جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية العلوم وتكنولوجيا المعلومات
Faculty of Science and Information Technology

" عراقة وجودة"
"Tradition and Quality"

Study Plan for Bachelor program - Study Plan Development and Updating Procedures/ Artificial Intelligence Department	QF01/0407-4.0E

Course Plan for Artificial Intelligence (Bachelor Program) No.: (2021/2022)		
Approved by Deans Council by decision (2021-19/2020) dated (28/7/2021)		
(133) Credit Hours	Study system / hybrid program	
Type of specialty	☐ **Humanitarian**	☐ **Scientific / technical**	☐ **Medical Sciences**

Teaching style	Percentage of study plan hours / number	Model used (synchronous: asynchronous)
Complete e-learning courses	10% - 20% Maximum / number( ) C h	2:1 (For SUN. TUE. THER) or 1:1 (for MON. WED.)
Blended Learning courses (For Humanity)	40% - 60% Maximum / number( ) C h	2:1 (For SUN. TUE. THER) or 1:1 (for MON. WED.)
Blended learning courses (for scientific and medical)	30% -50% Maximum / number ( ) C h	2:1 (For SUN. TUE. THER) or 1:1 (for MON. WED.)
Traditional learning courses (for humanity)	20% Minimum / number ( ) C h	3:0 For all academic divisions
Traditional learning courses (for scientific and medical)	30% Minimum / number ( ) C h	3:0 For all academic divisions

Important note: (The teaching patterns of the subjects are distributed at all academic levels in the program)

Program vision: Building specialized competencies in the field of Artificial Intelligence., provided with the knowledge, skills and leadership, creative and entrepreneurial competencies necessary to compete in the global labor market, through creative application in the use of information technology and modern teaching and learning strategies.

Program mission and objectives:
1. Achieving the conformity of the learning outcomes in all areas of specialization with the seventh level descriptors (knowledge, skills and competencies) in the National Qualifications Framework.
2. Integrating modern information technology and employing it creatively in the teaching and learning processes in order to achieve more effective learning and take into account the needs of the learner.
3. Promote the principle of self-sustainable, lifelong learning, and highlight the creativity of the learner in light of global changes through the application of various teaching and learning strategies

Program learning outcomes (*(MK= Main Knowledge, MS= Main Skills, MC= Main Competences)*

Main knowledge	
MK1	To have sufficient understanding of mathematical problems and algorithms as well as the internal design of the computer and its operating system.
MK2	To acquire the knowledge in programming methods, programming languages, and the ways to build computer programs and smart applications such as the Internet of Things.
MK3	To obtain deep understanding of the basics of data science, data security, database, big data, as well as their mining and retrieval.
MK4	To be acquainted with a comprehensive knowledge in the basics of artificial intelligence such as machine learning, deep learning, cognitive and knowledge-based systems and their applications.
Basic skills	
MS1	To be able to solve mathematical problems and design algorithms.
MS2	To be able to develop computer programs and smart applications.
MS3	Can build, analyze, process, filter, collect, and retrieve data from various sources.
MS4	Can apply advanced artificial intelligence concepts such as machine learning, artificial neural

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networks, computer vision, and robotics.

	General competencies
MC1	To employ theoretical concepts and provide smart and innovative software solutions to real-life problems.
MC2	To have a high level of commitment to the ethics related to data science and artificial intelligence
MC3	To Produce and implement smart computer applications that are commensurate with the requirements and needs of the labor market in a way that serves the local community.
MC4	To Work collaboratively to apply the acquired knowledge, develop communication skills, and work in the team spirit via building smart projects.

Teaching style			Course No.	Course name	Credit hour	Theory Hours	Practical Hours	Prerequisite Co-requisite	Indicative	
Fully electronic	Blended learning	Traditional learning							Semester	year
1.	**Requirements (27) Credit Hours**									
1.1	**Mandatory requirement (21 credit hour)**									
.			0420101	Military Sciences	3	3	0		1	1
.			0420151	National Education	3	3	0		2	1
.			0420271	Life skills	3	3	0		1	2
.			0420115	Communication skills in Arabic	3	3	0	Remedial Arabic Language	1	1
.			0420122	Communication skills in English	3	3	0	Remedial English Language	2	1
.			0420261	Entrepreneurship and innovation	3	3	0		2	2
.			0420241	Leadership and social responsibility	3	3	0		1	2
1.2 University elective requirements(06 credit hour)										
.			0420142	Human Civilization	3	3	0		1	1
.			0420253	Development and environment	3	3	0		1	2
.			0420172	Digital skills	3	3	0	Remedial computer skills	2	1
.			0420201	first aid	3	3	0		2	2
.			0420134	Sports and health	3	3	0		1	1
.			0420212	Islamic culture	3	3	0		1	2
			0420392	Principals of Psychology	3	3	0		1	3
			0420341	Principals of German Language	3	3	0		2	3

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Fully electronic	Blended learning	Traditional learning							Semester	year
2.	**Faculty Requirements (24) Credit Hours**									
	X		0125130	Introduction into Information Technology	3	3	0	\	1	1
		X	0101101	Calculus (1)	3	3	0	------	1	1
		X	0101140	Statistics and Probability	3	3	0	------	1	1
		X	0112110	Discrete Mathematics	3	3	0	------	1	1
	X		0114150	Communication Skills and Ethics	3	3	0	Introduction into Information Technology	1	1
		X	0112120	Principles of Programming	3	2	2	Introduction into Information Technology	2	1
		X	0112220	Object Oriented Programming	3	2	2	Principles of Programming	1	2
		X	0125220	Internet Application Programming	3	2	2	Principles of Programming	2	2

Teaching style			Course No.	Course name	Credit hour	Theory Hours	Practical Hours	Prerequisite Co-requisite	Indicative	
Fully electronic	Blended learning	Traditional learning							Semester	year
3.	**Requirements for a major family (33) Credit Hours**									
		X	0142230	Basics of Data Science	3	3	0	Statistics and Probability	2	1
		X	0142231	Basics of Artificial Intelligence	3	3	0	Introduction into Information Technology	2	1
		X	0142220	Data Sciences and Artificial Intelligence Programming (1)	3	2	2	Principles of Programming	1	2
		X	0142210	Computation Systems for Data Science and Artificial Intelligence	3	3	0	Basics of Data Science	1	2
	X		0142211	Statistics and Probabilities for Data Science and Artificial Intelligence	3	2	2	Statistics and Probability	2	2
	X		0112212	Data Structures	3	3	0	Object Oriented Programming	1	3
		X	0142232	Machine Learning	3	2	2	Computation Systems for Data Science and Artificial Intelligence	2	2
		X	0142251	Databases	3	2	2	Introduction into Information Technology	1	3
		X	0142321	Data Sciences and Artificial Intelligence	3	2	2	Data Sciences and Artificial Intelligence Programming	2	3

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					Programming (2)				(1)		
	X		0112313	Computer Algorithms	3	3	0	Data Structures		2	3
	X		0142433	Big Data	3	3	0	Data Mining		1	4

Teaching style			Course No.	Course name	Credit hour	Theory Hours	Practical Hours	Prerequisite Co-requisite		Indicative	
Fully electronic learning	Blended learning	Traditional learning								Semester	year
4. Major requirements (49) Credit Hours											
4.1 Mandatory requirements (34) credit hours											
	X		0142340	Cognitive and Knowledge Science	3	3	0	Basics of Artificial Intelligence		1	3
	X		0142334	Data Mining	3	3	0	Basics of Data Science		1	3
	X		0142314	Operations Research	3	2	2	Calculus (1)		2	3
	X		0142335	Principles of Information Retrieval	3	3	0	Basics of Data Science		2	3
	X		0142441	Principles of Natural Language Processing	3	2	2	Data Mining		1	4
	X		0142442	Artificial Neural Networks and Deep Learning	3	3	0	Machine Learning		1	4
		X	0142443	Computer Vision	3	2	2	Machine Learning		1	4
	X		0142470	Project Construction Methodology	1	1	0	The Department Permission		1	4
		X	0142351	Robotics	3	2	2	Computer Vision		2	4
		X	0142436	Machine Learning Applications	3	2	2	Machine Learning		2	4
	X		0142490	Training	3	3	0	The Department Permission		2	4
	X		0142472	Graduation Project	3	3	0	The Department Permission		2	4
4.2 electives requirements (09) credit hours											
	X		0142337	Data Security	3	3	0	Basics of Data Science		2	3
	X		0142338	Digital Image Processing	3	3	0	Discrete Mathematics		2	3
	X		0142339	Advanced Databases	3	3	0	Databases		2	3
	X		0142431	Geographical Information Systems	3	3	0	Basics of Artificial Intelligence		1	4
	X		0142450	Advanced Data Analytics	3	3	0	Basics of Data Science		1	4
		X	0142451	Special Topics in Artificial Intelligence (1)	3	2	2	The Department Permission		1	4
	X		0142410	Game Theory	3	3	0	Machine Learning		2	4
		X	0142411	Internet of Things Applications	3	2	2	Cognitive and Knowledge Science		2	4
		X	0142453	Special Topics in Artificial Intelligence (2)	3	2	2	The Department Permission		2	4

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4.3 supporting requirements (06) credit hours

		X	0101221	Linear Algebra (1)	3	3	0	Statistics and Probability	2	2
		X	0101272	Numerical Analysis (1)	3	3	0	Statistics and Probability	2	3

The end of the study plan for the major students

Subjects taught in the major for students of other majors (university requirements, college requirements, major family requirements, support requirements)

Teaching style			Course No.	Course name	Credit hour	Theory Hours	Practical Hours	The type of requirement and the recipient
Fully electronic	Blended learning	Traditional learning						
		X	0142231	Basics of Artificial Intelligence	3	3	0	Computer Science, Cybersecurity
		X	0142220	Data Sciences and Artificial Intelligence Programming (1)	3	2	2	Cybersecurity