

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



Academic Program and Course for Department of Computer Networks and Software

2026

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Najaf Technical Institute

Scientific Department: Department of Computer Networks and Software Techniques \ branch of Computer Networks and Software Techniques.

Academic or Professional Program Name: Diploma of Computer Networks and Software Techniques

Final Certificate Name: Diploma

Academic System: Semester

Description Preparation Date: 15/1/2026

File Completion Date: 15/2/2026

Signature:



Head of Department Name:

Dr. Hassoon Salman Neamah

Date: 15/3/2026

Signature:



Scientific Associate Name:

Dr. Salah Mahdi Saleh

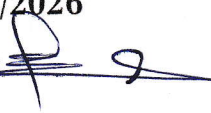
Date: 15/3/2026

Department: Director of the Quality Assurance and University Performance

Dr. Zaid Abdulkareem ALhamidawi

Date: 15/3/2026

Signature:



Approval of the Dean

Prof. Dr. Haider Hassan Abd Hussein



1. Program Vision

The Department of Computer Networks and Software Technologies should be a leading center in technical education and applied research, and to contribute effectively to the development of innovative technical solutions that serve the community and meet the needs of the local and regional labor market in the fields of networking and software.

2. Program Mission

The Department of Computer Networks and Software Technologies seeks to provide distinguished technical education in the fields of computer networks and software, and to qualify specialized cadres capable of meeting the requirements of the labor market, with the department's commitment to promoting innovation and developing technical solutions that serve the community.

3. Program Objectives

1. Providing specialized technical education in the fields of networking and software.
2. Develop staffing skills in designing and implementing network and software solutions.
3. Preparing staff capable of dealing with technical challenges in the labor market.
4. Training staff on the use of modern tools and techniques in the field of computing.
5. Enhance the ability of staff to work in technical teams and solve problems effectively.

4. Program Accreditation

Accreditation Board for Engineering and Technology (ABET)

5. Other External Influences

There is a close relationship with the labor market through communication with official and semi-official departments by focusing on the software in force in those departments, as the curriculum is updated accordingly.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
First Year (First Semester)	6	66	20%	
First Year (Second Semester)	6	66	20%	
Second Year (First Semester)	7		30%	
Second Year (Second Semester)			30%	

√ may include notes on whether the course is basic or elective.

7. Program Description

Year/Level	Course code	Course name	Credit Hours	
			theoretical	practical
First Year (First Semester)		C++ programming	2	2
		Computer Basics	0	2
		Fundamentals of Computer Networking	2	2
		Logical Design	2	2
		Mathematics and Numerical Analysis	2	2
		Human Rights and Democracy	2	0

First Year (Second Semester)	C++ programming	2	2
	Programming in Python	2	2
	Data Transmission	2	0
	Web Design Basics	2	2
	Wireless Networks	2	2
	English	2	0
Second Year (First Semester)	Network Programming	2	2
	Database Basics	2	2
	Information Security and Encryption	2	0
	Advanced Computer Networking	2	2
	Web Design	2	2
	English for Computer Technology Studies	2	0
	Project	2	0
Second Year (Second Semester)	Network Management	2	2
	Artificial Intelligence	2	2
	Cyber Security	2	0
	Fundamentals of Ethical Hacking	2	2
	Cloud Computing	2	0
	Advanced Databases	2	2
	Crimes of the defunct Baath Party	2	0
	Project	2	0

8. Expected Learning Outcomes of the Program
Knowledge
To provide students with integrated scientific knowledge in the field of computer networks and software in a high-quality manner.
The ability to apply the scientific knowledge received in the field of computers in order to ensure the achievement of knowledge communication between them and benefit from the developments of the times.
Preparing highly qualified staff specialized in the field of computer networks and software in order to effectively contribute to the establishment of a knowledge

society and achieve national development goals by preparing an optimal academic environment for the development of knowledge and the acquisition of skills in research and innovation in the field of computers.

Achieving friction with the applied reality within the governmental and private state institutions by employing technologies, skills, technical tools and modern technology

Skills

The student should master the basic and advanced programming skills required to enrich their intellectual and technical output in this field of computer science and its various applications.

Master the skills required to manage information systems, databases, and web design with high efficiency.

The applicant must be proficient in the preparation of scientific research in a manner that takes into account an integrated scientific methodology.

Possess the required professional skills in the field of software development and projects that make them confident in developing high-quality software solutions in various fields of application under various realistic constraints.

9. Teaching and Learning Strategies

Lecture Method

Laboratory education to acquire practical skills

Student Groups (Teamwork)

E-learning includes:

- Video lectures and lectures in PDF format
- Holding electronic classes and electronic meetings to explain and discuss lectures
- Assignments and assignments for students electronically

10. Evaluation Methods

1. Oral tests to know the student's scientific background
2. Daily tests
3. Semester Exams (Written and Practical)
4. Comprehensive (final) exams (written and practical)
5. Electronic tests include: (Theoretical Tests ,Practical Tests ,Reports & Projects)

11. Faculty

Faculty Members

Academic Rank	Specialization		Special requirements/skills (if applicable)		Preparing the teaching staff	
	General	Special			staff	Lecturer
Assistant Professor	Computer Science	Computer Science			2	None
Assistant Professor	Electricity	Electricity			1	None
Teacher	Computer Science	Computer Science			1	2
Teacher	Networks & Communications	Contacts			None	1
Assistant Lecturer	Computer Science	Computer Science			2	1

Professional Development

Mentoring new faculty members

Seeking to develop, refine and master the skills necessary to be able to rise to the top through the use of abilities, qualifications and information acquired during theoretical and practical study, and this is done by:

- Continuous learning by researching new developments using the library and online resources
- Attending seminars and specialized scientific seminars.
- Participation in scientific conferences.

Professional development of faculty members

Faculty members must be within the prescribed staff, according to the ratio of students to faculty members, and competence must play a role in covering all curricula. There must also be a capacity to manage the institute adequately to accommodate the levels of interaction, student guidance, counseling, and university, professional and developmental services activities. and interact with professional practitioners as well as employers.

12. Acceptance Criterion

- Central admission for graduates of the preparatory study / scientific branch.
- Corresponding specialization in vocational preparations.
- Distinguished employees who hold a preparatory certificate.
- Parallel Admission

13. The most important sources of information about the program

- Methodological scientific books in the field of specialization.
- Specialized practical books.
- General and specialized computer programs.

14. Program Development Plan

- Providing the possibilities of academic support in organizing scientific visits to the laboratories of state institutions.
- Providing appropriate classroom students who are able to develop their learning strategies.
- Providing information in the campus library.
- Hosting experts from outside the institute or from the work for which they are preparing to benefit from their expertise in the development of the course according to the actual need of the labor market.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or Optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	A1	C2	C3	C4
First		C++ programming	Essential	√	√	√	√	√	√	√	√	√	√	√	√
		Computer Basics	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Fundamentals of Computer Networking	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Logical Design	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Mathematics and Numerical Analysis	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Human Rights and Democracy	basic	√	√	√	√	√	√	√	√	√	√	√	√
		C++ programming	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Programming in Python	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Data Transmission	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Web Design Basics	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Wireless Networks	basic	√	√	√	√	√	√	√	√	√	√	√	√
	English	basic	√	√	√	√	√	√	√	√	√	√	√	√	
The second		Network Programming	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Database Basics	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Information Security and Encryption	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Advanced Computer Networking	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Advanced Web Design	basic	√	√	√	√	√	√	√	√	√	√	√	√
		English for Computer Technology Studies	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Project	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Network Management	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Artificial Intelligence	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Cyber Security	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Fundamentals of Ethical Hacking	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Cloud Computing	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Advanced Databases	basic	√	√	√	√	√	√	√	√	√	√	√	√
		Crimes of the defunct Baath Party	basic	√	√	√	√	√	√	√	√	√	√	√	√
	Project	basic	√	√	√	√	√	√	√	√	√	√	√	√	

Course Description Form

1. Course Name					
Network Programming					
2. Course Code					
3. Semester/ Year					
First Semester / Second Grade					
4. Description Preparation Date:					
15 / 01 / 2025					
5. Available Attendance Forms:					
Mandatory (theoretical and practical lectures)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist. Lecturer Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives		The general objectives of this course are to provide theoretical as well as practical knowledge of network programming to make students capable of developing, implementing, managing and troubleshooting the issues of network programming in their personal as well professional life.			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning method	Evaluation Method

The first	4	Cognitive	Introduction to Network Programming: Features, scope, and tools.	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Introduction to Network Programming: Features, scope, and tools.	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Internet Addresses: Classes, methods, and network interfaces.	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Internet Addresses: Classes, methods, and network interfaces.	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Internet Addresses: Classes, methods, and network interfaces.	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	URLs and URIs: Creating and manipulating URLs, proxy settings.	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	URLs and URIs: Creating and manipulating URLs, proxy settings.	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	URLs and URIs: Creating and manipulating URLs, proxy settings.	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	URLs and URIs: Creating and manipulating URLs, proxy settings.	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	HTTP Protocol: Methods, request handling, and cookies.	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	HTTP Protocol: Methods, request handling, and cookies.	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Socket Programming: Client-server model, UDP and TCP applications.	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Socket Programming: Client-server model, UDP and TCP applications.	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Remote Method Invocation (RMI): Service interface and client-server setup.	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Remote Method Invocation (RMI): Service interface and client-server setup.	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	
Recommended books and references (scientific journals, reports...)	

Electronic References, Websites	
---------------------------------	--

Course Description Form

1. Course Name	
Database Basics	
2. Course Code	
3. Semester/ Year	
First Semester / Second Grade	
4. Date this description was prepared	
15 / 01 / 2025	
5. Available Forms of Attendance	
Mandatory (theoretical and practical lectures)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)	
7. Course administrator's name (mention all, if more than one name)	
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq	
8. Course Objectives	
Course Objectives	Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server
9. Teaching and Learning Strategies	
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Introduction and installation of SQL, Data normalization	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Using wizards, and HELP types	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Data definition types, create data tables, saving and editing. Input various data types using commands and keys	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Data definition types, create data tables, saving and editing. Input various data types using commands and keys	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive-Affective	More on Alter table, Brows, Edit data	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	More on Alter table, Brows, Edit data	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive-Affective	More on Alter table, Brows, Edit data	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Create, Alter Data Manipulation language, Replace, Delete, Pack, Recall, Zap data	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Create, Alter Data Manipulation language, Replace, Delete, Pack, Recall, Zap data	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive-Affective	Create, Alter Data Manipulation language, Replace, Delete, Pack, Recall, Zap data	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Create, Alter Data Manipulation language, Replace, Delete, Pack, Recall, Zap data	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive-Affective	Indexing & Sorting data	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Indexing & Sorting data	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Indexing & Sorting data	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Indexing & Sorting data	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.

<ul style="list-style-type: none"> Semester exams and physical attendance. 	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if any)	
Main References (Sources)	Fundamentals of Database systems 6e
Recommended books and references (scientific (...journals, reports	SQL Notes for Professionals
Electronic References, Websites	

Course Description Form

1. Course Name	
Information Security and Encryption	
2. Course Code	
3. Semester/ Year	
Quarterly / sec	
4. Date this description was prepared	
15 / 01 / 2025	
5. Available Forms of Attendance	
Mandatory (theoretical and practical lectures)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)	
7. Course administrator's name (mention all, if more than one name)	
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq	
8. Course Objectives	
Course Objectives	Providing theoretical and practical knowledge of the techniques of tasks related to planning, designing and adjusting the settings of various types of wired and wireless computer networks, detecting errors and malfunctions, and providing scientific solutions.
9. Teaching and Learning Strategies	

Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Introduction to Information Security	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Crypto Basics	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Symmetric encryption	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Asymmetric encryption	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Key Management	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Digital Signatures and Certificates	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Identity verification techniques	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Common Security Threats and Attacks	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Network Security	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Application Security	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Data Security	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Cyber Security Management	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Innovations and Recent Trends in Information Security	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Innovations and Recent Trends in Information Security	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Innovations and Recent Trends in Information Security	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name
Advanced Computer Networking
2. Course Code
3. Semester/ Year
Quarterly / sec
4. Date this description was prepared
15 / 01 / 2025
5. Available Forms of Attendance
Mandatory (theoretical and practical lectures)
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)
7. Course administrator's name (mention all, if more than one name)
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq
8. Course Objectives

Course Objectives	Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server
--------------------------	--

9. Teaching and Learning Strategies

Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Course overview, Introduction	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Course overview, Introduction	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Switching operation and techniques (VLAN,STP, Port fast and port forwarding, MAC address sticky, Ether channel)	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Switching operation and techniques (VLAN,STP, Port fast and port forwarding, MAC address sticky, Ether channel)	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Switching operation and techniques (VLAN,STP, Port fast and port forwarding, MAC address sticky, Ether channel)	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Switching operation and techniques (VLAN,STP, Port fast and port forwarding, MAC address sticky, Ether channel)	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Routing operation and protocols (RIP, OSPF, EIGRP, BGP)	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Routing operation and protocols (RIP, OSPF, EIGRP, BGP)	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Routing operation and protocols (RIP, OSPF, EIGRP, BGP)	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Routing operation and protocols (RIP, OSPF, EIGRP, BGP)	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	DHCP, Access list, HSRP and VRRP, QoS parameters	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	DHCP, Access list, HSRP and VRRP, QoS parameters	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Firewall operation, protocols and types.	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Firewall operation, protocols and types.	Lecture & Discussion	Questions & Exercises

Fifteenth	4	Cognitive- Affective	Firewall operation, protocols and types.	Lecture & Discussion	Questions & Exercises
-----------	---	-------------------------	--	----------------------	-----------------------

11. Course Evaluation	
<ul style="list-style-type: none"> • Direct questions and daily exams. • Motivating students and motivating them to participate in the event. • Discussion in lectures. • Additional activities. • Semester exams and physical attendance. 	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if any)	
Main References (Sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name
Advanced Web Design
2. Course Code
3. Semester/ Year
Quarterly / sec
4. Date this description was prepared
15 / 01 / 2025
5. Available Forms of Attendance
Mandatory (theoretical and practical lectures)
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of Theoretical Hours (2)
Number of Practical Hours (2)

Total Hours (4)					
Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	PHP + Introduction to PHP	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Running Windows IIS 5.0 + Add PHP to IIS + Add MySQL to IIS	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	PHP File Structure + Internet Protocols Comments, Variables, Numbers, Calculations, System Variables, Constants	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Knowledge and Transformation of Data Types + Time and Date Functions, Forms (GET , POST)	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Conditional Commands (IF Statement , Logical Transactions, Polynosis of Conditionals, Conditional Statement Overlap, Switch Statement	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Get rid of tags of duplicates and arrays, array functions, sort arrays, additional array functions, multidimensional arrays, code order (function , print , Range of variables, stable variables, inclusion of files)	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Tracking, phishing and error prevention (error types, logical errors, error avoidance, regular expressions, character class making), client interaction,	Lecture & Discussion	Questions & Exercises

			cookies, session, reading and writing information in a txt file		
Eighth	4	Cognitive-Affective	Using Java Script JavaScript What JavaScript will look like	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Declaring Variables, Computational Transactions, Logical Parameters, Control Expressions	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Repetition	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Events + Create Button to Send Email WHILE	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Functions, forms, arrays, objects, literal strings	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	PHP and MySQL	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	PHP and MySQL	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	PHP and MySQL	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name
Network Management
2. Course Code
3. Semester/ Year

Second Semester / Second Grade					
4. Date this description was prepared					
15 / 01 / 2025					
5. Available Forms of Attendance					
Mandatory (theoretical and practical lectures)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives		Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Course overview, Introduction	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Course overview, Introduction	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Network Management Functions and Architecture	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Network Management Functions and Architecture	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Network Management Functions and Architecture	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Network Management Functions and Architecture	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	SNMP & MIB and Data Model & Netconf and YANG	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	SNMP & MIB and Data Model & Netconf and YANG	Lecture & Discussion	Questions & Exercises

Ninth	4	Cognitive-Affective	SNMP & MIB and Data Model & Netconf and YANG	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	SNMP & MIB and Data Model & Netconf and YANG	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Network Flow Analysis and Performance Management & Fault Management and Syslog	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Network Flow Analysis and Performance Management & Fault Management and Syslog	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Network Flow Analysis and Performance Management & Fault Management and Syslog	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Network Task Automation & Autonomous Network Management	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Network Task Automation & Autonomous Network Management	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name

Artificial Intelligence

2. Course Code					
3. Semester/ Year					
Quarterly / sec					
4. Date this description was prepared					
15 / 01 / 2025					
5. Available Forms of Attendance					
Mandatory (theoretical and practical lectures)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives		Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Introduction to Artificial Intelligence	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	The Importance of Data Structures in AI	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Artificial Intelligence Algorithms	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Machine Learning Types of learning (Guided Learning, Undirected Learning, Reinforcement Learning)	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Machine Learning	Lecture & Discussion	Questions & Exercises

			Learning algorithms (e.g., linear regression, decision trees, neural networks)		
Sixth	4	Cognitive-Affective	Machine Learning Model Evaluation and Performance Analysis	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Artificial neural networks Neural Network Architecture	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Artificial neural networks Training Algorithms (Reverse Diffusion Algorithm)	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Artificial neural networks Advanced neural networks (convolutional, repetitive)	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Natural Language Processing Text Analysis	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Natural Language Processing Language Understanding Language Generation	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Computer Vision Detection and Identification Techniques	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Computer Vision Image and video processing Computer Vision Applications	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Augmented Artificial Intelligence	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Ethics and Social Considerations	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	Fundamentals of Database systems 6e
Recommended books and references (scientific (...journals, reports	SQL Notes For Professionals
Electronic References, Websites	

Course Description Form

1. Course Name					
Cyber Security					
2. Course Code					
3. Semester/ Year					
Quarterly / sec					
4. Date this description was prepared					
15 / 01 / 2025					
5. Available Forms of Attendance					
Mandatory (theoretical and practical lectures)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives		Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	The Importance of Cybersecurity	Lecture & Discussion	Questions and Answers

The second	4	Cognitive	Disadvantages of Cybersecurity	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Cybersecurity Objectives Difference Between Information Security, Cybersecurity, and Network Security	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Elements of cybersecurity Key Components of Cybersecurity	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Types of Cyber Attacks Skills needed to learn cybersecurity	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Cybercrimes: their types and causes Dimensions of Cybersecurity (Military, Political, Economic, Legal)	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Mechanisms for achieving cybersecurity	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Cloud Security	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Cloud Security	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Cloud Security	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Viruses	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Malware	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Spyware	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Anti-virus software	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Firewall	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)

Main References (Sources)

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name	
Fundamentals of Ethical Hacking	
2. Course Code	
3. Semester/ Year	
Quarterly / sec	
4. Date this description was prepared	
15 / 01 / 2025	
5. Available Forms of Attendance	
Mandatory (theoretical and practical lectures)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Number of Theoretical Hours (2)	
Number of Practical Hours (2)	
Total Hours (4)	
Total Units (4)	
7. Course administrator's name (mention all, if more than one name)	
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq	
8. Course Objectives	
Course Objectives	<p>Introduce the student to the most important theoretical and applied concepts of databases and their terminology.</p> <p>Dealing with and programming databases in SQL Server</p>

9. Teaching and Learning Strategies

Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students
-----------------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Introduction to Ethical Hacking	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Introduction to Ethical Hacking	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Foot printing and Reconnaissance & Scanning Network	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Foot printing and Reconnaissance & Scanning Network	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Foot printing and Reconnaissance & Scanning Network	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Enumeration & Vulnerability Analysis	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Enumeration & Vulnerability Analysis	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Enumeration & Vulnerability Analysis	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Enumeration & Vulnerability Analysis	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	System Hacking & Malware Threats & Sniffing	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	System Hacking & Malware Threats & Sniffing	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Social Engineering, Denial-of-Service (DoS), Session Hijacking, Evading IDS, Firewalls, and Honey pots	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Social Engineering, Denial-of-Service (DoS), Session Hijacking, Evading IDS, Firewalls, and Honey pots	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Hacking Web Servers and Applications, Hacking Wireless Networks, IoT Hacking, Cloud Computing, Cryptography	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Hacking Web Servers and Applications, Hacking Wireless Networks, IoT Hacking, Cloud Computing, Cryptography	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.

<ul style="list-style-type: none"> • Motivating students and motivating them to participate in the event. • Discussion in lectures. • Additional activities. • Semester exams and physical attendance.
12. Learning and Teaching Resources
Required Textbooks (Methodology, if any)
Main References (Sources)
Recommended books and references (scientific journals, reports...)
Electronic References, Websites

Course Description Form

1. Course Name
Cloud Computing
2. Course Code
3. Semester/ Year
Quarterly / sec
4. Date this description was prepared
15 / 01 / 2025
5. Available Forms of Attendance
Mandatory (theoretical and practical lectures)
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)
7. Course administrator's name (mention all, if more than one name)
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq

8. Course Objectives					
Course Objectives		Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Introduction to Cloud Computing:	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Cloud Service Models	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Cloud Architecture	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Cloud Architecture	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Cloud Providers and Services	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Cloud Security	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	Cloud Storage	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Cloud Networking	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Cloud Application Development	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	Cloud Management and Monitoring	Lecture & Discussion	Questions & Exercises
Eleventh	4	Cognitive-Affective	Cloud Migration	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Emerging Trends in Cloud Computing	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Cloud Providers and Services	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Hands-on Projects and Applications	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Hands-on Projects and Applications	Lecture & Discussion	Questions & Exercises

11. Course Evaluation	
<ul style="list-style-type: none"> • Direct questions and daily exams. • Motivating students and motivating them to participate in the event. • Discussion in lectures. • Additional activities. • Semester exams and physical attendance. 	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if any)	
Main References (Sources)	Fundamentals of Database systems 6e
Recommended books and references (scientific (...journals, reports	SQL Notes For Professionals
Electronic References, Websites	

Course Description Form

1. Course Name
Advanced Databases
2. Course Code
3. Semester/ Year
Quarterly / sec
4. Date this description was prepared
15 / 01 / 2025

5. Available Forms of Attendance					
Mandatory (theoretical and practical lectures)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Theoretical Hours (2) Number of Practical Hours (2) Total Hours (4) Total Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: Eng. Eng. Safaa Mohsen Karim Email: safaa.kareem@atu.edu.iq					
8. Course Objectives					
Course Objectives		Introduce the student to the most important theoretical and applied concepts of databases and their terminology. Dealing with and programming databases in SQL Server			
9. Teaching and Learning Strategies					
Strategy	Lecture Method Laboratory education to acquire practical skills Student Groups (Teamwork) Assignments - Assignments for Students				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit Name or Subject	Learning method	Evaluation Method
The first	4	Cognitive	Selecting from table	Lecture & Discussion	Questions and Answers
The second	4	Cognitive	Selecting from multiple tables	Lecture & Discussion	Questions and Answers
The third	4	Cognitive-Affective	Selecting from multiple tables	Lecture & Discussion	Questions & Exercises
Fourth	4	Cognitive-Affective	Database Design, Creating Booking system Database	Lecture & Discussion	Questions & Exercises
Fifth	4	Cognitive	Database Design, Creating Booking system Database	Lecture & Discussion	Questions & Exercises
Sixth	4	Cognitive-Affective	Aggregate Functions	Lecture & Discussion	Questions & Exercises
Seventh	4	Cognitive	subqueries in SQL	Lecture & Discussion	Questions & Exercises
Eighth	4	Cognitive-Affective	Creation Database Containers	Lecture & Discussion	Questions & Exercises
Ninth	4	Cognitive-Affective	Adding files and deleting	Lecture & Discussion	Questions & Exercises
Tenth	4	Cognitive	What is a DBC	Lecture & Discussion	Questions & Exercises

Eleventh	4	Cognitive-Affective	Create different relationships between tables of on database	Lecture & Discussion	Questions & Exercises
Twelfth	4	Cognitive	Build project and made application programs	Lecture & Discussion	Questions & Exercises
Thirteenth	4	Cognitive-Affective	Build project and made application programs	Lecture & Discussion	Questions & Exercises
Fourteenth	4	Cognitive-Affective	Build project and made application programs	Lecture & Discussion	Questions & Exercises
Fifteenth	4	Cognitive-Affective	Build project and made application programs	Lecture & Discussion	Questions & Exercises

11. Course Evaluation

- Direct questions and daily exams.
- Motivating students and motivating them to participate in the event.
- Discussion in lectures.
- Additional activities.
- Semester exams and physical attendance.

12. Learning and Teaching Resources

Required Textbooks (Methodology, if any)	
Main References (Sources)	Fundamentals of Database systems 6e
Recommended books and references (scientific (...journals, reports	SQL Notes for Professionals
Electronic References, Websites	