

EST 205 Introduction to Technological Design: Innovation and Design Thinking

Instructor: Dr. Lori L. Scarlatos
Time: TuTh 1-2:20pm
Location: 131 Earth & Space Science
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Tu 10am - noon
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Course Description

This course is a broad introduction to technological design. Design is treated as a universal human activity comprised of learnable principles, processes and skills. Specific topic areas will include: creativity and innovation in design, human need-finding and problem identification, design specifications, using research on design processes, and design concept generation and development (using 2D/3D visualization and animation).

SBC: TECH

Learning Outcomes

As an SBC TECH course, this class has the following expected learning outcomes:

1. Demonstrate an ability to apply technical tools and knowledge to practical systems and problem solving.
2. Design, understand, build, or analyze selected aspects of the human-made world. The “human-made world” is defined for this purpose as “artifacts of our surroundings that are conceived, designed, and/or constructed using technological tools and methods.”

This particular class has the following additional expected learning outcomes:

1. Identify and empathize with under-served populations.
2. Employ design thinking to solve an important problem.
3. Rapidly prototype, test, and refine those designs using feedback from stakeholders.

Readings

All readings for the course can be found under Documents in the [Blackboard](#) site for this course.

Course Requirements

Your grade will be based on the following criteria:

- **Attendance, Homeworks, and Class Participation** - 30%
This includes participation in in-class activities and discussions of readings. See the [Assignments](#) section for further details.

- **Design Projects - 70%**

Over the course of the semester, you will develop a technological design. See the [Assignments](#) section for further details and the Schedule (below) for due dates.

Advisories

Disability Support Services (DSS): If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC(Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

My Own Advice

Think of me as your cranky client. There may be times when you disagree with what I say about your work. Just remember that I am the one giving out the grades. When I make a suggestion, be sure to listen, because it is likely to have an impact on your final grade.

Start your assignments and your project early. That way if you have trouble, you can get help in time to finish your assignment by the due date. This will also help you to avoid a last-minute crunch in the lab.

Don't be afraid to ask questions. If you don't understand something, it's likely that your classmates don't understand it either. Raise questions in class. If you need further explanation, come see me during office hours. If you can't make my office hours, send me email. Be sure to do this before you get hopelessly lost.

Work with other students. I do not mean that you should copy each other's work (which will not be tolerated). Rather, you should learn from one another. If you can't figure out how to make something work, see how your colleague did it. It is also useful to discuss different ways of approaching a problem.

Please let me know as soon as possible if you anticipate having any problems with this class. If alerted to them early on, I may be able to accommodate your needs.

Topics

Throughout the class, we will be exploring both the theoretical and the practical aspects of the following topics. Readings are to be discussed on the day listed. Deliverables are to be handed in during the week in which they are listed. Please note that this schedule is approximate, and subject to change.

Date	Topic	Assignments & Activities
Jan. 23	Introduction	
Jan. 25	Design Thinking	
Jan. 30	Empathizing with others	HW #1
Feb. 1	<i>Virual class</i> - interviews and observations of stakeholders	
Feb. 6	Understanding your audience	HW #2
Feb. 8	Defining the problem	Assignment #1
Feb. 13	Road Show	Assignment #2
Feb. 15	Ideation	Assignment #3
Feb. 20	Teamwork	HW #3
Feb. 22	Brainstorming techniques	HW #4
Feb. 27	<i>Virual class</i> - refine ideas generated in brainstorming session	
Mar. 1	Sketch-up	Assignment #4
Mar. 6	<i>Virual class</i> - practice Sketch-up	
Mar. 8	AppInventor	HW #5
Mar. 12 - 18	<i>Spring Break</i>	
Mar. 20	<i>Virual class</i> - practice AppInventor	
Mar. 22	Evaluating designs	Assignment #5
Mar. 27	<i>Virual class</i> - update the project ePortfolio and print out pages for showing your design to classmates	
Mar. 29	Project reviews	HW #6
Apr. 3	Structured findings	Assignment #6
Apr. 5	Prototyping	HW #7
Apr. 10	<i>Virual class</i> - work on prototype	
Apr. 12	Intellectual property rights	
Apr. 17	Testing your design	Assignment #7
Apr. 19	<i>Virual class</i> - test your prototype with the stakeholders	
Apr. 24	Refining the design	Assignment #8
Apr. 26	<i>Virual class</i> - refine your prototype	
May 1	<i>Presentations</i>	Assignment #9
May 3	<i>Presentations</i>	Assignment #9