University of Mosul

جامعة الموصل

First Cycle – Bachelor's degree (B.Sc.) –Networks

بكالوريوس علوم - الشبكات

Table of Contents جدول المحتويات

1.   Mission & Vision Statement

Vision Statement

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.

Mission Statement

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.

2. Program Specification

Programme code:	NT	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

The Department of Networks offers a comprehensive program aimed at preparing students for careers in the field of computer networks and telecommunications. The department's curriculum covers a wide range of subjects related to the design, configuration, management, and security of networks, as well as programming for web-based applications and mobile devices.

The program includes courses in network architecture, where students learn about the fundamental principles and design considerations for building robust and scalable networks. Routing and switching courses focus on the protocols and algorithms used to efficiently route data across networks. Network protocols courses cover the various communication protocols used in network environments.

To ensure network security, students take courses in network security, where they learn about encryption, firewalls, intrusion detection systems, and other security measures to protect network infrastructures. These courses also cover the identification and mitigation of network vulnerabilities and threats.

In addition to network-related courses, the curriculum includes programming courses that enable students to develop web-based applications. These courses cover programming languages such as HTML, CSS, JavaScript, and frameworks like PHP and ASP.NET. Students also learn about database design and integration to develop dynamic and interactive web applications.

Furthermore, the curriculum includes courses specifically focused on programming applications for mobile devices. Students learn about mobile application development frameworks, programming languages like Java and Swift, and user interface design principles for mobile platforms.

Throughout the program, students have access to state-of-the-art laboratory facilities where they can apply their knowledge in practical settings. They also have opportunities for internships and industry projects to gain real-world experience and network with professionals in the field.

Graduates of the program are equipped with the skills to design, configure, manage, and secure computer networks. They can develop web-based applications and mobile applications, making them valuable assets in various sectors, including telecommunications, IT consulting, and software development.

The Department of Networks is dedicated to providing high-quality education, fostering innovation, and preparing graduates to meet the demands of the ever-evolving field of computer networks and applications.

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.   Student Learning Outcomes

The learning outcomes of the Computer Networks department include:

1. Comprehensive Understanding: Develop a deep understanding of computer network principles, protocols, architectures, and technologies.
2. Network Design and Implementation: Acquire the skills to design, configure, and implement secure and efficient computer networks, considering factors such as scalability, reliability, and performance.
3. Network Administration and Management: Gain proficiency in network administration, monitoring, troubleshooting, and optimization to ensure the smooth operation and performance of network infrastructures.
4. Network Security: Demonstrate knowledge of network security concepts and best practices, and apply effective measures to protect networks from vulnerabilities and threats.
5. Application Development: Develop the ability to design and implement network, smartphone, and web-based applications that leverage computer networks to enhance user experiences and meet real-world requirements.
6. Collaboration and Communication: Foster effective teamwork, communication, and collaboration skills necessary for working in multidisciplinary teams and effectively communicating network concepts to diverse stakeholders.
7. Professionalism and Ethical Practices: Adhere to professional and ethical standards in network design, management, and usage, demonstrating integrity and responsible decision-making.
8. Lifelong Learning: Cultivate a mindset of continuous learning and professional development to adapt to emerging network technologies and evolving industry trends.

5. Academic Staff

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6. **Credits, Grading and GPA**

Credits

Mosul University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT101	Information Technology Basics	78	72	6.00	B	None
NT102	Problems Solving & Programming 1	108	92	8.00	C	None
NT103	Calculus	48	77	5.00	S	None
NT104	Logic Design Fundamentals	93	82	7.00	C	None
UOM102	English Language 1	33	17	2.00	S	None
UOM104	Democracy and Human Rights	33	8	2.00	S	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT107	Problems Solving & Programming 2	78	72	6.00	C	NT102
NT108	Computer Organization	63	62	5.00	C	NT104
NT109	Data Communication & Networking	63	62	5.00	C	NT101
NT110	Probabilities & statistics	63	62	5.00	S	None
NT111	Discrete Mathematics	48	52	4.00	B	None
UOM101	Arabic Language 1	33	17	2.00	S	None
UOM103	Computer	48	27	3.0	S	None

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT201	Object Oriented Programming	108	92	8.00	C	NT107
NT202	Web Development I	63	87	6.00	C	NT107
NT203	Network Protocols I	48	52	4.00	C	NT109
NT204	Data Structures	63	87	6.00	C	NT107
NT205	IT Ethics	33	17	2.0	C	None
UOM2022	English Language 2	33	17	2.00	S	None
UOM2050	Ba'ath Party Crimes	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	63	87	6.0	C	NT201
NT208	Algorithm Analysis & Design	63	62	5.0	C	NT204
NT209	Data Bases	63	62	5.0	C	NT204
NT210	Web Development II	63	87	6.0	C	NT202
NT207	Network Protocols II	63	87	6.00	C	NT203

UOM2012	Arabic Language 2	33	17	2.00	S	None

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT301	Network Modelling & Simulation	63	62	5.00	C	NT108
NT302	Advanced web Development	63	62	5.00	C	NT210
NT303	Network Programming I	63	62	5.00	C	NT211
NT304	Routing & Switching	63	87	5.00	C	NT211
NT305	Wireless & Mobile Computing	63	62	5.00	C	NT203
NT306	Microprocessors Programming &Interfacing	63	62	5.00	S	NT108

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT307	Network Monitoring & Simulation	63	62	5.00	C	NT305
NT308	Artificial Intelligence	63	62	5.00	C	NT208
NT309	Network Programming II	63	87	6.00	C	NT303
NT310	Smart phone & tablet Programming	63	87	6.00	C	NT305
NT311	Projects Management	48	27	3.00	C	
NT312	Internet of Things	63	62	5.00	C	NT301

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT401	Cyber Security	63	62	5.00	C	NT211
NT402	Distributed and cloud Systems	63	62	5.00	C	NT307
NT403	Scientific Research Methodology	63	37	4.00	C	None
NT404	Data Science	63	62	5.00	C	NT308
NT405	Multimedia Networks	63	62	5.00	C	NT211
NT406	Graduation Project I	48	102	6.00	C	NT311

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NT407	Servers Administration	63	62	5.00	C	NT301
NT408	Network Security	63	62	5.00	C	NT401
NT409	Software Engineering	63	62	5.00	C	None
NT410	Network management and monitoring	63	62	5.00	C	NT211
NT412	Graduation Project II	93	157	10.00	C	NT406

8.   Contact

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