

SYLLABUS

MCEN 4228/5228-003 & ATLS 4519-004

Aesthetics of Design

Spring 2021

MWF 11:30-12:20, Zoom link in Canvas and Slack

Prof. Jean Hertzberg

Jeanbizhertzberg.com

Aesdes.org

Design is pervasive. The products of design surround us in all aspects of our man-made environment. More importantly, we also design our lives: every choice we make is an element in that process, whether conscious or not. The goals of design can be merely pragmatic; to optimize for best function, for minimizing time and expense, and many engineering designs are done this way. But how impoverished our lives would be if pragmatic considerations were the only criteria! Instead we use aesthetics to guide our choices to make life better for ourselves and others. Aesthetics add meaning and depth to a design, whether we are designing an artwork, a product, a process, or our very lives.

Course Goals

- To highlight how aesthetics influence design and vice versa.
- To provide the context of modern and historic design movements.
- To encourage an expanded perception of design, motivate use of engineering concepts outside the classroom and enjoyment of design as a discipline and art. The vehicle will be a creative aesthetic experience: you will imagine and execute iterative design-fabrication processes, with design objectives that range from the traditional aspects of functionality, sustainability, manufacturability, and cost to more elusive objectives like aesthetics, beauty, ethics, meaning, emotion, and the relationship of form to function.
- To provide a venue for student work, as a component of a public design portfolio.
- To practice communication of design, and the articulation of aesthetics and design thinking.
- To instill constructive critique techniques.
- To provide the opportunity to wholly own a design, and see it from conception to finished project.

- To question the relationships between art, aesthetics, science and engineering and how they apply to our lives and professional aspirations.

Learning Objectives (things you will be capable of at the end of the course)

1. Students will execute an iterative design-fabrication process.
2. Students will document their design choices, gaining facility in communication and recognition of their own creative processes.
3. Students will demonstrate constructive critique skills in the service of their own and other's creative vision.
4. Students will apply select fundamentals of a traditional industrial design curriculum, including art and design history, hand sketching and fabrication techniques.

Course Format

This course will be a mashup of an engineering projects course, an industrial design course and a studio arts course. Class time will alternate between lectures, student presentations and project work. Topics will include art and aesthetics, and design topics like brainstorming, the documentation process, constructive critique, design considerations, and universal principles of design. Like other project courses, there will be a design review and a final presentation. Differences from other engineering courses will include an emphasis on aesthetics, your freedom in choosing what to create, and your ownership of the design from start to finish.

You will have access to some of the resources of the ITLL (ITLL.colorado.edu) and the Idea Forge (in Fleming, <http://www.colorado.edu/ideaforge/>) including laser cutting and 3D printing via remote job submission, plus access to technician advice. There are no formal lab sessions; instead students are expected to treat assignments as they would for any other course.

Students are expected to attend all lecture and discussion sessions. Attendance will be taken for all guest lectures and student presentations. In Zoom, cameras will be required to be turned on for greetings and goodbyes, breakout sessions and critique sessions. Cameras should be off during screen shares to save bandwidth, and virtual backgrounds are discouraged for the same reason.

Structure

- Individual warm up project: Upcycle. Create an artifact out of inexpensive and/or recycled materials to demonstrate an aesthetic. Deliverables: oral presentation of artifact, blog posts detailing design and fabrication process.
- One main project which you own (and pay for). Requirements:
 - Deliverables will be a functional artifact that satisfies an aesthetic of your choice, plus documentation (weekly blogs, including design review and final reports).

- The artifact (sculpture) must be dynamic; have a moving part or interact with the user in a time-varying way.
- A purely virtual design is acceptable, provided documentation is complete, so it could actually be built.
- Art for art's sake is OK!
- The artifact can be desk toy scale, lobby scale or Burning Man scale, provided work space can be found. Emphasis will be on aesthetics and documentation. For example, a rough finish would need to be justified by an articulated aesthetic.

This is an experimental course. We will be studying how to improve the course for the future as well as its effect on you, so you will be asked to participate in surveys and interviews, and have all your work published. If this is going to make you uncomfortable, this might not be the best course for you.

There will be no textbook required for the course, but you will be expected to contribute around \$150 towards any materials needed for your project, in lieu of buying a textbook.

Assignments, Assessment and Grading

While you will get ongoing feedback about your progress, it will not be in the form of points to be accumulated towards a grade. **There will be no concrete grading structure for this course.** Your final grade will be determined by your completion of assignments and your participation in class and pod activities. If you need a more concrete grading structure, this course is probably not going to work for you. While detailed grading of your work will not be done, you will receive detailed critiques from other students, and you will be trained to give such critiques. Your work will be checked for completeness and quality, and you will be expected to revise and resubmit your work if requested. It is our hope that you will be motivated to achieve excellence by the actual meaning, context and quality of your work, and its publication on the course website. In rare cases, substandard work such as poorly executed projects and reports that grievously fail spell and grammar checks will result in lowered course grades. At the end of the semester, you'll be asked to assess your own grade; this will be seriously considered.

Expectations for students in the graduate sections are higher, for project quality, blog writing, and leadership. Grad students will be asked to facilitate the critique sessions and will be expected to give a short presentation to the class on a design movement or current designer sometime during the semester.

Here is a list of activities that contributed to course grades last year. This is given only as an example of the type of activities we will undertake; **this semester will be a bit different from this list:**

Signed syllabus (paper copy)

Blog content—at least one blog post per week, including the following topics:

Aesthetic Exploration

Initial progress on upcycle project

Upcycle inspiration

Upcycle final report

Skill sets and personal aspirations

Main project inspirations

Top 5 constraints for your project, including aesthetics

Design review summary (and next steps)

Your aesthetic: relationship to 20th century movements. Alternate aesthetics.

Main project construction timeline

Construction update

Final project Part 1: What and How

Final project Part 2: Why and What Next

Summing Up

*Please feel free to post on other subjects or to split these topics up into multiple posts.

Detailed critiques of classmates' blogs

Design review presentation

Design review critique (given to everyone in your pod)

Final design review presentation

Final design review critique (given to everyone in your pod)

Presentation at our class Expo, and optionally the ATLAS and CEAS Expos

Course feedback survey x2 (you'll get the 2nd one after the final projects are due)

Final project (the actual object you've designed is the deliverable; but it is yours to take home)

Attendance, regular classes, presentations and guest lectures

Prerequisites and Degree Credits

There are no formal prerequisites, but it is understood that by signing up for this course, you feel you have something to offer a design team—either artistically, computationally, philosophically or hands-on skills. This course counts as an upper division technical elective towards engineering degrees in the College of Engineering and Applied Science (specifically as an enrichment course for the MS in ME Design Track), as a Creative Technology & Design "Focused Elective" course, and may be petitioned as studio or production credit towards fine arts degrees in the College of Arts and Sciences or as an upper division science credit towards any A&S degree. If your project incorporates a musical element, it may count towards the Music Technology Certificate, in the College of Music.

Contact Information

Instructor: Prof. Jean Hertzberg

Email: Hertzberg@colorado.edu

Office: ECME 220, 303-492-5092

Personal Webpage: <http://jeanbizhertzberg.com>

Teaching Assistant: Behruzkhon Rashidov (Behruzkhon.Rashidov@Colorado.EDU)

Behruz is happy offer assistance with CAD and fabrication techniques.

Course Website

<http://aesdes.org> is a Wordpress blog site that will be co-created by students and instructors. You will receive a login as a contributor. You will be expected to make regular posts throughout the semester, documenting your design process and reflecting on it. Sometimes topics will be specified, but you are not restricted to required topics. You will also be expected to comment on other students' work, live, in class during presentations and asynchronously as well. This blog will be the publication venue for your work, and will contain updated course information as well. The TA will monitor the blog and update your 'grades' in Canvas accordingly. This website is reasonably high-visibility, receiving an average of 200 views per day from around the world. When you or an employer google your name in future years, your work published on this site will be near the top of the list (try googling a student from a couple of years ago and see).

Textbooks

No textbooks are required for this course. Instead, students are expected to research background information online and in the archival literature (yes, you might have to go to the library!). Specific readings will be provided via a Zotero group library. Go to Zotero.org and make a login for yourself. You will get an invitation email from me, and you can go to www.zotero.org/groups/aedes and request membership.

The following texts are recommended. All are available online from Amazon.com or other booksellers. Additional texts are listed in the Zotero library. I own most of these, and you can preview them in my office or check them out. Many are available in the Engineering and/or MathPhysics Libraries on campus. **Several cost less than a pizza, and will serve you well both this semester and in years to come:**

[*Universal Principles of Design, Revised and Updated: 125 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions.*](#) Lidwell, William, Kritina Holden, and Jill Butler. Rockport Publishers, 2010. ISBN 978-1-61058-065-6. Kindle edition:\$14. A PDF is available in our Zotero library. The book is alphabetically arranged two-page articles on a range of design topics. A number of videos based on the book are available at LinkedIn Learning.com (formerly Lynda.com), available through myCUinfo; we will view some in class. Sign in to Lynda.colorado.edu with your Identikey, then search for the title.

[*Sketching: The Basics.*](#) Amsterdam: BIS Publishers, 2011. Steur, Roselien, and Koos Eissen. ISBN 978-90-6369-253-7. \$20 to \$40. This is the text we'll draw our sketching curriculum from.

[Critical Response Process: A Method for Getting Useful Feedback on Anything You Make, from Dance to Dessert.](#) Lerman, Liz. EBook.\$9.50, 2002. This short book describes the critique process we'll be using this semester. It's a helpful process that can be applied in any feedback situation.

[Emotional Design: Why We Love \(or Hate\) Everyday Things.](#) Norman, Don. New York: Basic Books, 2003. 978-0-465-05135-9. Available used from \$3.50. Attractive things really do work better, and this book discusses the research behind this and how to use this fact in improving designs.

Design in the USA. Jeffrey L. Meikle. Oxford Press. 2005. ISBN 978-0192842190. \$27.74. A brief but thoughtful look at the aesthetics of design in America, from the 1790s to the 1990s. Lots of pictures and examples.

The Aesthetics of Design. Jane Forsey. Oxford Press. 2013. ISBN 978-0199964369. \$44.96. A thorough analysis of current and historical philosophy and psychology of aesthetic design. An academic read, but it reveals with great clarity the most current trends in aesthetic analysis.

Phaidon Design Classics Volumes 1,2 and 3. London ; New York: Phaidon Press, 2006. ISBN 978-0-7148-4399-5

Available as an app for iPad, \$15 (hardcopy is \$160) <http://www.phaidon.com/apps/phaidon-design-classics/>.

"The three-volume book is an authoritative collection of design classics, which includes 999 industrially manufactured products, carefully selected by a group of experts. From cars to furniture, from tableware to cameras, from everyday objects to aeroplanes, this breadth of classic design has never before been collated. These volumes will be the sourcebooks on design from the early 1800's to the present, bringing together patents, prototypes, old advertisements, original drawings, images showing the process of manufacture, as well as rare archival photographs. Over fifty authors ranging from designers to curators, critics, and academics, have contributed with short texts for each objects, providing detailed research and precise information. Each artifact gets 2 pages"

[Design of the 20th Century.](#) Fiell, Charlotte & Peter.. Taschen America, 2012. \$20
A-Z plus timeline. 2 page spread per artifact. We will discuss timeline in lecture after universal aesthetics.

[1000 Chairs.](#) TASCHEN Books (Bibliotheca Universalis).

Chairs are the typical object whenever design is discussed. Here are 1000 famous chairs of the 20th Century. \$16.00

[Industrial Arts Design :a Textbook of Practical Methods for Students, Teachers, and Craftsmen](#)
Varnum, William Harrison. Peoria, Ill. c1916. A free eBook on details, recipe and tutorial of Arts and Crafts style design.

Publications and Public Presentations

This course has the potential to attract a great deal of attention. Student projects from this course may be published in professional journals and on the web, with the instructors as co-authors. All web content is published under a Creative Commons Attribution-NonCommercial license. Students who supply contact information will be kept informed of all future publications of their work. Any images and reports produced for the course will be published on the course website.

You will be expected to display your work at Final Exam Showing (invite family and friends), and optionally in the CEAS and/or ATLAS spring design expos. Your final presentations will be in class, last week of the semester.

Professionalism Expectations

A primary objective of the Mechanical Engineering Department is to prepare each of our students for careers in the engineering profession. As professionals, engineers must meet high standards of technical competence and ethical behavior. According to the Accreditation Board of Engineering and Technology (ABET) code of ethics, engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

1. Using their knowledge and skill for the enhancement of human welfare;
2. Being honest and impartial, and serving with fidelity the public, their employers and clients;
3. Striving to increase the competence and prestige of the engineering profession.

The Department of Mechanical Engineering (ME) believes that it is essential for each of you to learn the professional behavior that will prepare you for your career after college. Therefore, in each mechanical engineering course you will be required to practice the professional behavior that will be expected by your future employers. This syllabus clearly outlines the ME policy regarding academic integrity and academic climate. These policies will be upheld in each of your courses throughout the mechanical engineering curriculum. However, we also expect that this culture of professionalism will pervade all of your University of Colorado experiences.

Academic Integrity in Aes Des

It is possible to cheat in this class, like any other. However, because your work is public, if you cheat you will be harming more than just yourself. The reputation of everybody associated with the class and the University of Colorado itself is at stake. In a previous semester, a student did not complete their project, and posted an image of a similar design that they found online, pretending it was theirs. The author of the design ran a Google image search, found the deception and was outraged. He wrote to me, demanding that something be done. In truth, I could have revoked the student's course grade and even their diploma.

At the same time, design is not done in a vacuum. Instead, everybody's designs build on others' designs. The key here is that the influences of designs must be given credit, via proper citations. Every bit of image, design, text or idea that is not originally yours must be cited. To do any less is plagiarism, and will not be tolerated. If you can't find the proper author for something then try to avoid using it, or at least call out the thieves that preceded you. I'll be happy to help you trace original authors; please ask.

Diversity, Equity and Inclusion

I personally commit to making you welcome in this class, especially if you are not sure you belong. Please help me in this goal by chatting with me before or after class, or in office hours.

Official Boilerplate

Here are the official syllabus statements from the University. I support them.

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

Requirements for COVID-19

As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building

requirements, and public health orders in place to reduce the risk of spreading infectious disease. Required safety measures at CU Boulder relevant to the classroom setting include:

- maintain 6-foot distancing when possible,
- wear a face covering in public indoor spaces and outdoors while on campus consistent with state and county health orders,
- clean local work area,
- practice hand hygiene,
- follow public health orders, and
- if sick and you live off campus, do not come onto campus (unless instructed by a CU Healthcare professional), or if you live on-campus, please alert [CU Boulder Medical Services](#).

Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policies on [COVID-19 Health and Safety](#) and [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please see the “Accommodation for Disabilities” statement on this syllabus.

All students who are new to campus must complete the [COVID-19 Student Health and Expectations Course](#). Before coming to campus each day, all students are required to complete the [Buff Pass](#).

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined and it impacts your ability to complete work for our course, **let me know. Deadlines can be adjusted.**

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#). Please know that faculty and graduate instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, **let me know if you need a deadline adjusted at least one week in advance. In particular, attendance is required for critique sessions and guest lectures, so please check the posted schedule, and let me know of any conflicts within the first two weeks of the semester** See the [campus policy regarding religious observances](#) for full details.

_____ SYLLABUS AGREEMENT SIGNATURE PAGE _____

I, the undersigned, agree that I have read and understood the policies described in the syllabus for MCEN 4228/5228 & ATLS 4519-004, Aesthetics of Design. I hereby agree to comply with these policies.

PRINT NAME _____

SIGNATURE _____

DATE _____