Zarqa University
Skills Matrix
Data Science and Artificial Intelligence

Legend:
- Department Elective Course
- Department Compulsory requirement
- Support requirement
- Compulsory university requirement
- Compulsory college requirement
- University Elective Course
- Free Requirement

Skills VS. Courses	Level Exam (Arabic, English)	Compulsory university requirement	Compulsory university requirement	University Elective Course	Support requirement (Calculus 1)	Computer Programming 1	Programming Lab. 1	Computer Programming 2	Programming Lab. 2	Web Programming (1)	Web Lab 1	Digital Logic Design	Compulsory university requirement	Compulsory university requirement	University Elective Course	Selected Programming Language	Introduction to artificial Intelligence	Introduction to Software Engineering	Artificial Intelligence Programming	Artificial Intelligence Programming	Discrete Mathematics	Data Structures	Support requirement (Linear Algebra)	Support requirement (Statistics and)	Machine Learning	Database Systems	Introduction to Robots	Department Elective Course	Design and Analysis of Algoritms	Computer networks	Smart Phone Programming	Mathematics for Machine Learning	Mathematics for Machine Learning	Internet of Things	Digital Imag Processing	University Elective Course	Project in artificial intelligence	Internship in artificial intelligence	Department Elective Course	Operating Systems	Department Elective Course	Information Retrieval	Introduction to Data Science	Compulsory university requirement	Compulsory university requirement	Deep learning	Deep learning Lab	Computer Vision	Big Data	Free Requirement
A. Knowledge and understanding of:																																																		
Mathematics																																																		
A1. Mathematical and statistical methods appropriate to AI					X																X		X	X								X	X																	
Hardware																																																		
A2. Computer architecture and construction.												X																																						
A3. Basic electronics and logic design.												X																																						
Software																																																		
A5. Programming languages.						X	X	X	X	X						X			X	X							X				X						X	X								X	X			
A6. Artificial intelligence Software tools and packages.																	X								X			X					X				X	X	X			X		X		X	X		X	
A7. Intelligent Computer applications																	X								X		X	X						X	X		X	X	X			X	X	X		X	X	X	X	
A8. Structuring of data and information.																						X				X			X								X	X											X	
Communication																																																		
A9. Computer networks and distributed systems.																														X				X																
A10. Operating systems.																																																	X	
Theory																																																		
A11. Algorithm design and analysis.																	X	X				X							X						X		X													
A12. Modeling and frameworks.																																																		
A13. Analysis, prediction, and generalization.																	X																				X	X					X							

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B. Practical skills – students will be able to:																																																	
B1. Specify, analyze, design, and implement intelligent computer-based systems.																	X		X	X					X											X	X	X			X	X						X	
B2. Deploy effectively the computer tools to solve practical problems.																	X	X							X												X	X											
B3. Operate computing equipments effectively.																																					X	X											
C. Cognitive skills – students will be able to:																																																	
C1. Demonstrate knowledge understanding of essential facts and concepts in computing.																		X																			X	X											
C2. Model, design, and evaluate a computer-based system.																		X				X			X												X	X									X	X	
C3. Recognize and analyze criteria and specifications appropriate to specific problems.					X	X	X	X	X								X		X			X			X				X								X	X									X	X	
C4. Deploy appropriate theory, practice, and tools to solve real problems.																									X	X											X	X									X	X	
C5. Recognize the professional, moral, and ethical issues related to work.	X		X										X	X	X																						X	X			X	X							X
D. General transferable skills – students will be able to:																																																	
D1. Effectively communicate both orally and in writing using appropriate tools.	X	X	X	X									X	X	X																					X	X	X											
D2. Work effectively as part of a team.																X									X												X	X											
D3. Effective use of general IT facilities.																										X											X	X											
D4. Do independent learning and continue professional development.																						X															X	X									X		
D5. Communicate and present logical argument related to computing.																X	X								X												X	X											
D6. Employ scientific methods in the solution of problems.					X	X	X	X	X															X	X	X		X	X	X				X	X		X	X	X		X	X	X		X	X	X	X	