



# Course Specification

## (Bachelor)

Course Title: **User Experience in Hajj and Umrah Applications**

Course Code: **HCI4809**

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 hours

#### 2. Course type

A.  University  College  Department  Track  Others

B.  Required  Elective

#### 3. Level/year at which this course is offered: (3<sup>rd</sup> year/ 6<sup>th</sup> level) or (4<sup>th</sup> year/8<sup>th</sup> level)

#### 4. Course General Description:

This course explores the role of user experience (UX) in technologies and advancements tailored for the Hajj and Umrah pilgrimage. Students will examine how inclusive and global design principles can enhance usability, accessibility, and overall experience for diverse pilgrims. The course covers key concepts in designing technologies that address the unique challenges of large-scale, multicultural events like Hajj, aiming to improve productivity, efficiency, and effectiveness. By analyzing real-world applications and innovations, students will gain practical insights into designing for diverse user needs while ensuring operational success. The course prepares participants to create user-centered solutions that support both pilgrims and organizers in achieving seamless interactions with these specialized technologies.

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

None

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

None

#### 7. Course Main Objective(s):

Understand the unique challenges of designing for large-scale, multicultural, and high-stakes events like Hajj and Umrah.

Gain practical skills in applying inclusive design principles to address the diverse needs of pilgrims.

Develop a deep understanding of how technology can enhance the pilgrimage experience, improving usability, accessibility, and operational success.

Learn to design user-centered solutions that address both pilgrims' needs and the operational goals of Hajj and Umrah organizers.



## 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"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>		
4	Distance learning		

## 3. Contact Hours (based on the academic semester)

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

## 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
<b>1.0</b>	<b>Knowledge and understanding</b>			
1.1	understand how to design solutions that are not only usable and accessible but also culturally sensitive, scalable, and capable of supporting millions of diverse pilgrims	K1	Lectures, discussions	Exams/Assignments
<b>2.0</b>	<b>Skills</b>			
2.1	conduct user research in complex, multicultural environments	S1	Lectures, discussions	Exams/Assignments
2.2	Designing Inclusive and Accessible Solutions	S2	Lectures, discussions	Exams/Assignments





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.3	Prototyping, Testing, and Iterating for High-Stress, High-Crowd Environments	S4	Lectures, discussions	Exams/Assignments
<b>3.0</b>	<b>Values, autonomy, and responsibility</b>			
3.1	a strong commitment to inclusive design, ensuring that technologies and solutions are accessible to all pilgrims	V2	Lectures, discussions	Exams/Assignments
3.2	Empathy for Diverse User Needs	V5	Lectures, discussions	Exams/Assignments
3.3	Sustainability and Long-Term Impact	V4	Lectures, discussions	Exams/Assignments

### C. Course Content

No	List of Topics	Contact Hours
1.	<p>Introduction to UX Design in Hajj and Umrah Context</p> <ul style="list-style-type: none"> <li>Overview of Hajj and Umrah: Their significance, challenges, and scope.</li> <li>Understanding User Experience (UX): Key principles, including usability, accessibility, and inclusivity.</li> <li>The role of UX in large-scale events and multi-cultural settings like Hajj and Umrah.</li> <li>The unique challenges of designing for pilgrims from diverse backgrounds (language, culture, technology access).</li> </ul>	4
2.	<p>Understanding the Pilgrim Experience: Research and User Needs</p> <ul style="list-style-type: none"> <li>Understanding the pilgrim journey: Key tasks, locations, rituals, and pain points.</li> <li>User research methods: Conducting interviews, surveys, and observations with pilgrims to understand needs and challenges.</li> <li>Analyzing diverse user personas: Age, physical ability, technological proficiency, cultural background.</li> <li>Tools for capturing and analyzing user feedback in large-scale events.</li> </ul>	4
3.	<p>Accessibility and Inclusivity in Hajj and Umrah Design</p> <ul style="list-style-type: none"> <li>Designing for accessibility: Addressing needs of pilgrims with disabilities, elderly pilgrims, and those with special needs.</li> <li>Importance of multi-language support and cultural sensitivity in design.</li> </ul>	4



	<ul style="list-style-type: none"> <li>Principles of inclusive design: Ensuring that digital tools and services cater to a diverse range of abilities and backgrounds.</li> </ul> <p>Universal design for pilgrim services and spaces (e.g., Masjid al-Haram, transport systems).</p>	
4.	<p>Usability Challenges in High-Crowd, High-Stress Environments</p> <ul style="list-style-type: none"> <li>The challenges of designing in crowded environments: Managing queues, navigation, and safety.</li> <li>Stress and fatigue: How these factors affect user behavior and usability during Hajj.</li> <li>The importance of error prevention and easy-to-use interfaces in high-pressure environments.</li> <li>Principles of designing for safety and efficiency.</li> </ul>	8
5.	<p>Mobile Technologies and Pilgrim Engagement</p> <ul style="list-style-type: none"> <li>Role of mobile apps in Hajj and Umrah: Navigation, real-time updates, prayer schedules, and educational tools.</li> <li>Designing apps for a global, multilingual audience.</li> <li>Key UX elements for pilgrim-focused mobile experiences: Clear navigation, easy interaction, notifications, and real-time information.</li> <li>Ethical considerations in app design (privacy, data security, accessibility).</li> </ul>	4
6.	<p>Wearable and Location-Based Technologies</p> <ul style="list-style-type: none"> <li>The potential of wearables (e.g., smartwatches, health monitors) for improving pilgrims' experiences.</li> <li>Location-based services: Using GPS, beacon technology, and AR for navigation and safety.</li> <li>The role of IoT in Hajj and Umrah: Smart devices to track pilgrims' location, health metrics, and environmental conditions.</li> <li>Real-time communication between pilgrims, organizers, and safety personnel.</li> </ul>	8
7.	<p>Big Data and Analytics for Operational Success</p> <ul style="list-style-type: none"> <li>The role of data analytics in improving the experience of pilgrims and organizers.</li> <li>Using big data for crowd control, resource allocation, and safety management.</li> <li>The role of real-time data: Crowd density, emergency services, and operational efficiency.</li> <li>Ethical considerations: Data privacy, security, and user consent.</li> </ul>	8
8.	<p>Smart Infrastructure and Environmental Design</p> <ul style="list-style-type: none"> <li>Designing physical spaces for large-scale events: The role of signage, spatial design, and crowd flow.</li> <li>Smart infrastructure: Digital signage, crowd-sensing technologies, and AI to improve navigation.</li> <li>The integration of digital tools with physical spaces to improve pilgrim experience.</li> </ul>	4



	<ul style="list-style-type: none"> <li>Designing for extreme conditions: Heat, fatigue, and health concerns during Hajj.</li> </ul>	
9.	<p>Prototyping and Iterative Design for Pilgrim Technologies</p> <p>Introduction to prototyping: Importance of testing and iteration in creating effective UX solutions.</p> <ul style="list-style-type: none"> <li>Low-fidelity vs. high-fidelity prototypes for apps, wearables, and physical systems.</li> <li>The role of feedback loops: Gathering feedback from users (pilgrims) and iterating designs to address emerging needs.</li> <li>Tools and methods for rapid prototyping and testing in the context of Hajj and Umrah.</li> </ul>	4
10.	<p>Testing and Evaluating Pilgrim-Focused Technologies</p> <ul style="list-style-type: none"> <li>The role of usability testing in refining pilgrimage technologies.</li> <li>Methods for testing in real-world settings: Pilgrims, organizers, and stakeholders.</li> <li>Gathering and analyzing user feedback during the testing phase.</li> <li>Tools for evaluating accessibility and usability in large-scale systems.</li> </ul>	6
11.	<p>Scaling Pilgrim Technologies for Global Use</p> <ul style="list-style-type: none"> <li>Designing scalable solutions for pilgrimages with millions of participants.</li> <li>Handling multilingual and multicultural needs in technology design.</li> <li>Integrating technologies with local infrastructures and government systems.</li> <li>Future trends in scalable UX for global events.</li> </ul>	6
<b>Total</b>		<b>60</b>

## 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





<b>Essential References</b>	"Inclusive Design for a Digital World" by Regine M. Gilbert
<b>Supportive References</b>	"Designing for Accessibility: A Business Guide to Countering Design Exclusion" by Simeon Keates and John Clarkson
<b>Electronic Materials</b>	<b>Hajj and Umrah Research Institute</b> <span style="float: right;">معهد أبحاث الحج والعمرة</span> <a href="https://hajj.uqu.edu.sa/bank/6/">https://hajj.uqu.edu.sa/bank/6/</a>
<b>Other Learning Materials</b>	

## 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Traditional Classroom
<b>Technology equipment</b> (projector, smart board, software)	Multimedia Projector
<b>Other equipment</b> (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

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

