

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



Academic Program and Course Description Guide

2023-2024

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized in the form of academic vocabulary whose main purpose is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market, which is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that are being worked on to acquire for students based on the objectives of the academic program, and the importance of this description is evident because it represents the cornerstone in obtaining program accreditation and is written jointly by the teaching staff under the supervision of the scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments 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 description of the academic program circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna track as the basis for their work.

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

Concepts and terminology:

Academic Program Description: The description of the academic program 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 student to achieve, proving whether he has made the most of the available learning opportunities. It is derived from the description of the program.

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

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 (semester, yearly, Bologna track) whether it is a requirement (ministry, university, college and scientific department) with the number of study units.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by the student 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.

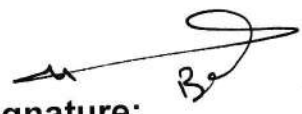
Teaching and learning strategies: They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. Describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description

For colleges and institutes

University Name: Middle Euphrates Technical University
College/Institute: Technical Institute / Samawa
Scientific Department: Department of Information and Communication
Technology
Academic or Professional Program Name: ICT Program
Final Certificate Name: Technical Diploma
Academic System: Yearly
Date of preparation of the description: 9/7/2024
File Filling Date: 10/7/2024

Signature: 
Scientific Associate Name:
Alaa Abd Ali Hadi
Date:

Signature: 
Head of Department:
Baydaa Hadi Al-saoudi
Date:

File Checked by:
Division of Quality Assurance and University Performance
Name of Director of Quality Assurance and University Performance
Division: Eng. Ahmed Abdul Mohsen
Date:
Signature: 



Approval of the Dean

1. Program Vision

The Department of Information Technology seeks to provide the elements of continuous development of education in the field of information technology to keep pace with the rapid scientific and technological developments and improve university performance, and to raise the department's graduates to the level of excellence and high competitiveness, and to complete distinguished scientific research and studies and maximize the role of the department in serving the environment and community development.

2. Program Mission

Preparing a constellation of graduates and researchers with a distinguished style in the field of information and communication technology and facilitating the use of technology and information resources, and this is done through a cadre capable of creating and disseminating knowledge through cooperative societies, in addition to strengthening partnerships that facilitate cooperation between education, industry, and the government on the one hand, and meet the needs of the labor market on the other hand and raise the student to the level of ambition that serves the Iraqi society and its requirements to have Iraq a prominent position among the countries of the world.

3. Program Objectives

The Department of Information and Communication Technology is one of the departments of the Samawa Technical Institute, and works to prepare graduates specialized in information and communication technology, and are able to keep pace with technological progress related to the reality of the local community and Arab society in general.

This section aims to:

1. Providing the local and Arab market with graduates capable of using information and communication technology in building and developing various communication systems.
2. Establishing the theoretical and scientific concepts of information technology sciences based on basic sciences and their importance in methodological methods
3. Providing qualified human cadres to build computer networks and connect them to the Internet
4. Provide the student with the skills and information necessary to work efficiently and effectively in the fields of communication.
5. Work to refine the student's personality and discover his tendencies and talents through scientific, cultural and sports activities.

6. Introducing students to professional ethics, which in turn helps the graduate in facing general challenges and real professional life.
7. Providing the student with the ability to evaluate alternative solutions to the problem under study and decide on the possibility of using information technology in implementing the solution
8. Providing the student with skills and information in the various fields of ICT applications, developing sound attitudes towards productive and positive interaction work with society, and preparing him to practice work in the following areas:
 - Wireless communications and their tremendous developments.
 - ICT-related security and protection applications.
 - Dealing with the latest ways to manage Internet networks and smart control.
 - Teaching all languages in computer programming and how to develop code
 - Apply AI principles and techniques to problem solving and decision-making.

4. Program Accreditation

ABET

5. Other external influences

Is there a sponsor for the program? None

6. Program Structure

Program Structure	Number of Courses	Unit of study	Percentage	Reviews*
Requirements of the institution	20	128	Number of courses / number of units * 100 = 15.625	
College Requirements	20	128	15.625	
Department Requirements	20	128	15.625	
Summer Training	1			
Other				

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

7. Program Description

Year/Level	Course or Course Code	Course Name	Credit Hours	
			theoretical	practical
The first		C++ programming	3	2
The first		Digital Circuits	3	2
The first		Electrical circuits	2	2
The first		Math	2	-
The first		Engineering Drawing	-	3
The first		Computer Application (1)	1	2
The first		English Language	1	-
The first		Democracy and Human Rights	2	-
The first		Mechanical Workshops + Electronic Computer Maintenance Workshop	-	3
The second		Computer Networks	2	2
The second		Computer & Data Security	2	2
The second		Communication Systems	2	3
The second		Computer Architecture	2	2
The second		Programming in Visual Basic	1	3
The second		Information Technology & Internet	1	2
The second		Computer Application (2)	1	3
The second		English Language	1	-
The second		Intelligent Systems	2	-
The second		Project	-	2

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1

Cognitive Objectives

- 1- Managing and operating information storage and processing programs.
- 2- Connecting local information networks.
- 3- Obtaining a huge amount of information by connecting computers with the information network.
- 4- Collecting, processing and broadcasting information inside and outside the country and anywhere in the world.

Skills

Learning Outcomes 2

Program Skills Objectives

- 1 – Converting a lot of indexes into automatic forms.
- 2 – Connecting computer networks.

	3 - Linking and installing the electronic monitoring system.
Learning Outcomes 3	General and qualifying skills transferred (other skills related to employability and personal development). 1- The student should be able to use the computer in design and use the Internet and modern software. 2- Teaching the student some of the laws and theories of mathematics that he needs in the application of laws within the specialization. 3- Introducing the student to the basic international standards of human rights and introducing the student to successful democracy as in the developed world. 4- Teaching the student the basics of using technical English and in dealing with terms within the specialization and writing reports for the results obtained from the use of computers, electronic circuits and various programs.
Values	
Learning Outcomes 4	Emotional and value goals. 1- Supports the concepts of electronic globalization 2- He is proud of his work. 3- The student should realize the importance of using electronic computers, electronic devices and communication devices in the life of societies and the need to know the latest developments in this field. 4- The student is interested in the rules of correct application in the use of electronic devices and various programs.

9. Teaching and Learning Strategies

Theoretical lectures, laboratory experiments, skill acquisition in workshops, **scientific films, use** of interactive smart boards

10. Evaluation methods

1. Daily Tests
2. Classroom activity and participation
3. Semester and final exams
4. Reports

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Preparation of the teaching staff	
	year	special			angel	lecturer
teacher	Computer Science	1. Networks 2 - computer science			4	
Assistant Lecturer	Computer Science	Artificial Intelligence				
Assistant Lecturer	mathematics	Fluids				

Professional Development

Mentoring new faculty members

Involving faculty members in developmental training courses related to the latest developments in their specializations inside and outside the Iraq and also involving them in development courses related to modern teaching methods and the use of blended learning technology in their lectures

Professional development of faculty members

Involving faculty members in developmental training courses related to the latest developments in their specializations inside and outside the Iraq

12. Acceptance Criterion

Admission for both genders

The minimum acceptance rate is determined by the bodies represented by the Central Admission Department at the Ministry of Higher Education and Scientific Research.

13.The most important sources of information about the program

- Books and scientific documents related to the program, as well as through access to the latest scientific devices and films
- The Institute's website and e-mail of the department.

14. Program Development Plan

- Keep up to date with every development in vocabulary by participating in courses.
- Visit educational laboratories.
- Access to the latest modern technology in teaching subjects.
- Preparing courses that develop the ability of trainers in the laboratory so that they can train students more efficiently.
- Providing laboratories with modern programs that keep pace with scientific development in developed countries.

				Learning outcomes required from the program														
Year/Level	Course Code	Course Name	Basic or optional	Knowledge						Skills				Values				
				A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	C1	C2	C3	C4	C5
The second		Internet & Information Technology	assistant		*					*				*	*		*	
		Communication Systems	fundamental					*				*	*			*	*	
		Vogue Basic	assistant			*				*							*	
		Intelligent Systems	assistant					*				*			*		*	
		Computer Networks	fundamental				*				*				*		*	
		Computer & Data Security	fundamental					*			*				*		*	
		Computer Apps2	assistant						*				*			*		
		Computer Architecture	fundamental			*				*							*	
		English2	assistant	*	*					*				*	*			
		Project	assistant							*	*	*		*				

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

Computer Networks

1. Course Name	
Computer Networks / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical + 2 practical = 4 * 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Alaa Abd Ali Hadi Email: alaa@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objective: Providing the student with a skill in network and communication sciences Cognitive goals 1- To introduce the student to the tools and devices involved in building networks. 2- To introduce the student to the types of networks in terms of design. 3- To introduce the student to the rules and laws that control the mechanism of communication between computers. 4- To introduce the student to the open communication systems of computer networks. Course skills objectives. 1- Building computer networks. 2- Learn to manage computer networks. Emotional and value goals 1- The student should know the types of modern networks of different types, importance and tasks they perform. 2- Instilling confidence in the same student in the field of building, maintaining and managing computer networks. 3- Making the student communicate with the outside world. 3- The student should pay attention to the correct rules in building computer networks. 4- The student should learn the maintenance of computer networks. 5- The student should realize the importance of computer networks in various fields.
9. Teaching and Learning Strategies	
Strategy	Theoretical + practical application

10.Course Structure					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1	4	Data communication system :d efinition – basic components of data communication system – the data communication network application of communication Network	Data communication system	Theoreti cal + practical lectures	Editorial + Practical
2	4	Basic communication concept and hard ware: mode of transmission – data flow. Physical connection – timing – standard digit code communication controls. Information separator.	Basic communication concept and hard ware	Theoreti cal + practical lectures	Editorial + Practical
3	4	Modems – definition – type of modems – (optical –short haul- acoustic-smart- Digital –v.34 modem). Wires modem - features of modems . ISDN technology (integrated services digital network)	Modems	Theoreti cal + practical lectures	Editorial + Practical
4	4	Network interfaces card OR network adapter cards – definition – explain how its Work to prepair data .talling & setting up network cards	Network interfaces card OR network adapter cards	Theoreti cal + practical lectures	Editorial + Practical
5	4	Protocol fundamentals: definition – the protocol function in the- Sender and receiver devices. The connection oriented – the connectionless.	Protocol fundamentals	Theoreti cal + practical lectures	Editorial + Practical
6	4	TCP / IP (transmission control protocol / internet protocol). Smtip – ftp – snmp – telnet. Hdlic (high-level data link control) protocol. Ppp (point to point)protocol	TCP / IP (transmission control protocol / internet protocol). Smtip – ftp – snmp – telnet. Hdlic (high-level data	Theoreti cal + practical lectures	Editorial + Practical

			link control) protocol. Ppp (point to point) protocol		
7	4	Arp (address resolution protocol). Rarp (reverse address resolution protocol).	Arp , Rarp	Theoretical + practical lectures	Editorial + Practical
8	4	OSI open system interconnect –definition – the benefits of OSI. The OSI 7 layers – explain each layers – compare between OSI and TCP / IP model.	OSI open system interconnect	Theoretical + practical lectures	Editorial + Practical
9	4	Addressing IP – class full addressing –classless inter-domain routing (Cidr). Network address	Addressing IP – class full addressing – classless inter-domain routing (Cidr). Network address	Theoretical + practical lectures	Editorial + Practical
10	4	Transport layer protocols : UDP (user datagram protocol) & TCP (transmission control protocol). Data link protocol: IP – ARP – ICMP (internet control message Protocol).	Transport layer protocols	Theoretical + practical lectures	Editorial + Practical
11	4	Signal transmission fundamentals - definition. Analog and digital signals Electromagnetic waves.	Signal transmission fundamentals	Theoretical + practical lectures	Editorial + Practical
12	4	Data packets (frames) – definition – explain how to make apackets. Transmission the packets among the networks. Cyclical redundancy check CRC.	Data packets (frames)	Theoretical + practical lectures	Editorial + Practical
13	4	Communication media: circuit media – guided media – twisted Pair cable – coaxial cable – optical fiber.	Communication media	Theoretical + practical lectures	Editorial + Practical
14	4	Un guided media – microwave – satellite transmission.	Un guided media – microwave – satellite transmission.	Theoretical + practical lectures	Editorial + Practical

15	4	The concept of network – benefits of networking – Peer TO peer network – server/client network. The operating system of network.	The concept of network	Theoretical + practical lectures	Editorial + Practical
16	4	Types of network: local area networks LAN – definition – benefits. Characteristics – LAN components (hard ware & software). LAN configurations : baseband & broad band networks	Types of network	Theoretical + practical lectures	Editorial + Practical
17	4	Extended local area network – Wireless LAN bridge – Long range wireless bridge	Extended local area network – Wireless LAN bridge – Long range wireless bridge	Theoretical + practical lectures	Editorial + Practical
18	4	Wide area network – Metropolitan area network.	Wide area network – Metropolitan area network	Theoretical + practical lectures	Editorial + Practical
19	4	LAN (local area networks) protocols - LLC protocol - Wide area network protocol.	LAN (local area networks) protocols - LLC protocol- Wide area network protocol	Theoretical + practical lectures	Editorial + Practical
20	4	Network topology – ring – bus – star – hybrid – Packet data network (PDNs).	Network topology – ring – bus – star – hybrid – Packet data network (PDNs).	Theoretical + practical lectures	Editorial + Practical
21	4	Network interconnectivity – Connecting hybrid networks – bridges – routers – brouters Gateways – repeaters – HUB – switches.	Network interconnectivity – Connecting hybrid networks – bridges – routers – brouters Gateways – repeaters – HUB – switches.	Theoretical + practical lectures	Editorial + Practical
22	4	Network access methods: access methods – explain CSMA / CA, CSMA / CD Explain the demand priority.	Network access methods:	Theoretical + practical lectures	Editorial + Practical

23	4	Token passing : explain the token passing – Token ring network	Token passing	Theoretical + practical lectures	Editorial + Practical
24	4	Routable and no routable protocol : Dynamic routing fundamentals, Autonomous system (AS) - Routing protocol type .	Routable and no routable protocol	Theoretical + practical lectures	Editorial + Practical
25	4	IP Address class – private IP address-Dynamic NAT Static NAT Over loading NAT	IP Address class – private IP address-Dynamic NAT Static NAT Over loading NAT	Theoretical + practical lectures	Editorial + Practical
26	4	Switching concept - Sending and receiving frames using switch.	Switching concept	Theoretical + practical lectures	Editorial + Practical
27	4	Multiplexer- functions-techniques- frequency-division Multiplexing – Time division multiplexing (TDM) Statical time division multiplexer (STDM)	Multiplexer-functions-techniques-frequency-division Multiplexing – Time division multiplexing (TDM) Statical time division multiplexer (STDM)	Theoretical + practical lectures	Editorial + Practical
28	4	Wireless network : definition – System interconnection – wireless LANs – Wireless WANs -	Wireless network	Theoretical + practical lectures	Editorial + Practical
29	4	Ethernet network fundamentals : Ethernet types (10 base f- 10 base T- 10 base2 – 10 base5)	Ethernet network fundamentals	Theoretical + practical lectures	Editorial + Practical
30	4	Dynamic host configuration protocol (DHCP) -	Dynamic host configuration protocol (DHCP) -		Editorial + Practical

11. Course Evaluation	
Discussion + exams (daily - quarterly - final) , reports	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	None
Main references (sources)	❖ Introduction to Computer Networks / Dr. Mahmoud Iskandarani ❖ Intranets / Infrastructure ❖ Dr. Ammar Khair Bey / Eng. Hossam Al-Mulhim ❖ data communications and N.W fundamentals using novel NetWare Emilio Ramos , al Schroder ,Ann Buhler
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Intelligent Systems

1. Course Name	
Smart Systems / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical = (2 * 30) = 60 annual hours	
7. Course administrator's name (if more than one name)	
Name: Hamed Mahmoud Email: hamid.shakir.isa5@atu.edu.iq	
8. Course Objectives	
Course Objectives	- The student should be able to know the applications of smart systems and their uses in scientific life - Learn the basic rules of intelligent systems and learn about the basic programming languages used Smart Systems Cognitive goals 1- Knowing the importance of smart systems through examples. 2- A detailed explanation of the applications of smart systems with examples. 3- Studying the types of programming languages used in smart systems. 4- Understand how to represent and implement smart systems in a computer. Course skills objectives. 1 – Develops the student's skill in solving the problem and writing solution algorithms. 2 – Trains to download C++ on the computer. 3- Compare through programming sentences between C and C++. Emotional and value goals 1- Aware of the importance of identifying the types of smart systems in order to keep pace with the development in the digital world That affected the development of his country. 2- Convinced of the importance of this and urges him to strive to develop his scientific level.
9. Teaching and Learning Strategies	
Strategy	Teach the student to write steps to make a system in a field with writing an algorithm.

10.Course Structure					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1-2	2 per week	Introduction	Introduction	Theoretical lectures	editorial
3	2 per week	Artificial Network (introduction, historical view)	Artificial Network	Theoretical lectures	editorial
4-6	2 per week	The neuron - Biological neuron - Simulated neuron - Types of nonlinearities	The neuron	Theoretical lectures	editorial
7-8	2 per week	Types of ANNs (Artificial Neural Network) - Feed forward ANNs - Feedback NNs Supervised and unsupervised ANNs	Types of ANNs (Artificial Neural Network)	Theoretical lectures	editorial
9-11	2 per week	Learning Algorithms - Basic Delta Rule - Back propagation - Counter propagation Associative memory	Learning Algorithms	Theoretical lectures	editorial
12-13	2 per week	Architectures - Hopfield NN - Kohonin NN - Carpenter and Grossberg Neocognitron	Architectures	Theoretical lectures	editorial
14-15	2 per week	Applications Image processing and classification	Applications	Theoretical lectures	editorial
16	2 per week	Introduction to Fuzzy logic	Introduction to Fuzzy logic	Theoretical lectures	editorial

17	2 per week	Fuzzy algorithms	Fuzzy algorithms	Theoretical lectures	editorial
18-19	2 per week	Fuzzy sets: - Continues fuzzy sets Discrete Fuzzy sets	Fuzzy sets	Theoretical lectures	editorial
20-21	2 per week	Logical operation - Fuzzy intersection - Fuzzy implication Fuzzy union	Logical operation	Theoretical lectures	editorial
22	2 per week	Compositional rule of inference (continuous and discrete)	Compositional rule of inference (continuous and discrete)	Theoretical lectures	editorial
23	2 per week	Defuzzification	Defuzzification	Theoretical lectures	editorial
24	2 per week	Introduction and historical view of Genetic Algorithms	Introduction and historical view of Genetic Algorithms	Theoretical lectures	editorial
25-26	2 per week	Component of Genetic algorithm - Selection method Operators	Component of Genetic algorithm	Theoretical lectures	editorial
27	2 per week	• Crossover • Mutation	• Crossover • Mutation	Theoretical lectures	editorial
28	2 per week	- Parameters of GA - GA and search method	- Parameters of GA - GA and search method	Theoretical lectures	editorial
29-30	2 per week	-Genetic programming -Applications	-Genetic programming -Applications	Theoretical lectures	editorial

11. Course Evaluation

Daily Tests / Classroom Activity and Participation / Semester Exams

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	1. Jaeeek M.Zurada, "Introduction to Artificial Neural Systems", 1996
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Programming in Visual Basic and Access databases

1. Course Name	
Programming in Visual Basic and Access databases / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1 theoretical + 3 practical = 4 * 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Beida Hadi Mohamed Email: ins.byd44@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objective: The student acquires the skills of writing programs in Visual Basic, using Access databases, and how to link the two. Cognitive goals 1- The student can write program codes in Visual Basic and how to manage and modify them. 2- The student creates different applications using the Visual Basic code. 3- The student connects the programs with the various practical applications through the Visual Basic environment. Course skills objectives. 1 - The student can manage the windows of programs operating with the Windows system and how to deal with them. 2 – The student learns to control applications through the Visual Basic code. 3 – The student links the programs created by Visual Basic with practical applications. Emotional and value goals 1- Theoretical lectures. 2- Applied skills within the laboratory. 3- Discussion in the classroom.
9. Teaching and Learning Strategies	
Strategy	- Presentation of lectures by data show. - Use smart blackboards. - Discussions and seminars that students are assigned to prepare. - Reports for various topics that students are assigned to prepare.

10.Course Structure					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1	4	How to install the program vb.6 /Getting to know the program window VB.6 environment How to choose new project /Project naming and storage	How to install VB.6 / Familiarize yourself with the program window	Theoretical + practical lectures	Editorial + Practical
2	4	The menu bar (file,edit,view,help... etc.) /Few functions to programming (debug,run,project... etc.)	The menu bar	Theoretical + practical lectures	Editorial + Practical
3	4	Learn about the contents of the toolbar and the tasks of each tool	Learn about the contents of the toolbar and the tasks of each tool	Theoretical + practical lectures	Editorial + Practical
4	4	How to show the properties window/ how to set properties for each object and the importance of setting properties	How to show the properties window/ how to set properties for each object and the importance of setting properties	Theoretical + practical lectures	Editorial + Practical
5	4	Learn about the tools in the tool box and the function of each tool / how to move each tool and put it on the form The project explorer	Learn about the tools in the toolbox	Theoretical + practical lectures	Editorial + Practical
6	4	Setting properties Setting properties of object at design time Setting objects properties when designing	Setting characteristics	Theoretical + practical lectures	Editorial + Practical
7	4	Related properties /command buttons /text boxes Checkbox /combo box	Related properties	Theoretical + practical lectures	Editorial + Practical
8	4	Control events/ events procedure(code) Events procedure structure Setting properties at run time	Control events/ events procedure(code) Events procedure structure Setting	Theoretical + practical lectures	Editorial + Practical

			properties at run time		
9	4	Creating new visual basic project Learn about the basic steps in creating a new project through the application of creating a simple project Project "hello"	Learn about the basic steps in creating a new project	Theoretical + practical lectures	Editorial + Practical
10	4	Variables and constants / constants and variables and their importance Rules used in naming variables Rules used in naming variablesData types Variables and their types	Constants and variables and their importance	Theoretical + practical lectures	Editorial + Practical
11	4	Variables declaration by using dim statement Declare variables using the dim statement and how to clarify the data type and point the name of the variable /Constants /comment statements the	declare variables using dim	Theoretical + practical lectures	Editorial + Practical
12	4	Example: build the Computer program Build a Computer model with an indication of the importance of having the val function	Example	Theoretical + practical lectures	Editorial + Practical
13	4	Building a speed measurement model example (speed program) With an indication of the importance of the presence of the str function in the application	Building a speed measurement model example (speed program) With an indication of the importance of the presence of the str function in the application	Theoretical + practical lectures	Editorial + Practical

14	4	Visual basic statement –visual basic branching – if statements 1- The if/then statement 2-the if/then/else/end if block 3- the if/then/else if/then/else/end if block	Visual Basic statement	Theoretical + practical lectures	Editorial + Practical
15	4	Loops statements in visual basic For....next loop Rotary for its general formula and how it works	Loops statements in visual basic	Theoretical + practical lectures	Editorial + Practical
16	4	Do while/loop---do until/loop---do/loop while---do/loop untile Build a template for each app	Do while/loop---do until/loop---do/loop while---do/loop untile	Theoretical + practical lectures	Editorial + Practical
17	4	Input box functions/ Example (build the input box program to find average of 10 Degree	Input box functions	Theoretical + practical lectures	Editorial + Practical
18	4	General formula for msgbox functions / Example (build the msgbox to end the program)	msgbox functions	Theoretical + practical lectures	Editorial + Practical
19	4	Mid functions /instr functions /val functions /mod functions Str functions / like functions /len functions The general formula for each function with an application for each case	Mid functions /instr functions /val functions /mod functions Str functions / like functions /len functions	Theoretical + practical lectures	Editorial + Practical
20	4	Arrays and how to define them in the program/ single arrays: Read a single matrix consisting of a certain number of one dimension elements and then find the sum of even elements.	Holiday Inn Residence	Theoretical + practical lectures	Editorial + Practical

21	4	two dimension array It defines a two-dimensional matrix consisting of 5 columns and 5 rows, finds the largest number in the matrix and finds the sum of the diagonal axis of the two dimension array It defines a two-dimensional matrix consisting of 5 columns and 5 rows, finds the largest number in the matrix and finds the sum of the diagonal axis of the matrix	two dimension array	Theoretical + practical lectures	Editorial + Practical
22	4	Understanding access basics /getting started with a data base Identifying parts of the access screen/working with objects/ Working with tables/working with multiple tables/editing records in tables	Understanding access basics /getting started with a data base Identifying parts of the access screen/working with objects/ Working with tables/working with multiple tables/editing records in tables	Theoretical + practical lectures	Editorial + Practical
23	4	Adding and editing data(adding and deleting records in tables)/using editing command/adding records with a form/ Printing a form/editing data in a form	Adding and editing data	Theoretical + practical lectures	Editorial + Practical
24	4	Finding and sorting records /using the find commands/Find records using match case and any part of field Find records using the asterisk(*) Find records using the question mark (?) /sorting records	Finding and sorting records	Theoretical + practical lectures	Editorial + Practical

25	4	Adding tables to a database/creating table using wizard Creating tables in design view / Creating tables in datasheet view	Adding tables to a database/creating table using wizard Creating tables in design view / Creating tables in datasheet view	Theoretical + practical lectures	Editorial + Practical
26	4	Adding forms to a database /creating auto forms Using the form wizard / creating form in design view Creating a form from tables window	Adding forms to a database /creating auto forms Using the form wizard / creating form in design view Creating a form from tables window	Theoretical + practical lectures	Editorial + Practical
27	4	Getting information from a database /Designing queries /using joins and relationships	Getting information from a database /Designing queries /using joins and relationships	Theoretical + practical lectures	Editorial + Practical
28	4	Creating a multiple table query Creating relationships :(one to one) (many to many) (one to many)	Creating a multiple table query Creating relationships	Theoretical + practical lectures	Editorial + Practical
29-30	4	Create a program in the Visual Basic language and link it with a database built using rules Access data An example of this is an electronic library system.	Create a program in the Visual Basic language and link it with a database built using rules Access Data	Theoretical + practical lectures	Editorial + Practical

11.Course Evaluation

- 1- Pre- and post-exams for each subject.
- 2- Evaluation of the student's activities for various topics periodically.
- 3- Evaluate students for the projects they are assigned to.
- 4- Final exams for a set of study modules and periodically.

12.Learning and Teaching Resources

Required textbooks (methodology, if any) **None**

Main references (sources)	❖ Microsoft Visual Basic 6.0professional. , Michelle Halverson, 1998 ❖ Visual Basic 6.0 Dr . Yahya Sabri Al-Halabi Mohamed Bilal Al-Zoubi ❖ Visual Basic 6 programming data base, translated and prepared by Dr. Aziz Esber / Dr. Ali Suleiman
Recommended books and references (scientific journals, reports...)	Books in the Central Library of t Institute
Electronic References, Websites	Different sources of the Internet

English Language

1. Course Name	
English Language / Second Stage	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1 theoretical = 1 * 30 weeks = 30 hours per year	
7. Course administrator's name (if more than one name)	
Name: Suad Abdel Allah Email :	
8. Course Objectives	
Course Objectives	The student's review of the simplified basic rules of the English language, which he has already studied in the previous stages, but at length, as well as gradually introducing the student to the atmosphere of technical I terms related to technological specialization in its various branches. Cognitive goals 1- Introducing the student to English grammar. 2- Introducing the student to the most important vocabulary of the Eng language. Course skills objectives. 1 – English speaking skills. Emotional and value goals 1- Theoretical lectures. 2- Discussion in the classroom.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures + practical dialogue

10. Course Structure					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1-2	1	What is your name? What is this in English? Translation Every day English Plurals	What is your name? What is this in English? Translation Every day English Plurals	Theoretical lectures	editorial
3-4	1	Countries Pronunciation Cities and countries Where are you from? reading listening Translation	Countries Pronunciation Cities and countries Where are you from? reading listening Translation	Theoretical lectures	editorial
5-6	1	Jobs ,negatives Address , trans pronunciation , listening , reading	Jobs ,negatives Address , trans pronunciation , listening , reading	Theoretical lectures	editorial
7-8	1	The family possessive s listening vocabulary pronunciation translation	The family possessive s listening vocabulary pronunciation translation	Theoretical lectures	editorial
9-10	1	Sports present simple transition vocabulary and pronunciation	Sports present simple transition vocabulary and pronunciation	Theoretical lectures	editorial
11-12	1	The time present simple negative translation vocabulary listening writing	The time present simple negative translation vocabulary listening writing	Theoretical lectures	editorial
13-14	1	Object pronouns listening vocabulary translation reading	Object pronouns listening vocabulary translation reading	Theoretical lectures	editorial
15-16	1	Furniture pronunciation prepositions reading and writing translation directions	Furniture pronunciation prepositions reading and writing translation directions	Theoretical lectures	editorial

17-18	1	Saying yers writing past simple irregular verbs translation vocabulary word groups	Saying yers writing past simple irregular verbs translation vocabulary word groups	Theoretic al lectures	editorial
19-20	1	Past simple regular verbs pronunciation irregular verbs listening translation vocabulary reading everyday English	Past simple regular verbs pronunciation irregular verbs listening translation vocabulary reading everyday English	Theoretic al lectures	editorial
21-22	1	Activities listening pronunciation requests and offers translation vocabulary everyday English	Activities listening pronunciation requests and offers translation vocabulary everyday English	Theoretic al lectures	editorial
23-24	1	Translation reading writing pronunciation every day English	Translation reading writing pronunciation every day English	Theoretic al lectures	editorial
25-26	1	Colours present continuos present simple and present continuous translation reading vocabulary everyday English	Colours present continuos present simple and present continuous translation reading vocabulary everyday English	Theoretic al lectures	editorial
27-30	1	Present continuous for future listing pronunciation translation vocabulary reading and listening everyday English	Present continuous for future listing pronunciation translation vocabulary reading and listening everyday English	Theoretic al lectures	editorial

11.Course Evaluation

Daily Tests , Classroom Activity and Participation , Semester Exams

12.Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	1. Jaeek M.Zurada, "Introduction to Artificial Neural Systems", 1996
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Communication Systems

1. Course Name	
Communication Systems / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical +2 practical = 4 * 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Ahmed Abdul Kazem Email: hamid.shakir.isa5@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objective: Teaching students and giving them an overview of modern communication systems, including the basics of communications, the concepts of waves, satellites, transmission lines, modern telecommunications networks, and future developments of these systems and international bodies regulating them. Cognitive goals 1- Identify communication systems and their importance through examples. 2- Sees how the transmitter and reception system works in detail. 3. Be able to extract important information from signals transmitted through outer space. 4- Forming a picture of the methods of communication via mobile as well as via satellite . 5. Examine the obstacles to the transmission of information through outer space. Course skills objectives. 1- Comparison between different communication systems through their quantitative properties. 1- Training on loading the radio signal with capacitive and frequency modulation systems.3- Provide them with practical problem-solving skills related to various communication systems and computer programs for communication systems. Emotional and value goals 1- Increasing the student's ability to think about ways to deal with modern communication devices. 2- Helping the student to think about the importance of frequency, energy and power of the wave and time periods.
9. Teaching and Learning Strategies	
Strategy	1- The teacher gives detailed theoretical lectures and compares them with practical experiences. 2- The teacher requests periodic reports on the basic topics of the subject. 3- The teacher forms discussion panels from students to solve the required problems and exercises.

10.Theoretical Course Structure

The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1-3	2	<u>Introduction</u> Introduction to communication systems, classification of signals and systems, review of Fourier's series, Fourier transforms, frequency and impulse responses of linear systems, Fourier transform properties.	Introduction	Theoretical + practical lectures	Daily exam
4-5	2	<u>Noise</u> Types of noise, noise figure, S/N ratio, noise temperature.	Noise	Theoretical lectures	Daily exam
6-9	2	The concept of embedding - the concept of coding information and techniques used several signals on one channel - patterns of data transmission - explaining the concept of waves, their characteristics and methods of propagation, and reviewing antennas and their properties as a means of capturing or radiating waves.	The concept of inclusion	Theoretical lectures	Daily exam
10-13	2	Addressing transmission lines, including: types of wired and wireless transmission lines as one of the basic components of any communication and signal transmission system, with an	Addressing transmission lines	Theoretical lectures	Daily exam

		explanation of the basics of transmission lines and their general characteristics - the concept of optical cable and how to include and transmit the signal in it and general characteristics - explaining the concept of networks and how modern networks and communications are classified.			
14-17	2	- Wireless communication systems: an overview of their development - Explain the most important systems of modern wireless communication networks, their components, functions, characteristics, practical and security applications provided by these systems. - Addressing the most important types of modern communications, including smart transport networks and networks of high platform stations. - Presenting the international bodies concerned with supervising the organization and	Wireless Communication Systems	Theoretical lectures	Daily exam

		development of modern communication technologies according to unified standards and standards, and giving a historical overview of the International Telecommunication Union with mentioning its objectives and tasks.			
18-20	2	<u>Pulse Modulation</u> Sampling theorem, Pulse Amplitude Modulation (PAM), Time Division Multiplexing (TDM), Pulse Position and Pulse Width Modulation (PPM and PWM).	Pulse Modulation	Theoretical lectures	Daily exam
21-26	2	<u>Digital Modulation</u> Pulse Code Modulation (PCM), noise consideration in PCM system, S/N performance of PCM, Limitation and Modifications of PCM, Amplitude Shift Keying (ASK), FSK, PSK, Coherent and Nontolerant Detection, Differential PSK (DPSK), QAM, QPSK, MSK, MFSK, Comparison between performance of Digital Modulation types, Band Width Efficiency, Power Spectra of Modulated Signals, and Carrier Recovery.	Digital Modulation	Theoretical lectures	Daily exam
27-30	2	<u>Antenna</u>	Antenna	Theoretical lectures	Daily exam

		Definition of antennas, types of antennas, main properties of antenna, radiation pattern (directivity, gain, efficiency, half-power, polarization), Array antennas.			
Course Structure - Practical					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1	2	LPF & HPF Passive and Active Circuits Design.	LPF & HPF Passive and Active Circuits Design.	Experiment	Daily exam
2	2	BPF & BSF Passive and Active Circuits Design.	BPF & BSF Passive and Active Circuits Design.	Experiment	Duty to report
3	2	Amplitude Modulation (AM) Circuit.	Amplitude Modulation (AM) Circuit.	Experiment	Duty to report
4	2	AM Detection Circuit.	AM Detection Circuit.	Experiment	Duty to report
5	2	Generation of DSB-SC Amplitude Modulation (Cowan Modulator Circuit).	Generation of DSB-SC Amplitude Modulation (Cowan Modulator Circuit).	Experiment	Duty to report
6	2	Generation of DSB-SC Amplitude Modulation (Ring Modulator Circuit).	Generation of DSB-SC Amplitude Modulation (Ring Modulator Circuit).	Experiment	Duty to report
7	2	SSB- SC Amplitude Modulation & Demodulation.	SSB- SC Amplitude Modulation & Demodulation.	Experiment	Duty to report
8	2	DSB/ SSB AM Transmitter.	DSB/ SSB AM Transmitter.	Experiment	Duty to report
9	2	DSB/ SSB AM Receiver.	DSB/ SSB AM Receiver.	Experiment	Duty to report

10	2	Frequency Modulation (FM) Circuits.	Frequency Modulation (FM) Circuits.	Experiment	Duty to report
11	2	FM Demodulation Circuits.	FM Demodulation Circuits.	Experiment	Duty to report
12	2	Pulse Amplitude Modulation & Demodulation (PAM).	Pulse Amplitude Modulation & Demodulation (PAM).	Experiment	Duty to report
13	2	Pulse Position Modulation & Demodulation (PPM).	Pulse Position Modulation & Demodulation (PPM).	Experiment	Duty to report
14	2	Pulse Width Modulation & Demodulation (PWM).	Pulse Width Modulation & Demodulation (PWM).	Experiment	Duty to report
15	2	Delta Modulation & Demodulation (DM).	Delta Modulation & Demodulation (DM).	Experiment	Duty to report
16	2	Digital Time Division Multiplexing & DE multiplexing (TDM).	Digital Time Division Multiplexing & DE multiplexing (TDM).	Experiment	Duty to report
17	2	Pulse Code Modulation & Demodulation (PCM).	Pulse Code Modulation & Demodulation (PCM).	Experiment	Duty to report
18	2	Differential Pulse Code Modulation & Demodulation (DPCM).	Differential Pulse Code Modulation & Demodulation (DPCM).	Experiment	Duty to report
19	2	Amplitude Shift Keying Modulation & Demodulation (ASK).	Amplitude Shift Keying Modulation & Demodulation (ASK).	Experiment	Duty to report
20	2	Frequency Shift Keying Modulation & Demodulation (FSK).	Frequency Shift Keying Modulation & Demodulation (FSK).	Experiment	Duty to report
21	2	Phase Shift Keying Modulation & Demodulation (PSK).	Phase Shift Keying Modulation &	Experiment	Duty to report

			Demodulation (PSK).		
22	2	Differential Phase Shift Keying Modulation & Demodulation (DPSK).	Differential Phase Shift Keying Modulation & Demodulation (DPSK).	Experiment	Duty to report

11.Course Evaluation

- 1- Daily pre- and post-tests?
- 2- Classroom activity and participation.
- 3- Semester exams.
- 4- Apply the group system in solving daily exercises.
- 5- Feedback method through self-correction of errors.

12.Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Computer Applications (2)

1. Course Name	
Computer Applications / Second Stage	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1 Theoretical +3 Practical = 4* 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Liqa Tariq Hadi Email: lqaa.hadi@atu.edu.iq	
8. Course Objectives	
Course Objective	General Objective: For the purpose of teaching some of the vocabulary of the digital culture curriculum for computers and the Internet ICDL, which is adopted in all developed countries, as it includes computer basics, Microsoft Office applications, and applications Internet (networks – Internet – e-mail) Cognitive goals 1- The student can write Excel, Access and PowerPoint applications and how to manage and modify them. 2- The student creates different realistic practical applications with the help of Microsoft programs. 3- The student links between different computer programs and Microsoft applications for various fields of knowledge. Course skills objectives. 1 - The student can manage the program windows for Excel, Access and PowerPoint applications and how to deal with them. 2 – The student learns to control applications through regular interfaces and through the application development environment Embedded in Microsoft Office applications. 3 – The student links between the different applications of Microsoft Office and practical applications in various Areas that use database systems. Emotional and value goals 1- Qualifies the student to be a mentor and teacher in the subject referred to in this description. 2- Enabling the student to be a productive element in the field of information technology in the field of database applications and electronic spreadsheet systems.
9. Teaching and Learning Strategies	
Strategy	1- View lectures by Data Show. 2- Use smart blackboards. 3- Discussions and seminars that students are assigned to prepare. 4- Reports for various topics that students are assigned to prepare./ Preparation applied projects by learners

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1-9	4	-Microsoft Excel - Hierarchical Excel environment, running Excel program, bars and tools, books and worksheets, tool box controls , opening a new document. - Forms and controls: Create forms, add the following controls: text box - combo box - list box - command button - radio button - select button - use controls to enter and manipulate information (data), save worksheet, add and delete cells. - Dealing with the application of Excel formulas: using and making formulas, mathematical effects, sequence of operations, comparison effects, reference effects, methods of writing the formula and beautifying and formatting the worksheet. -Charts: Dealing with Charts Object - How to import data from databases: Work with databases and Access application. - Create a project that covers all the vocabulary of the study plan for Excel	-Microsoft Excel -Forms and controls -Forms and controls -Dealing with the application of Excel formulas -Charts -How to import data from databases - Create a project that covers all the vocabulary of the study plan for Excel - Typical test on the computer machine for Microsoft Excel and questions for review.	Theoretical lectures + practical exercises	Practical evaluations

		- Typical test on the computer machine for Microsoft Excel and questions for review.			
10-15	4	Microsoft Power Point	Microsoft Power Point	Theoretical lectures + practical exercises	Practical evaluations
16-22	4	Microsoft Access	Microsoft Access	Theoretical lectures + practical exercises	Practical evaluations
23-26	4	Computer Networks	Computer Networks	Theoretical lectures + practical exercises	Practical evaluations
27-30	4	Internet & E-mail	Internet & E-mail	Theoretical lectures + practical exercises	Practical evaluations

11. Course Evaluation

- 1- Pre- and post-exams for each subject.
- 2- Evaluation of the student's activities for various topics periodically.
- 3- Evaluate students for the projects they are assigned to.
- 4- Final exams for a set of study modules and periodically.

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Computer Architecture

1. Course Name	
Architectural / Second Phase	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 Theoretical + 2 Practical = 4 * 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Rowaida Fadel Email: ins.rod@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objective: Introducing the student to the components of the microcomputer and microprocessors and how to program and use them. Cognitive goals 1- Identify the components of the computer and their importance through structural charts. 2- See a detailed explanation of the components of the computer with practical examples. 3- The processor studies 8085 through complete detailed diagrams. 4- Understands how the computer represents and implements the programming sentence inside the computer. Course skills objectives. 1 – Develops the skill of the concept of computer components. 2 – Trains on data transfer instructions and addressing instructions. 3- Compare the set of instructions and the difference between data transfer instructions and arithmetic and logical instructions and addressing instructions. Emotional and value goals 1- Aware of the importance of learning computer work technology in order to keep pace with the development in the digital world and the impact of So on his own development. 2- He is convinced of the importance of this in line with the level of his love for his country.
9. Teaching and Learning Strategies	
Strategy	- Teaching the student to write the steps of the instructions for transferring the contents of a record to the stack, for example, or moving the contents of the memory site that the stack points to the lower-ranking register, and then a practical example is taken of this. - The student is trained on the processes of adhaling, output and interruptions in the computer with practical examples of this.

10. Course Structure - Theoretical					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1	2	A quick review of numerical systems and their importance for microcomputers - transfers between systems.	A quick review of numerical systems and their importance for microcomputers - transfers between systems.	Theoretical lectures	editorial
2	2	Definition of microcomputers - definitions of microComputer terms: bit - byte - instruction - program - software - high-level languages - low-level languages - assembly language - machine language.	Definition of microcomputers - definitions of microComputer terms	Theoretical lectures	editorial
3	2	MicroComputer architecture - MicroComputer mass chart - Nawafel system (data carrier - address carrier - control carrier).	MicroComputer architecture - MicroComputer mass chart - Nawafel system (data carrier - address carrier - control carrier).	Theoretical lectures	editorial
4	2	Memory - Main memory - ROM-only memory - ROM-comparison - auxiliary memory and the difference between them and main memory.	Memory - Main memory - ROM-only memory - ROM-comparison - auxiliary memory and the difference between them and main memory.	Theoretical lectures	editorial
5	2	CPU - Microprocessor - Definition - Block diagram showing the microprocessor architecture - Microprocessor 8085. Terminal diagram and block diagram - data bus bumpers - address bus bumpers and a comparison between them.	CPU - Microprocessor - Definition - Block diagram showing the microprocessor architecture - Microprocessor 8085. Terminal diagram and block diagram - data bus bumpers - address bus bumpers and a comparison between them.	Theoretical lectures	editorial

6	2	Registers, their types and use- Calculation and logic unit - Flag register - Microprocessor notification 8085 - Utility of the flag register. Program counter IP Stack indicator SP - Instruction log- Command coder - Controller.	Registers, their types and use- Calculation and logic unit - Flag register - Microprocessor notification 8085 - Utility of the flag register. Program counter IP Stack indicator SP - Instruction log- Command coder - Controller.	Theoretical lectures	editorial
7	2	Microprocessor Instructions 8085 – Characteristics of Directives. What is meant by addressing and its types in the 8085 processor. And the types of Operand (triple - binary - mono - zero)	Microprocessor Instructions 8085 – Characteristics of Directives. What is meant by addressing and its types in the 8085 processor. And the types of Operand (triple - binary - mono - zero)	Theoretical lectures	editorial
8	2	Data Transfer Group Instructions (Part I) - Solving Examples - Writing an Application Program.	Data Transfer Group Instructions (Part I) - Solving Examples - Writing an Application Program.	Theoretical lectures	editorial
9	2	Data Transfer Group Instructions (Part II) - Solving Examples - Writing an Application Program.	Data Transfer Group Instructions (Part II) - Solving Examples - Writing an Application Program.	Theoretical lectures	editorial
10	2	Input and output directives and their relationship to data transfer group inputs - practical examples.	Input and output directives and their relationship to data transfer group inputs - practical examples.	Theoretical lectures	editorial
11	2	A group of arithmetic instructions (addition instructions) - practical examples.	A group of arithmetic instructions (addition instructions) - practical examples.	Theoretical lectures	editorial
12	2	A group of arithmetic instructions (subtraction instructions) - increase and decrease instructions - practical examples.	A group of arithmetic instructions (subtraction instructions) - increase and decrease instructions - practical examples.	Theoretical lectures	editorial
13	2	A set of logical instructions and their	A set of logical instructions and their	Theoretical	editorial

		types - practical examples - and their use in the representation of logical equations.	types - practical examples - and their use in the representation of logical equations.	lectures	
14	2	Comparison guidelines - practical examples.	Comparison guidelines - practical examples.	Theoretical lectures	editorial
15	2	A set of branching instructions - conditional and unconditional - practical examples - the importance of this group in writing programs.	A set of branching instructions - conditional and unconditional - practical examples - the importance of this group in writing programs.	Theoretical lectures	editorial
16	2	Control Guidelines Group.	Control Guidelines Group.	Theoretical lectures	editorial
17	2	Programs to perform arithmetic operations (addition - subtraction) for more than one rank.	Programs to perform arithmetic operations (addition - subtraction) for more than one rank.	Theoretical lectures	editorial
18	2	Stages of execution of the instruction - the cycle of the instruction - the cycle of the machine - the timing scheme for the execution of one of the instructions (the instruction to store the contents of the accumulator in a memory location, for example) - how the microprocessor reads data in memory.	Stages of execution of the instruction - the cycle of the instruction - the cycle of the machine - the timing scheme for the execution of one of the instructions (the instruction to store the contents of the accumulator in a memory location, for example) - how the microprocessor reads data in memory.	Theoretical lectures	editorial
19	2	Formation of repetition loops - time delay loops - one episode - two episodes - three episodes - application programs for each of them.	Formation of repetition loops - time delay loops - one episode - two episodes - three episodes - application programs for each of them.	Theoretical lectures	editorial

20	2	Practical examples showing how to exploit time delay loops.	Practical examples showing how to exploit time delay loops.	Theoretical lectures	editorial
21	2	Writing a program for an ascending counter - with an example of an application.	Writing a program for an ascending counter - with an example of an application.	Theoretical lectures	editorial
22	2	Writing a program for a countdown counter - with an application example	Writing a program for a countdown counter - with an application example	Theoretical lectures	editorial
23	2	Applied examples on the microcomputer 8085.	Applied examples on the microcomputer 8085.	Theoretical lectures	editorial
24	2	An example of generating pulses with a required frequency and a known duty cycle compared to pulse generators using integrated circuits.	An example of generating pulses with a required frequency and a known duty cycle compared to pulse generators using integrated circuits.	Theoretical lectures	editorial
25	2	General idea over other types of processors.	General idea over other types of processors.	Theoretical lectures	editorial
26	2	Microprocessor 8086 - specifications - architecture.	Microprocessor 8086 - specifications - architecture.	Theoretical lectures	editorial
27	2	Microprocessor Structure Chart 8086.	Microprocessor Structure Chart 8086.	Theoretical lectures	editorial
28	2	Types of addressing for microprocessor 8086 - Data transfer instructions.	Types of addressing for microprocessor 8086 - Data transfer instructions.	Theoretical lectures	editorial
29	2	Microprocessors with 32 ranks and their most prominent specifications - microprocessors used in Pentium Computers.	Microprocessors with 32 ranks and their most prominent specifications - microprocessors used in Pentium Computers.	Theoretical lectures	editorial
30	2	General Review.	General Review.	Theoretical lectures	editorial

Course Structure - Practical					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1	2	General introduction to the subject of microcomputers - Familiarizing students with the laboratory microComputer - its most important parts - and how to use it - Guiding students on how to write down the practical results and prepare the weekly report.	General introduction to the subject of microcomputers	Theoretical lectures	editorial
2	2	Start with the microcomputer - use the key (SUBMEM) to enter data into memory and modify it.	Start with the microcomputer - use the key (SUBMEM) to enter data into memory and modify it.	Theoretical lectures	editorial
3	2	Use the CHKREG key to scan records and change their value.	Use the CHKREG key to scan records and change their value.	Theoretical lectures	editorial
4	2	Teach the student how to write a simple program in assembly language, translate it and prepare it for implementation on the Computer.	Teach the student how to write a simple program in assembly language, translate it and prepare it for implementation on the Computer.	Theoretical lectures	editorial
5	2	Use the SINGL-STEP key to execute programs step by step.	Use the SINGL-STEP key to execute programs step by step.	Theoretical lectures	editorial
6	2	Use the GO key to fully execute the program.	Use the GO key to fully execute the program.	Theoretical lectures	editorial
7	2	Write a program in assembly language and convert it to machine language with execution.	Write a program in assembly language and convert it to machine language with execution.	Theoretical lectures	editorial

8	2	Transportation and loading instructions (Part I).	Transportation and loading instructions (Part I).	Theoretical lectures	editorial
9	2	Transportation and loading instructions (Part II).	Transportation and loading instructions (Part II).	Theoretical lectures	editorial
10	2	Input and output instructions.	Input and output instructions.	Theoretical lectures	editorial
11	2	Flag records.	Flag records.	Theoretical lectures	editorial
12	2	Addition and multiplication injunctions.	Addition and multiplication injunctions.	Theoretical lectures	editorial
13	2	Subtraction and subtraction instructions with metaphor.	Subtraction and subtraction instructions with metaphor.	Theoretical lectures	editorial
14	2	Increases and decreases indices.	Increases and decreases indices.	Theoretical lectures	editorial
15	2	Logical Instructions (Part I).	Logical Instructions (Part I).	Theoretical lectures	editorial
16	2	Logical Instructions (Part Two).	Logical Instructions (Part Two).	Theoretical lectures	editorial
17	2	Represent logical equations using programming.	Represent logical equations using programming.	Theoretical lectures	editorial
18	2	Comparison indices.	Comparison indices.	Theoretical lectures	editorial
19	2	Conditional and unconditional jumping instructions.	Conditional and unconditional jumping instructions.	Theoretical lectures	editorial
20	2	Control instructions.	Control instructions.	Theoretical	editorial

				lecture s	
21	2	Make time delay loops.	Make time delay loops.	Theoret ical lecture s	editorial
22	2	Program for binary ascending counter.	Program for binary ascending counter.	Theoret ical lecture s	editorial
23	2	Program for binary descending counter .	Program for binary descending counter .	Theoret ical lecture s	editorial
24	2	Program for binary ascending/descending counter.	Program for binary ascending/descending counter.	Theoret ical lecture s	editorial
25	2	Simple software for a photobulletin.	Simple software for a photobulletin.	Theoret ical lecture s	editorial
26	2	Simple program for a traffic signal for an intersection.	Simple program for a traffic signal for an intersection.	Theoret ical lecture s	editorial
27	2	Simple program to control the engine.	Simple program to control the engine.	Theoret ical lecture s	editorial
28	2	The 8086 microprocessor scans and changes the contents of memory locations, logs and log flags.	The 8086 microprocessor scans and changes the contents of memory locations, logs and log flags.	Theoret ical lecture s	editorial
29	2	Data transfer in the 8086 microprocessor.	Data transfer in the 8086 microprocessor.	Theoret ical lecture s	editorial
30	2	General Review.	General Review.	Theoret ical lecture s	editorial

11. Course Evaluation	
Daily tests, classroom activity and participation, semester exams	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	None
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Computer and DATA Security

1. Course Name	
Computer and Data Security / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical +2 practical = 4 * 30 weeks = 120 annual hours	
7. Course administrator's name (if more than one name)	
Name: Beida Hadi Mohamed Email: ins.byd44@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objectives 1- Introducing the student to modern security systems of different types, importance and tasks he performs. 2- Introducing the student to the components of computer security systems and accessories. 3- Teaching the student the principles of using security application programs. 4- Introducing the student to how to use programming languages in order to protect information. Cognitive goals 1- The student should know the modern security operating systems of different types, importance and tasks that he performs. 2- The student should know the security components of the computer and its accessories. 3- The student should know the security programs and applications. 4 – The student should know the methods and steps of the software necessary to write protection codes. Course skills objectives. 1 – Safe use of the computer. 2- Learn traditional encryption methods. Emotional and value goals 1- The student should know the modern security operating systems of different types, importance and tasks that he performs. 2- Instilling confidence in the same student to use computer security programs and applications. 3- Making the student communicate with the safe outside world. 4- The student should realize the importance of information and computer security in various fields.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures + practical application

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1,2,3	4	Introduction to computer security. - - How do we protect our most valuable assets? - Where security problems occurred in computer system? - Security goals. Kinds of security breaches.-	Introduction to computer security. - - How do we protect our most valuable assets? - Where security problems occurred in computer system? - Security goals. Kinds of security breaches.-	Theoretical + practical lectures	editorial
4,5,6	4	The points of security vulnerabilities: a) Hardware vulnerabilities (Attacks on HW). b) Software vulnerabilities (Attacks on SW)- SW detection , theft, (Trojans horse, Virus, Information leak in a program). c) Data vulnerabilities (Attacks on Data). d) Other exposed assets (Network, Access, Key people). Computer criminals: a) Amateurs b) Crackers or malicious hackers c) Career criminals	The points of security vulnerabilities Computer criminals	Theoretical + practical lectures	editorial
7,8,9,10	4	Methods of Defense: a) Data controls (cryptography). b) Software controls. c) hardware controls. d) The firewall.	Methods of Defense	Theoretical + practical lectures	editorial

		e) Physical controls. f) Policies. g) Overlapping controls.			
11,12,13,14	4	Cryptography concept. Symmetric VS asymmetric cryptosystem. Cryptanalysis concepts. Cryptographic system	Cryptography concept. Symmetric VS asymmetric cryptosystem. Cryptanalysis concepts. Cryptographic system	Theoretical + practical lectures	editorial
15,16,17,18	4	Substitution Cipher Methods: a) Mono- alphabetic substitution cipher: - Caesar Cipher. - Rot13 Cipher. - Cipher Atbash. - Simple- Substitution Cipher. b) Polyalphabetic substitution Cipher : - Vigenere Cipher. c) Polygram substitution Cipher: - Play fair Cipher. d) The one – time pad. Transposition Cipher Methods a) Columnar Transposition Cipher. b) Multi- layer columnar transposition Cipher c) Double transposition Cipher. Super Encryption Cipher.	Substitution Cipher Methods Transposition Cipher Methods Super Encryption Cipher	Theoretical + practical lectures	editorial
19,20,21,22	4	Stream Cipher Methods. Block Cipher Methods. Comparing stream & block Cipher system. Secret key Cipher system– block Cipher method: DES/ data encryption standard	Stream Cipher Methods. Block Cipher Methods. Comparing stream & block Cipher system. Secret key Cipher system– block Cipher method: DES/ data encryption standard	Theoretical + practical lectures	editorial

23,24,25,26	4	Public key Cipher system: a) Knapsack Technique. b) Rivest- Shamir-Adelman (RSA) technique. c) Digital signature technique.	Public key Cipher system	Theoretical + practical lectures	editorial
27,28,29,30	4	Computer Network Security. Types of network. Mode of communication. User Authentication: a) password, PIN. b) Credit Card, key. c) Biometric Traits (physical and/or Behavioral) Access control. Steganography (information Hiding) Techniques.	Computer Network Security. Types of network. Mode of communication. User Authentication Access control. Steganography (information Hiding) Techniques.	Theoretical + practical lectures	editorial

11. Course Evaluation

Daily tests, classroom activity and participation, semester exams , discussion

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	-Security for computer networks 2'nd edition, D.W.Davies and W.L.Price -Security Mechanisms for computer network, sead Muftic
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Project

1. Course Name	
Project/Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2Practical = 2 * 30 weeks = 60 hours per year	
7. Course administrator's name (if more than one name)	
Name: Email :	
8. Course Objectives	
Course Objectives	General Objective : Training the student to rely on himself and benefit from his scientific information. Special Objective : The student will be able to: 1- He relies on himself to prove his practical skills. 2- Identifies salient objectives in the project. 3- He learns how to deal with his group of students in order to support teamwork . 4- Maps and designs for the project. 5- Follows up the progress of work on the project in terms of time. 6- He sees and watches the model simplified his work. 7- His book learns the final report of the project and in an organized manner on the research format. Cognitive goals 1- Introducing the student to how to conduct the project and write the research. 2- Introduce the student to how to discuss the results of a specific problem that was calculated in the project. 3- Introducing the student to how to deal with state departments. Course skills objectives. 1 – Acquire the skill of searching for a specific topic. 2 – Acquire the skill of producing integrated research. 3 – Acquire the skill of dealing with the data and the required and then the result. Emotional and value goals 1- Theoretical lectures. 2- Discussion in the classroom.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures

10. Course Structure					
The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1,2,3	2	Distributing projects to students, meeting with the supervising professor, and starting to review the library to obtain resources for the project scheduled for students.	Distributing projects to students, meeting with the supervising professor, and starting to review the library to obtain resources for the project scheduled for students.	Directive s of the project supervisor	Oral
4,5,6	2	Collect information about the project, start theoretical study and prepare the necessary designs for the implementation of the project.	Collect information about the project, start theoretical study and prepare the necessary designs for the implementation of the project.	Directive s of the project supervisor	Oral
7,8,9,10	2	Initiating the implementation of the planned designs and conducting experiments	Initiating the implementation of the planned designs and conducting experiments	Directive s of the project supervisor	Oral
11,12,13,14	2	And tests to obtain practical results - testing and evaluation of the previous stage.	And tests to obtain practical results - testing and evaluation of the previous stage.	Directive s of the project supervisor	Oral
15,16,17,18	2	Transfer the laboratory-executed experiments to the boards to obtain the practical designed model and conduct the test on the final model and obtain	Transfer the laboratory-executed experiments to the boards to obtain the practical designed model and conduct the test on the final	Directive s of the project supervisor	Oral

		the final results of the discussion.	model and obtain the final results of the discussion.		
19,20, 21,22	2	Discuss the practical results and their suitability with the realistic results and find the necessary explanations for the apparent cases.	Discuss the practical results and their suitability with the realistic results and find the necessary explanations for the apparent cases.	Directive s of the project supervisor	Oral
23,24, 25,26	2	Arrange the written parts of the report for each of the stages preceding the writing of the final report on the project as follows: Project Name: Project Supervisor: Students' Names: The bottom line: Chapter One: Introduction Chapter Two: Theoretical Part Chapter Three: Practical Part and Results Chapter Four: Discussion of Results, Conclusions and Proposals. Sources	Arrange the written parts of the report for each of the stages preceding the writing of the final report on the project as follows: Project Name: Project Supervisor: Students' Names: The bottom line: Chapter One: Introduction Chapter Two: Theoretical Part Chapter Three: Practical Part and Results Chapter Four: Discussion of Results, Conclusions and Proposals. Sources	Directive s of the project supervisor	Oral
27,28, 29,30	2	Submit the demonstration of the project with the final report for the final test and evaluation procedure.	Submit the demonstration of the project with the final report for the final test and evaluation procedure.	Directive s of the project supervisor	Oral

11. Course Evaluation

Oral + Discussion

12. Learning and Teaching Resources

Required textbooks (methodology, if any)

None

Main references (sources)	All books and resources related to the subject of the project within the ICT specialization
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet

Internet & Information Technology

1. Course Name	
Internet and Information Technology / Phase II	
2. Course Code	
3. Semester / Year	
Academic Year 2024/2025	
4. The history of preparation of this description	
9/7/2024	
5. Available Attendance Forms	
Daily mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1 Theoretical+2Practical = 3 * 30 weeks = 90 annual hours	
7. Course administrator's name (if more than one name)	
Name: Farah Mahmoud Email: farah.qasim.isa2@atu.edu.iq	
8. Course Objectives	
Course Objectives	General Objective: Identify the concepts of information technology, dealing with the Internet and creating websites. Cognitive goals 1- The student can write web pages in various Internet languages and how to manage those pages and modified. 2- The student creates different practical websites using several well-known techniques. 3- The student learns the best way to get information from the Internet or download information Various to the Internet Course skills objectives. 1 – The student can manage and maintain websites. 2- The student learns to create different websites that serve many purposes. 3- The student learns effective techniques in obtaining and sharing information in various Domains over the World Wide Web. Emotional and value goals 1- Qualifies the student to be a mentor and teacher in the subject referred to in this description. 2- Enabling the student to be a productive element in the field of creating and designing websites. 3- Enabling the student to be an effective element in the field of exchange and distribution of information.
9. Teaching and Learning Strategies	
Strategy	1- View lectures by Data Show. 2- Use smart blackboards. 3- Discussions and seminars that students are assigned to prepare. 4- Reports for various topics that students are assigned to prepare. 5- Preparation of applied projects by learners

10.Course Structure

The week	Hours	Required Learning Outcomes	Unit / Subject Name	Method of education	Evaluation method
1-2	2	Introduction: - What is the Internet (International Network)?/ A brief history of the discovery and development of Internet networks. - Network types such as (ARPA net, National Science Foundation, World Wide Web www). - How to connect to the Internet: - Available methods with comparison between them in terms of cost and performance. - Modem: definition, types, installation, and connection. - Internet service receiving and broadcasting system. - Make an online connection (New Connection Wizard) and disconnect. - Benefits of the Internet. - Identify the most important terms for the study of Internet networks: www , Internet or Net, http://, browser, HTML (Hyper Text Markup Language), FTP (File Transfer Protocol), IP Address, Upload, Download, Hyper Link, URL (Universal Resource Locator), Router, TCP/ IP, Server, Hub Switch, DSL, .	What is the Internet Types of networks How to connect to the Internet Benefits of the Internet Learn about the most important terms for studying Internet networks	Theoretical lectures	Practical evaluations
3&4	2	- Internet Explorer: - Run the browser. - Program screen contents: - Address bar. - Menu bar. - Basic button bar.	Internet Explorer	Theoretical lectures	Practical evaluations

		- Address box. - Hide and show toolbars. - Internet Properties: - How to set a site page to be the start page. - Cancel temporary files of the Internet. - Clean the history list. - Cancel URLs from the address box.	Internet Properties Options		
5	2	- Study some basic browsing skills: - Add to the list of favorite sites and delete from them. - How to transfer files from the Internet to the computer. - How to copy from web pages to the word processor program (MS word).	Study some basic browsing skills How to copy from web pages to word processor software (MS word)	Theoretical lectures	Practical evaluations
6 & 7 & 8	2	- Electronic Mail: - Defined. - Types of e-mail available. - Examples of sites that provide e-mail service such as: - www.yahoo.com. - www.hotmail.com. - www.maktoob.com. - Location highlighting (www.yahoo.com) and study the following: - The possibility of obtaining e-mail. - How to create a private email and access the mail page (sign in). - How to create (compose), send, and receive (see inbox inbox) messages. - How to send and receive images, sounds and other files. - Sign out. - How to get e-mail in other available locations.	E-mail Address Site Highlight (www.yahoo.com) How to get e-mail at other available sites	Theoretical lectures	Practical evaluations
9 & 10 &	2	- Live and direct dialogue with others (Chatting): - Introduction. - Types of chat service.	Live and direct dialogue with others (Chatting)	Theoretical lectures	Practical evaluations

11		- Examples of chat service types such as MSN messenger, ADL Instant messenger, ICQ, Yahoo messenger, Skype, Just VoIP,). - Highlight (Yahoo messenger) and study the following: - Sign in. - Add a contact. - Start a written conversation with the contact. - Start voice chat with contact. - Camera display and video incident. - Send a file from this device to the other device. - Establishment of a conference. - Exit the program (sign out). - How to get live chat sites in other available sites.	Highlight (Yahoo messenger) - How to get live chat sites in other available sites.		
12 & 13	2	-Search through the Internet: - How to search through the browser. - Introduction to search engines and how to search through it. - Types of search engines. - How to use some parameters for ease and speed of search such as (coefficient " ", coefficient *, coefficient AND, coefficient OR, coefficient (-), and coefficient (+). - Applied examples on search engines such as: -www.google.com -www.yahoo.com. - www.ayna.com. - www.altavista.com	Search through the Internet	Theoretical lectures	Practical evaluations
14 & 15	2	- An illustrative study and its application to the possibility of corresponding with service sites, universities,	- An explanatory study and its application to the possibility	Theoretical lectures	Practical evaluations

		scientific journals, free entertainment, and others. - How to subscribe to free scientific sites and others. - General review of all curriculum vocabulary.	of correspondence with service sites, universities and scientific and entertainment magazines free of charge. - How to subscribe to free scientific sites. - General Review		
16	2	Introduction to information technology	Introduction to information technology	Theoretical lectures	Practical evaluations
17	2	Computer hardware (CPU and its components)	Computer hardware (CPU and its components)	Theoretical lectures	Practical evaluations
18	2	-Fixed memory programs - Computer software settings. (setup) -Self-motivation programs post- power on self test -Basic Input and Output Program (BIOS)	Fixed memory programs Self-motivation programs Basic Input and Output Program	Theoretical lectures	Practical evaluations
19	2	Operating system – definition. List the major PC operating system definition. The advance that made the Linx, Unix, windows operating system popular.	Operating system	Theoretical lectures	Practical evaluations
20	2	Programming language type. Representation of integers- real's- characters	Programming language type	Theoretical lectures	Practical evaluations
21	2	Data type – constant – variables. Logical and arithmetic operations. Managing organizational data and information.	Data type, Logical and arithmetic operations, Managing organizational data and information	Theoretical lectures	Practical evaluations

22	2	Data base –definition– data base management system (DBMS) enable user to do . Differentiate between flat- file database and relational database. Steps needed to great a database purpose of filters and forms examples of query languages.	Data base	Theore tical lecture s	Practica l evaluati ons
23	2	Telecommunications and networks introduction. Telecommunications system and process. Communication media and channels.	Telecommunicati ons and networks introduction. Telecommunicati ons system and process. Communication media and channels.	Theore tical lecture s	Practica l evaluati ons
24	2	Introduction to Networks. Local area networks, Wide area networks. Network communication software.	Introduction to Networks.	Theore tical lecture s	Practica l evaluati ons
25	2	Introduction to Internet. The protocol concept TCP/ IP. The operation of internet.	Introduction to Internet.	Theore tical lecture s	Practica l evaluati ons
26	2	The evolution of internet.	The evolution of internet.	Theore tical lecture s	Practica l evaluati ons
27	2	The definition of interants.	The definition of interants.	Theore tical lecture s	Practica l evaluati ons
28	2	The differences between internet and interants.	The differences between internet and interants.	Theore tical lecture s	Practica l evaluati ons
29	2	Data communication with standard telephone lines & modems.	Data communication with standard telephone lines & modems.	Theore tical lecture s	Practica l evaluati ons
30	2	Algorithms basic and programming language.	Algorithms basic and programming language.	Theore tical lecture s	Practica l evaluati ons

11.Course Evaluation

- 1- Pre- and post-exams for each subject.
- 2- Evaluation of the student's activities for various topics periodically.
- 3- Evaluate students for the projects they are assigned to.
- 4- Final exams for a set of study modules and periodically.

12.Learning and Teaching Resources

Required textbooks (methodology, if any)	None
Main references (sources)	Uniform binding
Recommended books and references (scientific journals, reports...)	Books in the Central Library of the Institute
Electronic References, Websites	Different sources of the Internet