Zarqa University
Skills Matrix
Computer Science Department

	متطلب تخصص اختياري		متطلب جامعة اجباري
	متطلب تخصص اجباري		متطلب كلية اجباري
	المتطلبات المساندة		متطلب جامعة اختياري

Skills VS. Courses	First Year											Second Year													Third Y					
	Islamic Culture	National Education	English Language 1	Elective university Course	Computer Programming 1	Programming Lab. 1	Computer Programming 2	Programming Lab. 2	Web Programming (1)	Web Lab. 1	Calculus 1	Digital Logic Design	Arabic Language 1	Elective university Course	Selected Programming Language	Discrete Mathematics	Introduction to Software Engineering	Computer Organization and Architectur	Data Structures	Computer Networks	Design and Analysis of Algorithms	Department Elective course	Statistics and Probabilities	Advanced Programming	Database Systems	Distributed Systems and Cloud Compu	Linear Algebra 1	Numerical Analysis	Systems Analysis
A. Knowledge and understanding of:																													
Mathematics and Physics																													
A1. Mathematical and statistical methods appropriate to CS.											x	x				x							x				x		
A2. Essential physics principles.																													
Hardware																													
A3. Computer architecture and construction.												x						x											
A4. Processor architecture.												x						x											
A5. Basic electronics and logic design.												x						x											
Software																													
A6. Programming languages.																								x		x			
A7. Software tools and packages.												x					x							x					
A8. Computer applications.																								x	x	x			
A9. Structuring of data and information.																									x				
																			x										
Communication																													
A10. Computer networks and distributed systems.																				x									
A11. Operating systems.																													
Theory																													

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A12. Algorithm design and analysis.					x	x	x	x	x	x					x	x	x		x		x								
A13. Formal methods and description techniques.																x	x												
A14. Modeling and frameworks.																	x												
A15. Analysis, prediction, and generalization.																													

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B. Practical skills – students will be																													
able to:																													
B1. Specify, analyze, design, and implement computer-based systems.																			x					x					x
B2. Deploy effectively the computer tools to solve practical problems.					x	x	x	x	x	x					x				x					x	x	x			x
B3. Operate computing equipments effectively.																													
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
C3. Recognize and analyze criteria and specifications appropriate to specific problems.					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
C5. Recognize the professional, moral, and	x	x		x									x	x											x				x

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ethical issues related to work.	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					
D2. Work effectively as part of a team.																								x	x	x			x
D3. Effective use of general IT facilities.																				x		x		x	x	x			x
D4. Do independent learning and continue professional development.					x	x	x	x	x	x					x					x		x		x	x	x			x
D5. Communicate and present logical argument related to computing.																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

Year					Fourth Year									
Artificial Intelligence	Theory of Computation	Research Methodology and Ethics	Elective university Course	Elective department Course	Project in Computer Science	Internship for CS	Network and Information Security	Operating Systems	Wireless Networks	Machine Learning	Military Sciences	Database Administration	Compilers Construction	Elective department Course
	x													
													x	
					x	x								
					x	x								
					x	x						x		
		x			x	x							x	
							x							
									x					
								x						

Year					Fourth Year									
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					x									
		x												
x		x			x					x				

	×	×							×	×			Artificial Intelligence
													Theory of Computation
			×										Research Methodology and Ethics
													Elective university Course
	×			×									Elective department Course
	×	×	×	×				×	×	×	×		Project in Computer Science
													Internship for CS
													Network and Information Security
													Operating Systems
													Wireless Networks
													Machine Learning
													Military Sciences
		×		×				×					Database Administration
													Compilers Construction
	×			×									Elective department Course

Fourth Year

								Artificial Intelligence	Year
								Theory of Computation	
								Research Methodology and Ethics	
								Elective university Course	
								Elective department Course	
								Project in Computer Science	Fourth Year
								Internship for CS	
								Network and Information Security	
								Operating Systems	
								Wireless Networks	
								Machine Learning	
								Military Sciences	
								Database Administration	
								Compilers Construction	
								Elective department Course	