Zarka University
Skills Matrix
Software Engineering Program

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

Is VS. Courses	First Year													Second Year											Third Year													Fourth Year										
	Islamic Culture …	Military Science	Scientific Culture	Computer Programming 1	Calculus 1	Principles of Education	Web Programming (1)	Statistics and Probabilities	Discrete Mathematics	Programming (1) Lab	Web (1) Lab	National Education	Computer Programming 2	Programming (2) Lab	Arabic Language 1	English Language 1	Digital Logic Design	Introduction to Software Engineering	History of Jordan & Palestine	Computer Organization and Architect	Data Structures	Advanced Programming	Linear Algebra 1	Selected Programming Language	Numerical Analysis	The ethics of university student	Software System Requirements	Database Systems	Software Design and Architecture	Software Systems Modeling	design & Analysis Algorithm	Internship for SE	Component-based Development	Software Engineering Tools	Computer Networks	System Analysis	Maintenance and Evolution	Research Methodology and Ethics	Software Project: Management	Advanced Systems Analysis	Database Administration	Operating Systems	Software Testing and Quality Assura	HCI: Human Computer Interaction.	Project 1	Project 2	Software Documentation
A. Knowledge and understanding of:																																																
Mathematics and Physics																																																
A1. Mathematical and statistical methods appropriate to CS.						X	X	X															X		X						X		X														
A2. Essential physics principles.																																																
Hardware																																																
A3. Computer architecture and construction.																				X																												
A4. Processor architecture.																				X																												
A5. Basic electronics and logic design.									X									X		X												X																
Software																																																
A6. Programming languages.				X			×						X					X				X		X	X			X				X	X								X						
A7. Software tools and packages.							×							X				X									X	X	X	X		X	X			X			X	X	X		X	X	X		
A8. Computer applications.														X				X									X		X			X	X			X			X						X	X	
A9. Structuring of data and information.													X								X	X					X	X					X								X				X		
Communication																																																
A10. Computer networks and distributed systems.																																			X							X					
A11. Operating systems.																																										X					
Theory																																																
A12. Algorithm design and analysis.				X									X								X	X			X						X			X													X
A13. Formal methods and description techniques.																								X	X						X			X		X				X X							
A14. Modeling and frameworks.																					X				X		X	X	X	X	X					X	X		X		X	X					
A15. Analysis, prediction, and generalization.								X																	X				X					X					X								X
B. Practical skills – students will be able to:																																																
B1. Specify, analyze, design, and implement computer-based systems.							×														X				X			X	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	X					X	X		X	X			X	X	X	X		X	X	X				X		X
B3. Operate computing equipments effectively.														X																						X											X

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Colour key	Meaning	Colour key	Meaning
Orange	متطلب جامعة اجباري	Lilac	متطلب تخصص اختياري
Red	متطلب كلية اجباري	Cyan	متطلب تخصص اجباري
Yellow	متطلب جامعة اختياري	Magenta	المتطلبات المساندة

First Year

ls VS. Courses	Islamic Culture ...	Military Science	Scientific Culture	Computer Programming 1	Calculus 1	Principles of Education	Web Programming (1)	Statistics and Probabilities	Discrete Mathematics	Programming (1) Lab	Web (1) Lab	National Education	Computer Programming 2
C. Cognitive skills – students will be able to:													
C1. Demonstrate knowledge understanding of essential facts and concepts in computing.							X						
C2. Model, design, and evaluate a computer-based system.							X						
C3. Recognize and analyze criteria and specifications appropriate to specific problems.				X	X		X						X
C4. Deploy appropriate theory, practice, and tools to solve real problems.													
C5. Recognize the professional, moral, and ethical issues related to work.	X	X	X										
D. General transferable skills – students will be able to:													
D1. Effectively communicate both orally and in writing using appropriate tools.													
D2. Work effectively as part of a team.													
D3. Effective use of general IT facilities.													
D4. Do independent learning and continue professional development.				X			X						X
D5. Communicate and present logical argument related to computing.					X		X						
D6. Employ scientific methods in the solution of problems.				X	X								X

Second Year

ls VS. Courses	Programming (2) Lab	Arabic Language 1	English Language 1	Digital Logic Design	Introduction to Software Engineering	History of Jordan & Palestine	Computer Organization and Architect	Data Structures	Advanced Programming	Linear Algebra 1
C. Cognitive skills – students will be able to:										
C1. Demonstrate knowledge understanding of essential facts and concepts in computing.	X				X		X	X		
C2. Model, design, and evaluate a computer-based system.										
C3. Recognize and analyze criteria and specifications appropriate to specific problems.									X	
C4. Deploy appropriate theory, practice, and tools to solve real problems.								X		
C5. Recognize the professional, moral, and ethical issues related to work.	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							
D2. Work effectively as part of a team.										
D3. Effective use of general IT facilities.	X				X					
D4. Do independent learning and continue professional development.	X								X	
D5. Communicate and present logical argument related to computing.	X									
D6. Employ scientific methods in the solution of problems.					X				X	

Third Year

ls VS. Courses	Selected Programming Language	Numerical Analysis	The ethics of university student	Software System Requirements	Database Systems	Software Design and Architecture	Software Systems Modeling	design & Analysis Algorithm	Internship for SE	Component-based Development	Software Engineering Tools	Computer Networks	System Analysis
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
C3. Recognize and analyze criteria and specifications appropriate to specific problems.	X	X		X	X		X						X
C4. Deploy appropriate theory, practice, and tools to solve real problems.		X			X						X		
C5. Recognize the professional, moral, and ethical issues related to work.									X				
D. General transferable skills – students will be able to:													
D1. Effectively communicate both orally and in writing using appropriate tools.	X									X			X
D2. Work effectively as part of a team.					X	X				X		X	X
D3. Effective use of general IT facilities.						X			X				
D4. Do independent learning and continue professional development.	X												X
D5. Communicate and present logical argument related to computing.		X											X
D6. Employ scientific methods in the solution of problems.		X							X				X

Fourth Year

ls VS. Courses	Maintenance and Evolution	Research Methodology and Ethics	Software Project Management	Advanced Systems Analysis	Database Administration	Operating Systems	Software Testing and Quality Assura	HCI: Human Computer Interaction.	Project 1	Project 2	Software Documentation
C. Cognitive skills – students will be able to:											
C1. Demonstrate knowledge understanding of essential facts and concepts in computing.			X			X				X	X
C2. Model, design, and evaluate a computer-based system.	X				X		X				X
C3. Recognize and analyze criteria and specifications appropriate to specific problems.					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 ethical issues related to work.			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
D2. Work effectively as part of a team.	X		X		X						X
D3. Effective use of general IT facilities.			X								
D4. Do independent learning and continue professional development.	X		X			X					X
D5. Communicate and present logical argument related to computing.			X							X	
D6. Employ scientific methods in the solution of problems.				X							X