Course Specification
(Bachelor)

Course Title:	Advanced Topics in Human-Computer Interaction
Course Code:	HCI4804
Program:	BSc in Human Computer Interaction
Department:	Software Engineering
College:	Computing
Institution:	Umm Al Qura University
Version:	1.0
Last Revision Date:	22/04/2025

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A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☐ Required		☒ Elective		
3. Level/year at which this course is offered: (3rd year/ 6th level) or (4th year/8th level)					
4. Course General Description:					
This course provides an in-depth exploration of advanced concepts, theories, and research in Human-Computer Interaction (HCI). Students will engage with cutting-edge topics, including multimodal interaction, ubiquitous computing, human-robot interaction, and the integration of artificial intelligence in user interfaces. The course emphasizes critical analysis of current research, hands-on projects, and the development of innovative interaction techniques.					
5. Pre-requirements for this course (if any)**:**					
None					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
By the end of this course, students will be able to: **1.** Critically analyze and discuss advanced HCI research and methodologies. **2.** Design and prototype innovative user interfaces incorporating emerging technologies. **3.** Evaluate the usability and effectiveness of complex interactive systems. 4. Conduct original research contributing to the field of HCI.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		

No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Understand advanced HCI concepts such as multimodal interaction, human-robot interaction, and AI in user interfaces.	K1, K5	Lecture, exercise, and group discussion	Quiz, exams, assignments
1.2	Learn evaluation techniques for complex interactive systems, including usability testing and accessibility audits.	K2	Lecture, exercise, and group discussion	Quiz, exams, assignments
1.3	Explore emerging trends in HCI, such as augmented reality (AR), virtual reality (VR), and social computing.	K5	Lecture, exercise, and group discussion	Quiz, exams, assignments
2.0	**Skills**			
2.1	Design and prototype innovative interfaces that incorporate advanced HCI techniques, such as VR/AR or multimodal systems.	S1	Lecture, exercise, and group discussion	Quiz, exams, assignments

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.2	Evaluate and improve system usability using advanced testing and iterative design methodologies.	S4	Lecture, exercise, and group discussion	Quiz, exams, assignments
2.3	Conduct HCI research, including planning, execution, and analysis of user studies and experiments.	S2	Lecture, exercise, and group discussion	Quiz, exams, assignments
3.0	**Values, autonomy, and responsibility**			
3.1	Appreciate the role of HCI in improving user experience, accessibility, and inclusivity in digital systems.	V5	Lecture, exercise, and group discussion	Quiz, exams, assignments
3.2	Embrace the ethical responsibilities of designing technology to ensure privacy, security, and user well-being.	V1	Lecture, exercise, and group discussion	Quiz, exams, assignments

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Advanced HCI	4
2.	Multimodal Interaction Techniques	8
3.	Ubiquitous and Mobile Computing	8
4.	Human-Robot Interaction	8
5.	Human Interaction with Wearable Technologies	8
6.	Evaluation Methods for Advanced Interfaces	8
7.	Non-Invasive Brain-Computer Interfaces	8
8.	Social and Collaborative Computing	8
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	3-14	10

2.	Project	3-14	30
3.	Midterm	7-8	20
4.	Final Exam	16-17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Shneiderman, B. 2022. Human-Centered AI. Oxford University Press
Supportive References	Stephanidis, C., & Salvendy, G. (Eds.). 2022. Interaction Techniques and Technologies in Human-Computer Interaction. CRC Press. Taylor & Francis Stephanidis, C., & Salvendy, G. (Eds.). 2022. Human-Computer Interaction: Foundations and Advances. CRC Press.Taylor & Francis Rogers, Y., Sharp, H., & Preece, J. 2023. Interaction Design: Beyond Human-Computer Interaction (6th ed.). Wiley.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional Classroom
Technology equipment (projector, smart board, software)	Multimedia Projector
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct: Survey at the end of the course
Effectiveness of Students assessment	Instructor and quality assurance committee	Indirect: Course Report
Quality of learning resources	Instructor and quality assurance committee	Direct: Survey at the end of the course
The extent to which CLOs have been achieved	Instructor and quality assurance committee	Indirect: Course Report
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**SOFTWARE ENGINEERING DEPARTMENT COUNCIL**
REFERENCE NO.	**THE 17TH MEETING FOR THE ACADEMIC YEAR 1446H**
DATE	**22/04/2025**