SIR SYED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SOFTWARE ENGINEERING DEPARTMENT

COURSE INFORMATION SHEET

Session:	Fall-2024
Course Title:	Human Computer Interaction
Course Code:	SWE-308
Credit Hours:	3
Semester:	5th
Prerequisites:	SWE-104T Introduction to Software Engineering
Instructor Name:	Engr. Samreena Bano, Ms.Mehwish Irfan
Email & Contact Information:	sbano@ssuet.edu.pk , mairfan@ssuet.edu.pk (Ext-271)
WhatsApp Group:	HCI-SWE-308-Fall-2024
Office Hours:	8:30 AM – 5:30 PM
Mode of Teaching:	Synchronous

COURSE OBJECTIVE:

In this course you will learn the fundamental concepts of human computer interaction which include Usability paradigm and principles, Introduction to design basics, HCI in software process, Design rules, prototyping, evaluation techniques, task analysis, Universal design and User support and Computer Supported Cooperative Work. Introduction to specialized topics such as Groupware, pervasive and ubiquitous applications.

COURSE OUTLINE:

The increasing complexity of software and the proliferation of information make intelligent user interfaces increasingly important. The promise of interfaces that are knowledgeable, sensitive to our needs, agile, and genuinely useful has motivated research across the world to advance the state of the art and practice in user interfaces that exhibit intelligence. The text covers the topic well. The Human, Computer and Interaction, Usability paradigm and principles, Introduction to design basics, HCI in software process, Design rules, prototyping, evaluation techniques, task analysis, Universal design and User support and Computer Supported Cooperative Work. Introduction to specialized topics such as Groupware, pervasive and ubiquitous applications.

COURSE LEARNING OUTCOMES (CLOs) and its mapping with Program Learning Outcomes (PLOs):

CLO No.	Course Learning Outcomes (CLOs)	PLOs	Bloom's Taxonomy
1	**Explain** the fundamental concepts of Computer Components functions regarding interaction with human and vice versa.	PLO_2 (Knowledge for Solving computing Problems)	C2 (Understand)
2	**Analyze** the principle and application of HCI, with respect to the understanding of human psychology.	PLO_2 (Knowledge for Solving computing Problems)	C4 (Analyze)

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3	Ability to **design** and develop an interface by using appropriate HCI techniques that are preferred by the user.	PLO4 (Design and development of solution)	C6 (Create)

COMPLEX COMPUTING PROBLEM (CCP):

Complex Computing Problem Details	**Included: Yes** **Nature and Details of CCP**: It will be given in Assignment no.3 CCP will be based on CLO-3.Ability to design and develop an interface by using appropriate HCI techniques that are preferred by the user.

RELATIONSHIP BETWEEN ASSESSMENT TOOLS AND CLOs:

Assessment Tools	CLO_1(31)	CLO_2(31)	CLO_3(38)
Quizzes	9.67%(03)	9.67%(03)	10.53%(04)
Assignments	9.67%(03)	9.67%(03)	10.53%(04)
Midterm Exam	48.4%(15)	48.4%(15)	-
Final Exam	32.26%(10)	32.26%(10)	78.94%(30)

GRADING POLICY:

Assessment Tools	Percentage (%)
Quizzes	10%
Assignments	10%
Midterm Exam	30%
Final Exam	50%
Total	**100 Marks**

Recommended Book:

- Human-Computer Interaction an Empirical Research Perspective", I. Scott MacKenzie York University Toronto, ON, Canada. Morgan Kaufmann is an imprint of Elsevier, Second Edition, **Published Year: 2024,** ISBN: 978-0-443-14096-9.

Reference Book:

- Human-Computer Interaction", Alan Dix, Computing Department, Lancaster University Janet E. Finlay, Leeds Metropolitan University, Gregory D. Abowd, Georgia Institute of Technology, Russell Beale, University of Birmingham, LATEST ED, Published Year: 2004, ISBN-10: 0130461091.
- "Designing the User Interface: Strategies for Effective Human-Computer Interaction", Ben Shneiderman, University of Maryland Catherine Plaisant, University of Maryland ISBN-10: 0321197860 ISBN-13: 9780321197863 Publisher: Addison-Wesley. LATEST ED, Published Date April 10, 2004.

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Key word:

- **HCI ERP:** Human-Computer Interaction an Empirical Research Perspective", I. Scott MacKenzie York University Toronto, ON, Canada. Morgan Kaufmann is an imprint of Elsevier, Second Edition, **Published Year: 2024,** ISBN: 978-0-443-14096-9.

- **Alan Dix:** Human-Computer Interaction", Alan Dix Computing Department, Lancaster University Janet E. Finlay, Leeds Metropolitan University, Gregory D. Abowd, Georgia Institute of Technology, Russell Beale, University of Birmingham , **LATEST ED,** Published Year: 2004, ISBN-10: 0130461091.

- **Ben Shneiderman:** "Designing the User Interface: Strategies for Effective Human-Computer Interaction", Ben Shneiderman, University of Maryland Catherine Plaisant, University of Maryland ISBN-10: 0321197860 ISBN-13: 9780321197863 Publisher: Addison-Wesley. LATEST ED , Published Date April 10, 2004.

Week No.	Week Dates	Topics	Required Reading	Key Date
1	14-10-2024 to 18-10-2024	**Historical context:** Background, Vannevar Bush's "As We May Think" (1945), Ivan Sutherland's Sketchpad (1962), Invention of the Mouse (1963), Xerox Star (1981), Birth of HCI – 1983. **Introduction and Relationship of HCI** and Software Engineering.	**HCI ERP** Chapter #1 Pg#1 to 22 **Alan Dix** Chapter#1 Pg#11 to 22	
2	21-10-2024 to 25-10-2024	**The human factor**: Sensors, The brain, Responders, Language, human Performance. **Goal of HCI**, Human Senses, Memory, Thinking and Emotions.	**HCI ERP** Chapter #2 Pg#31 to 76 **Alan Dix** Chapter#1 Pg#27 to 53	
3	28-10-2024 to 01-11-2024	**Introduction to Computer** Text Entry Devices, Display Devices, Physical Control, Memory, Processing and Networks.	**Alan Dix** Chapter#2 Pg#59 to114	**Assignment #1**
4	04-11-2024 to 08-11-2024	**Interaction elements:** Techniques, Hard controls and soft controls. **Introduction to Interaction**: Models of Interaction, Framework and HCI, Ergonomics, Interaction Style, Elements of WIMP interface and interactivity.	**HCI ERP** Chapter #3 Pg# 94 to 110 **Alan Dix** Chapter#3 Pg#123 to 145	**Quiz #1**
5	11-11-2024 to 15-11-2024	**Introduction to Paradigms**, Paradigm for interaction.	**Alan Dix** Chapter#4 Pg#164 to 185	

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Week No.	Week Dates	Topics	Required Reading	Key Date
6	18-11-2024 to 22-11-2024	**Modelling interaction:** Descriptive models: Key-action model (KAM), Bimanual control model. **Interaction Design Basic** Process of Design, Focus, Navigation, Screen Design and Layout.	**HCI ERP** Chapter #7 Pg# 296 to 299 **Alan Dix** Chapter#5 Pg#191 to 211	
7	25-11-2024 to 29-11-2024	**HCI in the Software Process**, Software Life Cycle Interactive design and prototyping Design Rationale.	**Alan Dix** Chapter#6 Pg#225 to 248	**Assignment #2**
8	**Midterm Examination (02-12-2024 to 07-12-2024)**			
9	09-12-2024 to 13-12-2024	**Designing HCI experiments:** Experiment design, Independent variables, Dependent variables. **Design Rules** Principle to support usability Golden Rules and Heuristics HCI Pattern.	**HCI ERP** Chapter #5 Pg# 206 to 210 **Alan Dix** Chapter#7 Pg#258 to 284	
10	16-12-2024 to 20-12-2024	**Design Rules** Principle to support usability Golden Rules and Heuristics HCI Pattern. **Hypothesis testing:** Chi-square test, Friedman test, Parametric vs. non-parametric tests	**Alan Dix** Chapter#7 Pg#258 to 284 **HCI ERP** Chapter #6 Pg# 264 to 268	**Quiz #2**
11	23-12-2024 to 27-12-2024	**Heuristic Evaluation**, Model Base, User Participation through Evaluation.	**Alan Dix** Chapter#9 Pg#318 to 327	
12	30-12-2024 to 03-01-2025	**Universal Design** Principle, Multi Sensor System Speech Designing for development.	**Alan Dix** Chapter#10 Pg#365 to 375	
13	06-01-2025 to 10-01-2025	Recruitment & Approaches to **User Support**, Adaptive Health Systems.	**Alan Dix** Chapter#11 Pg#395 to 412	
14	13-01-2025 to 17-01-2025	**Task Analysis** HTA as Grammar Knowledge base Analysis, Task Description Hierarchy, Source of Information and Relationship Techniques.	**Alan Dix** Chapter#15 Pg#510 to 525	**Assignment #3**

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15	20-01-2025 to 24-01-2025	**Groupware** Computer Medicated Communication Meeting and Decision Support System.	**Alan Dix** Chapter#19 Pg#663 to 679	**Quiz #3**
16	27-01-2025 to 31-01-2025	**Ubiquitous Computing** & Augmented Reality Evaluation and Changes.	**Alan Dix** Chapter#20 Pg#716 to 737	
Final Examination (28-01-2025 to 08-02-2025)				

Name & Signature: Engr.Sumreena Bano **Date: 14 – 10 - 2024**
(Course Instructor)

Name & Signature: Dr. Muhammad Naseem **Date: _____**
(Chairman of Department)