

San José State University
Department of Design / Industrial Design Program
DSID 130, Section 1
Sustainable Design
Spring 2019

Instructor:	Ron Boeder
Office Location:	Art 231
Telephone:	(408) 924-4380
Email:	Ronald.Boeder@SJSU.edu
Office Hours:	TR 11:00AM-12:00 PM
Class Days/Time:	TR 12:00 PM-2:50 PM
Classroom:	Art 205
Prerequisites:	DSID 123A or instructor permission
Course Fees:	A percentage of your fees are used in the maintenance of the prototyping facility equipment. The Department of Design requires that Industrial Design students attend and pass the shop safety orientation at least once each year. A shop test date will be reserved within the first two-three weeks of the term. You must provide proof of enrollment and a receipt from the bursar's office that you have paid the required fee.

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. Copies of the course materials such as the syllabus, assignment handouts, grading, etc. may be found on the DSID 143 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 also 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. 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.

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 class explores a variety of issues surrounding the subject of Sustainability. The history of sustainability as it applies to Industrial Design and related fields will be covered, along with current trends in the subject. Aspects of sustainability include knowledge of materials, manufacturing techniques, new technologies, whole systems thinking, renewable resources and methodologies, appropriate technology, life cycle analysis methods, and aspects of how sustainability is being approached in other parts of the world.

Course Goals:

Student Learning Objectives

Class assignments will include a number of readings, analysis of the readings through short essays, presentations, classroom activities and exercises, DVD viewings, and two design projects. Reading will be required on a weekly basis and the reading assignments (except for one book) will be posted on the web at the course Canvas site. The course will be following the Okala curriculum developed by IDSA along with other support texts, articles, videos and tools.

Course Learning Outcomes (CLO)

On successful completion of the course students shall be able to:

- (LO1) Know how industrial designers, and the work they do, affects the environment.
- (LO2) Discuss the historical development of the field of sustainability as applied in design and manufacturing.
- (LO3) Apply both whole systems thinking and more strategic intervention methods to design products and systems sustainably.
- (LO4) Investigate and apply current materials and production techniques that aid in sustainable design.
- (LO5) Compare and use research about sustainable methodologies from other disciplines and learn how to apply them to product design.
- (LO6) Use best practices in research and analysis methods about materials extraction, technology, manufacturing, infrastructure, economies, and transport as it applies to products.
- (LO7) Translate research into useful design focused needs.
- (LO8) Design a product from concept through to final design prototype that reduces or eliminates environmental impact.
- (LO9) Present design ideas in a clear, concise manner in both 2D and 3D.
- (LO10) Use online teaching tools successfully in person and virtually.

Course Project Deliverables

There will be the following deliverables for this course: weekly readings with discussions in class, exercises in class to enhance understanding of lectures and reading, assignments to do outside of class that reinforce lectures and activities done in class, project sketches, mock-ups, exploded views, orthographic drawings, technical product specifications (System Bill of Materials), assembly drawings, LCA Impact Analysis, final appearance models, and project process books. Please come prepared to work in class. Bring any supplies and materials that you might need to work that day in class.

You will be required to:

- Turn in a blue sky project concept during “blue sky” week.
- Turn in a design project at the end of the semester with interim reviews and progress checks throughout the term.
- Turn in a Project process book that includes *all* work completed during the semester (interim phase deliverables and other work that is important to the project).
- A final visual presentation will take place during the last two weeks of class.
- On-time postings of homework and progress on projects on Canvas.

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 ([Shop Safety Video](#)) 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 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.

Required Texts/Readings

Textbook

- 1) White, P., St. Pierre, L. & Belletaire, S. [The Okala Practioner: Integrating Ecological Design Handbook](#). 2013. ISBN 978-0-9851674-0-0. Note: This workbook is currently available on Amazon. It is required on the first day of class.
- 2) McDonough, William [Cradle to Cradle: Remaking The Way We Make Things](#). 2002. ISBN: 978-0-86547-587-8 . Note: This book is currently available on Amazon. It is required on the first day of class.

Other Recommended Readings

Other required and suggesting readings will be posted on the Canvas site under the File Menu in the Other Suggested Reading folder.

Required Materials List

Materials that will be required for this course:

- 1) One-half ream (250 sheets) of 8.5x11 copy paper
- 2) 1-2 pads of 14x17 Marker paper
- 3) Various mock-up materials: foam core sheet, cardboard, modeling clay, light weight foam, hot glue gun & glue, etc
- 4) Various prototyping materials for prototyping final model
- 5) One consumer electronic product to disassemble

Library Liaison

Rebecca Kohn, Liaison Librarian for Design Department

Email: Rebecca.Kohn@sjsu.edu

Phone: 408.808-2007

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 life long 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 as we will make all efforts to begin the critique at that point. 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. Do not pass a message through another student! Students are to be respectful of everyone in the classroom and any disruptive activities in the classroom will result in the student being asked to leave the 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.

Cell phones, Tablets, and even laptops can be 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. ***Phones 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 may 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.

Assignments and Grading Policy

Students will be engaged in lectures, research and design activities, and lab time during class meeting times and they will be assessed on engagement in those activities in their Participation grade (LO 1-10). Students will have homework assignments to do outside of class (up to 12 hours per week) that include reading, exercises, sketching in their sketchbook, mocking up concepts in 3D. (LO 3, 5, 6, 7, 9). Students will be required to turn in a two final projects at the end of the semester (LO 8). They will be required to turn in their final process book on the final date (LO 9). Grading will follow the standard SJSU A-F system.

All grades are assessed on the following three criteria: Quality, Effort, and Completeness. Each assignment, presentation and deliverable will be graded on these three criteria, with each criteria holding equal value (33.33%).

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:

Projects, and Desk Critiques:	50%
Final Project Deliverables:	30%
Class and Activity Participation:	20%

Please see [university grading guidelines](#) for more information.

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. Extra credit is not possible in this course as the workload is significant enough. A passing grade for this course is a D- but that type of a grade on your semester work will usually not show well in your design portfolio and could pose problems with passing your next portfolio review. The Participation grade in this course will be assessed through your engagement in Activities/Exercise sessions, discussions in class, and critiques each week. Actively engaging and exhibiting life-long learning skills during class are the mode by which participation is assessed.

University Policies

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

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 by the time students pass DSID 123A that all BSID 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. 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 critiques and presentations. Students will be given a 8 linear foot allotment of paper for this course (enough for 1 draft and 1 final print). Any additional needs for printing can be accommodated by payment through the IDSA Student Chapter or going to Plotter Pros (<http://www.plotterpros.net/index.shtml>) in San Jose.

Adobe Creative Suite licenses have been available through the SJSU Adobe software program for faculty, staff, and students. Students can access Adobe Creative Suite 6 Design and Web Premium, and should be able to download it from <http://its.sjsu.edu/services/adobe/>. Adobe Creative Suite 6 Design and Web Premium includes: Photoshop CS6 Extended, Illustrator CS6, InDesign CS6, Dreamweaver CS6, Flash® Professional CS6, Fireworks® CS6, Acrobat® X Pro, Bridge CS6, Media Encoder CS6.

Solidworks is also provided by SJSU for no cost to students. Please contact your instructor to get the downloading information.

DSID 130 / Sustainable Design / Spring 2019

Course Schedule

Schedule is subject to change with fair notice (one class period) in class or via Canvas.

Week	Date	Topics, Readings, Demos, Assignments, Deadlines
Week 1	R 1/24	<p>Sustainable Design History & Foundation <i>Reading:</i> TBD</p> <p><i>Activity:</i> Review syllabus, Canvas overview, Reading, Workbook Review <i>Assignment:</i> Watch Shop Video (50 mins); Prepare for Shop Test <i>Assignment:</i> 24 hour log & Behavioral Study & Analysis</p>
Week 2	T 1/29 R 1/31	<p>Sustainable Design History & Foundation <i>Reading:</i> TBD</p> <p><i>Activity:</i> Shop Test (3:30-4:30pm) <i>Due:</i> 24 Hour Log & Behavioral Study & Analysis (Summary in front of class + Canvas submission) <i>Lecture & Video:</i> Biosphere & Biology; Video; Discussion</p> <p><i>Lecture:</i> Mindset; Social Equity; Environmental Ethics; Discussion; Consumer Electronic Product Survey (team formation) <i>Assignment:</i> Research www.wri.org; Consumer Electronic Product Survey https://www.cesweb.org/)</p>
Week 3	T 2/5 R 2/7	<p>HOLIDAY: Labor Day, Campus Closed</p> <p>EcoDesign Strategies <i>Reading:</i> TBD Electronic Product Survey</p> <p><i>Due:</i> Consumer Electronic Product Matrix & Student team presentations; WRI Findings <i>Activity:</i> Special Project Introduction <i>Assignment:</i> Product + Package Focus Strategy (matrix)</p>
Week 4	T 2/12 R 2/14	<p>Lifecycle Strategies <i>Reading:</i> TBD</p> <p><i>Due:</i> Product + Package Focus Strategy (matrix); <i>Activity/Discussion:</i> Strategic Frameworks for product selection</p> <p><i>Activity:</i> Stakeholders; Product + Package Focus <i>Assignment:</i> Shop for and purchase your Product to Redesign.</p>
Week 5	T 2/19	<p>Lifecycle Strategies <i>Reading:</i> TBD</p> <p>Bring product to class <i>Activity:</i> Product + Package Focus Selection</p>

Week	Date	Topics, Readings, Demos, Assignments, Deadlines
	R 2/21	<i>Activity:</i> Emerging Strategies; Strategies in Depth; LCA
Week 6		Lifecycle Strategies: Implementation <i>Reading:</i> TBD
	T 2/26	<i>Activity:</i> LCA review and exercises (Primer) <i>Assignment:</i> Initial Concept Brainstorming by Lifecycle Strategy
	R 2/28	<i>Due:</i> Initial Strategies for Product Redesign (Canvas and in class) <i>Activity:</i> Case Study Review; Biomimicry <i>Assignment:</i> Sustainable Design Case Study Analysis
Week 7		Life Cycle Strategies: Case Studies <i>Reading:</i> TBD
	T 3/5	<i>Assignment:</i> Case Study Research and Analysis; Initial concepts for your Product Redesign
	R 3/7	<i>Assignment:</i> Case Study Analysis Report; Initial Concepts of Product Redesign
Week 8		Life Cycle Strategies: Implementation <i>Reading:</i> TBD
	T 3/12	<i>Due:</i> Case Study Report; Concepts/Strategies for your product redesign <i>Activity:</i> More LCA; Process Tree; Measuring Environmental Performance; <i>Assignment:</i> Visualize Product/Service/Experience that Solves Environmental Problem
	R 3/14	<i>Due:</i> Product/Service/Experience Visualization presentation drawings <i>Activity:</i> Eternally Yours Workshop
Week 9		Sustainable Design Implementation <i>Reading:</i> TBD
	T 3/19	<i>Activity:</i> Impact Factors <i>Assignment:</i> Product Solution Concepts
	R 3/21	<i>Activity:</i> Impact Factors <i>Assignment:</i> Product Solution Concepts
Week 10		Sustainable Design Implementation
	T 3/26	<i>Due:</i> Sustainable Product Solution Concepts <i>Activity:</i> Work in class <i>Assignment:</i> Sustainable Design Project
	R 3/28	<i>Activity:</i> Work in Class <i>Assignment:</i> Sustainable Design Project
Week 11 Spring Break		No Class. Spring Break. Campus Closed
	T 4/2 R 4/4	<i>Activity:</i> No Class <i>Assignment:</i> None

Week	Date	Topics, Readings, Demos, Assignments, Deadlines
Week 12	T 4/9	Sustainable Design Implementation <i>Due:</i> Mock-ups and presentation drawings of design project; Draft LCA <i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
	R 4/11	<i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
Week 13	T 4/16	Sustainable Design Implementation <i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
	R 4/18	<i>Due:</i> Final Refined Mock-ups of product and 2 nd draft of LCA <i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
Week 14	T 4/23	Sustainable Design Implementation <i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
	R 4/25	
Week 15	T 4/30	Sustainable Design Implementation <i>Activity:</i> Desk critique / work on projects in class <i>Assignment:</i> Continue to work on projects
	R 5/2	
Week 16	T 5/7	Sustainable Design Implementation <i>Due:</i> Sustainable Design Product and Package Redesign Model and Package <i>Activity:</i> Review models and final design solutions <i>Assignment:</i> Develop final presentation
	R 5/9	<i>Activity:</i> Work on final LCA, Final Model and Package and Presentation. <i>Assignment:</i> Develop final presentation
Final Exam	M 5/20 9:45 AM	Sustainable Design Implementation <i>Due:</i> Final LCA, Final Model & Package, and presentation of solution. Final Process Book for Consumer Electronic Product project. Final LCA Impact Analysis on original and new design <i>Activity:</i> Class critique and Evaluation.