هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Selected Topics in Emerging Technologies
Course Code:	IT232
Program:	IT
Department:	IT
College:	College of Computer and Information Sciences
Institution:	Majmaah University
Version:	2
Last Revision Date:	31 May 2022

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 2 (0 4 0)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (4)					
4. Course general Description: Technological advancements today enable faster changes and progress, accelerating the pace of change. In the contactless world tomorrow, IT professionals' roles will change significantly not only because of technology trends and emerging technologies, which has caused a great deal of change in the IT sector. The IT professional will be constantly learning, unlearning, and relearning .Topics include Machine Learning and Artificial Intelligence, IoT & Edge Computing, Virtual Reality , Augmented Reality and Block chain.					
5. Pre-requirements for this course (if any)**: nil**					
6. Pre-requirements for this course (if any)**:nil**					
7. Course Main Objective(s): Understand and Analyze technological advancements in Machine Learning and Artificial Intelligence, IoT &Edge Computing, Virtual Reality and Augmented Reality and Block chain.					

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		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	
2.	**Laboratory/Studio**	60
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	CLO 1- Discover how technology is evolving and will continue to evolve.	**K1**	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	CLO 5. Understand the operational processes of IoT ,Edge Computing, Virtual Reality	**K1**	Classroom Teaching	Test, Mid Exam, Final Exam

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	,Augmented Reality and Block chain			
...				
2.0	**Skills**			
2.1	CLO 2 Identify and analyze user needs and implement ML and AI concept for effective cyber defenses and security.	**S1**	Classroom & ExerciseTeaching	Mini Project, Lab Based Assignments, Lab Test
2.2	CLO 3. Know and apply the methodology of security using Block chain targeted attacks.	**S1**	Classroom & ExerciseTeaching	Mini Project, Lab Based Assignments, Lab Test
2.3	CLO4. Analyze and find the effect of IoT, Edge Computing, Blockchain and Virtual Reality in present era.	**S1**	Classroom Teaching,Project	Class Test, Mid Exam, Final Exam
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1	**Machine Learning &Artificial Intelligence** Machine learning ,Data Analytics ,Pattern recognition , Neural Network and Deep learning	**16**
2	**IoT and Edge Computing**	**12**

	IoT history and potentialIoT and Smart City, IoT architecture Edge Computing	
3	**Virtual Reality and Augmented Reality** Virtual Reality, Augmented Reality Cross platform theory VR toolkit Application	**12**
4	**Blockchain** Terminology and Technical Foundations, Why the Blockchain is Needed How the Blockchain WorksPlanning the blockchain Cyber security using BlockchainLimitations	**16**
5	**Revision**	**4**
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1	Tes/Quiz (1,2)	4&8	10%
2	Mid Term Exam	7	20%
3	Lab Exam	13/14	10%
4	Lab Based Assignments/ Mini Project Presentation	7&13	20%
5	Final Exam	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	**Machine Learning: The New AI (MIT Press Essential Knowledge series)** • **ISBN-10 : 0262529513** • **ISBN-13 : 978-0262529518** **IoT and Edge Computing for Architects: Implementing edge and IoT systems from sensors to clouds with communication systems, analytics, and security, 2nd Edition** • **ISBN-10 : 1839214805**

	• ISBN-13 : 978-1839214806 **Creating Augmented and Virtual Realities: Theory and Practice for Next-Generation Spatial Computing 1st Edición** • ISBN-10 : 1492044199 • ISBN-13 : 978-1492044192 **The Blockchain and the New Architecture of Trust** **Kevin Werbach** • ISBN:9780262038935 • Published: November 20, 2018
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lab
Technology equipment (projector, smart board, software)	PC or Laptop with Windows/Linux, Python, Smart Board, Projector
Other equipment (depending on the nature of the specialty)	Internet Connection

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Instructor	Direct
Quality of learning resources	Instructor	Direct
The extent to which CLOs have been achieved		
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**IT DEPARTMENT**
REFERENCE NO.	
DATE	