



Course Specification

(Bachelor)

Course Title: **Voice User Interface**

Course Code: **HCI4802**

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 introduces students to Voice User Interface (VUI). Specifically, the course provides students with a foundational understanding and practical experience on designing and evaluating VUIs. Students will learn principles of effective VUI design, discover the keyways in which voice interfaces differ from other types of interfaces. The course also covers user testing for VUIs. Speech recognition technologies, voice-enabled devices, and chatbots are also among the topics examined.

5. Pre-requirements for this course (if any):

None

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

Equipping students with the knowledge and skills necessary to design user friendly voice interfaces and assess and improve the usability of such interfaces.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
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	Explain the core principles and foundations of Voice User Interface (VUI) design, including error management, speech recognition, and multimodal interfaces	K1, K2, K5	Lectures, discussions	Exams, project
1.2	Analyze the role of personas, avatars, and visual integration in VUI systems to enhance user experience	K1, K3	Lectures, discussions	Exams, project
1.3	Evaluate the ethical, social, and legal considerations in VUI design, particularly around privacy, data protection, and accessibility	K3, K4	Lectures, discussions	Exams, project
2.0	Skills			
2.1	Design and prototype VUI solutions that address specific user needs and operate across voice-enabled devices	S1, S4	Lectures, discussions, projects	project
2.2	Apply user testing methodologies to monitor and improve VUI performance, adapting the	S2, S4	Lectures, discussions, projects	project



Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	interface based on feedback and error patterns			
2.3	Collaborate in teams to develop VUI projects that integrate advanced VUI technologies and align with user-centered design principles	S5, S3	Lectures, discussions, projects	project
3.0	Values, autonomy, and responsibility			
3.1	Advocate for inclusive VUI designs that cater to diverse user groups, promoting accessibility and equity.	V2, V5	Lectures, discussions	Exams, project
3.2	Uphold ethical standards in VUI development, ensuring transparency and user trust in voice-enabled systems.	V1, V4	Lectures, discussions	Exams, project
3.3	Demonstrate a commitment to continuous learning and stay updated with emerging VUI trends and technologies.	V3, V5	Lectures, discussions	Exams, project

C. Course Content

No	List of Topics	Contact Hours
1.	The Rise of Voice Technology	4
2.	Foundations of Voice User Interface Design	4
3.	Error Management and User Adaptation	4
4.	VUI project deliverables	8
5.	Personas, Avatars, and Visual Integration	4
6.	Designing for Multimodal Interfaces	4
7.	Speech Recognition Technology	4
8.	Advanced VUI Design Concepts	4
9.	Advanced VUI Technologies	4
10.	User Testing for VUIs	4
11.	Monitoring and Improving VUIs	4
12.	Voice-Enabled Devices and Automotive Integration	4
13.	Trends and Future Directions in VUI	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	Designing Voice User Interfaces: Principles of Conversational Experiences (1st edition). Cathy Pearl. 2016.
Supportive References	Mastering Voice Interfaces: Creating Great Voice Apps for Real Users (1st edition). Ann Thymé-Gobbel and Charles Jankowski. 2021
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





Assessment Areas/Issues	Assessor	Assessment Methods
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

