Design Systems

Instructor
Miso Kim, 315RY
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COURSE DESCRIPTION

As design problems become more complex, a systems perspective becomes critical in design thinking. This class explores the nature of a system by addressing fundamental questions regarding the design practice: What is a system? What are the different types of systems? How do we observe and analyze systems in the context of design? How can we represent, create, and communicate systems? Design Systems is a full semester course that provides students with the opportunity to learn fundamental principles of systems theory and broaden their concept and design skillset.

In the first project, students will be asked to work in a team to design and model an imaginary "island," which will serve as a symbol of the system. They will first design an internal model of the system for the team, and then a communicational model of the system for the people who they will invite to the island. In the second project, students will be asked to work in a team to design a system for themselves which would help them to enhance their autonomy in a certain activity that they would like to do but proves difficult to carry on, e.g. exercise. They will first design a service system for themselves in current daily life, and then redesign it to work as a sustainable system for the future.

COURSE OBJECTIVES

Students will learn diverse perspectives about systems and apply them to the modeling of systems through readings, discussions, assignments, and projects. Upon completion of this course, students will be able to:

• Describe the value of "thinking in systems", the power of good models, and their relevance to experience design.

• Develop strategies for applying core systems concepts and models to experience design, for the benefit of students' understanding, their confidence, their design process, and their deliverables.

• Identify and compare methods for the representation of values, goals, intentions and actions of people, and modeling system components and interactions, in a coherent, holistic manner.

• Evaluate the quality of a design project in terms of its effectiveness and efficiency in helping users achieve, revise or discover their goals.

GRADING CRITERIA

Your final grade for this course will be based on the following distribution:

• Attendance and engaged participation in classroom activities: 30%

• Design process and team work: 30%

• Project deliverable: 40%

The following grading system will be used to evaluate your work:

• A= Outstanding achievement: Exceptional effort and work in all respects, work that stands out in contrast to other work in terms of both technical craft and creative execution, all deliverables submitted on time. (A 95-100; A– 92-94)

• B= Good achievement: Above average effort and work, solid technical craft, all deliverables submitted on time. (B+ 89-91; B 86-88; B– 83-85)

• C= Satisfactory achievement: Average effort and work, inconsistent execution of technical craft, some or all deliverables submitted on time. (C+ 89-91; C 86-88; C– 83-85)

• D = Unsatisfactory achievement: Lack of initiative, some or all deliverables submitted on time. (D+ 71-73; D 68-70; D– 65-67)

• F = Failure: Work that is incomplete and/or fails to achieve minimum standards. (F 0-64)

Assignments turned-in after the due date will impact your grade as follows:

• Up to 48 hours after due date: 80% reduction in possible points

• More than 48 hours after due date: 50% reduction in possible points

Attendance will impact your grade. Only one absence will be excused (if you plan to miss a class, let me know in advance). A second absence will result in your participation grade being cut in half. A third absence will result in a grade of F for the class. If there is an emergency you can be excused with an evidence such as a doctor's note.

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COMMUNICATION

I'm happy to meet with you outside of class by appointments in person or by email. Please feel free to contact me any time with your questions or concerns at: m.kim@northeastern.edu

SCHEDULE

Sep 05 Introduction to the class
- Definitions of a system
- Assignment: case studies

Sep 12 Systems
- Bela Banathy, "A Taste of Systemics"
- Nicola Morelli, "Designing product/service systems. A methodological exploration."
- Hugh Dubberly, "Models of Models"
- Presentation and discussion: case studies of a good system and a bad system

Sep 19 Structure
- Herbert Simon, Excerpts from The Sciences of the Artificial
- David Hyerle, "Thinking Maps-A Common Visual Language for Learning"
- In-class exercise

Sep 26 Process
- Horst Rittel, "The Reasoning of Designers"
- Hugh Dubberly, "How Do You Design? A Compendium of Models"
- In-class exercise

Oct 03 Form
- John Dewey, Excerpts from Art as Experiece
- Kenji Ekuan, Excerpts from The Japanese Lunchbox
- Susan Star, "Boundary Objects and Heterogeneous Distributed Problem Solving"
- In-class exercise

Oct 10 Delivery
- Brenda Laurel, Excerpts from Computer as Theatre
- Dornald Norman, "Affordance, Conventions, and Design"
- In-class exercise

Oct 17 Project I: Design an Island
- Project I teamup, ideation, and research

Oct 24 Project I: Design an Island
- Create an internal system model for the team

Oct 31 Project I: Design an Island
- Create a communicational system model for the guests

Nov 07 Project I: Design an Island
- Final presentation
- Project II teamup, ideation, and research

Nov 14 Project II: Design a System for Autonomy
- Design a system for self use

Nov 21 **Thanksgiving: no class**

Nov 28 Project II: Design a System for Autonomy
- Design a sustainable system

Dec 05 Project II: Design a System for Autonomy
- Final presentation