Teaching | UCSB (Mosher Foundation) DPEA + AlloSphere Research Group

Dos Pueblos Engineering Academy (DPEA), High School, Goleta, CA

About: https://www.youtube.com/watch?v=56qvbKGUD3g
The Dos Pueblos Engineering Academy (DPEA) is a four-year Career Technical Education (CTE) program based at Dos Pueblos High School in Goleta, California. It applies a project-and-design-based approach to teach students critical analytical, design, and problem-solving skills. Students complete three CTE Pathways through the program coursework: Engineering Technology, Product Innovation & Design and Machining & Forming Technologies. During their senior year, the Mechatronics capstone is structured as a robust internship experience in an engineering company. Students work in teams to develop interactive exhibits that one might find in science/tech museums such as the Exploratorium in San Francisco, or MOXI in Santa Barbara.

These courses are taught by a team of teachers who are credentialed in physics, visual and performing arts, and engineering/industrial technology. The DPEA retired FIRST Robotics Team 1717 after the 2015 season. Our senior capstone project now focuses on Mechatronics, a multidisciplinary field that combines several types of engineering. You can learn more about our Senior Capstone Project by visiting the Academics Page of our website.

Managed: Dr. JoAnn Kuchera-Morin

Links:
https://www.dpengineering.org/
https://mosherfoundation.org/
https://www.mat.ucsb.edu/
https://allosphere.ucsb.edu/

Classes:

14-17 **Curriculum Program - Analysis, Development, Review, and Outreach**, SB, CA

The Wolf Museum of Exploration & Innovation (MOXI) Museum, SB, CA

White Noise - End of Year Show (EoYS) 2016, UCSB, SB, CA

Goleta & UCSB, CA, (Funded by the Mosher Foundation)
Dos Pueblos Engineering Academy, Dos Pueblos High School
AlloSphere Research Group & MAT Program

14-15 **Teaching Advisor Mentor**(Managing Sr. Lead Researcher) - Faculty: JoAnn Kuchera-Morin

- **Carnival of Physics** - Senior Capstone Mechatronics - Arts Exhibition Project

Exhibitions:

15 **Museum, Maker Faire,& Exhibitions,** DPEA

- **The Santa Barbara Museum of Art**, SB, CA - DPEA, Goleta, CA
- **Maker Faire, DPEA | AlloSphere**, San Mateo, CA -DPEA, Goleta, CA
- **The Carnival of Physics,** Dos Pueblos Engineering Academy (Campus), Goleta, CA

Dos Pueblos High School
Dos Pueblos Engineering Academy (DPEA)
Senior Capstone Mechatronics Project

Fundamentals of Aesthetic Design

2015 - 2016

INSTRUCTOR: Diana Hemsley
CLASS: Mon., Tues., Wed. & Fri.
CLASSROOM: E 12
EMAIL: diana@dpengineering.org

Mentor: Sabina Funk
EMAIL:

Mentor Gustavo Rincon
EMAIL:

MODULE SYLLABUS CONTENTS:

ALL work for Fundamentals of Aesthetic Design must be turned in through http://dphs.edu20.org *or unless otherwise instructed*

I. Module Description:

This module deals with the history of art, and design. This module is intended to provide the background needed for understanding historical design in the arts. In order to understand where we are today, it is important to recognize where we have been. Designers are the inheritors of all that has gone before. An understanding of the development of design as influenced by economic, political, religious, technological, climatic, and geographic factors is as important as learning the definitions and style recognition. The search for one's own style is found in the History of Design, Art, Science, Technology, Theory and Culture. This module consists primarily of learning as doing research-based discussions. The more you learn about Art and Design History/Theory, the more you will develop as an artist.

II. Aesthetic Design Module Key Objectives:

This module focuses on hands-on, real-world application of art/design principles. It rewards students interested in leading or participating in an art/design project by providing them with tools that facilitate complex, real world dynamic decision-making. The module focuses on principles, concepts, skills, information and practices relevant to successfully complete the Mechatronics Senior Project. It is a complex and demanding module with two basic objectives. The first is to teach effective art/design skills from the perspective of a leader. The second is to apply this framework to facilitate collaborative learning and team projects.

This modules focuses on the role of the opportunity of creation and recognition of the artist/designer, as a principle driver for ambitious art engineering works.

Goals:

Project Based Learning – Mechatronics Project.
Application of comprehensive design skills and design methodology
Application of research and analysis
Application of applied fabrication and/or resources.
Application of effective presentation through various 2D, 3D and digital means.
Portfolio Development – In preparation for Senior Show, Maker Faire and Museum Exhibition
Team Collaborative Design for Maker Faire and Museum Exhibition

Learning Outcomes:

Identify significant Artists, Designers and works.
Define/discuss Art and Design movements
Analyze works in the context of history, theory and practice.
Analyze, interpret, and actively use ideas and theories of contemporary art/design to enhance individual design vocabulary.
Demonstrate critical thinking and graphic skills through assignments and critiques.
Identify and demonstrate information competency and researching skills by locating, evaluating sources from books, academic databases, periodicals and art/design exhibition catalogues.

III. Student Module Expectations:

1. Meet all deadlines that are given.
2. Come to class focused and prepared to work each day on time. Make the most of every minute.
3. Advocate for yourself. Ask questions, seek help from and problem solve with each other then ask a teacher or mentor.
4. Be creative and self-reliant.
5. You are expected to be in class and working on your assignments the whole period, no wandering, no computer wandering, and no phone usage.
6. Phones may only be used when given permission by a teacher.
7. All workspaces, supplies and tools must be left clean, organized and returned to their places each period.
8. Participation and engagement in class discussions and critiques is required
9. When finished with one job, move to the next.
10. When asked to work together as a team help others finish tasks or assignments.

IV. Module Outline (Assignment to Assignment)

Fundamentals of Aesthetic Design 2015 – 2016

Module Schedule

Day 00 **Visiting the Museum**

- Visit Museum Take Photos Coming to the reception (
- Thursdays its free)

Assignment: Exercise 00

- Create powerpoint presentation of Museum visit

Due: First day of class

Day 01 **Unveiling the Mechatronics Project**

- Unveil the Kiosk
- Assign teams their mechanisms. Have students form groups three to each mechanism.
- Show example of presentation.
- Research your mechanism. You must become an expert on your mechanism. What branch of physics is it? How does it work? What equations explain the physics?

Assignment: Exercise 01

- Create powerpoint presentation of ...
-

Extended:

Due: Next class

Day 02 **Introduction to Module Philosophy, Syllabus & Objectives**

- Introduce staff and philosophy.
- Introduce syllabus and class objectives.
- Discuss class objectives
- Introduce Game concepts behind what physics can do. How can you create a game from your physics mechanism? What is a Game? How do you analyze?
- Introduce overall ball movement concept plan including ramps, stops, lifts, etc.
- Introduce sense of what mechanisms are going to move the balls. How does your mechanism interact with the ball: narrator, actor?

Assignment: Exercise 03

- A general layout of their entire kiosk, as a rough concept
- Continue research on mechanism
- Power Point.

Extended:

Due: Next class

Day 03 **Presentation of Class Mechanism Research - (Day One)**

- Present to class mechanisms research and powerpoint.

Assignment:

- Note taking on presentation.

Extended:

-

Due:

Day 04 **Presentation of Class Mechanism Research - (Day Two)**

- Present to class mechanisms research and powerpoint.

Assignment:

- Note taking on presentation.

Extended:

-

Due:

Day 05 **Mondrian**

- Mondrian

Assignment: Exercise 04 & 05

- Mondrian handout.
- *Vocabulary handout.*

Extended:

- breaking rules draw examples of opposite of unity, harmony, balanced and explain why.

Due: Next class

Day 06 **Discussion of Aesthetic Design Vocabulary**

- Discuss vocab and terms.
- Sabina introduces artist Mondrian as example.

Assignment: Exercise 06

- Artist presentation.
- Choose Artist

Extended:

- Reduce three artworks. Due next day
(Demo: Introduction of Mondrian as example_

Due: Critique review:

Period 3, 5, 7, 8 present Friday
Period 2,4,6, present Monday

Day 07 **Discussion of Aesthetic Design Vocabulary - (Day One)**

- Artist presentations. 2 minutes each.
- Vote on and critique presentation boards.

Assignment: Exercise 07

- Presentation notes.

Extended:

- Answer all questions.

Due: Day 09

Day 08 **Discussion of Aesthetic Design Vocabulary - (Day Two)**

- Artist presentations 2 minutes each.
- Vote on and critique presentation boards.

Assignment: Exercise 07- continued

- Presentation notes.

Extended:

- Answer all questions.

Due: Day 09

Day 09 **Kiosk Study**

- Introduce analytical methodology
- Discuss different approaches

Assignment: Exercise 08

- Kiosk study
- 3-D model
- Presentation.

Extended:

- One page response

Due: Next class

Day 10 **Ball Movement**

- Show slides of ball moving ramps from last year.
- Research ball moving sculptures: Denha, George Rhoads, rolling ball sculptures, marble moving sculpture maze, pinball machines, etc. Design ramps and ball moving mechanisms for your kiosk.
- Research ball stop, servo, torque levers,
- Photos of Carousel of Physics
- Ramp Idea of Kiosk

Assignment: Exercise

-
- What is a game?
- 1. Read Definitions of games.
- 1a. List all major components in these definitions. What do they have in common
- What do they have in common, and what is different. (10+ items)
- 1b. What is your definition of a game? (paragraph)
- 2. Choose a game to analyze

- 2a. Based off of your list of game requirements from 1a, analyze the game. Pick 5 requirements to defend your choice. (2 paragraphs)

Extended:

- Watch: Lynda.com video http://www.lynda.com/Web-Interaction-Design-tutorials/Foundations-UX-Prototyping/133349-2.html?utm_campaign=FS00UIo12Xk&utm_medium=viral&utm_source=youtube
- Be ready to discuss.

Due: Next class

Day 11 **Game Design: What is a Game? & User Interface Design - (Day One)**

- Introduce Game concepts behind what physics can do. How can you create a game from your physics mechanism? What is a Game? How do you analyze?
- Lecture 1a: What is a game?
- Have students compile a master list of game definitions
- Create a final group definition
- Lecture 1b: User Interface Design
- What is UI/UX design (ppt)
- (Demo: Paper Prototype Assignment example)

Assignment: Exercise

- Reading from Don't make me think (Ch 1)

1. Create a list important criteria for a user interface based off of the reading.
2. Analyze a user interface for a tablet/smart phone game (computer game)

Create a presentation of the game's UI. Taking screenshots from the game and discussing the user interface elements.

Extended:

- Redesign the game's user interface to make it better, include in presentation

Due: Next class

Day 12 **Game Design: Analysis (UI/UX) & Student Presentations - (Day Two)**

- Review Game concepts.
- Students present their analysis of their game.
- Introduce the idea of paper prototyping the game

Assignment: Exercise

- Create a Paper Prototype for your game.
- Use video references as a guide.

References:

example:
https://courses.edx.org/courses/MITx/11.126x/3T2014/courseware/Week1/W1_Paper_Prototyping_Assignment_sequential/
http://video.mit.edu/watch/paper-prototyping-your-game-episode-1-part-1-5514/
ipad paper prototypes:

https://www.youtube.com/watch?v=k-nfWQLmlMk
https://www.youtube.com/watch?v=x48qOA2Z_xQ
https://www.youtube.com/watch?v=zJqiZrnJSuw
https://www.youtube.com/watch?v=64vZ76XM5mQ
medical ui
https://www.youtube.com/watch?v=_g4GGtJ8NCY)

Extended:

- …

Due: Next class

Day 12 **Game Design: User Study - (Day Three)**

- Review Game concepts.
- What is a user study?
- How to run a user study?

Assignment: Exercise

- User Study:

Part A:

- Make a recording of testing your paper prototype on at least 1 students.
- Upload video to youtube or vimeo, include link on NEO (5 minutes.)
- Take notes on their interaction
- Get their feedback

Part B:

- Test someone else's game
- Give them feedback

Extended:

- Redesign game with their feedback in mind.
- Upload video to youtube or vimeo.
- Include link on Neo (5 minutes)

References:

UI/UX Diagrams:
https://s-media-cache-ak0.pinimg.com/736x/85/ca/51/85ca51b2bac3becc94d3ab26589ea5f6.jpg
https://media.licdn.com/mpr/mpr/p/5/005/070/07a/0d718cd.jpg
http://asinthecity.com/2011/11/10/the-difference-between-a-ux-designer-and-ui-developer/
https://en.wikipedia.org/wiki/Interactive_design#/media/File:Interactive_design_in_relation_to_other_fields_of_study.jpg
https://www.interaction-design.org/images/ux-daily/be5d939e8d9bbd163559d02cd7e975db.gif
http://www.chrispie.com/wp-content/2009/10/684px-Interaction-Design-Disciplines-500x438.png

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Due: Next class

Day 14 **Studio Time - (Day One)**

- Working on 3D models in class
- Fundamental Forms (Skill Refresh)

Assignment: Exercise 1- & 1-

- Create a 3D model
- Create a Portfolio

Extended:

- …

Due:

Day 15 **Studio Time - (Day Two)**

- Working on 3D models in class
- Fundamental Forms (Skill Refresh)

Assignment: Exercise 1- & 1- - continued

- Create a 3D model
- Create a Portfolio

Due:

Day 16 **Studio Time - (Day Three)**

- Working on 3D models in class
- Fundamental Forms (Skill Refresh)

Assignment: Exercise 1- & 1-- continued

- Create a 3D model
- Create a Portfolio

Extended:

- …

Due: Next class

Day 17 **Presentation of 3D Model & Portfolio (Day One)**

- Working on 3D models in class
- Fundamental Forms (Skill Refresh)

Assignment: Exercise 1-

- Update 3D Model & Portfolio for clarity
- Incorporate suggested changes and improvements as reviewed in class

Extended:

- …

Due: Last Day of Aesthetic Design Module

Day 18 **Presentation of 3D Model & Portfolio (Day Two) - Last Day*****

- Working on 3D models in class
- Fundamental Forms (Skill Refresh)

Assignment: Be prepared for New Module

- Have Portfolio ready.
- Be prepared to discuss in detail

Extended:

- …

-

V. How to Communicate Effectively:

How to Write Better: Answers / Essays

A. Prepare Your Assignment in Advance

In order to write at a high quality, be sure to take the time to write:

1. An outline of your major points that distills a logical flow of information
2. A rough draft of your answers that you can reread and have another person read for you. A second reader always helps, no matter what your level of writing expertise is.
3. A final draft that you can carefully spell check and review for grammar, content and style. If you allow time between the first and final draft, you will think of new content and deeper understanding that will improve the quality of your work.

B. Follow the Triple A's – AAA = Absorption, Analysis, Application

Include proof of the following, placing emphasis on Analysis and Application:

1. Absorption: quickly summarize the data you have reviewed for the assignment, avoid lengthy repetition. Assume I am already familiar with the material and simply show me that you are as well. Demonstrate mastery of the material by referring to the main points in reading and in class notes.
2. Analysis: give an explanation of what effect the material has on your existing views of Art/Design, the meaning of current Art/Design concepts and how they might change as a result, and what resonance there is on your other modules. Feel free to use concepts from your other modules here and create connections between them.
3. Application: take this new knowledge and use it as a frame of reference to interpret part of your world. For example, demonstrate how it might change your personal Art/Design practices.

Following are some questions that may inspire you to create original content:

- Do you have a viewpoint upon which most people would disagree?
- What is one main idea you can focus upon to explain this subject?
- How can you assert your conclusions about this subject?
  Here is a good place to use the rule of 3 (elucidate your thoughts into 3 clear points).
- Brainstorm about your interests on the assignment and some of your ideas on the class discussions and readings.
- Reflect on how you see this content as an Artist/Designer.
- What is your unique point of view?
- What have you learned?

C. General Flow of your answers/essays: Have a Point of View and Prove it

Begin with an overview of the existing information on the subject – cite quotes from class and the reading/research. Demonstrate your familiarity with the existing body of knowledge, showing that you are an informed voice on the subject. Your answers/essay should be focused, organized and well researched to be successful.

Some pointers:

1. Consider your essay as part of your art/design portfolio and be sure that your work is high enough quality to include as a writing sample with a job application.
2. Make sure to begin each paragraph with a topic sentence to introduce the evidence to be examined within the paragraph
3. Vary your language; in other words, don't begin each sentence in the same fashion and make sure to utilize varying sentence lengths
4. Pose questions and answer them
5. Write in the active voice (present tense, first person)
6. Eliminate unnecessary words-they dilute the impact of your writing
7. Incorporate quotes into your own words (cite them even if you are paraphrasing)
8. Do not use slang or casual language
9. SPELLCHECK
10. Make sure to have another student review your paper before submitting.
11. Read your answer/essay out loud. You will immediately discover awkward sentences, verbs that do not agree with their subjects and run-on sentences. Hearing your own writing out loud also helps you to discover if your arguments make sense. Also, if you pause during a sentence, that's where a comma belongs.
12. From rough draft to final draft, you should have time to perfect your thoughts, the format and the flow of your answer/essay.

D. Conclusion

Synthesize all of your research to declare your position on the topic.
Summarize how you have proven your position.
This should demonstrate your mastery of the information presented as well as your ability to go beyond ideas presented in class and in the research/readings.

Important Reminders:

You will be marked down for typos, spelling errors, and improper grammar and syntax.
You are being graded on the Triple A's – AAA = Absorption, Analysis, Application.

Recommended Online Writing Resources

The Purdue Online Writing Lab at http://owl.english.purdue.edu/owl/
Odegaard Writing & Research Center at http://depts.washington.edu/owrc/WritingResources.html

Recommended Writing Books

Style: The Basics of Clarity and Grace by Gregory G. Colomb and Joseph M. Williams
http://www.amazon.com/Style-Basics-Clarity-Grace-4th/dp/0205830765

The Elements of Style (4th Edition) by Roger Angell, William Strunk, E.B. White
http://www.amazon.com/Elements-Style-4th-William Strunk/dp/0205313426/ref=sr_1_1?s=books&ie=UTF8&qid=1360278573&sr=1-1&keywords=Strunk+and+White

Presentations: PowerPoint & Talks

Objective: *To encapsulate all of your/ teams ideas into a Passionate & Powerful Presentation.*

Goal: *The purpose for this presentation assignments are for you to raise funding, support and allies for your Art/Design Idea through clear, factual and persuasive analytical & communication skills. (Think about this assignment as a Legal Document.)*

Problem: *How are you going to make a personal connection to a possible Curator/Design Engineer/Investor and make him/her care about your Art/Design Concept?*

Audience: *A Curator/Engineer with many decades of successful experience, little to no time and who has helped change the landscape of Art/Design Engineering field/industry. Also, who can identify in a fraction of a second maturity and quality of a Art/Design. A pragmatic Master of Analysis, Decision Making, Design, Logic and Research, a genius at networking with a second to none connection to the Art/Design community.*

(i.e. The most famous Artist, Designer, Engineer & Entrepreneur. (Jonny Ive, Zaha Hadid & Steve Jobs))

You: *This could be your chance to realize your dreams and change the world.*

Note: All presentations need to be Analytical, Creative, Logical with clear concepts & solutions.)

Resources:

TED - https://www.ted.com

A. Assignment Goals:

1. Create & Show your own/ group's Unique Style. Make sure that your own/group members lead with their strength, & take ownership of work completed.

2. Communicate the 3 (Key Performance Indicators) of your Art/Design Assignment.

- *Answer this question: What are the **3 things** that you need to know/show about your Art/Design Idea? Your ideas should give an engineer/curator the confidence to invest in your idea.*

3. To demonstrate deep knowledge and understanding of the ecology of art/design research into which your proposed solution will be solving.

4. Teach & share with your audience (Classmates/Teachers).

- *Demonstrate your deep insight about the Art/Design problem you are researching to solve*.

5. Key elements of All Assignments are that the Art/Design solutions are clearly analytically developed and logical:

- *State the problem clearly. (Demonstrate how your idea/vision is unique and one of a kind.)*
- *Create a persuasive thesis / (arguments) that prove your case. (Research - (Cited Sources))*
- *Create a personalized narrative to deeply connect to the reader/investor.*
- *Cite other artists/designers that have similar solutions? Brief statement.*

6. Clearly synthesize all of the Concepts major phases:

- ***Concept***
- ***Research***
- ***Iterative process***
- ***Analysis***
- ***Strategic solution(s)***

7. Present your own/group project as a final assignment that is well rehearsed, complete with clear strategic objectives, powerful purpose and capability to compete on the world stage.

8. Sample Feedback to keep in mind: You should be able to tell me your idea in 5 - sentences or less.

- *What is your Idea? (Think about this both conceptually & pragmatically)*
- *Why is it solving a creative need and/or problem? (cite facts and references)*
- *How is an engineer going to help you realize your idea?*
- *How are you/ your team's talent guarantee success? (Cite facts)*

B. Presentation Materials: *(Please bring the following:)*

- *Presentation Slides*
- *Presentation Script Outline with Summary*
- *Art/Design Assignment & Documentation*
- *Cited References Summary Page*

C. Q.D.O.S.:

Please use the following criteria listed below (Q.D.O.S.) to evaluate each slide of your presentation.

- ***Quickness*** *(Straight to the Point),*
- ***Delivery*** *(Communication with Intent / Body Language/ Positive Tone),*

- ***Originality*** *(Quality & Power of the Information: Diagrams/ Graphics/ Photos/ Videos / Quotes / Excellent Cited Research),*
- ***Sting*** *(Sales/Selling the Idea / Strategic reinforcement of the message / Memorable Impact)*

Note: *Be ready to show your best effort. Every part of your presentation needs to be evaluated for the highest quality of excellence.*

D. **Keep it simple. (Limit to 20 slides)** ***http://sethgodin.typepad.com/seths_blog/2007/01/really_bad_powe.html***

- Slides should be easy to understand and have plenty of white space.
- Use large font (at least 24, preferably 36). Do not use too many colors or too many fonts or styles. Please avoid all backgrounds, clip art and slide transitions.
- Use clear bullet points (only 3 or 4 points per slide) and uncluttered graphics to illustrate your main ideas. Ideally, each slide will only have 6 lines or less and each line will have 6 words or less. It is not a teleprompter. Seth Godin actually recommends that you use no more than 6 words on a slide. EVER.
- The less you have on a slide, the more effective it will be.
- The speaker should fill in the details during the presentation and SELL the idea. You have to convince the idea is a good one and will succeed based on data and emotion.
- Describe your vision and how it will succeed. Define the problem you are solving and how your solution is the best.
- Describe your Art/Design solution, including concept, aesthetic features, design benefits and artistic/design advantage. Explain your strategy
- Write cue cards for the speaker to look at while the audience looks at the screen.
- Make slides that reinforce your words, not repeat them.
- Illustrate your points with photos/drawings/fun images. Be creative.

Important: *Practice your presentation until you are comfortable giving it. Then you can relax when you present it to class.*

Requirements:

1. Title Page
2. All above slides necessary to prove your Art/Design ideas and solutions
3. Add all relevant cited references including web research conducted.

VI. References

A. Books:

Conran, Terence and Max Fraser. Designers on Design. London: Octopus Publishing, 2004.

Harrison, Charles and Paul Wood, eds. Art in Theory 1900 – 2000: An Anthology of Changing Ideas. Malden, MA: Blackwell Publishing, 2003.

Holtzman, Harry and James, Martin S. *The New Art--the New Life: The Collected Writings Of Piet Mondrian (Documents of Twentieth-Century Art)*, Boston, MA*:* Da Capo Press, 1993. Print.

Norman, Donald A. *The Design of Everyday Things*. New York, NY: Basic, 2013. Print.

Krug, Steve. *Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability*. San Francisco, CA: New Riders, 2014. Print.

Brathwaite, Brenda, and Ian Schreiber. *Challenges for Game Designers*. Boston, MA: Course Technology/Cengage Learning, 2009. Print.

Fiell, Charlotte and Fiell, Peter. *Designing the 21st Century .* Taschen: Taschen, 2005. Print.

Fullerton, Tracy. *Game Design Workshop: A Playcentric Approach to Creating Innovative Games*. Naktick, MA: K Peters/CRC, 2014. Print.

Raizman, David. *History of Modern Design*. Upper Saddle River, NJ: Prentice Hall Inc., 2004.

Books: Individual Readings:

Harrison, Charles and Paul Wood, eds. Art in Theory 1900 – 2000: An Anthology of Changing Ideas. Malden, MA: Blackwell Publishing, 2003.

1. “The Richard Mutt Case,” Marcel Duchamp; pg. 252
2. Alexi Gan from Constructivism; pgs. 343 – 344
3. “The Initiative individual in the Collective” by Vladimir Tatlin; pg. 334
4. “A. and Pangeometry” by El Lissitsky; pgs. 317-321
5. “Manifesto I,” 1918 by De Stijl ; pgs. 281
6. “Dialogue on the New Plastic” by Piet Mondrian; pgs. 284 - 289
7. “The Theory and Organization of the Bauhaus -1923” by Walter Gropius; pgs. 309 – 314
8. “Programme of the First Working Group of Constructivists” by Alexander Rodchenko and Varvara Stepanova; pgs. 341 - 343
9. Alexi Gan from Constructivism; pgs. 343 – 344
10. “Report of the Section for Material Culture’s Research Work for 1924” by Vladimir Tatlin; pg. 352
11. “Programme of the First Working Group of Constructivists” by Alexander Rodchenko and Varvara Stepanova; pgs. 341 - 343
12. “Report of the Section for Material Culture’s Research Work for 1924” by Vladimir Tatlin; pg. 352 – 353
13. “Dialogue on the New Plastic” by Piet Mondrian; pgs. 284 – 289
14. Writings from the Situationist International 1957- 61 by Guy Debord pgs. 701 – 706

B. Resource Links: (*Wikipedia is not an appropriate cited reference. It is a starting point.)*

Math
Physics
Engineering
Khan Academy

C. Web Links:

Art Design - Historical:

SF MOMA: MONDRIAN'S COMPOSITION WITH RED, YELLOW, AND BLUE -
http://www.sfmoma.org/explore/multimedia/interactive_features/54
http://www.sfmoma.org/explore/multimedia/interactive_features/54

Art Design - Contemporary

Paola Antonelli: 'Design Is More Than Cute Chairs' (Pod Cast)-
http://sciencefriday.com/segment/12/05/2014/paola-antonelli-design-is-more-than-cute-chairs.html
Paola Antonelli: 'The Design Arcade'
https://www.youtube.com/watch?v=Q5woxY4HYqo

Documentary:

Inge Druckrey: Teaching to See
http://vimeo.com/45232468

Objectified Documentary - http://www.pbs.org/independentlens/objectified/

"Objectified": Jonathan Ive - https://www.youtube.com/watch?v=HI-8x6TLwmg

Who Dares Wins • Zaha Hadid -
https://www.youtube.com/watch?v=9n0EQBa7dQIhttps://www.youtube.com/watch?v=HI-8x6TLwmg

Helvetica Documentary - https://www.youtube.com/watch?v=fhWWzVgykn0

Archiculture Documentary - https://www.youtube.com/watch?v=62r3UPrOS9k

Marc Newson Urban Spaceman -

1 of 5 - https://www.youtube.com/watch?v=uoS71sBKESI
2 of 5 - https://www.youtube.com/watch?v=ATbMLvDIvL8
3 of 5 - https://www.youtube.com/watch?v=58IDkClMgNg
4 of 5 - https://www.youtube.com/watch?v=D6DNqqWJTks
5 of 5 - https://www.youtube.com/watch?v=lw6wyKOnTo0

**** Frank Gehry: The Architect Says... • BBC Imagine [2015] - https://www.youtube.com/watch?v=34tJ7JAjSW0

BBC The Genius Of Design 1 of 5 Ghosts In The Machine 2010 - https://www.youtube.com/watch?v=NkQXUKQYrsQ

The Secret of Drawing - Drawing by Design (BBC Documentary) - https://www.youtube.com/watch?v=KUt5MSybxro

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Interviews:

Charlie Rose: Jony Ive & Marc Newson - http://www.hulu.com/watch/563008

How to design breakthrough inventions 60 Minutes - https://www.youtube.com/watch?v=V_C6Caaj5Cg

Dieter Rams Design - https://www.youtube.com/watch?v=-N5aQyCzm4I

Lectures & Talks:

Ross Lovegrove: The power and beauty of organic design - https://www.youtube.com/watch?v=sWqkKYwvTNw

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Museums:

California:

The Exploratorium - http://www.exploratorium.edu/

California Academy of Sciences in San Francisco - http://www.calacademy.orghttp://www.exploratorium.edu/

The Tech Musuem of Innovation - https://www.thetech.org/

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Programming: Creative Coding

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The Case For Andy Warhol | The Art Assignment | PBS Digital Studios
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https://www.youtube.com/watch?v=weIQIthC3Ks&index=1&list=PLBMOtC0-L_ann5Ny24QrozdO_wsf9hYrI

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The Effect of Color | Off Book | PBS Digital Studios
https://www.youtube.com/watch?v=nX0DHd5QNS8&index=3&list=PLBMOtC0-L_ann5Ny24QrozdO_wsf9hYrI

The Art of Logo Design | Off Book | PBS Digital Studios

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https://www.youtube.com/watch?v=1xGbw7nnH-o&index=8&list=PLBMOtC0-L_ann5Ny24QrozdO_wsf9hYrI

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The Rise of Videogame Economies | Off Book | PBS Digital Studios
https://www.youtube.com/watch?v=cxf0aoDQDWs

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The Creativity of Indie Video Games | Off Book | PBS Digital Studios

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Will 3D Printing Change the World? | Off Book | PBS Digital Studios

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F. Mosher Fellow Selected Documentation Mosher Fellow Selected Documentation

1. Academies

a. Assignments Created at DPEA Inspired by the Mosher Fellows

i. Computer Science Curriculum

ii. Design Arts & Engineering Curriculum

Syllabus

Assignments

b. Lecture Materials

c. Graphics, Communication Materials, & Meeting Minutes

d. Photo Documentation of DPEA, SBHS-CSA, & AAPLE

DPEA – Fundamentals of Aesthetic Design
Curriculum Outline

Exercise one- one day
Introduce staff and philosophy.
Intro syllabus and class objectives.
Discuss class objectives
– Game concepts behind what physics can do. How can you create a game from your physics mechanism?
- Overall ball movement plan including ramps, stops, lifts, etc.
- Sense of what mechanisms are going to move the balls. How does your mechanism interact with the ball: narrator, actor?
- A general layout of their entire kiosk, as a rough concept, 3-D model and drawings.

Exercise two- one day
Assign teams their mechanisms. Have students form groups three to each mechanism.
Show example of presentation.
Research your mechanism. You must become an expert on your mechanism. What branch of physics is it? How does it work? What equations explain the physics? Create powerpoint presentation. Due next day.

Exercise three- 2 days
Present to class mechanisms research and powerpoint.

Exercise four –one day
Powerpoint Mondrian
Assign Mondrian handout. Due next day.
Assign vocabulary handout. Due next day.

Exercise five -one day
Discuss vocab and terms.
Assign artist presentation. Due next day
Sabina introduces artist Mondrian as example.

Exercise six- 2 days
Artist presentations 2 minutes each. Vote on and critique presentation boards.
Assign presentation notes. Due in 2 days.

Exercise seven –one day
Assign kiosk study. Due next day.
Assign 3-D model and presentation. Due in ____days.

Exercise eight – 2 days
As a group come up with at least three games you can achieve with each mechanism. What does your user interface look like? How does the ball interact with your mechanism?

Exercise nine –one day
Show slides of ball moving ramps from last year.
Research ball moving sculptures: Denha, George Rhoads, rolling ball sculptures, marble moving sculpture maze, pinball machines, etc. Design ramps and ball moving mechanisms for your kiosk.

Exercise ten -4 days
Work on 3-D models in class
Research ball stop, servo, torque levers,

Exercise eleven-2 days
Present your 3-D model with mechanisms, ramps and game.

Student Expectations

1. Come to class focused and prepared to work each day on time.

2. Make the most of every minute.

3. Advocate for yourself. Ask questions and seek help from your fellow students first. Ask two more students if the first does not know. Then seek out help from a teacher or mentor.

4. When finished with one job move to the next or help others finish.

5. You are expected to be in class the whole period, no wandering.

6. Phones may only be used when given permission by a teacher or they will be confiscated.

7. Be creative and self-reliant.

8. Meet all deadlines that are given.

9. Perform at a level of excellence. Do not accept from yourself, anything less than the best.

Programming Leader

Status Report: Student-

Subsector

Sector

Mechatronics Student Roles: Team-

Team Leader -

CAD modeling -

Machining -

Programming –

Mechatronics Student Roles: Team-

Team Leader -

CAD modeling -

Machining -

Programming -

Mechatronics Student Roles: Team-

Team Leader -

CAD modeling -

Machining -

Programming -

Mechatronics Student Roles: Team-

Team Leader -

CAD modeling -

Machining -

Programming -