

Study Plan for Bachelor program - Study Plan Development and Updating Procedures / Computer Science Department	QF01/0407-4.0E
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Course Plan for Computer Science (Bachelor Program) No.: (2021/2022)			
Approved by Deans Council by decision (19/2020) dated (28/7/2021)			
(133) Credit Hours		Study system / hybrid program	
Type of specialty	<input type="checkbox"/> Humanitarian	<input checked="" type="checkbox"/> Scientific / technical	<input type="checkbox"/> Medical Sciences

Teaching style	Percentage of study plan hours / number	Model used (synchronous: asynchronous)
Complete e-learning courses	10%-20% Maximum / number (27) 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 all academic divisions
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 Computer Science 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.
4. Develop students' ability to use computer principles to understand, apply and analyze mathematical problems and find appropriate solutions to them.
5. Providing the student with the ability to analyze, design and build effective and reliable computer programs.
6. Provide knowledge of computer hardware components and the software needed to manage them.
7. Develop the student's ability to understand and design computer networks and related matters.

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

Main Knowledge	
MK1	Knowledge of the ethics of the profession and the laws regulating them
MK2	Knowledge of a wide variety of programming languages
MK3	Knowledge of the internal design of the computer and its main contents
MK4	Knowing the stages of building and operating software and networks and understanding their security fundamentals
MK5	Understanding the principles of operating systems and their working mechanisms
Basic Skills	
MS1	Skill of analyzing and understanding mathematical problems and the use of mathematical concepts in algorithm analysis
MS2	Skill in using different programming languages and employing them in creating computer applications
MS3	Software validation and reliability skill
MS4	Systems software development skill
MS5	Skill of designing different types of logic circuits

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General Competencies	
MC1	Adhering to the ethics and professional standards of computer science and demonstrating integrity, values and responsible citizenship
MC2	Ability to use computer science principles to understand, apply and analyze new problems and find appropriate solutions
MC3	The ability to analyze, design and build effective and reliable computer programs within the parameters required by users
MC4	Ability to keep abreast of constant changes in computer science such as programming languages and operating systems

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
<b>1. University Requirements (27) Credit Hours</b>										
<b>1.1 Mandatory university requirements (21 credit hour)</b>										
			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
<b>1.2 University elective requirements (06 credit hour)</b>										
			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

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
<b>2. Faculty Requirements (24) Credit Hours</b>										
			0125130	Introduction to Information Technology	3	3	0	Co-requisite: Remedial Computer Skills	1	1
			0101101	Calculus I	3	3	0	.....	1	1
			0101140	Statistics and Probability	3	3	0	.....	1	1
			0112110	Discrete Mathematics	3	3	0	.....	1	1
			0114150	Communication Skills and Professional Ethics	3	3	0	Introduction to Information Technology	1	1
			0112120	Principles of Programming	3	2	2	Introduction to Information Technology	2	1
			0112220	Object Oriented Programming	3	2	2	Principles of Programming	1	2
			0125220	Internet Application Programming	3	2	2	Principles of Programming	2	2

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Fully electronic learning	Blended learning	Traditional learning							Semester	year
<b>3. Requirements for a major family ( 24 ) Credit Hours</b>										
	•		0112131	Digital Logic Design	3	3	0	Discrete Mathematics	2	1
	•		0112233	Computer Organization and Architecture	3	3	0	Digital Logic Design	1	2
	•		0112212	Data Structures	3	3	0	Object Oriented Programming	2	2
		•	0114341	Databases	3	2	2	Object Oriented Programming	2	2
		•	0114223	Visual Programming Applications	3	2	2	Object Oriented Programming	2	2
		•	0112333	Operating Systems	3	3	0	Computer Organization and Architecture	2	2
	•		0112313	Algorithms	3	3	0	Data Structures	1	3
		•	0114324	Internet Application Development	3	2	2	Internet Application Programming	1	3

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
<b>4. Major requirements ( 58 ) Credit Hours</b>										
<b>4.1 Mandatory requirements ( 43 ) credit hours</b>										
	•		0114151	Software Engineering Principles	3	3	0	Introduction to Information Technology	2	1
	•		0125131	Computer Networks I	3	3	0	Introduction to Information Technology	2	1
	•		0142231	Artificial Intelligence Principles	3	3	0	Introduction to Information Technology	2	1
	•		0112241	Computation Theory	3	3	0	Discrete Mathematics	1	2
	•		0112250	Operations Research	3	3	0	Linear Algebra I	1	2
		•	0112351	Database Systems Programming	3	3	0	Databases	1	2
	•		0125232	Data and Information Security	3	2	2	Computer Networks I	2	2
	•		0112350	Distributed Systems	3	2	2	Operating Systems	1	3
		•	0112355	Game Programming	3	2	2	Visual Programming Applications	1	3
		•	0112356	Digital Image and Multimedia Programming	3	2	2	Algorithms	2	3
		•	0114343	Systems Analysis and Design	3	3	0	Algorithms	2	3
		•	0112424	Mobile Device Programming	3	2	2	Distributed Systems	1	4
	•		0112470	Methodology for Preparing and Documenting Computer Projects	1	0	2	Department Approval	1	4
	•		0112490	Practical Training	3	0	6	Completing 90 Credit Hours	1	4
	•		0112472	Graduation Project	3	0	6	Department Approval	2	4
<b>4.2 electives requirements ( 9 ) credit hours</b>										
		•	0112321	2D and 3D Graphics Design	3	2	3	Visual Programming Applications	1	3

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	•		0112252	Data Communications and Security	3	3	3	Computer Networks I	1	2
	•		0112253	Modeling and Simulation	3	3	3	Algorithms	2	3
	•		0112254	Big Data	3	3	3	Databases	1	3
		•	0112421	Special Programming Language	3	2	3	Visual Programming Applications	1	3
	•		0112434	Embedded Systems	3	3	3	Algorithms	2	3
	•		0112435	Internet of Things	3	3	3	Data and Information Security	1	4
	•		0112482	Selected Topics in CS I	3	3	3	Department Approval	1	4
	•		0112483	Selected Topics in CS II	3	3	3	Department Approval	2	4
<b>4.3 supporting requirements ( 6 ) credit hours</b>										
		•	0101221	Linear Algebra I	3	3	0	Statistics and Probability	2	1
	•		0101272	Numerical Analysis I	3	3	0	Statistics and Probability	1	2

(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 Learning	Blended Learning	Traditional Learning						
		•	0112110	Discrete Mathematics	3	3	0	Faculty Requirement
		•	0112120	Principles of Programming	3	2	2	Faculty Requirement
		•	0112220	Object Oriented Programming	3	2	2	Faculty Requirement
	•		0112131	Digital Logic Design	3	3	0	Major Family Requirement for Software Engineering, Cyber Security, Artificial Intelligence
		•	0112333	Operating Systems	3	3	0	Major Family Requirement for Software Engineering
	•		0112211	Computer Organization and Architecture	3	3	0	Major Family Requirement for Software Engineering