only be a short paragraph of less than one printed page. Although you are expected to use standard grammar, logic, etc, these weekly responses will not be graded for grammatical excellence. When relevant, the response may require you to make a sketch or simple model of an object rather than a written paragraph. These responses and projects are a component of your participation grade and demonstrate your engagement with the material. Each response is due at the beginning of class on the day which the topic is covered.

Course Outline:

This course takes the form of lectures devoted to specific topics of Engineering and Art. Our preliminary schedule for weekly topics and readings is below. Be warned, the order of these weeks may change due to guest speaker availabilities. Please consult the Weekly Guides for the exact order of courses.

Week 1: Defining the Issue

*****Project groups formed and Kitchen accessory challenge assigned**

Topics:

- What is art, what is engineering?
- Form and function... and use
- The art of necessity - Why would we choose form over function and vice versa?

- Experience Mapping
- Case Study: Arches

Week 2: Portable but Site Specific

Topics:

- Adornment - paintings and sculpture
- Appliances and Image
- Case Study: The Modern Kitchen
- Case Study: The History of the Toilet

Week 3: Static and Stationary

***** ASSIGNMENT 1 DUE Monday**

Topics:

- Non-portable art
- Static engineering functions
- What is architecture, what is building?
- Campus tour
- Case Study: Cathedrals

Week 4: The Art of Kinetics

***** Assignment 2 Due Monday**

Topics:

- Kinetic art forms, from Leonardo to Alexander Calder
- Engineering for kinetics
- Automobiles and image
- Case Study: Windmills as Subjects and Objects
- Case Study: Rube Goldberg Machines and Mousetrap!

Week 5: The Inspiration of the Natural World

Topics:

- Ancient Greek idealism - perfection and the human body
- Biomimicry and its uses
- Case Study: The Parthenon

Week 6: Urban design

***** ASSIGNMENT 3 DUE Friday**

Topics:

- Urban Armatures
- Bridges
- Roads and rails

- Public space
- Public Art
- Case Study: Pompeii

Week 7: Homes

*****Group Project Due Wednesday**

Topics:

- The first houses
- Design of the home
- McMansions and manufactured homes
- The genius of mobile homes
- Case Study: Frank Lloyd Wright, Prairie style and Usonian Houses

Week 8: Industrialization and Project Management

*****Fieldtrip to Louisville to visit GE kitchen design center on February 2, Tuesday**

(Monday Class Cancelled)

Topics:

- Moving human and administrative parts in an engineering project
- Moldmade bowls and the Coke bottle
- Agents of Construction
- Case Study: Jean Claude and Christo's, *Gates* in New York's Central Park

Week 9: Virtual Art and Engineering

*****ASSIGNMENT 4 DUE Friday**

Topics:

- Modelling - design and presentation of design
- Website designs
- From Computer Graphics and Solid Modeling to visual delight
- Active and guided story telling
- Case Study: *Bioshock*
- Case Study: Vermeer and "Natural" Perspective

Week 10: Failures, Fiascos, and Fantasies

*****FINAL PROJECT DUE**

Topics:

- What causes success?
- Case Study: the Tribune Tower Competition
- Case Study: the Pontiac Aztek (and the Buick rendezvous - corporate cousins) versus the Toyota Prius
- Case Study: The "Hoverboards" of Back to the Future II

Weekly Guide 1: Defining the Issues

- **Monday** - Introduction
 - **Read:** Nothing
 - **Think:** What is art, what is engineering? The art of necessity - Why would we choose form over function and vice versa?
- **Tuesday** - Form, function.....and use
 - **Read:** “Art, Design and Gestalt Theory,” by Roy R. Behrens
 - **Think:** What is Gestalt Theory and how can it inform our reading of material culture?
- **Thursday** - Experience Mapping
 - **Read:** “Adaptive Path’s Guide to Experience Mapping”
 - **Think:** How can empathy influence the work of engineers and designers? Have you ever thought about “touchpoints” in your daily interactions with the material world?
- **Friday** - Case Study: Arches
 - **Read:** “Passage Architecture: Arches,” by William MacDonald
 - **Think:** In what ways has the Roman arch shaped your world? How has the use of the arch changed over time? Has it?
- **Background Reading:**
 - “How to Get a Job at Google, Part 2,” by Thomas Friedman. http://www.nytimes.com/2014/04/20/opinion/sunday/friedman-how-to-get-a-job-at-google-part-2.html?_r=0
 - “What the Head of Hiring at Google Doesn’t Understand About Skills,” by Guy Raffa. <http://chronicle.com/blogs/conversation/2014/05/28/what-the-head-of-hiring-at-google-doesnt-understand-about-skills/>

Assignments!

- **Due next Monday (Week 2):** *Group mini-project (Kitchen Design Challenge)* - “Experience Map” a kitchen and develop an accessory that will enhance the look and use of a kitchen for a consumer. Develop a brief proposal (200-400 words) and a basic SolidWorks model of the item.
- **Due Monday of Week 3:** *Individual Assignment #1* - Choose a typical object (from a list provided by Prof. Findley) and discuss how it could be improved. In 700 words (maximum), discuss the object, its use, and how it could be improved. Include sketches and models to help illustrate your argument.

Weekly Guide 2: Portable but Site Specific

- **Monday** - Ergonomics and mini-Case Study: The Toilet...from a hole in the ground to the bold look of Kohler.

- ***First Group Assignment Due**

- **Read:**

- “The Bauhaus,” Heilbrunn Timeline of Art History. http://www.metmuseum.org/toah/hd/bauh/hd_bauh.htm
- Walter Gropius, “The Theory and Organization of the Bauhaus”
- “A Brief History of Toilets,” on <http://content.time.com/time/health/article/0,8599,1940525,00.html>

- **Think:**

- How influential has the Bauhaus been to the designed objects in your life? Think about your kitchen, desk space, bedroom, etc...
- Have you ever felt more comfortable in a bathroom because of its design features?
- Examine a public restroom and consider the function it serves as well as the design. Which received the most emphasis?

- **Tuesday** - Case Study: Margarete Schütte-Lihotzky and *The Frankfurt Kitchen*

- **Read:**

- “Counter Space: Design and the Modern Kitchen,” on http://www.moma.org/interactives/exhibitions/2010/counter_space
- “The Frankfurt Kitchen” - http://www.moma.org/interactives/exhibitions/2010/counter_space/the_frankfurt_kitchen
- “The New Kitchen” - http://www.moma.org/interactives/exhibitions/2010/counter_space/the_new_kitchen
- “Visions of Plenty” - http://www.moma.org/interactives/exhibitions/2010/counter_space/visions_of_plenty

OR

- “A Revolution in the Woman’s Sphere: Grete Lihotzsky and the Frankfurt Kitchen”, by Susan Henderson. (on moodle)

- **Think:**

- Does design affect the popularity of appliances objects in your home? Did design affect the popularity of appliances objects in the home in which you were raised?

- *****Wednesday***** - Trip to GE Appliance Park in Louisville. Meet at 6:15AM in the SRC parking lot. DO NOT BE LATE. We will return to campus at 7:30PM.
- **Thursday** - *Discussion* on the necessity and the beauty of appliances. Guest Lecture by René Polin, President and Founder of product design firm Balance
 - **Read:** None
 - **Think:**
 - Consider the portable appliances and portable art in your living space. What value do you place on these items? Why did you choose them? What can you not “live” without?
 - *****Movie Night: Come watch Objectified**
 - GM Room at 5:30 pm
 - Food from Rick’s Smokehouse!
 - Door Prizes!
 - Post-film discussion with René Polin
- **Friday** - It’s been a long week. No class.

Assignments!

- **Due Monday of Week 3:** *Individual Assignment #1* - Choose a typical object (from a list provided by Prof. Findley) and discuss how it could be improved. In 700 words (maximum), discuss the object, its use, and how it could be improved. Include sketches and models to help illustrate your argument. Please email me with any questions. Good luck!
 - **Possible Objects (choose 1):**
 - **Stapler**
 - **Hammer**
 - **Pen**
 - **Key**
 - **Mug**

Weekly Guide 3: Static and Stationary

- **Monday** - Non-portable art 1: Architecture
 - *****INDIVIDUAL ASSIGNMENT #1 DUE**
 - **Read:** "Introduction," from *Architecture*, by Trachtenberg and Hyman. (on Moodle)
 - **Think:**
 - Are all buildings architecture? If not, why?
 - What role do engineers have in creating architecture?
- **Tuesday** - Non-portable art 2: Monuments and Memorials
 - **Read:**
 - Charles L. Griswold, "The Vietnam Veterans Memorial and the Washington Mall: Philosophical Thoughts on Political Iconography," in Senie and Webster, *Critical Issues in Public Art*, 71-100 (on Moodle)
 - **Think:**
 - How can a public monument serve as a physical example of civic identity?
 - Examine the Washington Monument and the VVM - How are they different?
 - Look at the public art on the Rose-Hulman campus. In what ways does it speak to the identity of our institute?
- **Thursday** - Case Study: Cathedrals
 - **Read:**
 - "Gothic Art" by Julien Chapuis. In Heilbrunn Timeline of Art History - http://www.metmuseum.org/toah/hd/mgot/hd_mgot.htm
 - "Church Architecture," by Valerie Spanswick. In Smarthistory - <http://smarthistory.khanacademy.org/church-architecture-an-overview.html>
 - **Think:**
 - How do Gothic cathedrals show evidence of the entrepreneurial mindset at work?
- **Friday** - Architecture and the College Campus
- *****Wear a warm coat today! We will be walking around campus.**
 - **Read:**
 - "10 College Campuses with the Best Architecture," by Sarah Edwards - <http://www.archdaily.com/159583/10-college-campuses-with-the-best-architecture/>
 - "How Gothic Architecture Took Over the American College Campus," by Robinson Meyer - <http://www.theatlantic.com/education/archive/2013/09/how-gothic-architecture-took-over-the-american-college-campus/279287/>
 - **Think:**
 - How can architecture be compared? What makes one campus have the "best" architecture.
 - What aspects of Rose-Hulman's campus can be described as "collegiate Gothic"? Why did our campus develop the way that it did?

Weekly Guide 4: The Art of Kinetics

- **Monday** - Kinetic Art, from Leonardo to Alexander Calder
 - **Read:**
 - “Archimedes’ Weapons of War and Leonardo,” by D.L. Simms
 - National Gallery of Art Artist Page for Alexander Calder: http://www.nga.gov/content/ngaweb/Collection/artist-info.2047.html?artobj_artistId=2047&pageNumber=1.
 - Read the “Biography” section and browse the “Works of Art” section.
 - **Think:**
 - What distinguishes the engineered objects of Calder and Leonardo?
 - Can Calder be called an engineer artist, or only an artist?
- **Tuesday** - Case Study: Windmills as Subjects and Objects
 - **Read:**
 - *Painting in the Dutch Golden Age* by the National Gallery of Art, pages 9-13 and 68-75.
 - **Think:**
 - Consider the function of windmills. They had a symbolic function in 17th century Netherlands. Can modern wind turbines have a similar symbolic value today?
- **Thursday** - Aesthetics and Performance: Automobiles and Image
- *****Individual Assignment #2 Due!**
 - **Read:**
 - “Ferrari F1: Synonymous with Speed”: http://www.moma.org/explore/inside_out/2014/05/02/ferrari-f1-synonomous-with-speed
 - **Think:**
 - What is the fastest car you have ever seen? Did you see that car moving at a high rate of speed or did it simply, “look fast”?
- **Friday** - Engineering for Kinetics – Theo Jansen and principles of the Strandbeest
 - Guest Speaker Prof. John Mirth
 - **View:**
 - <http://www.youtube.com/watch?v=azy-c6QXUCw>
 - **Read:**
 - <http://weburbanist.com/2008/10/11/unbelievable-kinetic-sculptures-of-theo-jansen/>
 - http://vidoz.com.ua/video/P7s_HGOBKM5.html
 - How can it be used ? <http://joburg.eu/en/video/CzzAgVOsTKQ/walking-cycle-theo-jansen-mechanism>

- How does art inspire innovation ? <http://www.ihmc.us/dwc2012files/Komoda.pdf>
- Design aspects : Read the second page : <http://www.dynamicwalking.org/dw2009/sites/default/files/u8/abstracts/97.pdf>
- To compare and contrast – another project based on similar principles but with a focus on engineering applications :
- <http://www.mechanicalspider.com/>
- The engineering aspects : <http://www.mechanicalspider.com/concept.html>

Weekly Guide 5: The Inspiration of the Natural World

*Group project topics due this week

- **Monday** - Ancient Greek idealism - perfection and the human body
 - **Read:**
 - “The Nude in Western Art and its Beginnings in Antiquity” - http://www.metmuseum.org/toah/hd/nuan/hd_nuan.htm
 - “The NAKED GREEK,” by Larissa Bonfante.
 - **Think:**
 - What prompted the Greeks to go beyond imitation and idealize nature? Do we do this in the modern age? If so, why?
- **Tuesday** - Biomimicry and its uses
 - Guest speaker Prof. Patricia Brackin
 - **Watch:**
 - http://www.ted.com/talks/natalie_jeremijenko_the_art_of_the_eco_mindshift.html
 - **Think:** How do the examples that she presents mimic nature?
- **Thursday** – Applying biomimicry to design
 - Guest speaker Prof. Patricia Brackin
 - **Find:** Two more examples of biomimicry that were not presented in class
 - **Think:** What would you like to design with the materials that you will be given?
- **Friday** -Case Study: Vermeer and “Natural” Perspective
 - **Read:**
 - “Johannes Vermeer (1632–1675)” - http://www.metmuseum.org/toah/hd/verm/hd_verm.htm
 - “Johannes Vermeer (1632–1675) and The Milkmaid” - http://www.metmuseum.org/toah/hd/milk/hd_milk.htm
 - **Think:**
 - What is “natural” and how can it be replicated?
 - What aspects of Vermeer’s paintings do you consider realistic depictions of the natural?

Weekly Guide 6: Urban Planning

***ASSIGNMENT 3 DUE

- **Monday** - The Origins of Planned Space: Hippodamus of Miletus and the Roman Empire
 - **Read:**
 - “Hippodamus and Early Planned Cities.”: <http://www.museumofthecity.org/hippodamus-and-early-planned-cities/>
 - William MacDonald. 1988. "Roman Urbanism". *Journal of Architectural Education* 41: 29-32.
 - **Think:**
 - What were the possible motivations for Hippodamus and the Romans? Did they differ?

- **Tuesday** - Civil Revolution: Building American Cities
 - **Read:**
 - “A Brief History of the Birth of Urban Planning”: <http://www.dwell.com/post/article/brief-history-birth-urban-planning>
 - **Think:**
 - Consider your urban environment. How do roadways/avenues of transportation affect the population?

- **Thursday** - Case Study: Las Vegas
 - **Read:**
 - *Learning from Las Vegas*, by Robert Venturi, Denise Scott Brown, and Steven Izenour. Skim pages 3-17, **Read pages 18-34.**
 - **Think:**
 - What do the theories of Venturi, Brown, and Izenour say about how we view the city in the modern age?

- **Friday** - Adorning the City: The Role of Public Art
 - **Read:**
 - “Introduction.” In *Art and the Public Sphere*, edited by W.J.T. Mitchell, 1-6. Chicago: The University of Chicago Press.
 - **Think:**
 - What are the roles played by art in modern public spaces?
 - Were those roles different in the ancient world?

Weekly Guide 7: Home Sweet Home

- **Monday** - House Hunters Interhistorical: Catal Hüyük and Pompeii
 - **Read:**
 - “Çatal Höyük,” by Senta German - http://smarthistory.khanacademy.org/catal-hoyuk.html?searched=%C3%87atal&highlight=ajaxSearch_highlight+ajaxSearch_highlight1
 - “Roman Houses,” by Ian Lockey - http://www.metmuseum.org/toah/hd/hous/hd_hous.htm
 - **Think:**
 - What differences do you see between ancient and modern homes?
 - Have their functions changed somewhat?
- **Tuesday** - Case Study: Frank Lloyd Wright
 - **Read:**
 - “Wright's Small Rectangular Houses: His Structures of the Forties and Fifties,” by Bernard Pyron.
 - “Frank Lloyd Wright: Architect: Visions and Revisions since 1910,” by Terence Riley.
 - **Think:**
 - Frank Lloyd Wright dominates the field of American domestic architecture. Why does his work endure?
 - Do you think that his contributions have been fairly assessed by history?
- **Thursday** - The Genius of Mobile Homes
 - **Read:**
 - “Lost Trailer Utopias: The Long, Long Trailer (1954) and Fifties America,” by Dina Smith.
 - **Think:**
 - A negative stigma is often attached to mobile homes and “trailer parks.” Is there any defense of this notion based on the objects themselves?
 - How can trailers be seen as a positive housing solution?
- **Friday** - McMansions: Design Perfected?
 - **Read:**
 - “An Apologia for Byzantine Architecture,” by Robert Ousterhout. *Gesta* 35.1 (1996), pp. 21-33
 - **Think:**
 - What do the repeated designs of Byzantine Churches and those of “McMansions” have in common?
 - In what ways are modern McMansions better/worse than earlier forms of housing?

Weekly Guide 8: Industrialization and Project Management

- **Monday** - Ancient Industry
 - **Read:**
 - “The Introduction of the Moldmade Bowl Revisited: Tracking a Hellenistic Innovation,” by Susan Rotroff.
 - **Think:**
 - What prompted the beginnings of industrial manufacturing?
 - Have human needs changed significantly since then?
- **Tuesday** - The Art of Management - Prof. Eva Andrijcic from Engineering Management
 - **Read:**
 - “Case Study 2: Mass and Lean Production,” from *The Art of Systems Architecting*.
 - **Think:**
 - In what ways is mass production an example of the entrepreneurial mindset?
- **Thursday** - The Management of Art: Jean-Claude and Christo
 - **Read:**
 - “Christo's Gates and Gilo's Wall,” by W. J. T. Mitchell
 - **Think:**
 - What makes Christo’s art different from what we have previously considered?
 - Do you consider him to be an artist or a project designer? How can you distinguish the two?
- **Friday** - Group Project checkups
 - **Prepare:**
 - A five minute group presentation on your quarter project. Be prepared to answer questions!
 - **Think:**
 - Are you as far along into your group project as you should be?
 - How does the project relate to your field of study?
 - How does the project relate to art?

Weekly Guide 8: Virtual Art and Engineering

- **Monday** -CSSE methods, with Prof. Steve Chenowith
 - **Read:**
 - *For iPhone users:*
 - <http://mashable.com/2009/08/29/creative-iphone-apps/>
 - <http://www.creativebloq.com/design-tools/best-iphone-apps-812522X>
 - *For Android users:*
 - <http://www.creativebloq.com/android/tablet-apps-designers-5132689>
 - <http://theultralinx.com/2014/05/creative-apps-android.html>
 - **Think:**
 - Download one of the apps from the readings before class. What does it good from an engineering perspective? From the artistic perspective? How does it deliver value?
- **Tuesday** - Intellectual Property with James Coles, Trustee
 - **Read:**
 - IP Articles, James A. Coles - on moodle
 - **Skim:**
 - Volkswagen Patent
 - Samsung Patent
 - **Think:**
 - What are the advantages and disadvantages of each of patent, copyright, trade secret and trademark protection?
 - You have observed that the performance of an automobile would be enhanced if the shape of the front bumper were modified to a distinctive new shape that you have developed. What method of protection would you use for the new shape and why?
- **Thursday** - The evolution of solid modeling with Prof. John Mirth
 - **Read:**
 - Rendering a model: An example of how and why it is done:
 - <https://www.keyshot.com/how-it-works/> - How it is done – overview of “Keyshot”
 - <https://www.keyshot.com/fossil> - Use of rendering – watch design.
 - <https://www.keyshot.com/wilson/> - Use of rendering – Golf club design
 - <https://www.keyshot.com/matt-tremblay/> - Cameras – A camera company!
 - <https://www.keyshot.com/jason-busschaert-staneley-black-decker/>
 - <https://www.keyshot.com/mikael-lugnegard/>
 - Which car do you want to buy? Are you being sold a real car? <http://digitalproductioninc.com/computer-generated-cars/>
 - What in the following video is real?
 - [Mercedes Benz Super bowl ad – 2015.](#)
 - <http://digitalproductioninc.com/mercedes-benz-s-class/>

- **Think:**
 - How has solid modeling evolved from an engineering tool to a tool that encompasses the entire process of design and presentation?
 - How is this tool useful to and used by both artists and engineers?

- **Friday** -Case Study: Bioshock
 - **Read:**
 - “Video Games can Never be Art,” by Roger Ebert - <http://www.rogerebert.com/rogers-journal/video-games-can-never-be-art>
 - “The Art of Video Games.” <http://americanart.si.edu/exhibitions/archive/2012/games/>
 - “A Brilliant Shooter, Slowed by a Lackluster Narrative” - <http://www.nytimes.com/2007/08/30/technology/circuits/30game.html?pagewanted=all>
 - “Making Another Dive Into Evils of the Deep” - <http://www.nytimes.com/2010/03/06/arts/television/06bioshock.html>
 - “To the Bitter End: A Player Obeys” - <http://gameological.com/2013/07/to-the-bitter-end-bioshock/>
 - **Think:**
 - After reading Ebert’s article and the profile of the *Art of Video Games* exhibition, which side do you support? Is your resigning based on the arguments, an objective view of video games, or your own personal relationship with video games?
 - Can video games make people better thinkers? Can video games influence the morality of players?

Weekly Guide 10: Fiascos, Failures, and Fantasies

***FINAL PROJECT DUE FRIDAY

• Monday - Case Study: Bioshock

• Read:

- “Video Games can Never be Art,” by Roger Ebert - <http://www.rogerebert.com/rogers-journal/video-games-can-never-be-art>
- “The Art of Video Games.” <http://americanart.si.edu/exhibitions/archive/2012/games/>
- “A Brilliant Shooter, Slowed by a Lackluster Narrative” - <http://www.nytimes.com/2007/08/30/technology/circuits/30game.html?pagewanted=all>
- “Making Another Dive Into Evils of the Deep” - <http://www.nytimes.com/2010/03/06/arts/television/06bioshock.html>
- To the Bitter End: A Player Obeys” - <http://gameological.com/2013/07/to-the-bitter-end-bioshock/>

• Think:

- After reading Ebert’s article and the profile of the *Art of Video Games* exhibition, which side do you support? Is your resigning based on the arguments, an objective view of video games, or your own personal relationship with video games?
- Can video games make people better thinkers? Can video games influence the morality of players?

• Tuesday - Case Study: the Pontiac Aztek verses the Toyota Prius

• Read:

- http://usnews.rankingsandreviews.com/cars-trucks/Toyota_Prius/
- <http://www.caranddriver.com/reviews/pontiac-aztek-gt-road-test>

• Think:

- In your view, what makes a car successful?
- Are some designs so objectionable that they outweigh any functional benefit?

• Thursday - Case Study: The “Hoverboards” of Back to the Future II

• Read:

- “This ‘Back to the Future’ Hoverboard Will Blow Your Mind,” by Nick Statt. <http://www.cnet.com/news/this-back-to-the-future-hoverboard-will-blow-your-mind/>
- <http://gizmodo.com/the-hoverboard-is-real-and-i-rode-it-1649345408> - Be warned, there is some swearing in this essay.

• Think:

- What does the decades-long craving for hover boards say about the relationship between art and engineering innovation? What does it say about the drive for innovation?

• Friday - Course Conclusion