

Course number and name	END 375/ Human - Computer Interaction
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering topic
Instructor or course coordinator	Ayşe Elvan BAYRAKTAROĞLU
Text book and other supplemental materials	<ul style="list-style-type: none"> • Frank E. Ritter, Gordon D. Baxter, Elizabeth F. Churchill. <i>Foundations for Designing User-Centered Systems</i>. Springer 2014. • Benjamin Weyers, Judy Bowen, Alan Dix, Philippe Palanque (eds.) <i>The Handbook of Formal Methods in Human-Computer Interaction</i>. Springer 2017. • Jonathan Lazar, Jinjuan H. Feng, Harry Hochheiser. <i>Research Methods in Human – Computer Interaction</i>. Wiley 2010 • Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale. <i>Human – Computer Interaction</i>. Pearson (3rd Edition) 2004. • Don Norman. <i>The Design of Everyday Things</i>. Basic Books 2013.

Course information	
Content	Human – Computer Interaction (HCI) is an interdisciplinary field which draws upon various research domains including human factors, engineering design, psychology and computer science. In this course, students will be introduced to the fundamental theories and methodologies in human computer interaction domain. Topics include; user characteristics, design process, evaluation methods, human subject research.
Prerequisites	END 232 Ergonomics
Type	Selected elective

Course learning outcomes	
Students who pass the course will:	
1.	Students will learn about basic human perceptual and cognitive characteristics and their impact on memory, learning and decision making in relation to computer usage.
1.	Students will gain knowledge about theories and concepts in the HCI domain
1.	Students will know about principles and techniques to analyse, design, prototype and evaluate user-centered interactive systems
1.	Students will understand the characteristics of human error and how user-centered design can help to manage it.
1.	Students will learn about methods used in the human subject research.
1.	Students will gain knowledge which would help them to communicate better with team members from different areas of expertise in interactive system development projects.

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	Little
SO2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	High
SO3. An ability to communicate effectively with a range of audiences.	Partial
SO4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Partial
SO5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	Partial
SO6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	High
SO7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	Little

Week	Topics	Learning outcome(s)
1	Introduction to user-centered interactive systems design	I, II
2	Visual and auditory systems	I, VI
3	Memory, attention and learning	I, VI
4	Mental representations, problem solving, and decision making	I, VI
5	Influence of technology on the nature of the interaction – computer and the input-output devices and human-computer communication	I, II, VI
6	Interactive system design process – developing and using personas and scenarios	II, III
7	Task analysis, empirical evaluation of systems	III
8	Empirical evaluation of systems - Usability	III
9	Experience design	III, VI
10	Errors in human-computer performance	IV
11	Social cognition and team work, and CSCW	II, III, VI
12	Experimental design, surveys, diaries, interviews and focus groups	V, VI
13	Ethnography, automated data collection methods, physiological tools	V, VI
14	Project presentations, general evaluation	II, III, V, VI