ITEC321 (Human Computer Interaction)

General Information

Course Code	ITEC321		Required (R)/Selected Elective (SE)			R
Credit Hours	Theory	2	Lab	1	Total	3
Prerequisites	NIL					
Course Coordinator	Mrs. Jarina Begum					

Course Description

This course provides a comprehensive, authoritative introduction to the dynamic field of human-computer interaction (HCI). Students will learn practical principles and guidelines needed to develop high quality interface designs–ones that users can understand, predict, and control. It covers theoretical foundations, and design processes such as expert reviews and usability testing. Numerous examples of direct manipulation, menu selection, and form fill-in give students an understanding of excellence in design. It also provides updates on current HCI topics with balanced emphasis on mobile devices, Web, and desktop platforms.

Course Objectives

The main objective is to impart students with:

- What is usability? And, how to measure the usability of an interface?
- How are guidelines, principles and theories used for better interface design?
- Differentiate various interaction methods and how direct manipulation different from other interaction methods.
- How teleportation & virtual environments influence the direct manipulation technologies?
- How speech and display technologies improved auditory and visual interactions respectively?
- Different aspects on collaboration and social media interactions.
- How quality of service obtained through interactive technologies?
- How to visualize data in different forms?

Course Contents

LIST OF TOPICS	*WEEKS*
Chapter 1: Usability and interactive systems: Introduction to HCI, Usability Goals and Measures, Usability motivations, Universal usability	1
Chapter 2: Guidelines, Principles and Theories: Guidelines :Navigating the interface, accessibility guidelines, Organizing the display Principles: Determine Users' skill levels, Identify the task, Choose an interaction style, The eight golden rules of interface design Theory: Types of theories.	2,3

Chapter 3: Direct Manipulation: What is Direct Manipulation? , Examples of Direct Manipulation: Spatial data management, Video games, CAD, Principles of direct manipulation, 3D interfaces, Tele operation, Advantages and disadvantages of Direct manipulation	4,5
Chapter 4: Virtual Environments: Introduction to Virtual reality, Artificial reality, Telepresence, Augmented reality, Virtual environment technologies, Introduction to Virtual reality, Artificial reality, Telepresence	6,7,8
Chapter 5: Interaction devices: Characteristics, Display technology, Large displays, Hands-up & Head mounted displays, Mobile device displays, Hands-up & Head mounted displays, Mobile device displays	9,10
Chapter 6: Collaboration and Social Media Participation: Goals of collaboration & participation, Time/space four-quadrant model, Asynchronous distributed interfaces, Synchronous distributed interfaces, Face to face interfaces	11,12
Chapter 7: Quality of Service: Introduction, Models of Response Time Impacts, Expectations and Attitudes, User Productivity, Frustrating Experiences	13
Chapter 8: Information Visualization: Introduction, The seven Data types, The seven basic tasks, Challenges for information visualization	14

Textbook

- Ben Schneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs, Designing the User Interface: Pearson New International Edition: Strategies for Effective Human-Computer Interaction, 6/E, Pearson, 2016

Reference Materials

- Yvonne Rogers, Helen Sharp and Jenny Preece, Interaction Design: Beyond Human-Computer Interaction, John Wiley & Sons, 5/e, 2019, ISBN-10: 0470665769
- Julie A Jacko, The Human-computer Handbook, Fundamentals, Evolving technologies, and Emerging technologies, 2012, Third Edition, CRC Press
- The Encyclopaedia of Human-Computer Interaction, 2/e, Online resource: http://www.interaction-design.org/books/hci.html

Course Learning Outcomes

CLO IDs	Course Learning Objectives (CLOs)	Level of Learning	Mapped PIs
CLO-1	**Analyse,** how usability is obtained using various methods.	Knowledge	PI1.1
CLO-2	**Identify** the guidelines, principles & theories of interaction.	Comprehension	PI1.3
CLO-3	**Compare** various interaction styles and their impact in computing environments.	Analysing	PI2.2
CLO-4	**Produce** various methods of collaboration & Social media interaction.	Applying	PI3.1

CLO-5	**Evaluate** the quality of services & user productivity techniques and the information visualization for effective information assimilation	Evaluating	PI2.4
CLO-6	**Compose** the cases of usability problems in Human-Computer Interaction.	Creating	PI3.2

CLO-SO Mapping

	SO IDs					
CLO IDs	**SO-1**	**SO-2**	**SO-3**	**SO-4**	**SO-5**	**SO-6**
CLO-1	PI1.1	-	-	-	-	-
CLO-2	PI1.3	-	-	-	-	-
CLO-3	-	PI2.2	-	-	-	-
CLO-4	-	-	PI3.1	-	-	-
CLO-5	-	PI2.4	-	-	-	-
CLO-6	-	-	PI3.2	-	-	-

Approvals

Prepared by	Mrs. Jarina Begum
Approved by	
Last update	05/NOV/2024