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

2024

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: Technical Institute of Karbala
Scientific Department: Computer Systems Techniques Dept.
Academic or Professional Program Name: Diploma of Computer Systems
Final Certificate Name: Diploma of Computer Systems Techniques
Academic System: Yearly
Description Preparation Date:
File Completion Date:

Signature:
Head of Department Name:
Assist. Lect. Mohammed Thajeel Abdullah
Date: 26/3/2024

Signature:
Scientific Associate Name:
Assist. Prof. Dr. Layth Hassan Jawad
Date: 26:3:2024

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Signature: Assist. Prof. Ali Neamah Hasan
Date:

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

I. Preparing technical cadres characterized by high efficiency and professionalism.
II. Keeping pace with technological developments in the fields of computers and smart devices and providing them to students with modern methods.
III. 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.
IV. Openness to society and state institutions to find effective technical solutions to some of the problems facing the country and its institutions.
V. 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.
VI. 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 (theoretival/practical)	
1st year		Programming in C++ language	2	3
1st year		Algorithms and problem solving	1	2
1st year		Computer architecture	2	3
1st year		Computer Maintenance	2	3
1st year		Ready-made applications	2	3
1st year		Mathematics and numerical analysis	2	2
1st year		Advanced statistics	1	2
1st year		Human rights and democracy	1	
1st year		English language	1	
2nd year		Data structures	2	3
2nd year		Databases	2	3
2nd year		Operating systems	2	2
2nd year		Systems analysis	1	2
2nd year		Programming V.Basic	2	3
2nd year		computer networks	1	2
2nd year		website design	1	2
2nd year		English language	1	
2nd year		The crimes of the Baath regime in Iraq	1	
2nd year		The project	0	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. - 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
- 2- 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 for 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 of research, teaching and training.

14. Program Development Plan

- Recognize and nurture students with outstanding potential/achievements.
- Developing and improving summer training.
- Improving teaching and learning skills by placing teaching and technical personnel in advanced courses in international universities.
- Continuous development of the department's infrastructure.
- Encouraging teamwork among students.
- Opening the door for appointments in order to increase the number of department teachers in order to fill the acute shortage.
- 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
1st year		Programming in C++ language	Basic												
		Algorithms and problem solving	Basic												
		Computer architecture	Basic												
		Computer Maintenance	Basic												
		Ready-made applications	Basic												
		Mathematics and numerical analysis	Basic												
		Advanced statistics	Basic												
		Human rights and democracy	Basic												
		English language	Basic												
		Data structures	Basic												

		Databases	Basic												
		Operating systems	Basic												
		Systems analysis	Basic												
		Programming V.Basic	Basic												
		computer networks	Basic												
		website design	Basic												
		English language	Basic												
		The crimes of the Baath regime in Iraq	Basic												
		The project	Basic												

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

Course Description Programming in C++ language

1. Course Name:

Programming in C++ language

2. Course Code:

3. Semester / Year:

Yearly / First class

4. Description Preparation Date:

11/2/2024

5. Available Attendance Forms:

Mandatory (theoretical and practical lectures)

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

150 hours/10 unite

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

Name: Mohammed Thajeel Abdullah
Email: inkr.moh4@atu.edu.iq

8. Course Objectives

Course Objectives	• Learn about the concept of programs and programming languages, their types, features, and uses of each. • Learn about the C++ programming language and what are the basic components of the structure of this language to build a program. • Identify the basic libraries and how to include and use them in this language. • Learn about the data types and how to create and use each of them. • Learn how to deal with mathematical operations (equations) in this language. • Learn about reading and printing instructions in this language. • Learn about arrays and how to deal with them in this language. • Identify functions and procedures. • Learn about files and how to deal with them in this language. • Learn about graphics instructions and how to use them in this language.

9. Teaching and Learning Strategies

Strategy	• Theoretical lecture. • Lab lecture. • Discussion with students and students among themselves. • Class and home exercises. • Preparing reports and projects related to the scientific material of lecture.

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	5	Cognitive	Abstract of programming languages	Lecture and discussion	Questions and answers

2	5	Cognitive and emotional	• What's a program language • The date and development of programming languages • Levels of programming languages • C++ language: beginning, development, its location within Levels of programming languages Basic essentials for C++ language/ C++ language concepts • What's C++ program contains?	Lecture, discussion and exercises	Discuss and solve exercises
3	5	Cognitive and emotional	• What are the basic files? Simple explanation for basic files, that C++ program include Basic element and tools of C++ language • Language symbols	Lecture, discussion and exercises	Discuss and solve exercises
4	5	Cognitive and emotional	• Definitions name • keywords • Constant represents • Variables represent Data types in C++, and the represent methods in memory	Lecture, discussion and exercises	Discuss and solve exercises
5	5	Cognitive and emotional	• char type • integer type • real type • Boolean (logical) type • Converting between deferent data types • Expressions types in C++ language, how formulate expression: • Arithmetic expression/deferent arithmetic operation and its priorities/conversion manner of arithmetic expression to Arithmetic expression in C++ language/deferent examples	Lecture, discussion and exercises	Discuss and solve exercises
6	5	Cognitive and emotional		Lecture, discussion and exercises	Discuss and solve exercises

7	5	Cognitive and emotional	• Relational expression/ relational operations and its priorities/ formulate Relational expression • Logical expression/ logical operation and its priorities/ formulate Logical expression	Lecture, discussion and exercises	Discuss and solve exercises
8	5	Cognitive and emotional	• Compound expression/ priorities table of public operations/ deferent examples		
9	5	Cognitive and emotional	• Give the primary values of constants and variables • Spaces and brackets • Type of comments • Special tools	Lecture, discussion and exercises	Discuss and solve exercises
10-11	10	Cognitive and emotional	minim tools • Assignment statement, its types/ with explanation examples • Arithmetic expression (equation)	Lecture, discussion and exercises	Discuss and solve exercises
12	5	Cognitive and emotional	• counters, counter types • deferent images for equations belong to C++ language • Formatted Input and output functions	Lecture, discussion and exercises	Discuss and solve exercises
13	5	Cognitive and emotional	• output text • Output numeric values • Output Arithmetic expression • un Formatted Input and output functions	Lecture, discussion and exercises	Discuss and solve exercises
14	5	Cognitive and emotional	Control, conditional, and loop statements cond. Statement • Cond. Tools	Lecture, discussion and exercises	Discuss and solve exercises
15	5	Cognitive and	• If conditional statement • If…else statement		

		emotional	• Nested conditional • switch conditional statement	Lecture, discussion and exercises	Discuss and solve exercises
16	5	Cognitive and emotional	• nested switch statement	Lecture, discussion and exercises	Discuss and solve exercises
17	5	Cognitive and emotional	Repetition statements • for loop, Nested for	Lecture, discussion and exercises	Discuss and solve exercises
18	5	Cognitive and emotional	• while statement	Lecture, discussion and exercises	Discuss and solve exercises
19-20	10	Cognitive and emotional	• do…while statement	Lecture, discussion and exercises	Discuss and solve exercises
21	5	Cognitive and emotional	control at repetition continue statement	Lecture, discussion and exercises	Discuss and solve exercises
22	5	Cognitive and emotional	exit statement go to statement Dimensional variables: arrays and matrices One Dimensional array	Lecture, discussion and exercises	Discuss and solve exercises
23	5	Cognitive and emotional	two Dimensional array, square array(as special state of two Dimensional array	Lecture, discussion and exercises	Discuss and solve exercises
24	5	Cognitive and emotional	Symbolic array, and represent string type	Lecture, discussion and exercises	Discuss and solve exercises
25	5	Cognitive and emotional	Functions Global and local variable Define function Call function	Lecture, discussion and exercises	Discuss and solve exercises
26-27	10	Cognitive and emotional	Ways of calling functions • Form of retrieving values from function	Lecture, discussion and exercises	Discuss and solve exercises

28-30	15	Cognitive and emotional	• parameters arguments • factors effecting at using functions • functions of type void • User defined functions Library of standards functions: • String functions • Arithmetic functions • Date and time functions Graphics and screen: • Colors functions • Draw pixels functions • Draw lines functions • Draw rectangle functions • Draw Circle functions • Draw pattern functions • Types of screens Build workable integral system, include arrays and above-mentioned functions	Lecture, discussion and exercises	Discuss and solve exercises

11. Course Evaluation

- 5 Daily preparation
- 5 daily exams
- 20 First course exam
- 20 Second course exam
- 50 Final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	None
Recommended books and references (scientific journals, reports...)	• C++ Programming Language
Electronic References, Websites	W3school.com

Mathematics and numerical analysis

1. Course Name:
Mathematics and numerical analysis
2. Course Code:
3. Semester / Year:
First year
4. Description Preparation Date:
13/2/2024
5. Available Attendance Forms:
Direct
6. Number of Credit Hours (Total) / Number of Units (Total)
120 Hr. /240 U
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Alaa Kamil Fleah Alasadi Email: inkr.ala@atu.edu.iq

8. Course Objectives

Course Objectives	Teaching the Student mathematical methods used in solving mathematical questions in a logical and include identification of functions and its derivatives , differentiation, integration and differential equations and difference equations, finding root and differentiation and numerical methods in solving. Mathematics compared with mathematical methods, Using computer applications, including MATLAB.

9. Teaching and Learning Strategies

Strategy	Brainstorming

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Developing logical and problem-solv	Types of matrices/arrays/matrices/proper	Lecture and ability	Quick test and home wo

discussion

3&2	4	Cognitive	Operations on matrices	Lecture and discussion	Quick test and home wo
4	4	Developing logical and problem-solving ability	Inverted matrix/methods found	Lecture and discussion	Quick test and home wo
5&6	4	Emotional and cognitive	Solving linear equations using inverted matrix	Lecture and discussion	Quick test and home wo
7&8	4	Developing logical and problem-solv ability	Linear trigonometric functions, and their products	Lecture and discussion	Quick test and home wo
9&10	4	Emotional and cognitive	And the logarithmic and exponential functions and their products	Lecture and discussion	Quick test and home wo
11	4	cognitive	Partial differentiation/implicit differentia	Lecture and discussion	Quick test and home wo
12	4	Emotional and cognitive	numerical differentiation/trapezoid meth	Lecture and discussion	Quick test and home wo
13	4	Emotional	Ordinary differential equations of first or	Lecture and discussion	Quick test and home wo
14	4	Emotional and cognitive	Types and methods of solution of differential equations (separation of variables, homogeneous)	Lecture and discussion	Quick test and home wo
15	4	cognitive	Full differential equations and linear	Lecture and discussion	Quick test and home wo
16	4	cognitive	Unlimited integration/integration/integra	Lecture and	Quick test and home wo

			exponential and the logarithmic and linear	discussion	
17	4	Emotional a cognitive	Methods of integration (partial fractions/retail)	Lecture and discussion	Quick test and home wo
18&19	4	cognitive	Numerical integration/Simpson method	Lecture and discussion	Quick test and home wo
20	4	Emotional a	Find the polynomial Newton	Lecture and	Quick test and home wo
21&22	4	cognitive	formula/forward/updating using polynomial Find the root of the equation/method return (repetition)/firm/a Newton method	discussion Lecture and discussion	Lecture and discussion

23&24	4		The real root of the equation/a theoretical value of the real root/drawing method	Lecture and discussion	Lecture and discu sion
25&26	4		Method of error/way half-periods	Lecture and discussion	Lecture and discu sion
27&28	4		Iterative formulas especially/way Newton-Rufson	Lecture and discussion	Lecture and discu sion
28	4		Series of others terminated (convergent openings of volatile commodity)	Lecture and discussion	Lecture and discu sion
30	4		Series convergence test methods and others closed (Test ratio, root Test)	Lecture and discussion	Lecture and discu sion

11. Course Evaluation

The first and the second-semester exams are evaluated of 20 points and 10 points for the work of the year including the daily exams, the attendance, and the assignments. For the final exam, the evaluation is of 50 points.

12. Learning and Teaching Resources

Required textbooks (curric books, if any)	
Main references (sources)	Thomas' Calculus
Recommended books and references (scientific journals, reports...)	
ElectronicReferences, Websit	https://tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx https://math24.net/derivatives-trigonometric-functions.html#example1 https://www.math10.com/en/algebra/matrices/systems-of-linear-equatio s.ht

Computer architecture

1- Course Name: Computer architecture	
2- Course Code: None	
3- Semester / Year: Yearly / First	
4- Description Preparation Date: 10/02/2024	
Introducing the student to the types of computers, numerical systems, and conversion between them, then addressing the representation of numbers in a digital calculator, Boolean algebra, the physical components of an electronic computer, machine languages, and data representation.	
5- Available Attendance Forms: In institute (Presence)	
6- Number of Credit Hours (Total)/Number of Units (Total): 150 hours/10 units	
7- Course administrator's name (mention all, if more than one name)	
Name: Assist. Lecture Haider MohammedAli M.R. AlTomah Email: haideraltomah@atu.edu.iq	
8- Course Objectives	
Course Objectives	• Identify the student to the types of computers. • Identify the student to numerical systems, and conversion between them. • addressing the representation of numbers in a digital calculator. • Teach the student Boolean algebra. • Learn the student physical components of an electronic computer, machine languages, and data representation.
9- Teaching and Learning Strategies	

Strategy	• Theoretical lecture. • Practical lecture. • Discussion with students and students among themselves. • Preparing reports and projects related to the scientific material of the lecture.

10- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Cognitive	Essential of information technical. Introduction, computer and software system, computer types.	Lecture and discussion	Questions and answers
2nd	5	Cognitive and emotional	Numeric methods, include: Decimal method. Binary method. Convert decimal to binary. Four arithmetic operations in this method. Interest this method in computer.	Lecture and discussion	Questions and exercises
3rd	5	Cognitive and emotional	Octal method. Convert from octal to decimal. Convert from decimal to octal. Convert from binary to octal. Hexadecimal method. Convert from binary to hexadecimal.	Lecture and discussion	Questions and exercises
4th	5	Cognitive and emotional	Numeric representation in computer: BCD codes, 4bit BCD codes Check level. Integer numeric representation, real numeric representation.	Lecture and discussion	Questions and answers
5th	5	Cognitive	Gates: Or gate, and gate, nor gate, nand gate, xor gate, xand gat, external edge diagram for integrated circuit of gates	Lecture and discussion	Questions and answers
6th	5	Cognitive and emotional	Boolean algebra Boolean algebra and de morgan theory. Used Boolean algebra rules for simplified logical expression.	Lecture and discussion	Questions and exercises
7th	5	Emotional	Formula rules and karnuf map. Formula rules: Summation of multiply limits, multiply of sum limit Karnuf map for simplified functions: Of two variable, of three variable.	Lecture and discussion	Questions and exercises
8th	5	Cognitive and emotional	Digital circuit: arithmetic circuit. Add circuit/ half adder – complete adder	Lecture and discussion	Questions and exercises

9th	5	Cognitive and emotional	Subtract circuit/ half subtractive - complete subtracted. Digital comparative.	Lecture and discussion	Questions and answers
10th	5	Cognitive	Flip Flop Type of S – R . Type of J-K, type of D, type of T.	Lecture and discussion	Questions and exercises
11th	5	Cognitive	Counting and shifting recorder. Shifting recorder	Lecture and discussion	Questions and answers
12th	5	Cognitive	Counter ascending asynchronous. Counter descending asynchronous. Stretcher of seven parts	Lecture and discussion	Questions and answers
13th	5	Cognitive and emotional	Hardware, study hardware parts. Characters and functions of box and power supply	Lecture and discussion	Questions and exercises
14th	5	Cognitive and emotional	Study characters, functions and parts of motherboard.	Lecture and discussion	Questions and exercises
15th	5	Cognitive	Study functions and types memory: ROM AND ROM	Lecture and discussion	Questions and answers
16th	5	Emotional	Study bios setup, and update	Lecture and discussion	Questions and answers
17th	5	Emotional	Study technical of secondary storage units :H.D , F.D , C.D ,DVD	Lecture and discussion	Questions and answers
18th	5	Emotional	Study characters and functions of slots cards(net, sound, video)	Lecture and discussion	Questions and answers
19th & 20th	10	Emotional	Microprocessor 8085, block diagram, components and function of processor	Lecture and discussion	Questions and answers
21th & 22th	10	Emotional	Microprocessor 8086 Assembly language, statement form.	Lecture and discussion	Questions and answers
23th & 24th	10	Emotional	Data Transfer & Arithmetic Instructions	Lecture and discussion	Questions and answers
25th	5	Emotional	Logical & Branching Instructions	Lecture and discussion	Questions and answers
26th	5	Emotional	Machine Control Instructions	Lecture and discussion	Questions and answers
27th	5	Emotional	Immediate , Register , Direct ,indirect ADDRESSING	Lecture and discussion	Questions and answers

28th	5	Emotional	Instruction cycle & Machine cycle	Lecture and discussion	Questions and answers
29th	5	Emotional	Pentium processor, block diagram, processor component and function	Lecture and discussion	Questions and answers
30th	5	Emotional	Processor Development comparative	Lecture and discussion	Questions and answers

11- Course Evaluation

- First Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- Second Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- 50 degrees for final exam (40 theoretical and 10 practical).

12- Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	None
Recommended books and references (scientific journals, reports...)	• Basic Computer Architecture Version 2.2. • Computer System architecture 3rd Edition.
Electronic References, Websites	**None**

English Language

1- Course Name:
English Language
2- Course Code:
3- Semester / Year:
First year
4- Description Preparation Date:
13/2/2024
5- Available Attendance Forms:
Direct
6- Number of Credit Hours (Total) / Number of Units (Total)
30 Hr. /2 U
7- Course administrator's name (mention all, if more than one name)
Name: Shahad Saleh Abdulmahdi Email: shahad1986@atu.edu.iq
8- Course Objectives

Course Objectives	• ..... • ..... • .....

9- Teaching and Learning Strategies	
Strategy	

10- Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1& 2	2	Cognitive	Hello	Lecture and discussion	Question and answers

3&4	2	Cognitive	Your world	Lecture and discussion	Question and answers
5&6	2	Emotional and cognitive	Personal information	Lecture and discussion	Question and answers
7&8	2	Emotional and cognitive	Family and frien	Lecture and discussion	Question and answers
9&10	2	Emotional and cogniti	It's my life	Lecture and discussion	Question and answers
11&12	2	Emotional and cognitive	Every day	Lecture and discussion	Question and answers
13&14	2	cognitive	Review	Lecture and discussion	Question and answers
15&16	2	Emotional and cognitive	Places I like	Lecture and discussion	Question and answers
17&18	2	Emotional	where I live	Lecture and discussion	Question and answers
19&20	2	Emotional and cognitive	Happy birthday	Lecture and discussion	Question and answers
21&22	2	cognitive	We had a good time	Lecture and discussion	Question and answers
23&24	2	cognitive	We can do it	Lecture and discussion	Question and answers
25&26	2	Emotional and cogniti	Thank you very much	Lecture and discussion	Question and answers
27&28	2	cognitive	Here and now	Lecture and discussion	Question and answers

29&30	2	Emotional and cogniti	It's time to go	Lecture and discussion	Question and answers

11- Course Evaluation

The first and the second-semester exams are evaluated of 20 points and 10 points for the work of the year i

12- Learning and Teaching Resources	
Required textbooks (curric books, if any)	New headway beginner student book. New headway beginner work book.
Main references (sources)	New headway beginner student book. New headway beginner work book.
Recommended books and references (scientific journals, reports...)	
Electronic Referenc Websites	https://www.google.com/search?q=speak+now+3+student+book+MgkIBBBFGDsYwgMyCQgFEEUYOxjCAzIJCAYQRRg7GMIDMgkIBxB

Course Description OF Data Structures

1. Course Name: Data Structures
2. Course Code: None
3. Semester / Year: Yearly / Second
4. Description Preparation Date: 10/02/2024
5. Available Attendance Forms: Mandatory (theoretical and practical lectures)
6. Number of Credit Hours (Total)/Number of Units (Total): 150 hours/10 units
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof. Dr. Wathiq Laftah Abd-Ali Al-Yaseen Email: wathiq@atu.edu.iq
8. Course Objectives

Course Objectives	• Identify the data structure and the basic concepts of the data structure. • Identify the types of data structures and how choose the appropriate data structure. • Identify arrays, their types, and methods to deal wi them. • Learn the pointers, how used, and write program w Pointers (allocated from memory and deleted). • Learn about linked lists and their types. • Learn about sorting and search algorithms. • Identify files, their types, methods of composing the saving data in them, and retrieving them.

9. Teaching and Learning Strategies

Strategy	• Theoretical lecture. • Practical lecture. • Discussion with students and students among themselves. • Preparing reports and projects related to the scientific material of the lecture.

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1st	5	Cognitive	- Definition of data structure - Basic principles of data structures. - Types of data structures. - How choose the suitable data structure.	Lecture and discussion	Questions and answers
2nd & 3rd	10	Cognitive and emotional	Simple data structures - Integer numbers - Float numbers - Characteristics - Strings - Pointers - Logical data	Lecture and discussion	Questions and exercises
4th & 5th	10	Cognitive and emotional	Compound data structures - Arrays - Represent one dimension array in memory - Represent two dimensions array in memory - Row major order - Column major order	Lecture and discussion	Questions and exercises
6th	5	Cognitive and emotional	Pointers - Pointer definitions	Lecture and discussion	Questions and answers

			- Memory/ allocate memory to pointer and editing - Pointers advantages and characteristic - Pointers and array/ arrays of pointers and pointer to array		
7th	5	Cognitive	- Pointer as address - Pointer comparison - Pointers of pointers - Function pointers	Lecture and discussion	Questions and answers
8th & 9th	10	Cognitive and emotional	Linked list - Linked list definitions - Linked list types and represent ways. - Simple list/ reading items, print list, insert item in (front, determine locations, back) of list	Lecture and discussion	Questions and exercises
10th & 11th	10	Emotional	- Binary list/reading items- print list - Circle list/ reading items- print list	Lecture and discussion	Questions and exercises
12th & 13th	10	Cognitive and emotional	Stack - Array representation of stack - linked stack - Stack operations algorithms, Stack application	Lecture and discussion	Questions and exercises
14th & 15th	10	Cognitive and emotional	Queue - Represent queue using matrix - linked queue - queue applications - circle queue	Lecture and discussion	Questions and answers

16th & 17th	10	Cognitive	Non-linear data structures - graphs. - graphs types - graphs representation	Lecture and discussion	Questions and exercises
18th	5	Cognitive	Trees - trees types - trees representation. - trees traversing methods	Lecture and discussion	Questions and answers
19th	5	Cognitive	- Convert general tree to binary - trees applications	Lecture and discussion	Questions and answers
20th – 23th	20	Cognitive and emotional	Sorting algorithms - selection sort - bubble sort - quick sort	Lecture and discussion	Questions and exercises
24th & 25th	10	Cognitive and emotional	Searching algorithms - sequential search - binary search	Lecture and discussion	Questions and exercises
26th	5	Cognitive	File Structures	Lecture and discussion	Questions and answers
27th – 30th	20	Emotional	Case study for discussions	Lecture and discussion	Questions and answers

11. Course Evaluation

- First Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- Second Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- 50 degrees for final exam (40 theoretical and 10 practical).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	• C++ for Beginners …. Masters. • Fundamentals of Programming C++. • A Tour of C++ Second Edition.

	• C++ Primer, Fourth Edition.
Recommended books and references (scientific journals, reports...)	• C/C++ Users Journal (ACM Digital Library) • Foundations of C++ (Springer)
Electronic References, Websites	https://learn.saylor.org/course/ https://cplusplus.com/ https://www.learncpp.com/

Course Description of Data Base

13. Course Name: Data Base	
14. Course Code: None	
15. Semester / Year: Yearly / Second	
16. Description Preparation Date: 10/02/2024	
17. Available Attendance Forms: Mandatory (theoretical and practical lectures)	
18. Number of Credit Hours (Total)/Number of Units (Total): 150 hours/10 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Manal Hashem soad Email: manal.soad@atu.edu.iq	
20. Course Objectives	
Course Objectives	• Identify the data base and the basic concepts of the d base. • Database Definition, characteristics, Compare databa with traditional file system. • Identify keys and relationships. • Identify Data types, Create tables and Append Blank . • Normal form Un normalized form First Normal fo 1NF, second Normal form 2NFand third Normal form 3NF • Data Models Relational Model. • Create database and relationships using VFP • Create views ,forms and reports. • Identify programming VFP and Memory Variable
21. Teaching and Learning Strategies	

Strategy	• Theoretical lecture. • Practical lecture. • Discussion with students and students among themselves. • Preparing reports and projects related to the scientific material of the lecture.

22. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1st	5	Cognitive	- Database Definition, characteristics - Compare database with traditional file system.	Lecture and discussion	Questions and answers
2nd & 3rd	10	Cognitive and emotional	- Keys: Primary key Secondary Key - Relationships: one to one one to many many to many	Lecture and discussion	Questions and exercises
4th & 5th	10	Cognitive and emotional	- Data types - Create tables - Append Blank	Lecture and discussion	Questions and exercises
6th – 8th	15	Cognitive and emotional	- Brows, Edit, Change data Browse partial data Blocking replace. - Permanent deletion: Delete and Recall - Un permanent deletion: Pack and zip	Lecture and discussion	Questions and answers
9th	5	Cognitive	- Sorting and Indexing data - Search and filter records: Seek, set filter, Locate, Go to	Lecture and discussion	Questions and answers
10th	5	Cognitive and emotional	- collocation statement: Average, Sum, Count statistic and economic statement	Lecture and discussion	Questions and exercises

			- Calculate AVG(),CNT(),Sum(),Min() , STD()		
11th – 13th	15	Emotional	- Normal form Un normalized form - First Normal form 1NF - Second Normal form 2NF - Third Normal form 3NF	Lecture and discussion	Questions and exercises
14th	5	Cognitive and emotional	- Data Models - Relational Model - Advantages and disadvantages of relationships	Lecture and discussion	Questions and exercises
15th	5	Cognitive and emotional	- Create database using VB queue - Create relations in DBC	Lecture and discussion	Questions and answers
16th & 17th	10	Cognitive	- Virtual tables views - Create views	Lecture and discussion	Questions and exercises
18th– 20th	15	Cognitive	Forms Building forms with form form Properties data layout main forms sub form	Lecture and discussion	Questions and answers
21th– 24th	20	Cognitive	- Create Reports - Create Simple Reports Group Reports - Compound report from several files using Relations or Views. Printing report	Lecture and discussion	Questions and answers
25th	5	Cognitive and emotional	- .programming VFP - Memory Variable Arrays If…. ENDIF - Do case	Lecture and discussion	Questions and exercises

26th	5	Cognitive and emotional	repetition statements: Do … while statement Scan…. end scan For…End for	Lecture and discussion	Questions and exercises
27th & 28th	10	Cognitive	Procedure and function Private and public variable	Lecture and discussion	Questions and answers
29th & 30th	10	Emotional	Create project and made application file also EXE file	Lecture and discussion	Questions and answers

23. Course Evaluation

- First Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- Second Course: 10 degrees for theoretical, 10 degrees for practical, 5 degrees for (daily exams, exercises, homeworks, and attendance).
- 50 degrees for final exam (40 theoretical and 10 practical).

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	• Database System Concepts, 5th by Ed©Silberschatz, Korth and Sudarshan
Recommended books and references (scientific journals, reports...)	• البرمجة بلغة Microsoft Visual FoxPro
Electronic References, Websites	https://books-library.net/free-3320917-download https://books-library.net/files/download-pdf-ebooks.org-ku-18991.pdf