

# Introduction to Industrial Design

ID 100, 2021-2022 Winter

**Class Schedule:** Tuesday + Thursday, 1:30PM - 3:00PM

**Location:** Daley 310 - Idea Realization Lab, Zoom as noted

**Office Hours:** 5:00-6:00PM Thursday, Friday + additional times may be requested via email

**Location:** Zoom - <https://depaul.zoom.us/my/acamarde.depaul>

## Instructors<sup>1</sup>

Andrew Camardella, [acamarde@depaul.edu](mailto:acamarde@depaul.edu)

## Course Description

This studio course introduces the fundamentals of industrial design through teaching creative and design processes. Students will learn to conduct basic studies on environment and objects, then communicate their designs through sketches. Through projects and lectures, this course will explore developing objects that re-imagine systems, and the components within, at different scales.

## Learning Goals

- Design objects through the intentional use of template systems and geometric principles.
- Prototype objects and assess their usability through the use of low-fidelity material.
- Evaluate the feasibility of scaling a prototype into full-scale manufacture.

## Required Materials - with recommendations...

The following tools are suggestions, but if you've got something that you prefer or want to try out, feel free to take that route instead. Total cost of all of these tools should be somewhere between \$60 and \$80.

- **Pens** - Staedtler Pigment Liner black fineliner pens
- **Pencils** - rOtring Rapid PRO Mechanical Pencil
- **Paper** - Bienfang Graphics 360
- **Drawing and Prototyping Tools** - Alvin Beginner's Drafting Kit
- **Readings will be uploaded to D2L -- no books to buy here!**

## Also recommended (but not required)

- *The Design of Everyday Things*
- *The Measure of Man and Woman*
- *The Industrial Design Reference + Specification Book*
- *Rapid viz: A new method for the rapid visualization of ideas*

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<sup>1</sup> Class is newly modified, but was originally developed and taught by Jay Margalus, [jmargal@cdm.depaul.edu](mailto:jmargal@cdm.depaul.edu)

## **Assignment due dates/rubric**

- Weekly exercises will be due, when assigned, the following **Monday in class**.
  - Criteria will be laid out in each weekly assignment section.
- The final project (group work) is due **Week 11**.

## **Week 1. Design as an Attitude**

Design is a way of thinking and being -- not just doing. What is design thinking, the iterative process, and what are their advantages and pitfalls? Additionally, you'll learn about the basic history of industrial design, what industrial design's focus is, and what an industrial designer's role is.

**Assignment:** Create a descriptive sketch of a case for your new toolkit of industrial design implements, along with a one paragraph description of the product.

**Reading:** Design of Everyday Things, Reading 1

## **Week 2. Lines and Perspective**

How do we communicate our ideas as designers? Where do we get started in the design process? In addition to covering these topics, you will begin to learn how to hand draw a straight line, circle, and two point perspective drawing.

**Assignment.** Five pages each full of: hand drawn straight lines, pages of circles, and stacked planes. Two pages of two point perspective drawings.

**Reading:** Making, Reading 1

## **Week 3. Prototyping**

The smartphone design started out as a brick of wood. Foam and cardboard are your friends. Making lo fi prototypes before jumping into the real deal gets you accustomed to *feel* while bringing the object closer to reality. This week, you'll learn some simple prototyping techniques using inexpensive materials often found around the home.

**Assignment.** Three pages of perspective shapes, two pages of drawn objects in orthographic views (deconstructed primitives), one page of your product drawn in perspective.

**Reading:** Measure of Man and Woman, Reading 1

## **Week 4. Usability and Aesthetics**

How do we respond to objects? What are the aesthetic considerations that an industrial designer should take into account when shaping a thing? You'll learn about affordances, and how affordances are a designer's way of teaching. You'll also learn about testing an object for usability and understanding.

**Assignment.** Create 3 drawn iterations of your product. Create a low fidelity prototype using cardboard/foam/etc of your product.

**Reading:** Design of Everyday Things, Reading 2

## **Week 5. Digital Design**

At some point, most designs find their way into a computer. The computer translates a design into a template that a computer can understand, and from there, into an object for mass manufacture. What are the basics of modeling a design for manufacture? What are key considerations for digital-physical design?

**Assignment.** Conduct usability testing on your product. Iterate on your product prototype based on feedback.

**Reading:** Measure of Man and Woman, Reading 2

## **Week 6. Decent Objects**

This week you'll learn more about vector design and how to think in 3D. You'll gain a greater knowledge of the additive manufacturing process, and developing rapid iterations of a product.

**Assignment.** Create a high fidelity prototype of your product. Consider translating your product into a digital design.

**Reading:** Play Anything, Reading 1

## **Week 7. Scaling**

Industrial design is about designing things that *sell*. As such, scaling is a core element of any industrial designer's toolbox. You'll learn about different manufacturing processes, manufacturing waste, material and cost considerations, and how to scale an idea into reality.

**Assignment.** Evaluate consumer needs and trends in the wallet space, and propose a product idea.

**Reading:** Play Anything, Reading 2

## **Week 8. Group Project Preparation**

A good project team relies on group cohesion and well-delegated assignments. Reaching back into prior weeks' work, we'll start over by inventing a product idea, then sketching and preparing to pitch it.

**Assignment.** Group product proposal accompanied by product sketch.

**Reading:** Design of Everyday Things, Reading 3

## **Week 9. Project Pitches and Group Project Work**

Iterate on your project based on feedback from another group. Prototype your product using lo fi materials.

**Assignment.** Product presentation for another group, revise based on feedback, prototype product.

**Reading:** Making, Reading 2

## **Week 10. Group Project Work**

We're approaching the end! You'll be conducting usability testing on your product, and then scheduling a meeting with me to discuss your project's status.

**Assignment.** Schedule meeting with me to discuss the project, conduct product testing + feedback.

**Reading:** none

## **Week 11. Group Project Presentation**

Final project presentation.

### **Grade Distribution**

- 55% weekly work
  - Divided equally from weeks 1-10.
- 20% meaningful in-class participation
  - **Not** just attendance. You might have heard the phrase “90% of success is just showing up,” but that isn't the case here. We'll be practicing constructive criticism and using it as a tool which requires that you lean into in-class discussions and projects with sincere enthusiasm, a spirit of collaboration, and insightful comments.
- 25% final project

### **Late Assignments**

Late assignments will not be accepted without an appropriate, documented excuse. Assignments are due at the start of class unless otherwise stated.

### **Academic Integrity**

This course will be subject to the academic integrity policy passed by faculty. More information can be found at <http://academicintegrity.depaul.edu/>.

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

**Using and citing electronic sources** - In conducting research for this course, I encourage you to consult those standard reference tools, scholarly projects and information databases, and peer-reviewed academic journals that may be found on the Internet in addition to traditional print resources. Keep in mind, however, that those electronic sources must be acknowledged. Please see the Modern Language Academy Handbook, section 4.9, for information on the correct citation of these sources.

**Withdrawal**

Students who withdraw from the course do so by using the Campus Connection system (<http://campusconnect.depaul.edu>). Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalty.

**Retroactive Withdrawal**

This policy exists to assist students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. During their college career students may be allowed one medical/personal administrative withdrawal and one college office administrative withdrawal, each for one or more courses in a single term. Repeated requests will not be considered. Submitting an appeal for retroactive withdrawal does not guarantee approval. College office appeals for CDM students must be submitted online via MyCDM. The deadlines for submitting appeals are as follows:

Autumn Quarter: Last day of the last final exam of the subsequent winter quarter

Winter Quarter: Last day of the last final exam of the subsequent spring quarter

Spring Quarter: Last day of the last final exam of the subsequent autumn quarter

Summer Terms: Last day of the last final exam of the subsequent autumn quarter

**Excused Absence**

In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification process through the Dean of Students office. The form can be accessed at <http://studentaffairs.depaul.edu/dos/forms.html>. Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

## **Incomplete**

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. CDM policy requires the student to initiate the request for incomplete grade before the end of the term in which the course is taken. Prior to submitting the incomplete request, the student must discuss the circumstances with the instructor. Students may initiate the incomplete request process in MyCDM.

- All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval.
- If approved, students are required to complete all remaining course requirement independently in consultation with the instructor by the deadline indicated on the incomplete request form.
- By default, an incomplete grade will automatically change to a grade of F after two quarters have elapsed (excluding summer) unless another grade is recorded by the instructor.
- An incomplete grade does NOT grant the student permission to attend the same course in a future quarter.

## **Students with Disabilities**

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Student Center, LPC, Suite #370

Phone number: (773)325.1677

Fax: (773)325.3720

TTY: (773)325.7296