

San José State University
Department of Design / Industrial Design Program
DSID 21, Visualization 1, Section 03, Fall 2018

Instructor:	Prof. Ron Boeder
Office Location:	Art 227
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Email:	Ronald.boeder@sjsu.edu
Office Hours:	M/W 11:00am - 12:00pm
Class Days/Time:	M/W 3:00 - 5:50pm
Classroom:	IS 118
Prerequisites:	Declared BSID Major or BADS Major
Corequisites:	Must be concurrently enrolled in DSID 31

Canvas Course Management Website & Course Format

This course uses a hybrid method of teaching. A hybrid course means that there are components of the course that are done in the classroom and other components that require using the online course management system. Course materials such as the syllabus, assignment handouts, reading, grading, etc. may be found on the DSID 21 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 class correspondence and grading will be managed through the class Canvas site. If you do not check Canvas often, you should set up your email forwarding to forward all class correspondence to your preferred email address. Key topics to check on Canvas are the Calendar, Announcements, Assignments, Reading, and Grades. Any last minute updates will be posted to Announcements, the entire semester schedule is detailed in the Syllabus and Calendar, and your progress in the course can be tracked through Grades. Please view Canvas as a tool for Active Learning. You must have access to a computer and the internet to be able to access the Canvas site. You may also use a tablet or your phone. Some assignments will be required to be turned in on Canvas, in which case you will

need to have access to some basic software such as MS Office (MS Word) or some writing software, Adobe Acrobat (for making pdfs), and basic scanning software for scanning sketches to upload to the assignment portal. See [University Policy F13-2](http://www.sjsu.edu/senate/docs/F13-2.pdf) at <http://www.sjsu.edu/senate/docs/F13-2.pdf> for more details.

Course Description:

This course teaches methods of presenting design concepts in both preliminary and finished states. Best introductory practices in appraisal and application of media used in industry are covered and evaluated. Course includes some basic elements of color theory.

Industrial Designers are in the business of creating future objects and scenarios that don't yet exist, and throughout that process they use drawing as their communication language. Much like writers utilize words to tell stories of fantasy and fiction, designers use sketching to visualize the products that do not yet exist. They need to conceive their ideas on paper and must create drawings that communicate their design intent accurately and realistically. Historically, professional visualization techniques evolved through various technical, aesthetic and media transformations, but this manual skill still represents the most basic and powerful tool in the creative design process.

Course Goals:

Student Learning Objectives

Visualization I (DSID 21) will provide you with the necessary technical visual language skills and confidence to think through and communicate design ideas and intentions on paper. The study of visualization is not exclusively intended for the rote learning of drawing tools and techniques but is a much broader perceptual experience of learning how to better see and understand the world around you. It will provide you with the tools and confidence to be able to change the world for the better. Designers are in the business of visualizing and creating a future, and the language used to convey that future scenario to others is grounded in the semantics of visualization.

The entire Visualization series in the Foundation year in the BSID (DSID 21, DSID 22) is divided into four components, the first two of which will be covered in DSID 21.

- 1) Perspective Drawing (DSID 21)
- 2) Rendering Light and Shadow (DSID 21)
- 3) Rapid Visualization (DSID 22)
- 4) Introductory Computer Visualization and Presentation (DSID 22)

The third course in the series, DSID 129 (prerequisite is DSID 22), will move forward into the world of visualization of concepts in 3D using SolidWorks as the software tool.

Course Learning Outcomes (CLO)

In this course students will learn how to construct and use orthographic views to generate geometry of non-existing objects (LO1, LO2, LO7), use line drawing to delineate complex and curvilinear shapes (LO3, LO4, LO7), and construct rudimentary lighting, shadows, shading and reflections (LO4, LO7). The course will teach students how to initiate the transition to freehand sketching (LO5, LO7), use practice drawing as a tool in the creative design process (LO5), initiate high professional standards for 2D skills, techniques, tools and materials (LO7), and develop skill and confidence to explain, discuss, and analyze design criteria (LO6, LO8).

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

- LO1 Create orthographic views, construct geometrically constructed perspective, and develop primary orthographic views.
- LO2 Visualize in 2D, a variety of objects in perspective (one point, two point, three point and projection).
- LO3 Use line drawing to delineate complex and curvilinear shapes accurately.
- LO4 Construct using tone, contrast, gradation, composition, light source, shadow and reflected light to accurately illustrate basic geometric forms and surfaces.
- LO5 Initiate the transition to accurate freehand sketching that looks effortless and quickly produced.
- LO6 Collect, archive, edit, and produce a portfolio of work.
- LO7 Exhibit an uncompromising and high professional standard for 2D skills, techniques, tools, materials, and craftsmanship.
- LO8 Be able to actively discuss, critique, and engage in professional review of their and their peers work.

Required Texts/Readings

Required Reading

Textbooks (Required by 2nd class meeting)

1) Henry, Kevin; *Drawing for Product Designers*; Laurence King Publishing, 2012. ISBN-978-1-85669-743-9

* 2) Montague, John; *Basic Perspective Drawing: A Visual Guide (6th Edition)*; Wiley, 2013. ISBN-978-1-118-13414-6 (look to Canvas for readings)

3) Robertson, Scott. *How to Draw: Drawing and Sketching Objects and Environments From Your Imagination*; Design Studio Press, 2013. ISBN 978-193349273-5 (\$40).
NOTE: Once you buy the book you can access tutorials from the book online for free.

* PDF files from various resources will be posted on the Canvas site for this course. They are located in the “File” link under “Course Reading Assignments” and are assigned for each assignment. #2 above only uses a few chapters from the book and will also be posted on Canvas.

Other Recommended Readings

Eissen, K. and Steur, R.; *Sketching, the Basics*. BIS Publishers, 2011. ISBN 978-90-6369-253-7

Robertson, Scott; *How to Draw Cars the Hot Wheels Way*. Motorbooks, 2003.
ISBN-13: 978-0760314807

Sjölen, K. and Olofsson, E.; *Design Sketching*. Keeos, 2005. ISBN 978-91-976807-0-7

Sjölen, K. and Macdonald, A.; *Learning Curves*. Keeos, 2011. ISBN 978-91-633-8952-8

Required Equipment & Materials:

Equipment

This course will require the use of a mobile pen computer. This computer is the equivalent of a high end professional 3D laptop and will be the only computing device that you will need to purchase during your four years in the industrial design program. SJSU has negotiated special pricing with Wacom for these devices and they can be purchased from the SJSU bookstore:

Required Equipment Details:

Model: [Wacom MobileStudio Pro 16](#)

Recommended - Enhanced Version

Acceptable - Standard Version

Materials

During the semester various assignments require students have the materials on the list below available. Costs are approximate and will vary by individual usage. All materials are required by the second class meeting. Failure to have required materials in class by

the second class meeting will give the instructor permission to drop a student from the course.

Students are required to have all materials by the beginning of the second class meeting. Blick Art Supply will be in room IS 118 on August 21st and 22nd selling tool and material kits for your DSID 21 and DSID 31 courses this semester.

Note: please read carefully.

The Design Materials listed below are available in an “ID Tools Kit” from Blick Art Supplies on the first day of DSID 21 class. This Kit is only available for purchase on campus for the first two days of the semester (August 21st and 22nd during limited hours). Sales representatives from Blick Art Supply will only be available on those days in IS 118, the classroom for this course. These are the last days and place that students will be able to buy these kits at the special pricing. Students may pay with cash, cashier’s check or credit card. Personal checks are not accepted. Please note, that after August 22nd, these kits will no longer be available and students will have to get the required materials on their own by the 2nd class meeting.

Required Materials Kit from Blick Art Supply for DSID 21 and DSID 31:

Item #	Qty	Description
KIT 1		
10604-1017	1	BIENFANG MARKER PAD/14X17 50SHT
20508-5201	3	PRISMACOLOR CLR PNCL/INDIGO BLUE 901
20508-1001	3	PRISMACOLOR CLR PNCL/WHITE 938
57307-9005	3	PUSHPINS BOX 100/1/2IN SHRP PT ALM
55632-1024	1	STAINLSS STEEL RULER/24IN RULER
21315-2003	1	SHARPIE ULTRA FINE/BLK 0.3MM

21316-2001	1	SHARPIE FINE PT MRKR/BLACK FINE
12709-1080	1	RHODIA PADS/GRAPH 8-1/4INCH X 11-3/4INCH
55618-1118	1	C-THRU RULER/18IN BEVEL 8THS GRAPH
15019-0017	1	ITOYA ART PROFOLIO/PORTFOLIO 17X14
20509-2001	3	VERITHIN PENCILS/BLACK
20508-2001	3	PRISMACOLOR CLR PNCL/BLACK 935
20508-3161	1	PRISMACOLOR CLR PNCL/CRIMSON RED 924
21422-1002	1	PRISMACLR SHARPENER/2-HOLE
21395-2509	1	COPIC SKETCH MKR SET/SKETCHING GRAYS 6/PIECE SET
10382-1023	1	BIENFANG SKETCHBOOK/9X12 75SHT SPIRAL
20717-2001	1	BETTER BALL PT PEN/BLACK FINE DOZEN

KIT 2		
33302-8515	3	BASSWOOD BLOCKS/CARVING 4X3.5X10
33266-2521	6	JOLLY KING PLASTILIN/GRAY/GREEN 1LB
34998-1001	5	3M WETORDRY SANDPAPR/600 GRIT EACH

35024-9000	1	3M WET/DRY SANDPAPER/ASSORTMENT 9X11 5 PACK
60928-9020	1	STYROFOAM/20X20X4 WHITE SHEET

KIT 3		
57445-1101	1	KNIFE/KNIFE NUMBER 1 WITH/CAP
57413-1011	1	XACTO BLADES/NO11 BULK PKG100
03296-1001	1	BLICK STORAGE BOX/TRANSLCNT SIDE HINGE
55986-9006	1	FRCTNL DIGITAL CALIPER/6 INCH

Shop Test

The Department of Design requires that Industrial Design students attend and pass the shop safety orientation at least once each year. You will view the video in your DSID 31 class and then you will have time to review it again on your own as it is posted online (<http://www.sjsu.edu/atn/services/webcasting/events/shopysafety.html>). 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 the DSID 31 course so make sure you have studied up and paid your shop test fee at the bursars 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. Please talk with your DSID 31 instructor if you have any questions.

Library Liaison

Elkin, Aliza

Email: aliza.elkin@sjsu.edu

Classroom Protocol

Active participation in class activities is a significant factor in a student's 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 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. 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. Attendance is called at the start of class. Arriving late to class without prior arrangement and approval from the professor is disruptive and interrupts the flow of the class activities and more importantly, it disrupts the students' learning success. 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. You may enter when there is a break and only with the instructor's permission. 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 via Canvas so that he/she may respond and inform the student in a timely manner. Do not pass a message to the instructor through another student! Students are expected to leave the classroom in a clean condition at the end of each class meeting and as such, the last 15 minutes of class will be used to clean up the classroom, providing the next class an organized and clean room waiting for them.

Cell phones, tablets, and even laptops can be disruptive and inconsiderate to your classmates and the instructor. Some of these devices may be used in this class and but should be disabled and turned off during times they are not being used. If a device is to be used for a class activity the instructor will inform you in advance. ***Phones for personal use are NOT permitted in this class*** and you will be asked to turn off and store your phone at the start of each class. If you disrupt or withdraw from class activities due to your inability to silence and ignore any of these devices, it will count against the participation portion of your final grade and you will be asked to leave the classroom. Additionally, talking in class during a lecture is considered disruptive to the class and will adversely affect the participation grade and you may be asked to leave the classroom. If emergency personal issues (documented family, medical, etc) require you to leave your phone on, please make arrangements with the instructor prior to and *in advance* of the start of class.

Students are expected to leave the classroom in a clean condition at the end of each class meeting so that the next class has an organized, clean room waiting for them.

Assignments and Grading Policy

Students will be engaged in demos and practice sessions during class meeting times and they will be assessed on engagement in those activities in their Participation grade (LO 8). Students will have homework assignments to do outside of class (up to 12 hours per

week) that include, sketching in their sketchbook documenting their 3D design concept development (LO 1-6). Students will be required to turn in a mid-term Portfolio of all work assigned and completed to date, along with their sketchbook (LO 7). They will be required to turn in their final Portfolio of work, along with their final sketchbook on the last day of class (LO 7). Grading will follow the standard SJSU A-F system.

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 as follows:

A1 – A14 (LO1-5)	10%
A15 – A18 (LO1-5)	10%
A19 – A24 (LO1-5)	10%
A25 (LO1-5)	20%
Midterm Portfolio (LO6-7)	20%
Final Portfolio (LO6-7)	20%
Class Participation (LO8)	10%

All assignments are due on time. ***No late work is accepted.*** Project work for critiques must be complete in order to receive in class feedback. Any project assignments may be redone for a better grade, but only when the assignment was turned in *complete and on time* when it was originally due. Extra credit is not possible in this course as the workload is significant enough. A passing grade (for receiving university credit for the requirement) in this course is a D-, however, D- project work will usually not pass the DSID 32A Portfolio Project 1 course. The Participation Grade in this course will be assessed through your engagement in Work/Practice sessions, class discussions and critiques each week. Actively engaging and exhibiting lifelong learning skills during class are the mode by which participation is assessed.

University Policies

Academic integrity

SJSU's Office of Graduate and Undergraduate Programs maintains university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. You may find all syllabus related University Policies and resources information listed on [GUP's Syllabus Information Web Page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>.

Student Technology Resources

Though it is not anticipated that you will need any of this for this class, computer labs for student use are available in the [Academic Success Center](http://www.sjsu.edu/at/asc/about_asc) (http://www.sjsu.edu/at/asc/about_asc) 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](http://www.sjsu.edu/at/ms/reservations/) (<http://www.sjsu.edu/at/ms/reservations/>) located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

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Course Schedule

Schedule is subject to change with fair notice (one week) in class or via notice on Canvas. Please check Canvas a few days before class to be informed about class activities, materials and reading required for class, homework, and presentations.

Project Key (color):

- PINK: Intro Assignments
- GREEN: Rectilinear
- BLUE: Curvilinear
- ORANGE: Flowform
- BROWN: Speed Form
- GRAY: Final Project

Week	Date	Topics, Readings, Demos, Assignments, Deadlines, Presentations
1	8/22	<p>Reading 1: Robertson Chp 1 (11-19) & Chp 2 (20-27); Henry Chp 1 (11-23); and Montague Chp 1 (1-18), Chp 3 (29-39), Chp 4 (40-48)</p> <p>Purchase Dick Blick Materials Kit. Materials Kit Overview. Review of syllabus, course content, assignment structure, course expectations and materials requirements.</p> <p>Assignment A1: One Page of Doodles Assign: Daily Sketchbook Activity: Nameplate</p>
	8/27	<p>Reading 2: Robertson Chp 3 (28-36) & Chp 4 (45-57); Montague Chp 4 (49-57 & 58-78)</p> <p>Due: A1 Demo/Lecture: Orthographics & Paraline. Assignment A2: Rectilinear Orthographic & Paraline Drawings Activity: Orthographic Translation Quiz #1</p>
2	8/29	<p>Reading 3: Robertson Chp 10 (189-196); Henry Chp 3 (43-63); and Montague Chp 5 (79-93)</p> <p>Due: A2 Project: Rectilinear: Activity: Rectilinear Exploration Ortho Sketching Demo/Lecture: Perspective drawing basics. One-point perspective. Activity: One-point Perspective Cubes Assignment A3: One-point Perspective Rectilinear, Ref. Montague 46-48</p>

	9/5	<p>Due: A3 Demo/Lecture: Perspective drawing basics. Two-point perspective. Activity: Two-Point Perspective Cubes. Assignment A4: Two-point Perspective Rectilinear, Ref. Montague 49-51</p>
3	9/10	<p>Reading 4: Henry Chp 3 (66-89) and Chp 9 (157-171); Montague Chp 11 (191-200) Due: A4 Due Demo/Lecture: Principals and Construction Methods. 30/60 & 45 degree Views. Perspective Grid Systems. Activity: Rectilinear Exploration Perspective Sketching Assignment A5: One-point & Two-point Perspective Room Interiors</p>
	9/12	<p>Due: A5 Cubes, rectangles, diagonals, dividing, adding and multiplying. Concept sketching. Assignment A6: Cube Compositions Assignment A7: Rectilinear Concept Sketching</p>
4	9/17	<p>Reading 5: Robertson Chp 6 (89); Henry Chp 5 (87-91 & 96-97); and Montague Chp 7 (111-119) Due: A6 & A7 Drawing sloped planes. Concept refinement. Shading and marker introduction. Activity: Open Box, Shading & Shadows with Cubes Assignment 8: Rectilinear Concept Refinement & Simple Shading</p>
	9/19	<p>Due: A8 Activity: Rubik's Cube Rotation Assignment A9: Rectilinear Final Design - (2) Two-point Perspectives & Orthographic Views (top, front, side) (based on DSID 31 final design)</p>
5	9/24	<p>Reading 6: Henry Chp 9 (172-173); and Montague Chp 8 (145-163) Due: A9 Project: Curvilinear (<i>form student project groups</i>) Introduction to ellipses. Activity: Ellipse Exercises Assignment A10: Cylinders, Cones & Spheres Assignment A11: Curvilinear Concept Ortho Sketches</p>
	9/26	<p>Due: A10 & A11 Introduction to curved surfaces.</p>

		<p>Activity: Cube & Cylinder Compositions Assignment A12: Two-Point Perspective Curvilinear</p>
6	10/1	<p>Reading 7: Robertson Chp 6 (81-88) Due: A12 Activity: Shading & Shadows with Cylinders, Cones & Spheres Assignment A13: Curvilinear Concept Refinement & Orthographic Marker Renderings</p>
	10/3	<p>Due: A13 Activity: Orthographic Translation Quiz #2 Assignment A14: Curvilinear Final Design - (2) Two-point Perspectives & (top, front, side) Orthographic Views (based on DSID 31 final design)</p>
7	10/8	<p>Reading 8: Robertson Chp 6 (91 & 94-101); Henry Chp 5 (84-86) and Chp 6 (98-115) Activity: Drawing Pipes Assignment: Midterm Portfolio & Daily Sketchbook</p>
	10/10	<p>Project: Flow Form project. Due: A14 Assignment: Midterm Portfolio & Daily Sketchbook Intro to complex curved surfaces & Cross-sections. Activity: Flowform project Contour Model Assignment A15: Flow Form Contour Model Assignment A16: Two-Point Perspective Flow Form (based on Contour Model) Due: A15 (same day, done in class)</p>
8	10/15	<p>Reading 9: No reading this week! Mid-Term Portfolio Assessment Work Day</p>
	10/17	<p>Due: A16 Assignment A17: Flow Form Concept Sketches</p>
9	10/22	<p>Reading 10: Henry Chp 7 (116-127), Chp 9 (174-175), Chp 10 (176-186), and Chp 11 (194-200) Due: A17 Assignment A18: Flow Form Final Design</p>

	10/24	Work Day
10	10/29	Reading 11: No reading this week! Due: A18 Project: Speed Form Activity: Speed Form Concept Sketches Assignment A19: Speed Form Two Point Perspective
	10/31	Due: A19 Assignment A20: Speed Form Ortho Concepts
11	11/5	Reading 12: No reading this week! Due: A20 Assignment A21: Speed Form Orthographic Concept Renders
	11/7	Due: A21 Activity: Orthographic Translation Quiz #3 Assignment A22: Speed Form Concept Sketches in Perspective
12	11/12	Reading 13: No reading this week! Due: A22 Assignment A23: Speed Form Perspective Concept Rendering
	11/14	Due: A23 Assignment A24: Speed From Final Design
13	11/19	Reading 14: No reading this week! Work Day
	11/21	Due: A24 Assignment A25: Redesign Sketch Project
14	11/26	Reading 15: No reading this week! Work in class on A25 Redesign Sketch Project Activity: A25 Design Exploration
	11/28	<i>Non-Instructional Day: No Class, Campus Closed</i>

15	12/3	Reading 16: No reading this week! Activity: A25 Design Concept
	12/5	Activity: A25 Design Refinement Activity: Orthographic Translation Quiz #4
16	12/10	Due: Final DSID 21 Portfolio (Itoya Folder) and Daily Sketchbook Activity: A25 Final Review
Final Exam	12/18 9:45- 12:00	Due: A25 Return Final Portfolio and Daily Sketchbook