

USC Iovine and Young Academy

*Arts, Technology and the Business
of Innovation*

Course ID and Title: Modeling Products 1 – ACAD 188

Units: 2

Fall 2024 Tuesday 4-6PM

Location: [IYH](#) 111

Instructor: Adam Hughes

Office: HSH 105

Office Hours: Tues 6-8

Contact Info: adamhugh@usc.edu cell: 9096336182 (text only during normal working hours please)

Grader and/or Classroom Assistants:

Office: Dash Krehel

Office Hours: Tues 6-8

Contact Info: krehel@usc.edu

IT Help: <https://uscedu.sharepoint.com/sites/IYASStudent/SitePages/IT-Resources.aspx>

Hours of Service: 8:30 a.m. – 6:30 p.m.

Contact Info: iyahelp@usc.edu

Catalogue Description

Course includes an investigation of techniques specific to CAD design and design improvements. Students will be encouraged to creatively make design improvements and technically critique each other's work.

Course Description

Introduction to the study of part design and modeling for manufacturing that are necessary for today's markets. The course offers students who have received the theoretical understanding of engineering/business practices and provides insight on the next step of the process: critiquing the design, manufacturing and taking a product to market.

Coursework begins by introducing students to Solidworks and developing a CAD foundation. Students will investigate means of production and manufacturing using traditional tools offered in Solidworks (Modeling Techniques, sheetmetal, weldments). The end goal will be to create a simple product and develop all aspects of delivery (design, tooling, packaging) using CAD and DDM (direct digital manufacturing)

Learning Objectives

Students will be able to demonstrate:

- A knowledge of Solidworks software
- Competency in 3D design software add-in tools
- An understanding of the scope/depth of manufacturing processes
- A knowledge of Direct Digital Manufacturing
- Capability to critique a product/design

Prerequisite(s): Windows 10/11

Co-Requisite(s): None

Concurrent Enrollment: None

Technological Proficiency and Hardware/Software Required

Information for the [USC Computing Center Laptop Loaner Program](#). Information for software support and availability. USC Technology Support Links [Zoom information for students](#), [Brightspace help for students](#), [Software available to USC Campus.](#)]

HOW TO PURCHASE SOFTWARE AT THE DISCOUNTED ACADEMY RATE

The following software are available for purchase online at the Iovine and Young Academy discounted rate:

Software	IYA Short-Term License at USC Bookstore
Adobe Creative Cloud	\$75 2024–2025 annual license (active through July 2025)
Apple Logic Pro	\$35 semester licenses
SolidWorks	\$35 semester license
Apple Final Cut Pro	\$35 semester license

To purchase:

- Visit: <https://commerce.cashnet.com/IOVINE>
- Select the software license(s) you would like to purchase by clicking “View Details” or the software title, and make your purchase.
- You will receive an order confirmation receipt at the email address you provided.
- You will be notified by email when the software license has been activated.

If you have any questions about this process, please do not hesitate to contact Academy IT Support at iyahelp@usc.edu.

Required Readings

SOLIDWORKS 2018-24 Basic Tools (ISBN-13: 978-1630574642 ISBN-10: 1630574643)

[Amazon link for Solidworks Basic Tools](#)

SOLIDWORKS software suite installed in Windows 11 on Laptop for class use
(IT for assistance will be available TBD)

Solidworks Premium, FEA, CAM, Plastics, CFD (flow), Visualize, MBD

Optional Readings and Supplementary Materials

YouTube videos are a great source for how-to. [GoEngineer](#) is a reputable engineering firm that creates excellent tips and tricks videos.

Description and Assessment of Assignments

Homework will be assigned and due every Friday (starting week 2) by midnight. Homework will be assigned out of the course work book.

Participation

In class assignments will reinforce lecture content and count for attendance/participation.

Grading Breakdown

Grading Breakdown

Projects will be evaluated based on their adherence to given guidelines, attention to craft and overall appropriateness. Initiative, progress and follow-through will also be considered. Both giving and receiving feedback will be crucial to your success in the class; therefore your participation grade is based on your active involvement in class and critiques. Assignments will be docked one full letter grade each week they are late. Absence is not an excuse for late work.

40% Final exam

30% Design Project

Project grades will be assigned according to a point system based on the following:

- Competency in key concepts
- Viability of improvements
- Creativity of improvements
- Functionality of improvements
- Presentation/craftsmanship

20% Assignments , Homework, In-class exercises

10% Class participation and Attendance

Grading Scale

Letter grade	Corresponding numerical point range
A	100-93
A-	92.99-90
B+	90-87
B	87-83
B-	83-80
C+	80-77
C	77-73
C-	73-70
D+	70-67
D	67-64
F	64 or below

Assignment Submission Policy

Late assignments will be accepted with a 10% reduction

Grading Timeline

Grading will be done weekly

Course Specific Policies

One grade will be dropped automatically. One unexcused absence will be allowed. Should there be a reason to miss more than previously stated please email me about the situation.

Attendance

The Academy maintains rigorous academic standards for its students and on-time attendance at all class meetings is expected. Each student will be allowed two absences over the course of the semester for which no explanation is required. Students are admonished to not waste excused absences on non-critical issues, and to use them carefully for illness or other issues that may arise unexpectedly. Except in the case of

prolonged illness or other serious issue (see below), no additional absences will be excused. Each unexcused absence will result in the lowering of the final grade by $\frac{1}{3}$ of a grade (e.g., an A will be lowered to A-, and A- will be lowered to a B+, etc.). In addition, being tardy to class will count as one-third of an absence. Three tardies will equal a full course absence.

Students remain responsible for any missed work from excused or unexcused absences. Immediately following an absence, students should contact the instructor to obtain missed assignments or lecture notes and to confirm new deadlines or due dates. Extensions or other accommodations are at the discretion of the instructor.

Automatically excused absences normally may not be used for quiz, exam or presentation days. Using an excused absence for a quiz, exam or presentation, such as in the case of sudden illness or other emergency, is at the discretion of the instructor.

In the case of prolonged illness, family emergencies, or other unforeseen serious issues, the student should contact the instructor to arrange for accommodation. Accommodation may also be made for essential professional or career-related events or opportunities. Additionally, students who need accommodations for religious observations should provide advanced notice to instructors and student athletes should provide Travel Request Letters. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.

Unless students provide an accommodation letter from USC's Office of Student Accessibility Services (OSAS) or a letter from IYA Student Services detailing visa or travel restrictions, attendance and active participation is expected in the classroom. Any student with such accommodations should submit their accommodation document to the instructor as soon as possible to discuss appropriate accommodations.

Students who are experiencing illness should not attend class in person. Please inform the instructor in advance of any class sessions that you can't attend for medical reasons, and accommodations will be arranged to view recorded lectures and submit alternatives to any missed class participation. Students will not be penalized for not attending class in person under these circumstances.

Iovine and Young Hall Cleanout

The Academy is unable to store student projects and materials beyond the end of the semester. Students must remove all projects and personal materials from the Creators Studio, lockers/locker room, and other classrooms by the end of each semester. **All projects and materials left in Iovine and Young Hall will be discarded the day after final exams end. No exceptions.**

Classroom norms

Be respectful, courteous and kind in class and on Zoom.

Zoom etiquette

Class will be on Zoom; we will utilize break out rooms and have inclass assignments where students can share their work. At random times we will have all students turn on webcams or respond for participation.

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the

course/section in this academic term. You may not submit work written by others or “recycle” work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

Academic dishonesty has a far-reaching impact and is considered a serious offense against the university. Violations will result in a grade penalty, such as a failing grade on the assignment or in the course, and disciplinary action from the university itself, such as suspension or even expulsion.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity’s website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment or what information requires citation and/or attribution.

Creating a policy for the use of AI Generators in your course

You may use any and all AI tools to help you with creative ideas. Use these tools for ideas and make it your own.

I expect you to use AI (e.g., ChatGPT and image generation tools) in this class. Learning to use AI is an emerging skill, and I welcome the opportunity to meet with you to provide guidance with these tools during office hours or after class. Keep in mind the following:

- AI tools are permitted to help you brainstorm topics or revise work you have already written.
- If you provide minimum-effort prompts, you will get low-quality results. You will need to refine your prompts to get good outcomes. This will take work.
- Proceed with caution when using AI tools and do not assume the information provided is accurate or trustworthy. If it gives you a number or fact, assume it is incorrect unless you either know the correct answer or can verify its accuracy with another source. You will be responsible for any errors or omissions provided by the tool. It works best for topics you understand.
- AI is a tool, but one that you need to acknowledge using. Please include a paragraph at the end of any assignment that uses AI explaining how (and why) you used AI and indicate/specify the prompts you used to obtain the results and what prompts you used to get the results. Failure to do so is a violation of academic integrity policies.
- Be thoughtful about when AI is useful. Consider its appropriateness for each assignment or circumstance. The use of AI tools requires attribution. You are expected to clearly attribute any material generated by the tool used.]

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to

students or in any way had been displayed for use in relation to the class, whether obtained in class, via email, on the internet, or via any other media. Distributing course material without the instructor's permission will be presumed to be an intentional act to facilitate or enable academic dishonesty and is strictly prohibited. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Course Evaluations

Course evaluation occurs at the end of the semester university-wide. I read each and every one of these after every semester and I encourage you to write what you liked and thought to be better.

Course Schedule

Table 3 Course schedule

WEEK 1&2	SOLIDWORKS 2018 Basic Tools (Ch 1-3) System Options, Document Templates, Basic Solid Modeling - Extrude Options In class assignment/practice
WEEK 3&4	SOLIDWORKS 2018 Basic Tools (Ch 4-6) Basic Solid Modeling - Extrude & Revolve, Revolved Parts, Rib & Shell Features In class assignment/practice In class exercise (group product improvement)
WEEK 5&6	SOLIDWORKS 2018 Basic Tools (Ch 7, 8) Patterns, Part Configuration In class assignment/practice <i>Design Project</i> Announcement (groups selected)
WEEK 7&8	SOLIDWORKS 2018 Basic Tools (Ch 10-11) Bottom Up Assembly, Using Advanced Mates In class assignment/practice Direct Digital Manufacturing Discussion/Techniques
WEEK 9&10	SOLIDWORKS 2018 Basic Tools (Ch 19) Configurations In class assignment/practice In class exercise (individual product improvement)
WEEK 11&12	SOLIDWORKS 2018 Basic Tools (Ch 20) Design Table In class assignment/practice Design Project Discussion
WEEK 12&13	SOLIDWORKS 2018 Basic Tools (Ch 21) Other tools & Sheet Metal In class assignment/practice Design Project Critique
WEEK 15&16	Design Project Presentation (12 min Team limit 5 minute discussion Q&A) Final Exam

Refer to the final exam schedule in the USC *Schedule of Classes* at classes.usc.edu.

Statement on University Academic and Support Systems

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Student Financial Aid and Satisfactory Academic Progress:

To be eligible for certain kinds of financial aid, students are required to maintain Satisfactory Academic Progress (SAP) toward their degree objectives. Visit the [Financial Aid Office webpage](#) for [undergraduate-](#) and [graduate-level](#) SAP eligibility requirements and the appeals process.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

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

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline consists of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

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) 740-2500

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

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

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

[Diversity, Equity and Inclusion](#) - (213) 740-2101

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

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

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.