STS Senior Project – DSIS Version

Syllabus, Fall 2017
Lectures: Wednesdays, 2:30-6:30, Sage 2211
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Alcoholibrium
Sebastian Popa

Introduction:

Senior Project serves as a capstone course for all STS, SUST, and DIS students. Unlike most of your other courses, Senior Project is largely a self-directed class where students will work to produce a large, well-researched and implemented final project. Rather than being a lecture-based class, Senior Project class time operates as structured research and support, where students support one another with peer-review and critique, as well as receive one-on-one time with the professor. Weekly readings will be assigned, and will be accompanied by in-class discussion; these readings are intended to function as tools for helping students to develop methodological and theoretical frameworks for their

The theme of the DSIS version Senior Project is "**Critical Design:**" using design tools and thinking to design systems and artifacts that attempt to address power relationships embedded in artifacts, systems, and society. Using a combination of design research methods, product and industrial design methods, STS and social science/humanities research, user testing, and guidance from other students in class and from external STS faculty/graduate advisors, individual students will:

1: Identify a social issue that they would like their project to address

2: Identify external STS faculty and graduate students with relevant expertise in that topic area that can help identify literatures, complexities, and interlocutors to frame the student's design process.

3: Use preliminary design research methods to identify specific interventions that a single project, to be completed in the course of a semester, can address

4: Develop several rounds of conceptual sketches that advance student critical design ideas, and will gather feedback on sketches from the course instructor, peers, the external STS advisor, and those impacted by the specific intervention space (ideally, those whom the student worked with during their preliminary design interventions) Students must accompany these design concepts with explanations of how they are intended to function along functional, semiotic, and systemic dimensions

5: Develop "functional" prototypes of their refined concepts. In general, these prototypes function as "Looks-Likes" and/or "Works-Likes." Students are expected to make appointments with the relevant resources (e.g., Abe in the wood/metal shop, The MILL, TVCoG, etc) to ensure that the craft dimensions of their design are adequate for testing purposes.

6: User test their prototypes with the appropriate population

7: Use the feedback from their user testing to further refine their concept

8: Develop an accompanying presentation and poster

9: Write a thesis document that includes an Introduction, Literature Review, Narrative of the Design Process, explanation of the State of the Design at the end of the semester, and Next Steps

10: Participate in two public events at the end of the semester showcasing their design work: the STS poster session (academic audience), and the Troy by Design (TxD) event held at the Center of Gravity (public and professional audience)

Assignments for this class are largely focused on keeping the student on track with their project. The workload for this course is intense. Students are expected to regularly spend 10 to 12 hours a week outside of class actively working on their project, whether that means reading, designing, building, researching in the field, or writing. The projects can become overwhelming if you don't keep up. If you're having problems, please come to me **sooner** rather than later, so I can help you and get you on track for a successful project. **Except in the case of medically documented (physical or mental) events, I do NOT assign Incompletes in the course.**

To save yourself time and effort down the road of the course, the sketching and building process should be visually documented as you work (photos, maybe video).

This course syllabus is designed for STS students who are enrolled the DSIS major. SUST and STSO majors should follow the SUST/STSO version of the syllabus, which can be found on LMS. **If you are a DSIS/SUST or DSIS/STSO dual major, you must start the SUST/STSO version of the STS Capstone project in your Fall Term, and complete both the SUST/STSO version and the DSIS Version in the Spring Term of your Senior Year (this timeline may vary for students who begin Senior Project in their Junior Year).**

Learning Outcomes:

Upon completion of this course, students should have the following sets of skills:

1.) An understanding of various kinds of research methods, and what lines of inquiry they can best support.
2.) The ability to construct a relevant and engaging literature review that effectively sets the stage for well thought out research questions and research design, as well as the theoretical framework of a research agenda.
3.) The ability to apply social science, arts, humanities, and design research as a groundwork for a design project.

Texts and Supplies:

Sketchbook
Every group will be required to have one set of colored pencils and an 18x24" drawing pad
Cost of Materials
Cost of Glossy Poster Print

Assignments and Grade Breakdown:

Total Course Points: 100
Warmup Assignment: Individual Rapid Critical Design (20 points total)
Brief Proposal Document, with three literature sources, 10 2x2 Thumbnails, and 2 10x10 Sketches (4 points)

5-Minute Critical Design Presentation, including Final Sketch (7 Points)

The STS Senior Project: (80 Points Total)
Annotated Bibliography 1 (Individual): 10 points
Annotated Bibliography 2 (Individual): 5 points
Annotated Artifact Collection (Group): 5 points

7-Minute Proposal Presentation, including polished sketch (Group): 5 points

Final Design Document (Group): 30 points

Material Artifact (Group): 15 points

Poster Final Printout and Presentation (Group): 10 points

Weekly Pin-Ups and Assignment Check-ins: 10 points

Written Project Descriptions:

All Written Assignments are due the Tuesday night, Midnight, BEFORE class to LMS

All Written Assignments should use Chicago Style formatting and citations (http://www.chicagomanualofstyle.org/home.html); word counts do not include references, footnotes, or endnotes

Annotated Bibliographies 1 and 2

Length: **(1)** 7 annotated sources of 150 words each and **(2)** 5 annotated sources of 150 words each, plus 5 design collections of 10-15 images each, with a 150 word synthesis of the images for each collection

Students in groups of 2 will individually produce two annotated bibliographies of 7 and 5 sources each. The articles and books annotated must come from peer-reviewed sources—books from academic presses, academic journals, peer-reviewed design journals, and/or curated art exhibitions. Press releases, news stories, or articles and books from popular magazines and presses like *Wired* or *The New York Times* are **not** peer-reviewed sources. We will go over peer-review and how to find these sources more deeply in class.

These peer-reviewed sources should serve several purposes. They should 1: give students a deeper understanding of the nuances of the social problem they are attempting to address, as well as activist, economic, and sociological efforts to address that problem; 2: give students a theoretical lens through which to make their own critiques about the social issue and proposed solutions, as well as theory that students can materially enact.

The artifact collection segments of the bibliography will be submitted **collectively as a group** and should combine found imagery of artifacts, design movements, and art movements that the student group can draw upon for their critical design prototype, accompanied by a 150 word synthesis of how each design collection can contribute to your critical design. Each image should be cited via the Chicago Manual of Style Art Work structure: **cite**source.trincoll.edu/chicago/**artwork**_000.pdf

The Design Thesis Document (.pdf and Printed out at the poster presentation):

Length: ~11,500 words, (group assignment), ~8500 words (single assignment), not including references, plus images and sketches

The Design Thesis represents the written and theoretical record of the literature, methods, materials, process, and challenges that brought about the Critical Design and its Prototype. The thesis must be well-written for a professional and academic audience, and must show, though its interlocking sections, how the social scientific literature researched by the student groups **identifies and complicates** a particular social or cultural problem, and how the design collections, design methods, and the group's creative production **materially communicates** that problem to an audience. As such, it takes the hybrid format of half academic thesis/half design document.

The Design Thesis can be roughly broken down as follows, although the lengths of each section may vary slightly depending on each project:

Introduction (1000 words)

The Introduction to your project that summarizes, without going into detail, the general problems that the group is addressing, and the critical design solution that communicates, challenges, or provokes users into understanding that problem in a new, different, or better way.

Literature Review (2500 words)

The Literature Review synthesizes peer-reviewed, academic literature into a compelling description of a problem space, as well as provides the analytical and philosophical frames that the group will be using as a foundation of their critical design. Examples of successful Literature Reviews might be: a tracing of several types of social, environmental, biological, and economic influences on the price of coffee, and an explanation of what Actor-Network Theory is and why it's useful for understanding the system of coffee production; a description of the organizational and pedagogical structures and failures of engineering education, and the use of social-justice and engaged engineering pedagogical theory as a way to address engineering education; the explanations of the kinds of neurological, social, and problem-solving advantages and disadvantages that autistic children have, and the use of the concept of neurodiversity to better understand and address mental illnesses. The Literature Review should draw heavily upon the work done in each group's annotated bibliography.

Design Narrative (2000 words)

The Design Concept uses the design collection research and the work done in the theoretical section of the literature review to explain the thought process and goals of the critical design artifact. The Design Concept section should contain: a description of the design (including polished, finalized sketches/imagery, and pictures of the final prototype), a review of how it incorporates the theoretical and design movement research, an identification of the target audience of the design, an explanation of how it is intended to be physically used, including how the design is intended to communicate its meaning to the user. **The Design Concept section should not contain any build or construction information that is not relevant to the conceptual and formal components of the design**. In other words, talk about the use of a spring mechanism in the object should only be discussed if the spring is integral to the formal, communicative, aesthetic component of the design. For example, in the design image on the first page, discussing how the spring effects the way the user drinks out of the glass would be appropriate. Discussing how the glass was moulded would not be.

Current State of the Design (5000 words)

The Design Journal is a catch-all process section that describes the mechanical, practical ways in which the design was created (materials, processes, internal mechanisms, etc.), as well as documenting the ways in which the design changed from the initial sketches through the process of building the prototype. Any setbacks, sudden changes, failures, and surprising successes should be included here as well.

The Design Journal should also contain user-testing reports of the design at various stages. Have friends, other groups, and instructors demo your critical designs as you create them, and document (not necessarily visually) how users are using and interacting with your design in intended and unintended (not necessarily a bad thing) ways.

Next Steps (1000 Words)

After developing the material artifact, student teams will develop an organizational plan to bring the product "to the market." This includes detailing ideal construction materials, sourcing and pricing for those materials, environmental impact of the production process,

regulatory concerns (if any), target audience statement and analysis, marketing and distribution strategies. Note that not all of the products designed will be easily promoted or integrated into the marketplace. If this is the case for the team's product, what are alternative, non- or alt- market distribution and production strategies that can be developed? If traditional advertising and marketing campaigns don't fit the critical product design, what are other ways in which you can reach out to and communicate with your target audience?

The Senior Project Poster

The final presentation of your projects will be accompanied by a high-quality, glossy poster. The poster will blend engaging graphic design work with the contents of a scientific presentation paper. The poster should contain about 750 words, giving the readers an introduction to the topic and design, an overview of the literature and design collections that influenced the design, and a description of the intended effects of the design.

Schedule:

Week	Lecture	Reading	Assignment Due
Week 1, January 18th	Critical Design	Syllabus overview	
Week 2, January 25th	Brainstorming Critical Designs	"What is 'Critical' about Critical Design?" by Bardzell and Bardzell (LMS) Lawson et. al., "Quantified Dog"	Rapid Critical Design: Both **Printed out and submitted online** (1). Three Sources of Academic Literature describing a social problem (2). Ten 2x2 Thumbnail Sketches of a Critical Design Provocation (3). Two 10x10 Polished Sketches of Design Provocations, Based Upon Ideas Developed in the Thumbnails
Week 3, February 1st	Presentations and Critique	"Minor Design Activism," by Lenskold et. al. "Probes, Toolkits, and Prototypes," by Sanders and Stappers	5-minute Powerpoint Presentation, presenting: (1). The problem as you see it (2). Why you see the problem that way, according to your literature (with citations and explanations) (3). Showing your final Sketch (4). Explaining how the proposed design provokes the user
Week 4,	How to find		(In Class)

February 8th	Literature + How to Write Annotated Bibliographies	Form into final project groups of 2 students, selection of the problem space
Week 5, February 15th	Iterating your Bibliography and Working through Design References	**Annotated Bibliography 1:** Social Science: Each group member submits a 7-source annotated bibliography. Each annotation should be about 150 words.
Week 6, February 22nd	Applying Design to Social Theory: Drafting Critical Designs	**(1): Annotated Bibliography 2:** Social Science: Each group member submits a 5-source annotated bibliography. (1). 5 social science references, reflecting the feedback from the TA and instructor from the previous week (2). **As a group:** 5 design and form references, inspired by the readings and design journals Each S.S. annotation should be about 150 words. Each design collection should contain 10-15 images (cited), with a 150 word synthesis of the images
Week 7, March 1st	The Design Critique, and the Iterative Process	**Design Thumbnails:** Each group will provide: (1). Twenty 2x2 Thumbnail Sketches of a Critical Design Provocation based upon their literature and design research (2). Four 10x10 Polished Sketches of Design Provocations, Based Upon Ideas Developed in the Thumbnails

Week 8, March 8th		**Critical Design Critique:** Each group will present a 7-minute Powerpoint showing of their proposed critical design. The presentation will cover: (1). The problem as you see it (2). Why you see the problem that way, according to your literature (with citations and explanations) (3). Design Inspirations that led to your proposed design (with citations and explanations) (4). A final, refined sketch Begin prototype construction
Week 9, March 15th	Spring Break	
Week 10, March 22nd	Fleshing Your Outline into a Thesis	**Design Thesis Introduction and Literature Review Outline Due to LMS**
Week 11, March 29th	Open Lab	**Looks-like/Works-like Prototypes due**
Week 12, April 5th	NO CLASS – GM Week	**User Testing** **In-Class User-testing report 1**
Week 13, April 12th	Open Lab	User Testing In-Class User-testing report 2
Week 14,	Open Lab	Writing

April 19th		
Week 15, April 26th	Open Lab	Writing
Week 16, May 3rd		Powerpoint Presentation in Class Poster Presentation Due May 4-5th Final Document Due May 8th

Attendance:

Students are expected always to be present during class. Excellence in submitted work will not make up for delinquency in attendance. **More than two unexcused absences will result in a lowering of your final course grade by a full letter for each class missed beyond two. Five unexcused absences will result in a failing grade**. If you must miss a class, assignments are due before the class period begins. Excusable absences include illness, family emergencies, and scheduled Rensselaer athletic events.

Academic Integrity:

Student-teacher relationships should be built on trust. Students should be able to trust that teachers have made responsible decisions about the structure and content of the courses they teach, and teachers must trust that the assignments students turn in are their own. Acts that violate this trust undermine the educational enterprise and contradict the very reason for your being at Rensselaer. *The Rensselaer Handbook of Student Rights and Responsibilities* defines various forms of academic dishonesty and procedures for responding to them. The policies laid out in the *Handbook* are intended to maintain a community of trust and will be strictly enforced. Please review these policies.

For this course, the following penalties will apply:

• Significant acts of plagiarism (e.g., text copied verbatim from an unidentified   source): Failure of the course and a written judgment in the student's official record

• Minor acts of plagiarism (e.g., referencing the findings of others without   appropriate citations): Failure of the assignment, plus reduction of final course   grade by one letter grade

• Other acts of academic dishonesty: Penalties range from a warning to reduction of   final grade by one letter grade to failure of the course, depending on the severity of the violation as determined by the instructor   As is evident above, penalties for plagiarism are significant. All direct use of another person's words must be placed inside quotation marks. You must also indicate where you paraphrase another's work

and where you borrow another's specific ideas or interpretations. If you have questions regarding proper citation practices, see the instructor for clarification *before* the assignment is submitted.   While collaboration is encouraged throughout the course, others cannot do work for you. All assignment activities must be carried out by the individual or team members submitting the assignment for a grade. Other people may show you *how* to do something (say, when using computer software), but you must follow up by doing the work yourself.   *The Rensselaer Handbook* provides specific procedures by which a student may appeal a grade. You should speak to the professor before initiating an appeal. If this does not lead to satisfactory resolution, you have the option of appealing your grade by writing to the head of the STS Department no later than 10 days after your grade has been posted.