

Academic Program Description Form

University Name: AL_Furat AL_Awsat Technical University

Faculty/Institute: Karbala Polytechnic college

Scientific Department: Computer Network and Software Techniques Dept.

Academic or Professional Program Name: Computer Network and Software

Final Certificate Name: Diploma

Academic System: Semester

Description Preparation Date: 10/9/2025

File Completion Date: 18/09/2025

Signature:

Head of Department Name:

Prof.Dr. Wathiq Laftah Abd Ali

Date: 25/09/2025

Signature:

Scientific Associate Name:

Assist.Prof.Dr. Mohammed Fadel Neamha

Date: 25/09/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Name and Signature: Assist.Prof. Ali neamah hasan

Fadil M. Dahir

Prof.Dr. Fadil M.Dahir

Approval of the Dean



**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 Description Guide

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: AL_Furat AL_Awsat Technical University

Faculty/Institute: Karbala Polytechnic college

Scientific Department: Computer network and software Technologies Dept.

**Academic or Professional Program Name: Diploma in computer network
and software**

Final Certificate Name: Diploma

Academic System: Semester

Description Preparation Date: 10/9/2025

File Completion Date: 27/10/2025

Signature:

Head of Department Name:

Prof.Dr Wathiq Laftah Abd_Ali

Signature:

Scientific Associate Name:

Asst.Prof.Dr Mohammed Fadel Neamaha

Date:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Name and Signature: Assest.prof Ali neamah hasan

Prof.Dr Fadil M.Dahir

Approval of the Dean

1. Program Vision

Providing society and the labor market with efficient and distinguished personnel capable of keeping pace with rapid scientific and technological developments in the fields of computer technology and information technology

2. Program Mission

Developing and enhancing the scientific and technical knowledge and skills of students and consolidating the values and ethics of the profession and scientific integrity

3. Program Objectives

1. Preparing technical cadres characterized by high efficiency and professionalism.
2. Keeping pace with technological developments in the fields of computers and smart devices and providing them to students with modern methods.
3. Strengthening the student's confidence in the importance of his specialty and his pioneering role in building a promising future for the nation and future generations.
4. Openness to society and state institutions to find effective technical solutions to some of the problems facing the country and its institutions.
5. Preparing and holding courses, seminars and training programs according to the need of the labor market and state institutions for the purpose of improving institutional performance.
6. Conducting original scientific research that addresses national problems.

4. Program Accreditation

The department has not yet been granted programmatic accreditation

5. Other external influences
nothing

6. Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	4	8	3%	
College Requirements				
Department Requirements	14	116	90%	
Summer Training	1	4	7%	
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2 nd year		Network programming	2	2
2 nd year		Advanced website design	2	2
2 nd year		Advances computer networks	2	2
2 nd year		Sql database fundamentals	2	2
2 nd year		Data security and encryption	2	
2 nd year		Crime of the baath regime in iraq	2	
2 nd year		English for studies and information technology	2	
2 nd year		Arabic language	2	

8. Expected learning outcomes of the program	
Knowledge	
Ability to apply knowledge at work to enter and analyze computer data.	Possessing extensive knowledge
Skills	
_the ability to design a system component or process to meet sustainable constraints	Possessing extensive knowledge
Ability to work within multidisciplinary teams to analyze and solve problems	Possessing extensive knowledge
Ethics	
Ability to communicate effectively in different ways.	Possessing extensive knowledge
The broad education necessary to understand the impact of computer solutions on society and the surrounding environment	Possessing extensive knowledge

9. Teaching and Learning Strategies
*brainstorming *enhancing student participation and interaction

10. Evaluation methods
Daily and quarterly theoretical and practical tests

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant Professor		*			*	
Assistant Professor		*			*	
Lecturer	*				*	
Assistant Lecturer		*			*	
Assistant Lecturer		*			*	
Assistant Lecturer		*			*	
Assistant Lecturer		*			*	
Assistant Lecturer	*				*	

Professional Development
Mentoring new faculty members
Organizing periodic meetings for faculty members in order to enhance their academic knowledge whether at the level of teaching or scientific research methods of dealing with students and classroom management
Professional development of faculty members
Workshops seminars and training programs are held periodically in order to develop the skills and capabilities of faculty members

12. Acceptance Criterion

The applicant of admission to the computer systems technology department programs is required to have an Iraqi preparatory certificate scientific stream or its equivalent and from the scientific stream only
_student admission is subject to the central admission line by the ministry of higher education and scientific research

13. The most important sources of information about the program

Following up on the latest developments in the corresponding scientific departments in reputable international universities in order to benefit from pioneering experiences and update curricula and methods or research teaching and training

14. Program Development Plan

1. Recognize and nurture students with outstanding potential/achievements
2. Developing and improving summer training
3. Improving teaching and learning skills by placing teaching and technical personnel in advanced courses in international universities
4. Continuous development of the department's infrastructure
5. Encouraging teamwork among students
6. Opening the door for appointments in order to increase the number of department teachers in order to fill the acute shortage
7. Developing the department's laboratories by providing them with the latest computers and accessories as well as devices and equipment for computer networks

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	C1	C2	C3	C4
		Network programming		/	/			/	/	/	/	/	/	/	/
		Advanced website design		/	/			/	/	/	/	/	/	/	/
		Advances computer networks		/	/			/	/	/	/	/	/	/	/
		Sql database		/	/			/	/	/	/	/	/	/	/

		fundamental s													
		Data security and encryption													
		Crime of the baath regime in iraq													
		English for studies and information technology													
		English IT													
		Arabic language		/	/			/	/	/	/	/			

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Model: Network Programming

1. Course Name					
Network Programming					
2. Course Code					
3. Semester / Year					
Semesterly / First					
4. Date of Preparation					
19\10\2025					
5. Attendance Type					
Mandatory (Theoretical and Practical Lectures)					
6. Total Study Hours / Total Units					
60 hours / 4 units					
7. Course Instructor Name (if more than one is mentioned)					
Asst. Lec. Maryam Qays Kadhim Name: Email: maryam.kadhim@atu.edu.iq					
8. Course Objectives					
The objectives of the subject material		Provide theoretical and practical knowledge of network programming to make students capable of developing, implementing, managing, and troubleshooting network programming issues in their personal and professional lives.			
9. Teaching and Learning Strategies					
Strategy		➤ Theoretical and Practical Lectures ➤ Identifying and diagnosing problems ➤ Through explanation, exercises, and in-class training ➤ Practical Applications to help students realize how device operating systems, and applications work.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit/Topic Name	Learning Method	Evaluation Method
First - Second	8	Gaining basic knowledge of network programming features, its scope, and the essential tools required.	Introduction to Network Programming: Features, scope, and tools.	Lecture and Discussion	Questions and Answers
Third - Fifth	12	Understanding IP address classifications, addressing methods, and how	Internet Addresses: Classes, methods, and	Lecture and Discussion	Questions and Exercise Solving

		network interfaces function.	network interfaces.		
Sixth - Ninth	16	Acquiring the ability to create and handle URLs/URIs and understanding proxy configurations.	URLs and URIs: Creating and manipulating URLs, proxy settings.	Lecture and Discussion	Questions and Exercise Solving
Tenth - Eleventh	8	Understanding HTTP methods, how to process requests, and the management of cookies.	HTTP Protocol: Methods, request handling, and cookies.	Lecture and Discussion	Questions and Exercise Solving
Twelfth and thirteenth	8	Mastering the implementation of the Client-Server model using both TCP and UDP protocols.	Socket Programming: Client-server model, UDP and TCP applications.	Lecture and Discussion	Questions and Answers
Fourteenth and fifteenth	8	Understanding the RMI framework, defining service interfaces, and setting up remote communication between clients and servers.	Remote Method Invocation (RMI): Service interface and client-server setup.	Lecture and Discussion	Questions and Exercise Solving

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily and oral exams, monthly and written exams, reports, etc.

12. Learning and Teaching Resources

Required Textbooks	An Introduction to Network Programming with Java published by Addison Wesley, 2003
Main References	
Supporting Books and References	
Electronic References, Internet Sites	

Course Description Form

13. Course Name:	
Cloud Computing	
14. Course Code:	
None	
15. Semester / Year:	
Second / Second	
16. Description Preparation Date:	
7/10/2025	
17. Available Attendance Forms:	
Mandatory (theoretical and practical lectures)	
18. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours/2 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Ashraf Sabri Waheed Email: Ashraf.Waheed.ikr@atu.edu.iq	
20. Course Objectives	
Course Objectives	Introducing students to cloud computing concepts, types, and models. • Understand the infrastructure and supporting technologies, such as virtualization and data centers. • Empower students to practically use cloud platforms (AWS, Azure, Google Cloud). • Identify deployment models (public, private, hybrid). • Enhance awareness of information security and privacy in the cloud environment. • Develop skills in designing and evaluating modern cloud solutions.
21. Teaching and Learning Strategies	
Strategy	• Theoretical lecture. • Discussion with and among students.

- Preparation of reports and projects related to the lecture material.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Understand the concept of cloud computing and its types (IaaS, PaaS, SaaS). • Identify the benefits and challenges of using cloud services.	Introduction to Cloud Computing: -Definition and characteristics of cloud computing -History and evolution of cloud computing -Benefits and challenges of cloud computing	Lecture and discussion	Questions and answers
2	2	• Identify cloud service models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). • Understand the usage of each model according to organizational and application needs.	Infrastructure as a Service (IaaS) - Virtualized computing resources over the internet. Platform as a Service (PaaS) - Platforms for application development and deployment Software as a Service (SaaS) - Software applications delivered over the internet	Lecture and discussion	Questions and answers
3-4	4	• Identify cloud deployment	Public Cloud - Cloud services	Lecture and discussion	Questions and answers

		models: Public, Private, Hybrid, and Community. Understand the advantages, disadvantages, and selection criteria for each model.	offered to the general public. Private Cloud - Cloud infrastructure used exclusively by one organization. Hybrid Cloud - Combining public and private cloud environments.		
5	2	- Understand the components of cloud architecture, including servers, storage, networks, and software. - Learn how these components interact to deliver efficient and reliable cloud services.	Key components of cloud architecture - Virtualization - Creating virtual versions of physical resources.	Lecture and discuss	Questions and answers
6	2	- Identify major cloud service providers such as AWS, Azure, and Google Cloud. - Understand the types of services each provider offers and how to choose the appropriate one for different needs.	Overview of major cloud providers (AWS, Google Cloud, Microsoft Azure) - Comparison of services offered by different providers - Understanding cloud service pricing models	Lecture and discuss	Questions and answers
7	2	- Understand the fundamentals of cloud security and associated risks. - Learn about protection techniques such as encryption,	Security challenges in cloud computing - Data protection and privacy in the cloud - Best practices for cloud security	Lecture and discuss	Questions and answers

		identity management, and access control.			
8	2	- Understand the concept of cloud storage and its types (Object, Block, File Storage). - Learn the benefits of cloud storage and how to select the appropriate type based on needs.	Types of cloud storage: block, file, and object storage - Cloud storage providers and services - Data backup and disaster recovery in the cloud	Lecture and discuss	Questions and answers
9	2	- Understand the fundamentals of networking in the cloud and how resources and services are connected. - Learn about virtual networks, firewalls, and traffic management in cloud environments.	- Networking fundamentals for cloud computing - Virtual Private Networks (VPN) in the cloud - Load balancing and auto-scaling	Lecture and discuss	Questions and answers
10	2	- Understand how to design and develop applications for cloud environments. - Learn about cloud development tools, platforms, and	Cloud Application Development:* - Developing applications for the cloud - Microservices architecture	Lecture and discuss	Questions and answers

		best practices to ensure performance and efficiency.			
11	2	- Understand tools and techniques for managing and monitoring cloud resources. - Learn methods for tracking performance, resource usage, and troubleshooting effectively.	Cloud Management and Monitoring: - Tools for managing and monitoring cloud resources - Performance optimization in the cloud - Cost management and optimization	Lecture and discuss	Questions and answers
12	2	- Understand the concept and importance of migrating data and applications to the cloud. - Learn strategies and steps for a smooth and secure migration.	- Strategies for migrating to the cloud - Challenges and best practices for cloud migration - Case studies of successful cloud migrations	Lecture and discuss	Questions and answers
13	2	- Identify emerging trends in cloud computing such as Multi-Cloud, Edge Computing, and AI in the cloud. - Understand the impact of these trends on cloud service and	Emerging Trends in Cloud Computing:* - Edge computing - Internet of Things (IoT) and cloud integration - Future directions and advancements in cloud computing	Lecture and discuss	Questions and answers

		application development.			
14-1	4	• Apply theoretical concepts practically through hands-on projects on databases and cloud platforms. • Develop problem-solving skills and use real tools and technologies in practical environments.	Hands-on Projects and Applications:* - Practical exercises and labs using cloud platforms - Developing and deploying cloud-based applications - Real-world case studies and projects	Lecture and discussion	Questions and answers

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

1. **Thomas Erl et al.** *Cloud Computing: Concepts, Technology & Architecture*, Pearson, 2013.
2. **Rajkumar Buyya et al.** *Cloud Computing: Principles and Paradigms*, Wiley, 2011.
3. **Anthony Velte et al.** *Cloud Computing: A Practical Approach*, McGraw-Hill, 2010.
4. **Barrie Sosinsky.** *Cloud Computing Bible*, Wiley, 2011.
5. **Arshdeep Bahga & Vijay Madisetti.** *Cloud Computing: A Hands-On Approach*, 2014.

Course Description Form

25. Course Name:	
SQL Database Basics	
26. Course Code:	
None	
27. Semester / Year:	
First / Second	
28. Description Preparation Date:	
7/10/2025	
29. Available Attendance Forms:	
Mandatory (theoretical and practical lectures)	
30. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/4 units	
31. Course administrator's name (mention all, if more than one name)	
Name: Ashraf Sabri Waheed Email: Ashraf.Waheed.ikr@atu.edu.iq	
32. Course Objectives	
Course Objectives	Introducing students to database concepts and terminology, and dealing with databases, models, and programming them using SQL • Providing students with a comprehensive understanding of relational database concepts • Understanding the basics of database design and table analysis. • Studying and applying basic SQL commands • Understanding the structure and components of SQL Server Express. • Preparing the student to understand the practical aspects later on in a solid way.
33. Teaching and Learning Strategies	
Strategy	• Theoretical lecture. • Practical lecture. • Discussion with and among students.

- Preparation of reports and projects related to the lecture material.

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	• Understand database concepts and DBMS. • Distinguish between file systems and database systems. • Design a basic ER model. • Create tables and execute basic SQL commands. • Apply keys and relationships to ensure data integrity.	Introduction to Databases • What is a Database? Why use one? • Database-System Applications (real-world use cases) • Purpose and benefits of Database Management Systems (DBMS) • Evolution and brief history of database systems • Overview of Microsoft SQL Server and SQL Server Express editions	Lecture and discuss	Questions and answers
2	4	• Understand database architecture and its levels (three-tier architecture). • Identify database user roles, including the Database Administrator (DBA).	Database Architecture & Roles • Three levels of data abstraction (physical, logical, view) • Database and application architecture	Lecture and discuss	Questions and answers

		Distinguish the responsibilities of each role within a DBMS.	(client-server, multi-tier) - Components of a DBMS - Roles: database users, developers, administrators - Introduction to SQL Server Management Studio (SSMS)		
3	4	- Understand the concept and structure of relational databases. - Identify tables, relationships, and primary keys. - Apply the relational model to design simple databases.	- The relational data model (tables, rows, columns) - Concepts of relations, attributes, tuples, and domains - Relational database examples - Understanding data integrity and redundancy - Overview of Microsoft SQL Server database engine architecture	Lecture and discuss	Questions and answers
4	4	- Identify and use different types of database keys. - Design an appropriate database schema. - Draw and interpret ER and relational diagrams.	- Primary keys, candidate keys, foreign keys, and composite keys - Schema vs. instance - Entity-Relationship (ER) modeling basics - Schema diagrams and their role in design	Lecture and discuss	Questions and answers

			Referential integrity		
5	4	- Understand different database languages (e.g., SQL, DDL, DML). - Distinguish commands for data definition, manipulation, and querying.	- Introduction to SQL and its sublanguages (DDL, DML, DCL, TCL) - SQL vs. Relational Algebra - Transact-SQL (T-SQL) as Microsoft's SQL dialect - Common data types in SQL Server - Structure of basic SQL commands	Lecture and discuss	Questions and answers
6	4	- Understand the fundamentals of relational algebra in databases. - Apply set operations (Union, Intersection, Difference) on tables.	- Basic operators: selection (σ), projection (π), union, set difference - Cartesian product, rename, and joins - Practical use cases of relational algebra - Translating relational algebra into SQL	Lecture and discuss	Questions and answers
7	4	- Understand DDL commands for creating, modifying, and deleting tables. - Apply data constraints to	- CREATE, ALTER, and DROP statements for tables and databases - Defining columns and data types in SQL Server	Lecture and discuss	Questions and answers

		ensure data integrity.	• Default values, identity columns, and constraints • Introduction to constraints: NOT NULL, UNIQUE, DEFAULT		
8	4	• Write basic SQL queries to retrieve data using SELECT. • Use filtering (WHERE), sorting (ORDER BY), and grouping (GROUP BY) clauses.	• SELECT, FROM, WHERE syntax and logic • Filtering with logical operators (AND, OR, NOT) • Sorting with ORDER BY • Column aliases and expressions	Lecture and discuss	Questions and answers
9	4	• Use aggregate functions (SUM, AVG, COUNT, MAX, MIN) on data. • Group and analyze data using GROUP BY and HAVING clauses.	• Aggregate functions: SUM, COUNT, AVG, MIN, MAX • Using GROUP BY and HAVING • Dealing with NULL values in aggregate functions • Combining filtering and aggregation	Lecture and discuss	Questions and answers
10	4	• Write subqueries in SQL statements. • Use set operations (UNION, INTERSECT, EXCEPT) to combine query results.	• Scalar, single-row, and multi-row subqueries • Correlated subqueries and performance considerations • IN, EXISTS, ANY, ALL operators • UNION, INTERSECT,	Lecture and discuss	Questions and answers

			EXCEPT (T-SQL set operators)		
11	4	• Modify table data using INSERT, UPDATE, and DELETE commands. • Apply changes while maintaining data integrity and constraints.	• INSERT, UPDATE, DELETE syntax and rules • Inserting single vs. multiple rows • Updating records based on conditions • Data integrity and referential constraints during updates	Lecture and discuss	Questions and answers
12	4	• Understand different types of table joins (INNER, LEFT, RIGHT, FULL JOIN). • Create and use Views to simplify data retrieval and enhance security.	• Inner, Left, Right, and Full Outer Joins • Cross joins and self-joins • Join conditions and aliasing tables • Creating and using VIEWS as virtual tables • Advantages and limitations of views	Lecture and discuss	Questions and answers
13	4	• Understand the concept of transactions and their importance in databases. • Apply constraints to ensure data integrity, such as PRIMARY KEY, FOREIGN	• Introduction to transactions: BEGIN TRAN, COMMIT, ROLLBACK • The ACID properties (Atomicity, Consistency, Isolation, Durability) • SQL Server's isolation levels • Constraints: PRIMARY KEY, FOREIGN KEY, CHECK,	Lecture and discuss	Questions and answers

		KEY, and CHECK.	DEFAULT, UNIQUE		
14	4	- Understand how to use indexes to improve database query performance. - Learn about access control and user authorization mechanisms.	- Purpose and types of indexes in SQL Server (CLUSTERED, NONCLUSTERED) - How indexing improves performance - Creating and dropping indexes - Authorization: GRANT, REVOKE, and database roles - Basic database security concepts	Lecture and discuss	Questions and answers
15	4	- Summarize and understand all course content and key concepts. - Present a final project demonstrating practical database application.	- Recap of core concepts from all weeks - Review of common SQL errors and debugging techniques - Final project guidance: schema review, query analysis	Lecture and discussion	Questions and answers

35. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- DATABASE SYSTEM CONCEPTS, SEVENTH EDITION by Abraham

- DATABASE SYSTEM CONCEPTS, SEVENTH EDITION by Abraham

1		Emotional and cognitive	
2	2	Emotional and cognitive	
3	2	Emotional and cognitive	
4	2	Emotional and cognitive	
5	2	Emotional and cognitive	
6	2	Emotional and cognitive	
7	2	Emotional and cognitive	
8	2	Emotional and cognitive	
9	2	Emotional and cognitive	
10	2	Emotional and cognitive	
11	2	Emotional and cognitive	
12	2	Emotional and cognitive	
13	2	Emotional and cognitive	
14	2	Emotional and cognitive	
11515	2	Emotional and cognitive	

Distributing the score out of

Required textbooks (curriculum books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.google.com/search?q=speak+now+3+student+books+MgkIBB3FG

Course Description Form

1. Course Name:				
اللغة الإنكليزية لتكنولوجيا المعلومات				
2. Course Code:				
3. Semester / Year:				
السنة الثانية				
4. Description Preparation Date:				
20/9/2025				
5. Available Attendance Forms:				
مباشر				
6. Number of Credit Hours (Total) / Number of Units:				
ساعة 30				
7. Course administrator's name (mention all, if more than one):				
الاسم شهد صالح عبد المهدي Email: shahad1986@atu.edu.iq				
8. Course Objectives				
Course Objective	مع أدراك الذكاء الاصطناعي الهندسة البرمجيات و قواعد البيانات -			
9. Teaching and Learning Strategies				
Strategy				
10. Course Structure				
Week	Hours	Required Learning Outcomes	Unit or subject name	
1	2	Emotional and cognitive	Review & Orientation • Review key grammar from Year 1 (present simple/continuous, past simple) • Icebreakers: Talk about summer experiences or IT internships • Set expectations for academic/professional communication • Diagnostic test to assess current language skills	

2	2	Emotional and cognitive	Grammar – Future Forms (will, going to, present continuous) - Expressing future plans, predictions, and intentions in IT - Differences and appropriate usage Writing: Talk about future technologies or trends in IT	Lecture
3	2	Emotional and cognitive	Technical Vocabulary – IT Specializations - Vocabulary: AI, cybersecurity, software engineering, databases - Matching definitions, categorization tasks • Speaking: Which IT field are you interested in and why?	Lecture
4	2	Emotional and cognitive	Reading – Technical Descriptions Reading longer texts about systems, software, or devices - Identifying main ideas, details, and technical terms - Reading strategies: skimming and scanning	Lecture
5	2	Emotional and cognitive	Writing – Process Descriptions - Writing about IT processes (e.g., “How to install an OS”) - Use of sequence markers (first, then, next, finally) - Linking devices for clarity	Lecture
6	2	Emotional and cognitive	Listening – Lectures and Tutorials - Listening to short lectures on IT topics - Taking guided notes - Answering comprehension questions	Lecture
7	2	Emotional and cognitive	Grammar – Modal Verbs for Advice and Obligation - Must, should, have to, can, may in tech contexts - Giving instructions and recommendations - Role-play: Help a user solve a computer issue	Lecture
8	2	Emotional and cognitive	Speaking – Giving Presentations - Structure of a technical presentation (introduction, body, conclusion) - Phrases for explaining, comparing, and summarizing - Practice with short individual or group presentations	Lecture
9	2	Emotional and cognitive	Technical Vocabulary – Software Development Terms - SDLC stages: analysis, design, coding, testing, maintenance - Verbs: develop, debug, compile, implement - Use in writing and speaking activities	Lecture
10	2	Emotional and cognitive	Reading – Case Studies & Reports - Analyze simplified case studies about IT systems or projects - Identify problems, solutions, and outcomes	Lecture

			• Vocabulary: problem-solving language	
11	2	Emotional and cognitive	Writing – Formal Reports • Structure: title, introduction, findings, conclusion, recommendations • Writing short technical reports (e.g., system performance report) Focus on formal tone and clarity	Lecture
12	2	Emotional and cognitive	Listening & Speaking – Meetings & Discussions • Language for participating in team meetings • Expressing agreement/disagreement, making suggestions • Role-play: Team meeting to discuss a project issue	Lecture
13	2	Emotional and cognitive	Grammar – Passive Voice in IT Contexts • Passive vs. active voice (focus on actions, not who does them) • Use in manuals, technical writing (e.g., "The system was updated...") • Practice in writing and reading tasks	Lecture
14	2	Emotional and cognitive	Vocabulary & Reading – IT Innovations • Explore recent trends: cloud computing, machine learning, IoT • Vocabulary in context: adjectives (efficient, scalable, secure) • Group discussion: What will IT look like in 10 years?	Lecture
15	2	Emotional and cognitive	Final Project & Presentation • Group or individual project: design a solution or explain a system in English • Written component: short report or summary • Oral presentation: 5-10 minutes with slides	Lecture

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	New headway pre-intermediate level Oxford English For Information Technology (English For IT) – Teacher's Book
Main references (sources)	Oxford English For Information Technology (English For IT) – Teacher's Book Santiago Remacha Esteras, 2008, InfoTech Teacher's Book
Recommended books and references (scientific)	

journals, reports...)	
Electronic References, Websites	https://learnenglish.britishcouncil.org/grammar/b1-b2-grammar/b1-b2-grammar-continuous#:~:text=Grammar%20explanation,Ave https://forbytes.com/blog/future-of-education/#:~:text=Big%20Data%20and%20analytics%20tools,facilit

Course Description Form

37. Course Name:	
Information Security and Encryption	
38. Course Code:	
Nothing	
39. Semester / Year:	
Semesters / First semester	
40. Description Preparation Date:	
2025-10-12	
41. Available Attendance Forms:	
Mandatory attendance	
42. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours	
43. Course administrator's name (mention all, if more than one name)	
Name: Hassan Salah Hassan Email: hasan.hasan.ikr@atu.edu.iq	
44. Course Objectives	
Course Objectives	• Introducing students to the basic concepts of information security and its importance in protecting data and systems, raising their awareness of the

	types of security threats and how they affect systems and networks, teaching students the basic principles of encryption, its various types, and how to use it to protect data.
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45. Teaching and Learning Strategies

Strategy	1. Explain the scientific material to students in detail. 2. Involve students in solving questions and assignments. 3. Solve questions using a computer. 4. Discuss and discuss vocabulary related to the topic. 5. Use brainstorming to draw students' attention to the professor. 6. Create a Telegram group for direct communication with students. 7. To engage students, the curriculum is divided into units, and a detailed plan is developed for each unit to help students study in an organized manner. 8. Student evaluation is conducted in various ways, including brainstorming questions, assignments, and daily and weekly tests.
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46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Cognitive and emotional	Introduction Information Security	The concept of information security is defined and distinguished from computer security and network security.	Daily questions and tests
2	2	Cognitive and emotional	Encryption Basics	The concept of cryptography and its importance in information security is defined.	Daily questions and tests
3	2	Cognitive and emotional	symmetric encryption	The concept of symmetric encryption is defined and its basic working mechanism is explained.	Daily questions and tests

4	2	Cognitive and emotional	Asymmetric encryption	The concept of asymmetric encryption is defined and its basic operating principle is explained.	Daily questions and tests
5	2	Cognitive and emotional	Key management	The concept of key management and its importance in an encryption system is defined.	Daily questions and tests
6	2	Cognitive and emotional	Digital Signatures and Certificates	The concept of a digital signature is defined and its working mechanism is explained.	Daily questions and tests
7	2	Cognitive and emotional	Identity verification techniques	It highlights the importance of identity verification in protecting systems and information.	Daily questions and tests
8	2	Cognitive and emotional	Common security threats and attacks	It defines the concept of security threats and explains their various sources.	Daily questions and tests
9	2	Cognitive and emotional	Network security	The concept of network security is defined, along with its importance in protecting data and systems.	Daily questions and tests
10	2	Cognitive and emotional	Application security	The concept of application security is defined, along with its importance in protecting software and data.	Daily questions and tests
11	2	Cognitive and emotional	Data security	The concept of data security is defined along with its importance in	Daily questions and tests

				protecting sensitive information.	
12	2	Cognitive and emotional	Cybersecurity Management	It defines the concept of cybersecurity management and basic objectives	Daily questions and tests
13	2	Cognitive and emotional	Innovations and modern trends in information security	It defines modern information security and explains its importance in confronting evolving threats.	Daily questions and tests

47. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nothing
Main references (sources)	
<i>Cryptography and Network Security: Principles and Practice</i> , 8th Edition, Pearson, 2023.	William Stallings
<i>Security in Computing</i> , 6th Edition, Pearson, 2021	Charles P. Pfleeger & Shari Lawrence Pfleeger
<i>Information Security: Principles and Practice</i> , Wiley, 2021	Mark Stamp
Introduction to Information Security and Cryptography, Dar Al Fikr Al Arabi, 2020	Mahmoud Abdel Fattah
Network Security and Data Protection, King Saud University, 2021	Dr. Nasser Al-Saleh
Electronic References, Websites	

Course Description Form

49.	Course Name:
Switching and Routing in the Network	
50.	Course Code:
51.	Semester / Year:
Semester	
52.	Description Preparation Date:

9/10/2025

53. Available Attendance Forms:

Attendance (Theoretical and Practical lectures)

54. Number of Credit Hours (Total) / Number of Units (Total)

60 Hours

55. Course administrator's name (mention all, if more than one name)

Name: Ammar Jihad Khalaf

Email: ammar.jehad@atu.edu.iq

56. Course Objectives

Course Objectives

The general objectives of this course are to provide theoretical and practical knowledge of the techniques of tasks associated with planning, designing and setting up computer networks of various types, wired and wireless, detecting errors and faults, and providing scientific solutions.

57. Teaching and Learning Strategies

Strategy

Adopting advanced teaching methods to facilitate the explanation of scientific concepts to students, simple examples drawn from everyday life are presented. These examples focus on clarifying scientific concepts by including illustrative and practical examples to enrich the learning experience. A variety of teaching methods are employed, such as lectures, discussions, investigations, and brainstorming, in addition to the use of advanced illustration tools and the display of specialized scientific films within the educational content. To ensure the effective transfer of scientific knowledge, direct communication with students occurs via electronic platforms, allowing them to directly ask questions and inquiries. Modern e-learning methods and approaches are used to enhance the distance learning experience. This comes within the framework of the ongoing efforts to improve the quality of education and provide a supportive and informed learning environment for students.

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	8	• Design secure and efficient network infrastructures. • Configure core switching, routing, and security services. • Troubleshoot common issues across these technologies. • Apply best practices for scalability,	Course overview, Introduction	Lecture Practical lecture Oral discussion	

		redundancy, and protection in enterprise and ISP networks.			
3-5	12	• Design and implement secure, efficient, and redundant Layer 2 networks. • Configure advanced switch features to optimize performance and reliability. • Troubleshoot common switching issues using these protocols and techniques. • Apply best practices for scalability and security in enterprise networks.	Switching operation and techniques (VLAN,STP, Port fast and port forwarding, MAC address sticky, Ether channel)	Lecture Practical lecture Oral discussio	
6-10	20	• Design and implement routing solutions for both small and large-scale networks. • Configure and verify multiple routing protocols in lab or production environments. • Compare protocols based on scalability,	Routing operation and protocols (RIP, OSPF, EIGRP, BGP)	Lecture Practical lecture Oral discussio	

		convergence, and suitability. • Troubleshoot routing problems using protocol-specific tools and commands. • Apply routing best practices for enterprise and ISP-level networking.			
11-1	8	• Automate IP address management with DHCP. • Secure and control traffic using ACLs. • Implement redundancy with HSRP and VRRP for high availability. • Optimize traffic flow and performance using QoS techniques. • Troubleshoot and verify each feature in real-world scenarios.	DHCP, Access list, HSRP and VRRP, QoS parameters	Lecture Practical lecture Oral discussio	
13-1	12	• Explain the role of firewalls in network security. • Differentiate between firewall types and their deployment scenarios. • Configure firewall rules to control traffic effectively.	Firewall operation, protocols and types.	Lecture Practical lecture Oral discussio	

		• Evaluate which firewall type fits specific organizational needs. • Troubleshoot firewall-related connectivity and security issues.			
59. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports					
60. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Not Available		
Main references (sources)			COMPUTER NETWORKING A Top-Down Approach		
Recommended books and references (scientific journals, reports...)			EXAM CRAM CCNA Routing and Switching 200 125		
Electronic References, Websites			https://itexamanswers.net/		