COURSE DESCRIPTION FORM

INSTITUTION National University of Computer and Emerging Sciences, Lahore Campus

PROGRAM (S) TO BE EVALUATED BS - Computer Science

A. Course Description

Course Code	CS-3014
Course Title	Applied Human Computer Interaction
Credit Hours	3
Prerequisites by Course(s) and Topics	N/A
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	**1.** Assignments/Project **(15%)** **2.** Presentations **(5%)** **3.** Quizzes **(10%)** **4.** Midterms **(30%)** **5.** Final Exam **(40 %)**
Course Coordinator	Mr. Arslan Asif
Contact Hours	Monday to Thursday (8:30-10:30)
URL (if any)	TBA
Current Catalog Description	
Textbook (or **Laboratory Manual** for Laboratory Courses)	Book 1. Interaction Design: Beyond Human Computer Interaction, 6th edition by Yvonne Rogers, Helen Sharp, Jennifer Preece, (2023) Book 2. Human Computer Interaction, 3rd edition, by Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale, (2004)
Reference Material	Book 3. Understanding Your Users: A Practical Guide to User Research Methods (2nd edition) by Kathy Baxter, Catherine Courage, Kelly Caine (2015) Book 4. The Design of Everyday Things - Revised and expanded edition, by Don Norman (2013) Book 5. The Usability Engineering Lifecycle by Deborah J Mayhew (1999) Book 6. Software Engineering A Practitioners Approach (9th edition) by Roger Pressman, Bruce Maxim Book 7. https://www.interaction-design.org/ Book 8. Human-Computer Interaction. An Empirical Research Perspective, by I. Scott MacKenzie (2024)
Course Goals **Mapping of CLOs & PLOs**	By the end of the course, students should be able to achieve the following CLOs:

CLO #	CLO Description	BT Domain /Level	PLO #
CLO 1	**Explain** the difference between good and bad design	C2	1
CLO 2	**Analyze** and **critique** interfaces	C4	2
CLO 3	**Evaluate** the usability and effectiveness of various software products	C5	4
CLO 4	**Design** and **develop** user interfaces providing effective usability and user experience	C3	4
	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain. **Bloom's taxonomy Levels:** 1. Remember, 2. Understand, 3. Apply, 4. Analyze, 5. Evaluate, 6. Create		

The description of the **Program Learning Outcomes (PLOs) / Graduate Attributes (Gas) covered in this course are as follows**

PLO #	PLO Name	PLO Description
PLO 1	**Academic Education**	Completion of an accredited program of study designed to prepare graduates as computing professionals
PLO 2	**Knowledge for Solving Computing Problems**	Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements
PLO 4	**Design/ Development of Solutions**	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations

Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)

Week	Session	No. of lectures	Reference Text
1	Introduction 1. Basics of HCI 2. Good and poor designs 3. The computer 4. Paradigms	2	Book 1, Chapter 1 Book 2, Chapter 2, 4

	2	The Human 1. Physiology 2. Behavior 3. Cognition and cognitive aspects	2	Book 2, Chapter 1 Book 1, Chapter 4
	3	The Interaction 1. Model of Interaction 2. Ergonomics 3. Interaction Styles	2	Book 2, Chapter 3
	4	Interaction design lifecycle model 1. Process of Interaction Design 2. The double diamond of design	2	Book 1, Chapter 2
	5	Data Gathering 1. User Profiling 2. Requirements gathering techniques a. Interviews b. Surveys c. Observations 3. Ethical Concerns	3	Book 1, Chapter 8, 11 Book 3, Chapter 9 Internet resources
		MID-I		
	6	Discovering and defining requirements 1. Personas 2. Scenarios	2	Book 1, Chapter 11 Book 3, Chapter 2 Book 2, Section 5.5
	7 and 8	Design, prototyping and construction 1. Conceptual Design 2. Concrete Design 3. Low-fi vs. high-fi prototyping a. Storyboarding b. Sketching	4	Book 1, Chapter 1, 12 Book 6, Chapter 12
	9	Usability and user experience goals	1	Book 1, Chapter 1 Book 2, Chapter 5

	10	Navigational & Screen Designs	2	Book 2, Sections 5.6 and 5.7
	11	Design principles 1. Golden rules a. Shneiderman's b. Norman's c. Theo Mandel's	2	Book 1, Chapter 1 Book 2, Chapter 7 Book 6, Chapter 12
		MID-II		
	13	Evaluation 1. Fitt's Law 2. GOMS 3. KLM 4. Neilson's heuristics	2	Book 1, Chapter 14, 16.4 Notes for GOMS and KLM Internet resources www.nngroup.com
	14	Universal Design 1. Accessibility 2. Diversity 3. Ethics	2	Book 1, Sections 1.7, 1.8, 10.4, Pgs. 468-469 Book 2, Chapter 10 Book 3 Page 50
	15	Design Thinking	2	Reference 7 Book 4

Laboratory Projects/Experiments Done in the Course	Students will make the final front end design of the project in Figma/Adobe XD/Canva or similar tools			
Programming Assignments Done in the Course	N/A			
Class Time Spent on (in credit hours)	**Theory**	**Problem Analysis**	**Solution Design**	**Social and Ethical Issues**
	2	0.25	0.5	0.25
Oral and Written Communications	The project is to be done in groups. It is divided into 6 phases, covering all the activities of the Interaction Design Lifecycle. It contains interviews and surveys of end users, which will be submitted in written form as personas, scenarios and storyboards. There will be a presentation at the end of the semester of the final mockups.			

Instructor Name Mr. Arslan Asif

Instructor Signature _____

Date 13-Jan-2026