هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Intelligent Cloud Computing
Course Code:	IT475
Program:	B.Sc. Information Technology
Department:	Information Technology
College:	College of Computer and Information Sciences
Institution:	Majmaah University
Version:	V2023
Last Revision Date:	04 November 2023

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A. General information about the course:

1. Course Identification

1. Credit hours: 3(2,2,0)

2. Course type

A.	☐University	☐College	☒ Department	☒ Track	☐Others
B.	☐Required		☒ Elective		

3. Level/year at which this course is offered: (Level 8)

4. Course general Description:

Intelligent clouds act as a home for every type of intelligent application and system imaginable, enabled by public cloud and ML technology. This course is designed to teach students about the technical, design and implementation aspects of ubiquitous computing. Topics includes Ubiquitous Computing, Privacy in Ubiquitous Computing, Ethnography in Ubiquitous Computing, Interfaces for Ubiquitous Computing, Machine Learning Methods and Technologies for Ubiquitous Computing ,Ambient Intelligence, Context-Aware Computing and Robust Language Identification Techniques for The Future Smart Cities.

5. Pre-requirements for this course (if any)**: IT 479- cloud computing foundations**

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

7. Course Main Objective(s):

1.Identify the characteristics of ubiquitous computing and pervasive computing applications, including the basic computing application problems, performance objectives, and quality of services, along with their key components and architectures.
2. Analyze the existing tools, devices, and communication systems for ubiquitous computing as well as their strengths, weaknesses, and limitations.
3. Understand how humans will interact with systems in a ubiquitous environment and account for these interactions.
4. Describe and illustrate the key technologies that are involved in the development of Unicom systems
5.Implement and apply machine learning techniques on solving real problems in cloud computing.

2. Teaching mode (mark all that apply)

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

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • 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 CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1				
1.2				
...				
2.0	**Skills**			
2.1	Understand how humans will interact with systems in a ubiquitous environment and account for these interactions.	**S4**	**Mini Project, Graduation Project, Lab Exercises**	**Case Study Implementation/ Laboratory /Mini project**
2.2	Describe and illustrate the key technologies that are involved in the	**S2**	**Mini Project, Lab Exercises**	**Lab Based Assignments, Mini Project**

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	development of Ubico mp systems			
2.3	Identify the characteristics of ubiquitous computing and computing applications, including the basic computing application problems, performance objectives, and quality of services, along with the ir key components and architectures	**S4**	**Mini Project, Graduation Project, Lab Exercises**	**Case Study Implementatio n/ Laboratory /Mini project**
2.4	Analyze the existing tools, devices, and com munication systems for ubiquitous computing and pervasive computing as well as their strength s, weaknesses, and limitations.	**S1**	**Classroom Teaching**	**Class Test, Mid Exam, Final Exam**
2.5	Implement and apply machine learning techniques on solving real problems in cloud computing.	**S2**	**Mini Project, Lab Exercises**	**Lab Based Assignments, Mini Project**
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Ubiquitous Computing	6
2.	Ubiquitous Computing Systems	6
3.	Privacy in Ubiquitous Computing	6
4.	Ethnography in Ubiquitous Computing	6
5.	Location in Ubiquitous Computing	6

6.	Interfaces for Ubiquitous Computing	6
7.	Machine Learning Methods and Technologies for Ubiquitous Computing: Linear Regression Logistic Regression Classification and Regression Trees K-Nearest Neighbors (KNN) Support Vector Machines (SVM) Random Forest	6
8.	Ambient Intelligence: The Confluence of Ubiquitous/Pervasive Computing and Artificial Intelligence	6
9.	Context-Aware Computing & Processing Sequential Sensor Data	6
10.	Classification and Regression Trees	6
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**Midterm Exam**	**Week 8**	**20%**
2.	**Final Exam**	**Week 16**	**40%**
3.	**Homework, Assignments, quiz, Lab Work**	**Week 2,4,6,8,10,12 ,15**	**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	• **Ubiquitous Computing Fundamentals by John Krumm | Apr 19, 2016 Chapman and Hall/CRC** • **Machine Learning Engineering Tapa blanda – 5 Septiembre 2020,ISBN-10 : 1999579577,ISBN-13 : 978-1999579579**
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

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

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	CLO Survey
Effectiveness of Students assessment	Instructor	Quiz, Mid exam, Assignments, Exercises, Final Exam and Indirect Survey
Quality of learning resources	Convener, instructors, HOD	Regular follow ups
The extent to which CLOs have been achieved	Instructor, TA	Performance in the exam for a particular CLO(s)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	