EST 205 Introduction to Technological Design: Innovation and Design Thinking

Instructor:	Dr. Lori L. Scarlatos
Time:	MW 2:30-3:50pm
Location:	Frey Hall 313
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Office Hours:	W 4 - 5:30pm Th noon - 1:30pm or by appointment
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Course Description

Using a Design Thinking approach to solve real world problems with technology, broadly defined. Design is treated as a universal human activity comprised of learnable principles, processes and skills. Students will identify a need (through empathy), define a problem, and work in a team on a technological solution, using prototyping and testing to refine their design. Over the semester, students will create and work on a collaborative website for their project. They will also learn two online technologies (one for 3D modeling, the other for app development) which they may use to prototype their design.

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 designed solutions using feedback from stakeholders.

Course Materials

All readings for the course can be found under Documents in the Blackboard site for this course.

All software used for development in the course is available for free online. See the Documents section of Blackboard for these additional Resources.

We will be using Class Question for two purposes in this class: 1) to take attendance, and 2) to practice questions that will appear on the exams.

You will also regularly need your *phone*, *paper* and *writing instruments*. On days that I give demos, it will also be helpful to bring a *laptop*.

Course Requirements

Your grade will be based on the following criteria:

- **Class Participation** - 20%
  This includes attendance and in-class activities (ICA). If you are absent for an in-class activity you may hand it in as an IC Assignment on Blackboard, but you will not receive full credit. See the Assignments section for further details.

- **Homeworks** - 20%
  These individual assignments are described in the Assignments section. Late submissions will lose points.

- **Exams** - 30%
  There will be one cumulative final exam, based on the assigned readings and materials presented in class. Exam is closed-book and notes. *Note that questions asked in class (using ClassQuestion) will appear on the final.*

- **Design Project** - 30%
  Over the course of the semester, you will develop a technological design as part of a team. See the Assignments section for further details and the Schedule (below) for due dates.

Advisories

Student Accessibility Support Center: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or at sasc@Stonybrook.edu. They will determine with you what accommodations 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.

Schedule

Throughout the class, we will be exploring a variety of topics related to Technological Design. This schedule is subject to change; be sure to check Blackboard for updates. Readings come from the following sources:

- What technology wants (WTW) - video
- Design: Creation of Artifacts in Society (Design)
- Design Thinking Handbook (DTH)
- DIY Toolkit (DIY)
- Google guide (GG)
- Doing patent research (DPR)

The following types of assignments are indicated:

- In-class activities (ICA) are done in-class. If you are absent for one, you must make up the work on your own and hand it in as an IC Assignment in Blackboard.
- Homeworks (HW) are done individually, and are due when the class starts. Please note that some need to be brought to class, while others are handed in as an Assignment in Blackboard.
- Design Project (DP) assignments are done as a group.

Date	Topic	Reading	Assignment
Aug. 26	Technology	WTW	ICA 1
Aug. 28	Design	Design, ch. 1	ICA 2
Sep. 2	*Labor Day (no classes)*		
Sep. 4	Design case studies	Design, ch. 2	HW 1

Sep. 9	Design Thinking	DTH, ch. 1	ICA 3
Sep. 11	Community Service		
Sep. 16	Empathy	DTH, ch. 2	ICA 4
Sep. 18	*Virtual class: conduct interviews*	DIY 12	
Sep. 23	Story sharing	DIY 14	HW 2, ICA 5
Sep. 25	Teamwork	GG	HW 3, ICA 6
Sep. 30	Team Building		ICA 7, DP 1
Oct. 2	Defining the problem	DTH, ch. 3 DIY 9	ICA 8
Oct. 7	Design problem definition; Project website creation	Design, ch. 3	ICA 9, DP 2a
Oct. 9	Ideation	DTH, ch. 4, DIY 20-21	ICA 10
Oct. 14-15	*Fall Break (no classes)*		
Oct. 16	Refining the idea Researching the state of the art	Design, ch. 4	DP 2b
Oct. 21	Prototyping	DTH, ch. 5, DIY 24	ICA 11
Oct. 23	Sketch-Up		
Oct. 28	*Virtual class:* Create your paper prototype		ICA 12
Oct. 30	Play-test #1		ICA 13, HW 4
Nov. 4	AppInventor		HW 5
Nov. 6	Refining your prototype	Design, ch. 7	
Nov. 11	Play-test #2		ICA 14, HW 6
Nov. 13	Testing	DTH, ch. 6	ICA 15, HW 7
Nov. 18	*Virtual class: testing*		
Nov. 20	Evaluating test results	DIY 23	ICA 16, HW 8
Nov. 25	Intellectual property	DPR	ICA 17
Nov. 27-30	*Thanksgiving Break (no classes)*		
Dec. 2	Semester overview		
Dec. 4			Final Presentations (DP 2, 3)
Dec. 9			Final Presentations (DP 2, 3)
Dec. 11	**Final Exam**: 5:30-8:00pm		

Class Question

If you already have a Class Question account, skip to step 2. If you are new, start at step 1.

1) Go to classquestion.com/students and click "Click here to register". This link will allow you to register for the site.
2) Once you have registered, go to classquestion.com/students and sign in.
3) Click "Add Class" at the bottom. Enter the Class Code for this class - NTLGC - and then click "Add Class".
4) Your class will be added to the dropdown menu at the top. You can now click the "Sign In" button to log into your class!