



# DES 230 3D Design, Materials and Tools

## Class Syllabus

Units: **4**

Term: **Spring 2022**

Day—Time: **Mon and Wed, 9:00-11:40 am**

Location: **HAR112D and Online**

Instructor: **Hector Torres**

Office: **Virtual or predetermined location**

Office Hours: **Please email me to set up an appointment**

Contact Info: **hector@usc.edu**

### Course Description

Introduction to the study of 3-D Design. Includes a wide investigation of materials, tools, and techniques specific to dimensional design as they apply to package, product, and environmental design. The ability to understand and experiment with materials, media and the tools applied to 3D lies at the core of this studio-based class. Building on design concepts introduced in DES102 - Design Fundamentals, students will be introduced to the key principles of “materials’ integral role in design”. Coursework explores a range of materials through in-class exercises, projects and instruction. Students will investigate means of production and construction using both the hands-on traditional and digital tools available to them. Experimentation is a critical part of design and innovative thinking, so the challenge to explore will be a focus during the term. The study of the design process in visual problem solving will frame that investigation. Students are expected to actively participate in the design process through sketching; rapid visualization (prototyping); and creating dummies and comprehensives.

### Learning Objectives

- › Students will have the ability to understand basic 3 dimensional concepts as they apply to design.
- › Students will examine materials, media and tools as they apply to 3D.
- › Students will have an introduction to 3D technology to visualize built forms and prototyping.
- › Students will have an understanding of the principles of material selection and their appropriate application.
- › The course will draw upon the design process and it’s application to visual problem solving.
- › Students will be expected to evaluate their work and others in a critical manner

*Prerequisite(s): 1 from (ACAD 176 or DES 102 or FADN 102)*

## Course Notes

Classroom etiquette requires that all members speak in a respectful and professional manner. Attendance is crucial in order to be successful in this class. Please email the instructor if you are not able to attend class. Email the instructor as soon as possible to discuss alternate arrangements due to an emergency.

## Technological Proficiency and Hardware/Software Required

Access to a Windows or Apple computer with Fusion 360 (will do a walkthrough in class) and Adobe Photoshop installed.

## Required Readings and Supplementary Materials

Bristol paper, Exacto knife, ruler/t-square/triangle, double sided tape, newsprint or butcher paper, variety of writing and drawing tools, self-healing mat, sketchbook. These items can be purchased at most art supply stores.

## Description and Assessment of Assignments

Work must be done on time and ready before each class starts.

## Grading Breakdown

90% Studio projects and homework assignments: evaluation of assignments will be made according requirements noted on the assignment page on blackboard.

10% Class Attendance

Assessment Tool (assignments)	Points	% of Grade
3D object discussion	5	5
2D studies	5	5
3D anaglyphs	20	20
Paper Folding	20	20
Packaging	20	20
3D design tool	20	20
Attendance	10	10
<b>TOTAL</b>	<b>100</b>	<b>100</b>

## Grading Scale

Course final grades will be determined using the following scale

A	95-100	C+	77-79	D-	60-62
A-	90-94	C	73-76	F	59 and below
B+	87-89	C-	70-72		
B	83-86	D+	67-69		
B-	80-82	D	63-66		

## Assignment Submission Policy

Assignments must be submitted the week they are due.

## Grading Timeline

Grades of assignments will be posted the week after the assignment is due.

## Additional Policies

Late assignment will be accepted with a 2 point penalty. Missed classes can be excused if you email me before the class starts, not doing so will bring your grade down by 2 points for each instance. Attendance is mandatory and I expect students to be present at the start of class, being late more than 15min will cause a 2 point penalty.

## Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings/Preparation	Deliverables
<b>Week 1</b>	Going from 2D to 3D space	Lecture and discussion. Bring in objects to class.	3D object discussion and analysis
<b>Week 2</b>	Intro using shapes and text	4" x 4" paper, mark making tools (pen, pencil, brushes). Adobe Photoshop. Pick a term that is dear to you.	20 black and white drawings on squares
<b>Week 3</b>	Using shapes and text in Anaglyph 3D context	<a href="https://en.wikipedia.org/wiki/Anaglyph_3D">https://en.wikipedia.org/wiki/Anaglyph_3D</a> Use the images created in previous exercise to create 10 anaglyph 3D studies and 1 image using discussed topics	11 Anaglyph 3D studies
<b>Week 4</b>	Paper Folding I material study	The purpose of this assignment is to become familiar with paper from flat plane to a multi-plane space. For homework work on finding ways of folding and exploring a piece of paper.	Folded paper and documentation
<b>Week 5</b>	Paper Folding II objects in context	Create an object using paper or other type of material. Consider the meaning of the material and how it relates to its surroundings.	Images of space with documentation of 3D study
<b>Week 6</b>	Packaging I	Bring in a form of packaging that you like so we can talk about it and deconstruct it in class. Do visual research for similar packaging and products.	Research
<b>Week 7</b>	Packaging II	Create a prototype of your packaging by sketching, constructing, and thinking through the structure.	Sketches and packaging prototypes
<b>Week 8</b>	Packaging II Work session	Continue working on packaging	Sketches and packaging prototypes
<b>Week 9</b>	Packaging III	For the last part of the packaging add text, images and color to your packaging and photograph the finished work.	Packaging images
<b>Week 10</b>	Packaging final	Present work to class	In-class presentation
<b>Week 11</b>	Tool Making I sketching	Make sketches detailing the tool you would like to make	Sketches
<b>Week 12</b>	Tool making II prototypes	Make prototypes of your tools using cardboard, paper, or other materials	Photos of prototypes
<b>Week 13</b>	Tool Making II Work sessions	Continue working on prototype	Crit review
<b>Week 14</b>	Tool Making III Work sessions	Build tool using the equipment at USC; laser cutter, 3D printer, handmade	Presentation
<b>Week 15</b>	Tool Making III Build tool	Build tool using the equipment at USC; laser cutter, 3D printer, handmade	Presentation
<b>FINAL</b>	Tool Making Final	Present work to class	In-class presentation

# Statement on Academic Conduct and Support Systems

## **Academic Conduct:**

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

## **Support Systems:**

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*  
[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*  
[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call*  
[studenthealth.usc.edu/sexual-assault](http://studenthealth.usc.edu/sexual-assault)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298*  
[equity.usc.edu](http://equity.usc.edu), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

*Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298*  
[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

*The Office of Disability Services and Programs - (213) 740-0776*  
[dsp.usc.edu](http://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Campus Support and Intervention - (213) 821-4710*  
[campussupport.usc.edu](http://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC - (213) 740-2101*  
[diversity.usc.edu](http://diversity.usc.edu)

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

*USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*  
[dps.usc.edu](http://dps.usc.edu), [emergency.usc.edu](http://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

*USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call*  
[dps.usc.edu](http://dps.usc.edu)

Non-emergency assistance or information.