IE 48L HUMAN-COMPUTER INTERACTION DESIGN
Tentative Syllabus / Spring 2022

Instructor	**: Prof. Dr. Mahmut Ekşioğlu**
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Office hours	: Online after class hours (by appointment)
Course hours	**: Wed**: 13.00-13.50 & **Fri**: 09.00-10:50
Classroom	: **Wed:** Classroom M 2200 (13.00-13.50) / **Fri:** Online (09.00-10:50)
Course website	**:** http://moodle.boun.edu.tr/
Enrollment key	:
Prerequisite	**:** The course is open to IE and other engineering graduate students and also undergraduate senior students in good standing.

Course Description. Human-computer interaction (HCI) is concerned with the theory, research and practice of designing user experiences for all types of computerized systems. Topics include theories and models; interaction design process and principles; hardware, software and human aspects of interaction design; usability, user experience (UX) and interface design issues; prototyping and concrete design; evaluation methods; research methods in HCI; and some topics such as AI, IoT, ubiqutous computing and human-robot interaction.

Prerequisite: The course is open to IE and other engineering undergraduate and graduate students with a basic statistics background.

Required Materials

- Course notes and presentation materials will be available electronically from the course website.
- Selected papers and other resources to be available for downloading from the course website.

Recommended Materials

1. *Interaction Design: Beyond Human-Computer Interaction*, 5th ed., (2019). Sharp, H., Rogers, Y., Preece, J., John Wiley & Sons, Inc., Indianapolis, Indiana
2. *Designing User Experience: A guide to HCI, UX and interaction design*, 4th ed., (2019). Benyon, D. Pearson Education Limited, UK.
3. *The Design of Everyday Things: Revised and expanded edition* (2013). Norman, D.A., New York, NY: Basic Books.
4. *Human-Computer Interaction*, 3rd ed. (2004), A. Dix, J. Finlay, G.D. Abowd, R. Beale, Pearson Education Limited.
5. *Research Methods in Human Computer Interaction*, 2nd ed. (2017). J. Lazar, J.H. Feng and H. Hochheise, 2017 Elsevier Inc.
6. *Human Computer Interaction: An Emprirical Research Perspective* (2013). I. Scott MacKenzie, Elsevier Inc.
7. *Readings in Human-Computer Interaction: Toward the Year 2000* (1995). Baecker, R.M. & Buxton, W.A.S. (1995)., San Francisco, CA: Morgan Kaufmann Publishers.
8. *The Art of Human-Computer Interface Design* (1990), Laurel, B., Reading, MA: Addison Wesley Publishing Company.

Topics

WEEK 1 &2

1. Introduction to Human-Computer Interaction (HCI)

a. What is interaction design?
b. Usability and user experience goals
c. Understanding users
d. Accessibility and Inclusiveness

2. Framework of Interaction Design

a. Interface and interaction types
b. Understanding and conceptualizing interaction
c. Interaction design principles

WEEK 3, 4 & 5

3. The Process of Interaction Design

a. Design thinking
b. Universal design
c. Establishing requirements
d. Data gathering, analysis, interpretation and presentation
e. Designing, prototyping and construction
f. Evaluating user interfaces: heuristic evaluation, user testing, conducting experiments, predictive models

WEEK 6 & 7

4. Models and Theories

a. Cognitive models
b. Communication and collaboration models
c. Task analysis
d. Models of the system

WEEK 8 & 9

5. Ergonomics and Human Factors for HCI

a. Design principles for human sensory systems
b. Design principles for human cognition and action
c. Information processing
d. Design principles for memory and attention
e. Designing against human error
f. Affective computing
g. Social interaction
h. Emotional interaction
i. Perception and navigation
j. Human-hardware interaction

WEEK 10 & 11

6. Research Methods in HCI

WEEK 12

7. Outside the Box

a. Artificial intelligence (AI) and interface agents
b. Internet of Things (IoT)
c. Intelligent Environments
d. Interfaces: robotic, brain, smart, wearable, shareable, augmented reality and multimodel
e. Groupware
f. Ubiquitous computing and augmented realities
g. Hypertext, multimedia and the world wide web

WEEK 13 Project presentations

Grading:

Assignments / Case studies	20%
Project	40%
Final exam	30%
Attendance	10%