San José State University  
Department of Design / Industrial Design Program  
DSID 137, Advanced Prototyping, Section 01, Spring 2016

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Prof. Robert Zuchowski</th>
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<tbody>
<tr>
<td>Office Location:</td>
<td>Art 103</td>
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<tr>
<td>Telephone:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:robzucho@gmail.com">robzucho@gmail.com</a></td>
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<tr>
<td>Office Hours:</td>
<td>F 4:00-5:00pm</td>
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<tr>
<td>Class Days/Time:</td>
<td>F 9:00-11:50am; 1:00-3:50pm</td>
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<tr>
<td>Classroom:</td>
<td>Art 103</td>
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<td>Prerequisites:</td>
<td>DSID 32A</td>
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<td>Course Fees:</td>
<td>See Required Materials List for additional materials and costs.</td>
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Canvas Course Management Website

Copies of the course materials such as the syllabus, assignment handouts, grading, etc. may be found on the course CANVAS website. You may find your link to this website on MySJSU, along with your login/password info. You are responsible for regularly checking with the messaging system in CANVAS for course updates, assignments, etc. All online communication between professor and students for this course will take place through CANVAS. Key topics to check on CANVAS are the Calendar, Content, News, and Grades. Any last minute updates will be posted to News, the entire semester schedule is detailed in the Calendar, and your progress in the course can be tracked through Grades. Please view CANVAS as a tool for Active Learning.

Course Description

Course Description
This course will introduce a range of different model making techniques, throughout the semester to broaden student awareness and confidence of these processes. In addition to developing craftsmanship and skill through hands-on application of appropriate various directions and techniques effectively, a great deal of the course will focus on how designers select the most appropriate prototypes for fast effective directions in industry. Therefore, a great deal of emphasis will be placed on the planning, bidding and communication of design intent to consistently achieve efficient and effective prototypes for various applications. There will be one project in the DSID137 class this semester. The goal of the project is to create conceptual designs through various fast mockup prototyping to show viability of design direction, then building upon this design direction through sketching/drawing, Cad design, generating and completing a final detailed design, then carefully plan and build a professional-quality appearance model of your design. The primary project will be, design and build a peripheral product that utilizes the computing power, displays and accelerometer capabilities of these devices to create a better application experience than what these devices can offer in their existing form. One of the final deliverables will include a model that accurately fits the phone or tablet you have selected.

**Course Goals and Student Learning Objectives**

**Course Content Learning Outcomes**

Upon successful completion of this course, students will be able to:

(LO1) Demonstrate "out of the box fast visual thinking", through fast mockups prototyping techniques and processes, (Looks like works like) for viability of the idea.

(LO2) Determine effective design directional process through team brainstorming, evolving the idea direction, then presentation and evaluation through formal team critique discussions in positive/negative aspects for improvement, quick human factors study for improved ergonomic aesthetic refinement.

(LO3) Plan, create 2D and 3D sketches, and experimentation that enables them to explore, formulate and solve design problems and opportunities, build appropriate mockups and prototypes for the various applications Industrial Designers encounter in industry.

(LO4) Demonstrate self-confidents with uncompromising high professional standard for three-dimensional design and prototyping skills, techniques, tools, materials, and craftsmanship.

(LO5) Exhibit effective use of orthographic projection drawing as a means of developing design concepts that are realistic and functional, specifying accurate dimensioned plans for building appearance prototypes and, communicating their design concepts with accurate dimensions and realistic representations of internal components.

(LO6) Demonstrate their design awareness, knowledge, and intent, both in their own work and when discussing the work of others in informal classroom discussions and formal critiques at the end of each project. This should be demonstrated in their ability to actively discuss, critique, and engage in professional review of their work and that of their peers work.

**Required Texts/Readings**

**Textbook**
There is no required textbook for this course.

**Required Materials List**

Everyone’s projects will vary in their material demands. That said, you should expect to spend approximately $500-$800 in 2D and 3D sketching materials. This should be budgeted for enough foamcore, foam, paint, double stick tape and other modeling supplies to demonstrate ability in class assignments.

**Shop Test**

The Department of Design requires that Industrial Design students attend and pass the shop safety orientation at least once each year. We will be showing the video in class and then you will have at least a week to review the video again on your own as it is posted online (http://www.sjsu.edu/atn/services/webcasting/events/shopysafety.html) now. The shop test date will be announced the first day of class. That will be the only date that you will be able to take the shop test for this course so make sure you have studied up and paid your shop test fee at the bursar’s office before that date. You must provide proof of enrollment and the original receipt from the bursar’s office that you have paid the required $20 shop fee to fund #62089 prior to taking the test.

**Library Liaison**

Rebecca Kohn, Associate Librarian for Design Department

Email: Rebecca.Kohn@sjsu.edu

Phone: 408.808-2007

LibGuide: TBA

**Classroom Protocol**

Active participation in class activities is a significant factor in student success in the Industrial Design program. Active learning facilitates mental growth, skill enhancement, creates a lifelong learner, and improves the goals of becoming a good designer. Students are expected to be on time to class and when a class critique is planned, work is to be taped/pinned up to the walls or laid out on the tables by 10 minutes after the official start of the class period. Be ready to start the critique by 15 minutes after the class officially starts. If the student is not on time to class, the work is not pinned up by the time limit, and the student is not ready to begin the critique at the 15-minute mark, the work may not be presented in the critique. Students are to be respectful of the professor and their peers and any disruptive activities in the classroom will result in the student being asked to leave the class. Arriving late to class without prior arrangement and approval from the professor is considered disruptive. If the student cannot be in the classroom by the start of class, please do not interrupt the class in session by entering the classroom. If a student encounters any problems that inhibit their ability to participate in the class, please provide as much advance notice as possible to the instructor so that he/she may respond and inform the student in a
timely manner. Students are expected to leave the classroom in a clean condition with all the
desks arranged in the standard configuration at the end of each class meeting so that the next
class has an organized, clean room waiting for them.

Cell phones, digital music players, digital tablets, and laptops are also disruptive and
inconsiderate to your classmates and the instructor. Unless it is being used for a class
activity, please turn off all electronic devices that can potentially disrupt class. If you disrupt
or withdraw from class activities due to your inability to silence and ignore these devices, it
will count against the participation portion of your final grade and you will be asked to leave
the classroom. If emergency personal issues (family, medical, etc) require you to leave your
phone on, you may do so by making arrangements with the instructor in advance. The
instructor may need to answer the phone during class due to professional demands or
university business, though this will be minimal. Additionally, talking in class during a
lecture is considered disruptive to the class, and generally rude, and will adversely affect the
participation grade and the student may be asked to leave the classroom.

**Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drop, grade
forgiveness, etc. Refer to the current semester’s Catalog Policies section at
http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the
current academic calendar web page located at
http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The Late Drop
Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be
aware of the current deadlines and penalties for dropping classes. Information about the latest
changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

**Assignments and Grading Policy**

Students will be engaged in lectures, discussion, design activities, and lab time during class
meeting times and they will be assessed on engagement in those activities in their
Participation grade. Students will have homework assignments to do outside of class (approx.
12 hours per week) that include sketching, modelmaking, prototyping and other design
project activities. You will be required to turn in all projects at the required presentation
dates. The final project and project summary booklet must be turned in in a digital format.
The digital deliverables will include 3-6 high resolution images of your final model as well as
a .pdf format project summary booklet. Grading will follow the standard SJSU A-F system.

All grades are assessed on the following three criteria: Quality, Effort, and Completeness.

- **A+, A, A- / 100+ - 91% / Excellent**
- **B+, B, B- / 90 ÷ 81% / Above Average**
- **C+, C, C- / 80-71% / Average**
- **D / 70-61% / Below Average**
- **F / Below 61% / Failure**

Grading is weighted during the semester as follows:

| Class Participation: | 20% |
Final Project Model: 60%
Project Summary Booklet: 20%

All assignments are due on time. No late work is accepted (this includes work that is required for uploading to CANVAS). Extra credit is not possible in this course as the workload is significant enough. A passing grade for this course is a C-. The Participation grade in this course will be assessed through your engagement in Work/Activity sessions and critiques each week. Actively engaging and exhibiting life-long learning skills during class are the mode by which participation is assessed.

University Policies

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity policy, located at http://www.sjsu.edu/senate/S07-2.htm, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sa.sjsu.edu/judicial_affairs/index.html.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Disability Resource Center (DRC) at http://www.drc.sjsu.edu/ to establish a record of their disability.

Student Technology Resources

Though it is a requirement for ID students to have their own computer with the required software (Adobe CS, Solidworks, MS Office), and it is highly recommended that before Junior Studio (DSID 125) all ID students have a large format printer (11"x17" or 13"x19"), computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Computers are also available in the Martin Luther King Library. A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and
Audiotape players, sound systems, wireless microphones, projection screens and monitors. The ID Program will provide access to the large format printer for mid-term critiques and final presentations. Students will be given an allotment of paper for plotting final patterns, mid-term critiques, and final presentations for this course. Students will be given an allotment of 8 linear feet of plotter paper for this course. Any additional needs for printing can be accommodated by going to Plotter Pros (http://www.plotterpros.net/index.shtml) in San Jose.

**Learning Assistance Resource Center**

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to inspire them to become independent learners. The Center's tutors are trained and nationally certified by the College Reading and Learning Association (CRLA). They provide content-based tutoring in many lower division courses (some upper division) as well as writing and study skills assistance. Small group, individual, and drop-in tutoring are available. Please visit the LARC website for more information at http://www.sjsu.edu/larc/.

**SJSU Writing Center (Optional)**

The SJSU Writing Center is located in Room 126 in Clark Hall. Professional instructors and upper-division and/or graduate-level writing specialists from each of the seven SJSU colleges staff it. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/.

**Peer Mentor Center**

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering “roadside assistance” to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop-in basis, no reservation required. The Peer Mentor Center website is located at http://www.sjsu.edu/muse/peermentor/.
DSID 137 / Advanced Prototyping, Spring 2016, Course Schedule

Schedule is subject to change with fair notice in class or via email notice.

Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Demos, Assignments, Deadlines</th>
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<tbody>
<tr>
<td>1</td>
<td>F 1/29 am</td>
<td>• Introductions with students</td>
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<tr>
<td></td>
<td>F 1/29 pm</td>
<td>• Show some of my work portfolio to the students, followed with a discussion and Q/A</td>
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<td>• Show and tell (of one of the projects I worked on) of quick rough mockup and techniques/directions for design and prototyping fast thinking, for a discussion and Q/A leading this to scavenger hunt.</td>
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<tr>
<td>2</td>
<td>F 2/05 am</td>
<td>• Creating three design directions, fast rough mockups fashioned from foam and the artifacts that have inspired you, from the scavenger hunt. To show the idea is viable.</td>
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<td></td>
<td>F 2/05 pm</td>
<td>• Each student will be presenting their directional designs 3 fast rough mockups to the class, and choosing one concept. Leading to brainstorming.</td>
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<td>3</td>
<td>F 2/12 am</td>
<td>• Brainstorming with each student, building/expanding ideas upon the three design directions.</td>
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<tr>
<td></td>
<td>F 2/12 pm</td>
<td>• Brainstorming continuation with each student, building/expanding ideas upon the three design directions, then evaluating, finally choosing the single best design direction.</td>
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<td>4</td>
<td>F 2/19 am</td>
<td>• Quick presentation with convincing story for the students design direction.</td>
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<td></td>
<td>F 2/19 pm</td>
<td>• Initiating the Design process. (sketching/drawing).</td>
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<td>5</td>
<td>F 2/26 am</td>
<td>• Written short critique of a fellow students design direction, with positive/negative aspects, and how the negative aspects could be improved in that design. (what works and what doesn’t work and how you can improve it)</td>
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<td>F 2/26 pm</td>
<td>• Exercise with hand tools, practicing and improving the skills with fine details, on foam.</td>
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<tr>
<td>6</td>
<td>F 3/04 am</td>
<td>• Creating specialized tools for those specific prepresses, applying them on renshape/modulan (part lines, radiuses and so on)</td>
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<td>F 3/04 pm</td>
<td>• Low fidelity foam volume fast study models. (With continuation and strong focus on each individuals design refinements for product through sketching/drawing)</td>
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<td>7</td>
<td>F 3/11 am</td>
<td>• Fieldtrip to IDEO</td>
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<td>• Initiating Cad design.</td>
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<tr>
<td>Time</td>
<td>Event</td>
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<tr>
<td>F 3/11 pm</td>
<td>Storyboards with team collaboration through brainstorming for further refinements.</td>
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<tr>
<td>F 3/18 am</td>
<td>Preparations and planning for foam models, fast and right methods and approach with shop machine tools and technics.</td>
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<tr>
<td>F 3/18 pm</td>
<td>Creating clean and sharp foam models with the specific focus on finer details.</td>
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<tr>
<td>F 3/25 pm</td>
<td>Additional foam mockups iterations, as well as for mechanisms (hinges, holding, clamping, standing, gripping, sliding, latching) to have a better understanding for the final build.</td>
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<tr>
<td>F 3/25 am</td>
<td>Fieldtrip to Google or Radius? Color direction and simple color brakes, painting the foam models.</td>
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<tr>
<td>F 3/25 pm</td>
<td>Quick human factors study for improved ergonomic refinement. (through photos, interacting with foam model by family and friends)</td>
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<tr>
<td>F 4/1 am</td>
<td>Spring Recess – Campus Closed</td>
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<tr>
<td>F 4/1 pm</td>
<td>Spring Recess – Campus Closed</td>
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<tr>
<td>F 4/8 am</td>
<td>Guiding principles that apply to any modelmaking effort. Planning with right materials, direction and process for visual high end model build, A bill of materials (or BOM) Kick of visual hard model build.</td>
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<tr>
<td>F 4/8 pm</td>
<td>Effective construction and development of the model build, through machine technics, vacuum forming, casting and so on. (dependent on individual students design direction)</td>
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<tr>
<td>F 4/15 am</td>
<td>Specific focused development for mechanics (hinges, sliding, latching, holding, clamping, gripping, for the high end model)</td>
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<tr>
<td>F 4/15 pm</td>
<td>Continuing with development of mechanics.</td>
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<tr>
<td>F 4/22 am</td>
<td>Focus on color, and texture finishes direction, for the high end visual model.</td>
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<tr>
<td>F 4/22 pm</td>
<td>Creating (CMFâ).</td>
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<tr>
<td>F 4/29 am</td>
<td>Applying finishing touches. (Fitting/installing all finished parts of the model, with the hardware, peripheral connectorâ, cables, and portable displays).</td>
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<tr>
<td>F 4/29 pm</td>
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<tr>
<td>F 5/6 am</td>
<td>Preparation for final presentation.</td>
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<td>F 5/6 pm</td>
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<tr>
<td>F 5/13 am</td>
<td>Last Day of Instruction</td>
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<tr>
<td>F 5/13 pm</td>
<td>Final Exam/Presentation and Critique.</td>
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