

وزارة التعليم العالي والبحث العلمي

جامعة الأنبار

كلية علوم الحاسوب وتكنولوجيا المعلومات

قسم أنظمة شبكات الحاسوب

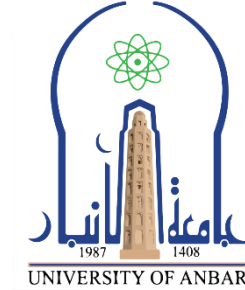
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Program Catalogue



Program Catalogue | 2023-2024 | دليل البرنامج الدراسي

## University of Anbar جامعة الانبار



*First Cycle – Bachelor's Degree (B.Sc.) - COMPUTER NETWORKS SYSTEMS*  
بكالوريوس – علوم أنظمة شبكات الحاسوب





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### 1. **Mission & Vision Statement**

#### ***Vision Statement***

Vision Statement for the Computer Networks Systems Department in a Computer Science and information technology:

"To be a leading Networking Department, empowering students to become skilled professionals in the rapidly evolving field of computer networking, enabling them to drive innovation and shape the future of technology."

Explanation:

1. **Leading Networking Department:** The vision emphasizes the desire to be at the forefront of networking education, setting the standard for excellence in the field. It reflects a commitment to staying updated with the latest advancements and best practices.
2. **Empowering Students:** The vision recognizes the importance of empowering students by providing them with a comprehensive education that equips them with the necessary knowledge, skills, and hands-on experience to excel in the networking industry.
3. **Skilled Professionals:** The vision focuses on producing graduates who are highly skilled and capable of meeting the demands of the evolving



networking landscape. It highlights the aim to develop well-rounded professionals who can adapt to new technologies, troubleshoot complex network issues, and contribute to the growth of the industry.

4. Rapidly Evolving Field: The vision acknowledges the dynamic nature of the networking field. It signifies the department's commitment to keeping pace with emerging trends, technologies, and industry standards, ensuring that students receive an education that is relevant and up to date.
5. Shaping the Future of Technology: The vision highlights the department's aspiration to play a significant role in shaping the future of technology through its contributions to the field of computer networking. It signifies the intention to produce graduates who can make meaningful contributions and lead advancements in networking technologies and practices.

### ***Mission Statement***

The mission of the Networking Department in our Computer College is to provide comprehensive and cutting-edge education in the field of networking. We aim to equip our students with the knowledge, skills, and practical experience necessary to excel in the rapidly evolving networking industry.

Our department is committed to fostering a dynamic learning environment that promotes innovation, collaboration, and critical thinking. We strive to empower our students to become competent and resourceful professionals who can meet the challenges of networking in today's interconnected world.

### **Key Principles:**

1. Quality Education: We are dedicated to delivering high-quality education that meets industry standards and prepares our students for successful careers in networking. Our curriculum is regularly updated to reflect the latest advancements and emerging technologies in the field.
2. Practical Experience: We emphasize hands-on learning and practical experience to ensure that our students develop the necessary skills to design, implement, and troubleshoot networks. Through lab exercises, projects, and industry partnerships, we provide opportunities for real-world application of theoretical concepts.



3. Professional Development: We foster a culture of continuous learning and professional development among our students and faculty. We encourage participation in workshops, seminars, industry conferences, and certification programs to enhance technical expertise and stay abreast of industry trends.
4. Ethical Practices: We emphasize the importance of ethical behavior and responsible use of technology in networking. Our students are trained to prioritize privacy, security, and ethical considerations in all their networking activities. We promote integrity, professionalism, and adherence to ethical guidelines.
5. Community Engagement: We actively engage with the local and global networking community to foster networking excellence and contribute to its advancement. We organize events, seminars, and conferences to facilitate knowledge sharing and networking opportunities for our students and faculty.

## 2. Program Specification

Program code:	BSc-MECH	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

## 3. Program Goals

The goals for the Networking Department in a computer college may vary depending on the specific objectives and priorities of the institution. However, here are some common program goals that a Networking Department might strive to achieve:

1. Provide comprehensive networking education: The Networking Department should aim to deliver a comprehensive curriculum that covers fundamental and advanced concepts in computer networking. This includes topics such as



- network protocols, network security, routing and switching, wireless networks, network management, and emerging networking technologies.
2. Develop practical skills: The department should focus on equipping students with hands-on skills that are applicable to real-world networking scenarios. Practical training should involve configuring and managing network devices, troubleshooting network issues, designing network infrastructures, and implementing network security measures.
  3. Keep pace with industry trends and advancements: The field of networking is rapidly evolving, with new technologies, protocols, and trends emerging regularly. The Networking Department should strive to stay up-to-date with these advancements and incorporate relevant and cutting-edge topics into the curriculum. This ensures that students are equipped with the knowledge and skills needed to adapt to the ever-changing networking landscape.
  4. Promote teamwork and collaboration: Networking professionals often work in teams and collaborate with colleagues to design, implement, and manage networks. The program should emphasize the importance of teamwork and provide opportunities for students to work collaboratively on networking projects and assignments. This helps develop their interpersonal and communication skills, as well as their ability to work effectively in a team-based environment.
  5. Prepare students for industry certifications: Many networking professionals pursue industry certifications to validate their skills and enhance their career prospects. The Networking Department should align the curriculum with relevant industry certifications, such as Cisco Certified Network Associate (CCNA) or CompTIA Network+, and provide resources and guidance to help students prepare for these certifications..
  6. Ensure high-quality teaching and learning: The department should prioritize the recruitment and professional development of skilled faculty members who possess both industry experience and teaching expertise. Regular assessments and feedback mechanisms should be implemented to ensure the quality of teaching and learning experiences. Additionally, the program should leverage modern educational technologies and resources to enhance the learning environment.
  7. Support lifelong learning: Networking professionals need to continuously update their knowledge and skills to keep pace with advancements in the field. The department should encourage and support students' lifelong learning by offering opportunities for professional development, such as continuing education programs, workshops, and seminars. This helps



students stay relevant in their careers and adapt to the evolving demands of the networking industry.

#### 4. Student Learning Outcomes (SLOs)

Student Learning Outcomes for the Networking Department in a Computer College can vary depending on the specific curriculum and goals of the institution. However, here are some common learning outcomes that are typically associated with a Networking Department in a Computer College:

1. Knowledge of Networking Concepts: Students should demonstrate a solid understanding of fundamental networking concepts, including network architecture, protocols, topologies, and technologies.
2. Network Implementation: Students should be able to implement computer networks, considering factors such as scalability, security, reliability, and performance.
3. Network Administration and Management: Students should acquire the skills to administer and manage network systems effectively, including tasks such as configuring network devices, troubleshooting network issues, and ensuring network security.
4. Network Security: Students should understand the principles and techniques of network security, including authentication, access control, encryption, firewalls, intrusion detection, and prevention systems.
5. Network Protocols and Services: Students should have a comprehensive understanding of various network protocols and services, such as TCP/IP, DNS, DHCP, VPN, and others, and be able to apply them effectively in network configurations.
6. Network Performance Optimization: Students should learn techniques to optimize network performance, including analyzing and improving network latency, bandwidth utilization, and response times.
7. Collaboration and Communication: Students should develop effective communication and collaboration skills to work in multidisciplinary teams, interact with clients or users, and present technical information clearly and professionally.
8. Ethical and Legal Considerations: Students should understand the ethical and legal issues related to networking, including privacy, intellectual property, cybercrime, and compliance with industry regulations.



9. Professional Development: Students should develop a commitment to continuous learning and professional growth, keeping up with advancements in networking technologies and industry trends.

## 5. Academic Staff

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## 6. Credits, Grading and GPA

### Credits

### Grading

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:

$$\text{CGPA} = [ (1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots ] / 240$$



## 7. Curriculum/Modules

### Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSCC 110	Information Technology	78	97	7.00	C	None
NSDC 113	Mathematics	48	52	4.00	S	None
UOA 140	English I	48	52	4.00	B	None
NSCC 107	Programming C++ (1)	60	65	5.00	C	None
NSCC 109	Logic Design (1)	60	65	5.00	C	None
NSCC 114	Electrical circuits	60	65	5.00	S	None

### Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSCC 108	Programming C++(2)	63	87	7.00	C	None
NSCE 111	Logic Design (2)	63	87	6.00	C	COE 1202
NSDC 203	Advanced Mathematics	48	77	6.00	S	None
NSDC 104	Discrete Mathematics	63	87	7.00	S	None
UOA 135	Freedom & Human Rights	48	52	4.00	S	CHE 1301
UOA137	Arabic	33	42	3.00	C	None

### Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSCC201	Data Structures	63	62	5.00	S	None
UOA223	English II	48	52	4.00	B	UOA 140
NSDC204	Digital Electronic	63	62	5.00	S	None
NSDC205	Architecture	63	62	5.00	E	None
NSDE210	Data Communication	63	62	5.00	C	None
NSDC208	Object oriented Programming (1)	78	72	6.00	C	None



**Semester 4 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSDC209	Algorithms	78	47	5.00	C	None
NSDC202	Numerical Analysis	78	47	5.00	S	None
NSDC207	Computer Networks	78	47	5.00	C	None
NSDC213	web Design Internet	63	37	4.00	C	None
NSDE211	Object oriented Programming (2)	78	72	6.00	C	NSDC208
NSDC206	Microprocessors	93	32	5.00	E	

**Semester 5 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSDC305	Visual Programming (1)	78	47	5.00	C	UOA 2104
NSDE309	Database System	78	47	5.00	E	None
NSDC306	Wireless Networks	78	47	5.00	C	None
NSDC303	Web Programming	78	47	5.00	E	CHE 2308
NSDE308	Signal Processing (1)	63	62	5.00	E	None
NSCC401	Operating Systems	78	47	5.00	S	None

**Semester 6 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSDE301	Software Engineering	63	37	4.00	E	None
NSDC304	Visual Programming (2)	78	72	6.00	C	NSDC305
NSCE302	Multimedia	78	47	5.00	S	None
NSDE312	Distributed Database	78	47	5.00	E	None
NSDC307	Network Programming	78	47	5.00	C	None
NSDE313	Signal Processing (1)	63	62	5.00	C	NSDE308



**Semester 7 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSDC408	Network Protocols	78	72	6.00	C	None
NSDC413	Information Security	63	37	4.00	C	None
NSDC405	Web Application Development (1)	78	47	5.00	E	None
NSSC412	Research Methodology	63	37	4.00	B	None
NSDC407	Mobile Computing	78	72	6.00	E	None
NSDC409	AI (1)	78	47	5.00	C	None

**Semester 8 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NSDC406	Switching and Routing Network	93	32	5.00	C	None
NSDC404	Networks Security	63	37	4.00	C	None
NSDE411	AI (2)	78	47	5.00	C	NSDC409
NSDC403	Web Application Development (2)	78	47	5.00	E	NSDC405
NSDC410	Project	93	182	11.00	C	None

## 8. Contact

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