Academic Program Description:

This description of the academic program provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, proving what he has made the most of the available opportunities and is accompanied by a description of each course within the program.

University of Mosul / College of Computer Science and Mathematics.	Educational institution .1
Department of Cyber Security.	*Scientific Department / Center-2*
Bachelor of Science in Cybersecurity.	*Name of academic or vocational program* .3
Bachelor.	*Final Certificate Name* .4
Quarterly.	*Academic System -5* ***Annual / Decisions / Other***
Instructions and controls issued by the Ministry of Higher Education and Scientific Research. Which states that the study should be theoretical and applied	*Accreditation Program* .6
Department Library. and the college library. and the central library at the university. Electronic libraries and computer programs. And the International Information Network: (Internet)	*Other external influences* .7
. 2024 /7 /15	*Date of preparation of the description* .8

9-Objectives of the academic program:

A- Providing students with basic knowledge in the field of specialization. For the various subjects included in the curriculum.

B- Providing students with skills that enable them to transform their cognitive abilities from a simplified initial level to a complex one.

C- Enabling students to prepare scientific research in the field of cybersecurity

D- Developing creative capabilities in the field of scientific and cultural creativity.

F- Encouraging students to develop their own abilities in education and develop experiences

I- Providing students with knowledge in the field of community service. and enable the mirror. And fight extremist and extraneous ideas. In a way that promotes the values of belonging, responsibility and coexistence.

10. Required Program Outcomes and Methods of Teaching, Learning and Evaluation:

Cognitive Objectives

A-1 Providing students with the knowledge, skills and behaviors necessary to analyze cybersecurity problems and design appropriate solutions through best practices to enable them to excel and innovate and qualify them to occupy the best positions in the labor market.

A-2 Ability to innovate while adhering to the professional, legal and ethical framework and working effectively in multidisciplinary teams.

A-3 Enable the student to continuous self-learning to continue enhancing their skills and identify the developments affecting the cybersecurity technology industry and the adoption of new technologies and methods.

A-4 Enable students to analyze and discuss the results using the knowledge acquired.

A-5 Increase students' experience in how to verify the validity of what they have reached in scientific research and conclusion.

A.6 Increase the professional experience of students by applying the knowledge and skills provided during the period of education.

A7- Ability to enroll in graduate programs in cybersecurity and other subjects.

B- Skills objectives of the program:

B1 – Acquire skills for the basics of programming, coding and electronic security

B2 – Ability to conduct research

Teaching and learning methods :

1- Giving theoretical and applied lectures. and the use of textbooks. and auxiliary books. and modern means of learning.

2- Students acquire basic skills in computer and e-learning. And employing modern equipment in the learning process.

3- Giving students sufficient freedom in choosing the topics of graduation research. To extract their intellectual energies. And reveal their scientific interests and inclinations.

4- Giving students the opportunity to present ideas during the attendees. And allow them to discuss and express their opinion. Analyze the data and reach conclusions.

Evaluation methods:

1- Tests: (daily, monthly - theoretical and applied).

-2 grades for homework.

-3 participation marks in competitive questions in academic subjects.

4- Assigning students to carry out individual work. Such as proposing a scientific research plan, or educational programs.

5- Conducting scientific tests and writing reports individually.

C- Emotional and value goals:

C-1 Acquire skills related to the basics of computer science, cooperation and encourage teamwork.

C-2 Promoting students' moral values with regard to belonging, respect for the system and observance of administrative regulations and controls.

C-3 Instilling a spirit of initiative and positivity in students to suit their future work

C-4 Encouraging students to participate in extra-curricular, voluntary and community activities.

c-5 Promoting the values of citizenship, identity and altruism.

Teaching and learning methods:

1- Social activities are allocated 10% of the degree.

2- Individual and group assignments that require the use of the library, additional references and the Internet.

3- Demonstrating the necessity of scientific honesty and intellectual integrity.

4- Raising the spirit of competition and creating innovation opportunities.

Evaluation methods:

1- Achievement tests of both types: oral and written: during lectures. and written tests.

2- Continuous calendar.

3. Follow-up and observation.

4- Creating educational situations.

5- Interview.

D - General and rehabilitation skills transferred (other skills related to employability and personal development).

D-1 Skills of using modern technology and the use of e-learning and computerized.

D-2 Learn how to solve practical problems.

D-3 Analytical, thinking and deduction skills.

D-4 Enable students for continuous self-development after graduation.

Teaching and learning methods:

1- Participation in computer use courses and related scientific programs.

2. Conducting field visits to scientific research centers and education and training centers.

3- Develop the appropriate teaching curricula by the college so that they are similar to the work environment that the graduate will go to.

Evaluation methods:

1- Daily tests with home questions, self-resolved.

2. Homework grades.

3. Giving participation grades for competition questions related to the subject.

11- Program Structure:

Level	Semester	No.	Module Code	Module Name in English	Structured Student Workload (hr/w)			
					Class Lecture (hr/w)	Lab (hr/w)	Practical (hr/w)	Tutorial (hr/w)
UGI	One	1	CYBS-101	Programming (1)	2	2		1
		2	CYBS-102	Discrete Structures (1)	2			1
		3	CYBS-103	Logic Design Fundamentals	2	2		
		4	CYBS-104	Information Security Principles	2			2
		5	CYBS-105	Calculus	2			1
		6	UOM102	English Language (1)	2			
		7	UOM104	Democracy and Human Rights	2			
	Semester	No.	Module Code	Module Name in English	Structured Student Workload (hr/w)			
					Class Lecture (hr/w)	Lab (hr/w)	Practical (hr/w)	Tutorial (hr/w)
	Two	1	CYBS-107	Advanced Programming	2	2		1
		2	CYBS-108	Computer Organization	2	2		1
		3	CYBS-109	Cyber Security Fundamentals	2			2
		4	CYBS-110	Discrete Structures (2)	2			1
		5	CYBS-111	Probabilities & statistics	2			1
		6	UOM101	Arabic Language	2			
		7	UOM103	Computer	2	1		
Level	Semester	No.	Module Code	Module Name in English	Structured Student Workload (hr/w)			
					Class Lecture (hr/w)	Lab (hr/w)	Practical (hr/w)	Tutorial (hr/w)
UGII	Three	1	CYBS-201	Object-Oriented Programming (1)	2	2		1
		2	CYBS-202	Data Structures	2	2		
		3	CYBS-203	Computational Theory	2			1
		4	CYBS-204	Database Basics	2	2		
		5	CYBS-205	Cryptography (1)	2	2		1
		6	CYBS-206	English Language (2)	2			

	Semester	No.	Module Code	Module Name in English	Structured Student Workload (hr/w)			
					Class Lecture (hr/w)	Lab (hr/w)	Practical (hr/w)	Tutorial (hr/w)
	Four	1	CYBS-207	Object-Oriented Programming (2)	2	2		1
		2	CYBS-208	Cyber Security tools	2	2		
		3	CYBS-209	Distributed Databases	2	2		
		4	CYBS-210	Software Security	2			1
		5	CYBS-211	Cryptography (2)	2	2		
		6	UOM201	Ba'ath crimes in Iraq	2			
Level	**Semester**	**No.**	**Module Code**	**Module Name in English**	**Structured Student Workload (hr/w)**			
					Class Lecture (hr/w)	**Lab (hr/w)**	**Practical (hr/w)**	**Tutorial (hr/w)**
UGIII	Five	1	CYBS-301	Coding and information Theory	2			1
		2	CYBS-302	Cloud Computing principles	2	2		
		3	CYBS-303	Computer Networks	2	2		
		4	CYBS-304	Malicious Codes analysis	2	2		
		5	CYBS-305	Artificial Intelligence	2	2		
		6	CYBS-306	Computer Architecture	2			1
	Semester	**No.**	**Module Code**	**Module Name in English**	**Structured Student Workload (hr/w)**			
					Class Lecture (hr/w)	**Lab (hr/w)**	**Practical (hr/w)**	**Tutorial (hr/w)**
	Six	1	CYBS-307	Compiler Design	2	2		
		2	CYBS-308	Network Security	2	2		
		3	CYBS-309	Database Security	2			1
		4	CYBS-310	Awareness and Training for Security	2			1
		5	CYBS-311	Secure Communication Protocols	2			1
		6	CYBS-312	Ethical Hacking	2	2		
Level	**Semester**	**No.**	**Module Code**	**Module Name in English**	**Structured Student Workload (hr/w)**			
					Class Lecture (hr/w)	**Lab (hr/w)**	**Practical (hr/w)**	**Tutorial (hr/w)**
UGIV	Seven	1	CYBS-401	Operating Systems	2	2		
		2	CYBS-402	Internet of Things Security (IOT)	2			1
		3	CYBS-403	Web applications Programming	2	2		
		4	CYBS-404	Electronic Governance Security	2			1
		5	CYBS-405	Cloud Computing Security	2	2		
		6	CYBS-406	Project I			2	
	Semester	**No.**	**Module Code**	**Module Name in English**	**Structured Student Workload (hr/w)**			
					Class Lecture (hr/w)	**Lab (hr/w)**	**Practical (hr/w)**	**Tutorial (hr/w)**
	Eight	1	CYBS-407	Operating Systems Security	2	2		
		2	CYBS-408	Web applications Security	2	2		
		3	CYBS-409	Digital Forensics	2	2		
		4	CYBS-410	Intelligent Analysis of Security Threats	2			1
		5	CYBS-411	Information Risk Management	2			1
		6	CYBS-412	Project II			2	

12. Sewing for personal development
Developing students' abilities in research and investigation by attending discussions. And writing specialized scientific research. And the development of deduction and argumentative abilities. And urge to visit the library weekly. To view sources, books and scientific journals, as they are all a source for obtaining information, as well as the use of students on the Internet, electronic and computer education, electronic references, and specialized scientific sites.

13 - Admission criteria (setting regulations related to enrollment in the college or institute)
Central standard: Meets the requirements of the Ministry of Higher Education and Scientific Research.
.14 The most important sources of information about the program
1- Current curriculum. 2- The central library at the university, the college library, and the department's library. 3- Experiences of Iraqi, Arab and international universities. 4- International information network (Internet) and e-learning. 5. Electronic references provided by the department, on CDs, comprehensive library, links and electronic networks.

Curriculum Skills Outline