Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program Guide 2024-2025

2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: University of Mosul

Faculty /Institute: Collage of Computer Science and Mathematics

Scientific Department: Department of Networks

Academic or Professional Program Name: Bachelor Science in Networks

Final Certificate Name: Bachelor Science in Networks

Academic System: Bolonga Process and Courses System

Description Preparation date:3/12/2024

File Completion Date: 8/12/2024

Signature

Head of Department Name

Asst. Prof Dr. Ayad Hussain Abdulqader

Date: 5/1/2025

قسم الشبكات
مكتب القسم
٥ / ١ / ٢٠٢٥

Signature

Scientific Associate Name:

Prof Dr. Safwan Omar Hasoon

Date: 5/1/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department

Date:5/1/2025

Signature:

Dr. Ibrahim Mohmmad Ahmed

كلية علوم الحاسوب والرياضيات

كلية علوم الحاسوب والرياضيات
جامعة الموصل
مكتب العميد
DEAN OFFICE
University Of Mosul
College of Computer Science and Mathematic

Approval of the Dean

Prof.Dr. Dhuha Basheer Abdullah

5/1/2025

1. Program Vision

Our vision is to be a pioneering force in the field of networks, driving technological advancements and innovation. We strive to cultivate a dynamic learning environment that nurtures creativity, critical thinking, and collaboration. Through cutting-edge research, industry partnerships, and experiential learning, we aim to equip our students with the skills and knowledge needed to excel in network design, configuration, management, and security. Our vision is to produce highly skilled professionals who are adaptable, forward-thinking, and capable of addressing the complex challenges of the network industry. We aspire to be recognized as a global leader in networks education, making a positive impact on society through our graduates' contributions to the advancement of network technologies.

2. Program Mission

Our mission is to provide high-quality education and research in the field of computer networks. We aim to equip our students with the necessary knowledge and skills to design, configure, manage, and secure complex network systems, as well as develop innovative and user-friendly applications that leverage the power of networks. Through hands-on projects, practical training, and collaboration with industry partners, we foster creativity, critical thinking, and problem-solving abilities in the context of application development. Our mission is to produce skilled professionals who can contribute to the advancement of network technologies and create impactful web and mobile applications that meet the needs of today's digital world.

3. Program Objectives

The Networks department aims to achieve the following program objectives:

1. Knowledge and Skills: Provide students with a strong foundation in computer networking principles, protocols, and technologies, enabling them to understand and analyze network architectures and configurations.

2. Design and Implementation: Equip students with the ability to design and implement secure and efficient computer networks, considering factors such as scalability, reliability, and performance.
3. Network Administration: Develop skills in network administration and management, including network monitoring, troubleshooting, and optimization, to ensure the smooth operation and performance of network infrastructures.
4. Application Development: Prepare students to contribute to the growing demand for network-connected applications, including mobile apps, web applications, and IoT solutions, and empower them to leverage networks for seamless data exchange and enhanced user experiences.
5. Security: Familiarize students with network security concepts and best practices, enabling them to identify and mitigate network vulnerabilities and threats, and implement effective security measures.
6. Collaboration and Communication: Foster effective teamwork, communication, and collaboration skills, enabling students to work efficiently in multidisciplinary teams and effectively communicate complex network concepts to diverse stakeholders.
7. Professionalism and Ethical Practices: Instill a strong sense of professionalism and ethical responsibility in students, emphasizing the importance of integrity, privacy, and ethical decision-making in the context of network design, management, and usage.
8. Lifelong Learning: Foster a passion for continuous learning and professional development, encouraging students to stay updated with emerging network technologies and adapt to the evolving landscape of computer networks.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

No

5. Other external influences

Central examinations

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*

Institution Requirements	**4**	**8**	**5.5%**	
College Requirements	**4**	**11**	**%7.6**	
Department Requirements	**45**	**125**	**%86.8**	
Summer Training	**1**	–	–	
Other				

* This can include notes whether the course is basic or optional.

7. Program Specification

1st Stage

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT101	Information Technology Basics اساسيات تكنولوجيا المعلومات	78	72	6.00	B	None
NT102	Problems Solving & Programming 1 حل المشاكل وبرمجتها 1	108	92	8.00	C	None
NT103	Calculus التفاضل والتكامل	48	77	5.00	S	None
NT104	Logic Design Fundamentals اساسيات التصميم المنطقي	93	82	7.00	C	None
UOM102	English Language 1 لغة انكليزية 1	32	18	2.00	B	None
UOM104	Democracy and Human Rights الديمقراطية وحقوق انسان	32	18	2.00	B	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT107	Problems Solving & Programming 2 حل المشاكل وبرمجتها 2	78	72	6.00	C	NT102
NT108	Computer Organization تنظيم الحاسوب	63	72	6.00	C	NT104
NT109	Data Communication & Networking اتصالات البيانات والشبكات	63	62	5.00	C	NT101
NT110	Probabilities & statistics الاحتمالية والاحصاء	63	62	5.00	S	None
NT111	Discrete Mathematics رياضيات متقطعة	48	52	4.00	B	None
UOM101	Arabic Language 1 لغة عربية 1	32	18	1.00	B	None
UOM103	Computer الحاسوب	48	27	3.00	B	None

2nd Stage

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT201	Object Oriented Programming البرمجة الكيانية	108	92	8.00	C	NT107
NT202	Web Development I تطوير الويب 1	63	87	6.00	C	NT107
NT203	Network Protocols I بروتوكولات الشبكة 1	48	52	4.00	C	NT109
NT204	Data Structures هياكل البيانات	63	87	6.00	C	NT107
NT205	IT Ethics اخلاقيات تكنولوجيا المعلومات	33	17	2.0	C	None
UOM2022	English Language 2 لغة انكليزية 2	33	17	2.00	S	None
UOM2050	Ba'ath Party Crimes جرائم نظام حزب البعث	33	17	2.00	S	None

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT207	Visual Programming البرمجة المرئية	63	87	6.0	C	NT201
NT208	Algorithm Analysis & Design تحليل وتصميم الخوارزميات	63	62	5.0	C	NT204
NT209	Data Bases قواعد البيانات	63	62	5.0	C	NT204
NT210	Web Development II تطوير الويب 2	63	87	6.0	C	NT202
NT207	Network Protocols II بروتوكولات الشبكة 2	63	87	6.00	C	NT203
UOM2012	Arabic Language 2 لغة عربية 2	33	17	2.00	S	None

3rd Stage

Third Year- *First Semester*
المرحلة الثالثة-الفصل الاول

Code	Subject	Theoretical	Practical	Units
CMNT301	Operating Systems Concepts مفاهيم نظم التشغيل	2	2	3
CMNT302	Coding & Information Theory الترميز و نظرية المعلومات	2	-	2
CMNT303	Artificial Intelligence الذكاء الاصطناعي	2	2	3
CMNT304	Distributed Data Bases قواعد بيانات موزعة	2	2	3
CMNT305	Network Programming I برمجة الشبكات I	2	2	3
CMNT306	Network Protocols II بروتوكولات الشبكة II	2	2	3
CMNT307	Wireless & Mobile Computing الحوسبة المتنقلة واللاسلكية	2	2	3
	Total Unit			20

Third Year- *Second Semester*
المرحلة الثالثة- الفصل الثاني

Code	Subject	Theoretical	Practical	Units
CMNT308	Network Modeling & Simulation نمذجة ومحاكاة الشبكات	2	2	3
CMNT309	Network Operating Systems أنظمة تشغيل الشبكات	2	2	3
CMNT310	Network Programming II برمجة الشبكات II	2	2	3
CMNT311	Smart phone & tablet Programming I برمجة الهواتف الذكية والاجهزة اللوحيةI	2	2	3
CMNT312	Network Security I أمن الشبكات I	2	2	3
CMNT313	Server Administration I ادارة الشبكة I	2	2	3
CMNT314	Information Technology Ethics أخلاقيات تكنولوجيا المعلومات	2		2
	Total Units			20

8. Expected learning outcomes of the program

Knowledge	
A. Knowledge Outcomes (What students will *know* and *understand*) 1. **Comprehensive Understanding** Understand the principles, protocols, architectures, and technologies of computer networks. 2. **Network Security Knowledge** Demonstrate understanding of security concepts, threats, vulnerabilities, and protective technologies. 3. **Application Concepts** Understand the fundamentals of how networks support web-based, mobile, and distributed applications.	
Skills	
B. Skill-Based Outcomes (What students will be *able to do*) 1. **Network Design and Implementation** Design, configure, and implement secure, scalable, and high-performance networks. 2. **Network Administration and Troubleshooting** Perform effective network monitoring, fault diagnosis, and optimization. 3. **Application Development** Develop network-driven applications across platforms (e.g., smartphone, web) that solve real-world problems. 4. **Communication and Collaboration** Communicate network-related ideas effectively and collaborate within multidisciplinary teams.	
Ethics	
C. 1. **Professionalism and Ethical Practice** Adhere to ethical standards in networking, including responsible data use, integrity, and system fairness. 2. **Lifelong Learning** Demonstrate a commitment to continuous learning	

and adapting to emerging network technologies and trends. 3. **Responsibility and Integrity** Exhibit accountability in handling network resources and projects with reliability and honesty.	

9. Teaching and Learning Strategies

Strategies and Teaching Methods Adopted for Program Implementation:

1. Delivering theoretical lectures using PowerPoint.
2. Conducting laboratory experiments to apply concepts practically.
3. Utilizing computer labs for training on software and applications.
4. Presenting video lectures to support educational content.
5. Assigning group projects to enhance collaborative work.

10. Evaluation methods

1. Electronic exams (on line).
2. Central and monthly examinations.
3. Daily exams.
4. Daily duties.
5. Scientific reports
6. Computerized laboratory examinations.
7. Graduation projects.

11. Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant Professor	Computer Science	Computer Networks			2	
Lecturer	Computer Science	Computer Networks			2	

Lecturer	Computer Science	Computer Networks			1	
Lecturer	Computer Science	Security and Network Management			1	
Lecturer	Computer Science	Software Engineering			1	
Lecturer	Computer Science	Complex Networks			1	
Lecturer	Computer Science	Artificial Intelligence			1	
Asst. Lecturer	Computer Science	Computer Networks			3	
Asst. Lecturer	Law	Law			1	

12. Professional Development

Mentoring new faculty members

The academic program aims to empower new faculty members in various fields of education through: Organizing training courses to improve teaching methods, course design, and student learning assessment, in addition to introducing university systems and e-learning. Continuous evaluation of faculty performance to identify areas that need improvement. Encouraging participation in faculty development courses organized by the university.

Professional development of faculty members

Professional development of faculty members in the Computer Network Department is essential to keep pace with rapid technological advancements and emerging industry trends. Continuous training in areas like AI-driven networking, cybersecurity, and cloud technologies enhances both teaching quality and research output. It also fosters innovation and curriculum relevance. Investing in faculty development directly elevates the department's academic and professional standards.

13. Acceptance Criterion

The department's capacity is determined within the admission plan based on the department's intake capacity. This is then sent to the college, the university, and the ministry for official approvals. After the central student admissions are issued by the Ministry of Higher Education and Scientific Research, students are accepted by the ministry based on their grades and their preferences. Afterwards, students apply to the college through the registration office in the Computer science and Mathematics College Deanship, submit the required official documents, and are distributed to the college's departments based on their capacity and the student's preferences, including the possibility of transferring from other departments to the department. Once the student is accepted into the Networks Department, registration is completed, and the student begins attending classes in this department.

14. The most important sources of information about the program

- University Guide
- College Website:

  https://uomosul.edu.iq/computerscience/
- University website

  https://uomosul.edu.iq

15. Program Development Plan
• Develop a revised curriculum that reflects current industry trends, technologies, and best practices. • Integrate foundational concepts with advanced topics such as cloud computing, cybersecurity, and IoT. • Incorporate hands-on labs, projects, and case studies to enhance practical skills and problem-solving abilities.

Program skill Outline														
				Required program Learning outcomes										
Year/Level	**Course code**	**Course Name**	**Basic or optional**	**Knowledge**			**skill**				**Ethics**			
				A1	**A2**	**A3**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**
1st Semester	NT101	IT Basics	**Basic**	*	*	*	*	*	*	*	*	*	*
	NT102	Problem solving and Programming 1	**Basic**			*			*	*	*	*	*
	NT103	Calculus	**Basic**	*							*	*	*
	NT104	Logic Design Fundamentals	**Basic**	*			*			*	*	*	*
	UOM102	English Language 1	**Basic**	*							*	*	*

	UOM104	Democracy and Human Rights	**Basic**								*	*	*
2nd Semester	NT107	Problem solving and programming 2	**Basic**			*			*	*	*	*	*
	NT108	Computer Organization	**Basic**	*			*		*	*	*	*	*
	NT109	Data Communication and Networks	**Basic**	*	*	*	*	*			*	*	*
	NT110	Probabilities and statistics	**Basic**	*							*	*	*
	NT111	Discrete Mathematics	**Basic**	*							*	*	*
	UOM101	Arabic Language 1	**Basic**								*	*	*
	UOM103	Computer	**Basic**	*	*	*	*	*	*	*	*	*	*
	NT201	Object Oriented	**Basic**			*			*	*	*	*	*

3rd Semester		Programming											
	NT202	Web Development I	**Basic**	*	*	*	*	*	*	*	*	*	*
	NT203	Network Protocols I	**Basic**	*	*		*	*	*	*	*	*	*
	NT204	Data Structures	**Basic**	*		*			*	*	*	*	*
	NT205	IT Ethics	**Basic**	*	*	*	*	*	*	*	*	*	*
	UOM2022	English Language 2	**Basic**	*							*	*	*
	UOM2050	Ba'ath Party Crimes	**Basic**								*	*	*
4th Semester	NT207	Visual Programming	**Basic**	*	*	*	*	*	*	*	*	*	*
	NT208	Algorithm Analysis & Design	**Basic**	*	*	*		*	*	*	*	*	*
	NT209	Data Bases	**Basic**	*	*	*			*	*	*	*	*
	NT210	Web Development II	**Basic**	*	*	*	*	*	*	*	*	*	*

	NT207	Network Protocols II	**Basic**	*	*	*	*		*		*	*	*
	UOM2012	Arabic Language 2	**Basic**								*	*	*
5th Semester	CMNT 301	Operating Systems Concepts	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 302	Coding & Information Theory	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 303	Artificial Intelligence	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 304	Distributed Data Bases	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 305	Network Programming I	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 306	Network Protocols II	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 307	Wireless & Mobile Computing	**Basic**	*	*	*	*	*	*	*	*	*	*
6th Semester	CMNT 308	Network Modeling & Simulation	**Basic**	*	*	*	*	*	*	*	*	*	*

	CMNT 309	Network Operating Systems	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 310	Network Programming II	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 311	Smart phone & tablet Programming I	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 312	Network Security I	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 313	Server Administration I	**Basic**	*	*	*	*	*	*	*	*	*	*
	CMNT 314	Information Technology Ethics	**Basic**	*	*	*	*	*	*	*	*	*	*