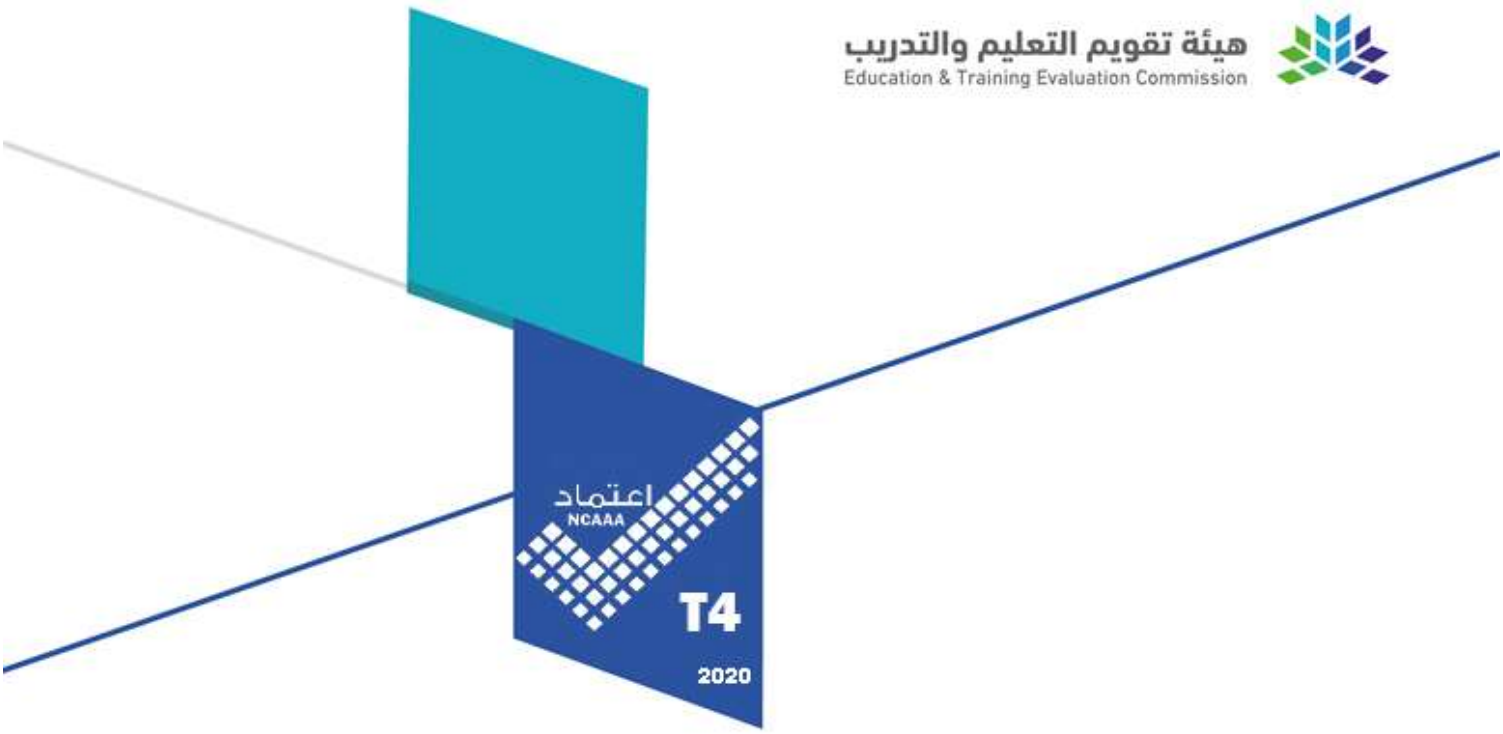
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Selected Topics in Emerging Technologies
Course Code:	IT 232
Program:	IT
Department:	IT
College:	College of Computer and Information Sciences
Institution:	Majmaah University

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A. Course Identification

1. Credit hours: 2(0,4,0)
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: **Level 6**
4. Pre-requisites for this course (if any)**:** **……..**
5. Co-requisites for this course (if any)**:NIL**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	**44**	**100%**
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	
2	**Laboratory/Studio**	**44**
3	**Tutorial**	
4	**Others** (specify)	
	Total	**44**

B. Course Objectives and Learning Outcomes

1. Course 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.

2. Course Main Objective

Understand and Analyze technological advancements in Machine Learning and Artificial Intelligence, IoT &Edge Computing, Virtual Reality and Augmented Reality and Block chain.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO 1- Discover how technology is evolving and will continue to evolve.	K1
1.2	CLO 5. Understand the operational processes of IoT ,Edge Computing, Virtual Reality ,Augmented Reality and Block chain	K1
2	**Skills :**	
2.1	CLO 2 Identify and analyze user needs and implement ML and AI concept for effective cyber defenses and security.	S4
2.2	CLO 3. Know and apply the methodology of security using Block chain targeted attacks.	S5
3	**Values:**	
3.1	CLO4. Analyze and find the effect of IoT, Edge Computing, Blockchain and Virtual Reality in present era.	V2
3.2		
3.3		

C. Course Content

No.	Topics	Weeks	Teaching hours
1	**Machine Learning &Artificial Intelligence** Machine learning Data Analytics Pattern recognition Neural Network and Deep learning	3	10
2	**IoT and Edge Computing** IoT history and potential IoT and Smart City IoT architecture Edge Computing	3	10
3	**Virtual Reality and Augmented Reality** Virtual Reality	2	8

	Augmented Reality Cross platform theory VR toolkit Applications		
4	**Blockchain** Terminology and Technical Foundations Why the Blockchain Is Needed How the Blockchain Works Planning the blockchain Cyber security using Blockchain Limitations	2	8
	Total	**11**	**44**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	CLO 1- Discover how technology is evolving and will continue to evolve.	Classroom Teaching	Test, Mid Exam, Final Exam
1.2	CLO 5. Understand the operational processes of IoT ,Edge Computing, Virtual Reality ,Augmented Reality and Block chain	Classroom Teaching	Test, Mid Exam, Final Exam
1.3			
2.0	**Skills**		
2.1	CLO 2 Identify and analyze user needs and implement ML and AI concept for effective cyber defenses and security.	Classroom & Exercise Teaching	Mini Project, Lab Based Assignments, Lab Test
2.2	CLO 3. Know and apply the methodology of security using Block chain targeted attacks	Classroom & Exercise Teaching	Mini Project, Lab Based Assignments, Lab Test
…			
3.0	**Values**		
3.1	CLO4. Analyze and find the effect of IoT, Edge Computing, Blockchain and Virtual Reality in present era.	Classroom Teaching, Project	Class Test, Mid Exam, Final Exam
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Tes/Quiz t(1,2)		10%
2	Mid Term Exam		20%
3	Lab Exam		10%
4	Lab Based Assignments/ Mini Project Presentation		20%
5	Final Exam		40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Each student is allotted to an academic advisor for guidance and counselling

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**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**
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	PC or Laptop with Windows/Linux, Smart Board, Projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Internet Connection

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Course instructor	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Extent of achievement of course learning outcomes	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	