

Course Description Form

1. Course Name	
Data structures and algorithms	
Course Code	
CS200	
Semester/Year	
annual	
Date of preparation of this description	
17-9-2025	
Available Forms of Attendance	
Physical Presence	
2. Number of Hours (Total) / Number of Credits (Total)	
120 Hours (60 Theoretical + 60 Practical) / 6 Units	
3. Course administrator name (if more than one name mentioned)	
Name: M.M. Murthad Hussein Sabry	
Email:	
4. Course Objectives	
1-Introduce students to the principles of data infrastructures 2. How to program different data structures using the C++ programming language 3. Prepare students to be programmers and familiar with data structures 4.Design and implementation of programs for various requirements	Course Objectives
5. Teaching and Learning Strategies	
This course aims to introduce students to the principles and methods of storing data in computers, programming these	Strategy



graphical structures, and how to use the programming language C++ in solving problems, designing systems, and preparing students to be professional programmers to design and implement programs for various requirements.

-The skill of choosing the appropriate graphical structure for the type of data to be stored and dealt with and the most efficient programming method to deal with and not go to lengthy solutions

--The skill of diversification using the programming tools of the language used in this course.

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
According to point 10 and according to need	According to point 10 and according to need	Introduction, Benefits, Types of data structure. How to select the suitable data structure.	Importance of DS Types of DS	4	1
According to point 10 and according to need	According to point 10 and according to need	Representation element in one and two-dimensional array.	1-D and 2-D arrays	4	2
According to point 10 and according to need	According to point 10 and according to need	Representation element in array with structures.	Using arrays with structure	4	3
According to point 10 and according to need	According to point 10 and according to need	Stack: definition, operations, and algorithms	Stack algorithm	4	4
According to point 10 and	According to point 10 and	Array representation of stack record	Implementing stack using arrays	4	5



according to need	according to need	implementation of stack			
According to point 10 and according to need	According to point 10 and according to need	Queue: definition, operations, and algorithms	Queue algorithm	4	6
According to point 10 and according to need	According to point 10 and according to need	Array representation of Queue	Implementing queue using arrays	4	7
According to point 10 and according to need	According to point 10 and according to need	record implementation of Queue	Implementing queue using arrays	4	8
According to point 10 and according to need	According to point 10 and according to need	Circular queue: definition, operations, and algorithms	Circular queue algorithm	4	9
According to point 10 and according to need	According to point 10 and according to need	Array representation of Circular Queue	Implementing circular queue using arrays	4	10
According to point 10 and according to need	According to point 10 and according to need	record implementation of Circular Queue	Implementing circular queue using arrays	4	11
According to point 10 and according to need	According to point 10 and according to need	Linked structures: sequential & dynamic Storage Allocation	Linked list	4	12
According to point 10 and according to need	According to point 10 and according to need	Linked list: definition, operations, and algorithms	Linked List algorithm	4	13



According to point 10 and according to need	According to point 10 and according to need	Linked Stack & Queue. Double linked list	Implementing stack and queue using linked list, Compare between linked list, double linked list and circular linked list	4	14
According to point 10 and according to need	According to point 10 and according to need	Different examples & programs for all data structure	Examples	4	15
According to point 10 and according to need	According to point 10 and according to need	Graph: -Directed graph -Undirected graph	Graph	4	16
According to point 10 and according to need	According to point 10 and according to need	Graph representation: -adjacency matrix -adjacency lists	Graph representation	4	17
According to point 10 and according to need	According to point 10 and according to need	Trees: tree structure and mathematical concepts	Trees	4	18
According to point 10 and according to need	According to point 10 and according to need	Types of trees	Types of trees	4	19
According to point 10 and according to need	According to point 10 and according to need	Tree traversing	Types of trees traversing	4	20
According to point 10 and	According to point 10 and	Tree representation: -General tree	Tree representation: -General tree	4	21



according to need	according to need	-Binary tree			
According to point 10 and according to need	According to point 10 and according to need	Tree representation: -General tree -Binary tree	Tree representation: Binary tree	4	22
According to point 10 and according to need	According to point 10 and according to need	tree transformations	tree transformations	4	23
According to point 10 and according to need	According to point 10 and according to need	Representation of arithmetic expression using binary tree		4	24
According to point 10 and according to need	According to point 10 and according to need	Binary search tree	Binary search tree	4	25
According to point 10 and according to need	According to point 10 and according to need	Sorting algorithms: selection, bubble, insertion, quick sort and merge	Sorting algorithms	4	26
According to point 10 and according to need	According to point 10 and according to need	Sorting algorithms: selection, bubble, insertion, and quick sort	Sorting algorithms	4	27
According to point 10 and according to need	According to point 10 and according to need	Searching algorithms: sequential & binary search	Searching algorithms: sequential search	4	28
According to point 10 and according to need	According to point 10 and according to need	Searching algorithms: sequential & binary search	Searching algorithms: binary search	4	29



According to point 10 and according to need	According to point 10 and according to need	Different examples & programs for all data structure	Examples	4	30
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7. Course Evaluation

Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports... etc
 Oral evaluation by involving students in discussions, quizzes, computer lab tests, and also in writing monthly and quarterly exams.

8. Learning and Teaching Resources

- Data Structures and Algorithms
Learning C++

Required textbooks (methodology if (available

Main References (Sources)

Recommended books and references (scientific journals, reports...)

Electronic References, Websites



Course Description Form

1. Course Name	
Database	
Course Code	
CS204	
Semester/Year	
annual	
Date of preparation of this description	
17/9/2025	
Available Forms of Attendance	
Attendance is mandatory for students according to the university's rules. (Theoretical and practical)	
2. Number of Hours (Total) / Number of Credits (Total)	
120 Hours (60 Theoretical + 60 Practical) / 6 Units	
3. Course administrator name (if more than one name mentioned)	
Name: Dhafer Sabah Yassin	
Email: dhafer.sabah@uohamdaniya.edu.iq	
4. Course Objectives	
This course aims to introduce the basic concepts needed to understand the methods used in data analysis, then move on to database design, practice creating ERD component relationship diagrams, using database management systems, and SQL. Educational outcomes. ➤ Understand how data analysis works. ➤ Understand how to design RD schemas . ➤ Practice the use of relational algebra and normalization relationships.	Course Objectives



- Understand the mechanism of database design.
- Practice using SQL instructions.
Understand and use the data processing language in terms of querying data, updating and managing a database.
- Linking databases with visual programming .
- Analyzing systems and building a relational database system according to key fields.
- The study of database design from a realistic and logical point of view, database modeling using relational, hierarchical or network databases.

5. Teaching and Learning Strategies

- Upon completion of the course, the student will be able to...
- What is a database.
- What are database management systems, file system, relational model, relational entity model, simplification of single table and building tables according to relational model, what is the advanced data model and others...
- Analyze and identify problems in the file system and relational model, relational entity model .
- Able to design and implement, relational model, relational entity model, applicant data model .
- Ability to define the rules and conditions of work required in any system.
- The ability to design and implement any database for any system using different model methods.
- Ability to improve legacy database systems.

Strategy

6. Course Structure



Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Exams and Discussion	Lecture in the classroom and the laboratory	INTRODUCTION TO DATABASE	- Introduction to Databases - Definition - Importance of the database - Example of Databases systems:	4	1
Exams and Discussion	Lecture in the classroom and the laboratory	File-Based Approach	- Understanding Traditional File-Based Systems - File-Based Approach - Example (Dream Home) - Limitations of the File-Based Approach	4	2
Exams and Discussion	Lecture in the classroom and the laboratory	Database Approach	- Why Databases? - Database Approach - Database - Database Management System (DBMS) - Application Programs - Components of the DBMS Environment - Role and Advantages of the DBMS - Types of Databases	4	3
Exams and Discussion	Lecture in the classroom and the laboratory	INTRODUCTION TO ORACLE DATABASE	- Why using oracle Databases? - What is Oracle? - Oracle Definition - RDBMS - Properties of RDBMS - Features of Oracle - Oracle Database Objects - Oracle versions	4	4
Exams and Discussion	Lecture in the classroom and the laboratory	How To Install Oracle	Practical- How To Install Oracle	4	5
Exams and Discussion	Lecture in the classroom and the laboratory	How to Login to Oracle	How to Login to Oracle	4	6
Exams and Discussion	Lecture in the classroom and the laboratory	Creating User	- DDL Command (CREATE USER)How to Create User - Syntax of creating user	4	7
Exams and Discussion	Lecture in the classroom and the laboratory	DCL commands with Privileges	- DCL commands - Grant - Revoke - Types Of Privileges :1. System Privileges2. User Privileges3. Object Privileges4. Roles Privileges	4	8
Exams and Discussion	Lecture in the classroom and the laboratory	Data Types	- Understanding Data Types - ALPHANUMERIC DATA - NUMERIC DATA (all variable length) - DATE AND TIME	4	9



			• LARGE OBJECT DATA TYPES		
Exams and Discussion	Lecture in the classroom	DDL- CREATE TABLE Statement	• DDL-Create Table Statement - Create Table (Prerequisites) - Create Table (Simple Syntax) - Heap Table	4	10
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT- Primary Key Constraint	• TABLE CONSTRAINT -Types of constraint - Primary Key Constraint.	4	11
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT - Foreign Key constraint	• What is Foreign KEY CONSTRAINT? • How to add Foreign key constraints?-- Using a CREATE TABLE statement .- Using a ALTER TABLE statement.- What is ERD?- What is a foreign key with Cascade DELETE in Oracle?- What is a foreign key with "Set NULL on Delete" in Oracle?- How Enable and Disable a Foreign key constraints?- How Drop a Foreign key constraints?	4	12
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT - Unique constraint	• TABLE CONSTRAINT - Unique constraintWhat Unique CONSTRAINT? How to add Unique constraints?-- Using a CREATE TABLE statement .- Using a ALTER TABLE statement.- How Enable and Disable a Unique constraints?- How Drop a Unique constraints?	4	13
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT - Check constraint	• TABLE CONSTRAINT - Check constraint- What Check CONSTRAINT? How to add Check constraints?-- Using a CREATE TABLE statement .- Using a ALTER TABLE statement.- How Enable and Disable a Check constraints?- How Drop a Check constraints?	4	14
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT - NOT NULL Constraint	• TABLE CONSTRAINT - NOT NULL Constraint & Default ConstraintTABLE CONSTRAINT - NOT NULL constraint- What NOT NULL CONSTRAINT? How to add NOT NULL constraints?-- Using a CREATE TABLE statement .- Using a ALTER TABLE statement.- How Enable and Disable a Check constraints?	4	15
Exams and Discussion	Lecture in the classroom and the laboratory	TABLE CONSTRAINT - Default Constraint	• TABLE CONSTRAINT - Default constraint- What Default CONSTRAINT? How to add Default constraints?-- Using a CREATE TABLE statement .- Using a ALTER TABLE statement.	4	16
Exams and Discussion	Lecture in the classroom	• DDL-Commands - AGE	• DDL- ALTER Command:- Adding new columns.- Modify an existing column(changing datatype and	4	17



	and the laboratory		size).- Drop a column.- Add ,Drop ,Enable ,Disable a constraint.		
Exams and Discussion	Lecture in the classroom and the laboratory	- DDL-Commands - RENAME - TRUNCATE - DROP	DDL- RENAME Command.DDL- TRUNCATE Command.DDL- DROP Command.	4	18
Exams and Discussion	Lecture in the classroom and the laboratory	DML-commands - INSERT Statment	- Data Manipulation LanguageDML commands - INSERT Statement	4	19
Exams and Discussion	Lecture in the classroom and the laboratory	DML-commands - UPDATE -DELETE	- Data Manipulation LanguageDML commands - UPDATE Statement - DELETE Statement	4	20
Exams and Discussion	Lecture in the classroom and the laboratory	TCL-Transaction Control Language	TCL-Transaction Control Language- TCL commands:- COMMIT- SAVEPOINT- ROLLBACK- Examples	4	21
Exams and Discussion	Lecture in the classroom and the laboratory	Database Normalization	Overview of Database Normalization- Database Constraints- DatabaseRelationships -Relationship Types	4	22
Exams and Discussion	Lecture in the classroom and the laboratory	Database Normalization	-Database Normalization - Normalization Overview - First Normal form - Second Normal Form	4	23
Exams and Discussion	Lecture in the classroom	Data Retrieval Language - (SELECT Statement)	Data Retrieval LanguageDRL commandSELECT Statement.- The Full syntax.- HR Schema.- Displaying all Columns- Formatting Columns in SQL-Plus.- Selecting Specific Columns of a Table.	4	24
Exams and Discussion	Lecture in the classroom and the laboratory	Data Retrieval Language - (SELECT Statement)	- Data Retrieval LanguageDRL commandSELECT Statement.- The Full syntax.- HR Schema.- Where Clause Operator. - Basic comparison operators - IN operator - BETWEEN operator - LIKE operator - IS NULL operator - AND & OR operators	4	25
Exams and Discussion	Lecture in the classroom and the laboratory	Data Retrieval Language - (SELECT Statement)	- Data Retrieval LanguageDRL commandSELECT Statement.- The Full syntax.- HR Schema.- ORDER BY Clause Operator. - expr[position] c_alias } - ASC DESC - NULLS FIRST NULLS LAST	4	26
Exams and Discussion	Lecture in the classroom	Data Retrieval Language - (SELECT Statement)	Data Retrieval LanguageSELECT Statement.- The Full syntax.- HR Schema.- Group By clause- Using	4	27



	and the laboratory		Aggregate Functions - Using Aggregate Functions in Queries - List of some aggregate functions - Examples of (group by) Using Aggregate Functions		
Exams and Discussion	Lecture in the classroom and the laboratory	Data Retrieval Language - (SELECT Statement)	- Data Retrieval Language SELECT Statement.- The Full syntax.- HR Schema.- HAVING clause - Examples of HAVING clause	4	28
Exams and Discussion	Lecture in the classroom and the laboratory	How To Generate an ERD	How To Generate an ERD for Selected Tables in SQL Developer	4	29
Exams and Discussion	Lecture in the classroom and the laboratory	Mini Project	How to implement Mini Project	4	30

7. Course Evaluation

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

- 1- Homework and attendance 10%
- 2- Surprise exams and exams 10%
- 3- Laboratory, practical exams and small projects 10%
- 4- Half-course exam 20%
- 5- Final Exam 50 %

8. Learning and Teaching Resources

1- Database Systems, Design, Implementation, And Management By Carlos Coronel , Steven Morris And Peter Rob. 2- Database Systems A Practical Approach to Design, Implementation, and Management Sixth edition, Thomas Connolly and Carolyn Begg. 3- Database system concept, fifth edition, Abraham Silberschatz and Merry F. Koth, 2006.	Required textbooks (methodology if available)
4- Database Systems, Design, Implementation, And Management By Carlos	Main References (Sources)



Coronel , Steven Morris And Peter Rob.	
Database Systems A Practical Approach to Design, Implementation, and Management Sixth edition, Thomas Connolly and Carolyn Begg	Recommended books and references (scientific (...journals, reports
Oracle Database SQL Language Reference	Electronic References, Websites



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.



1. Program Vision

The program vision is reflects the program's commitment to preparing highly qualified graduates in computer science, capable of applying object-oriented programming principles to develop efficient, scalable, and maintainable software solutions that meet the needs of industry and society.

2. Program Mission

the mission of the program is to provide high-quality education in computer science, focusing on developing skills in object-oriented programming, analysis, design, and problem-solving. The program aims to prepare graduates who are capable of innovation and creativity, applying theoretical knowledge to develop integrated software systems that serve societal needs and keep pace with modern technological advancements.

3. Program Objectives

- Provide students with a solid foundation in computer science concepts and object-oriented programming principles.
- Develop students' analytical and problem-solving skills to design and implement efficient, maintainable, and scalable software systems.
- Equip students with practical experience through projects, labs, and real-world applications to bridge the gap between theory and practice.
- Foster teamwork, communication, and critical thinking skills necessary for success in professional and academic environments.



- Prepare graduates to pursue advanced studies or careers in software development, systems analysis, and other computer science–related fields.

4. Program Accreditation

The program is designed to meet national and international standards for computer science education. It follows the guidelines and quality assurance criteria set by the Ministry of Higher Education and Scientific Research, and aligns with globally recognized frameworks to ensure graduates possess the competencies required by the job market and academia.

5. Other external influences

There is no external sponsor for the program at present. However, the program continuously monitors labor market needs and technological developments to ensure that the curriculum remains up-to-date and aligned with current standards and practices.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				



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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods
Implemented at all stages of the program in general.

11. Faculty
Faculty Members



Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan



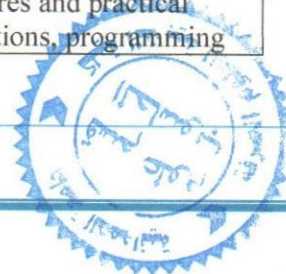
Program Skills Outline																	
					Required program Learning outcomes												
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics					
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4		

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



Course Description Form

1. Course Name:	
Object-Oriented Programming	
2. Course Code:	
CS201	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
02/09/2025	
5. Available Attendance Forms:	
Weekly in-person attendance / Theoretical and Practical	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 Hours (60 Theoretical + 60 Practical) / 6 Units	
7. Course administrator's name (mention all, if more than one name)	
Asst. Prof. Mohammed Alaa Aldeen Ahmed (Email: mkashmola@uohamdaniya.edu.iq) Asst. Lecturer Mohammed Abdulsattar Abdulghani (Email: mohmd.a.sattar@uohamdaniya.edu.iq)	
8. Course Objectives	
Course Objectives	- Introduce students to the fundamental concepts of object-oriented programming, such as objects, classes, inheritance, and composition, and demonstrate how to apply them in writing code. - Develop students' ability to analyze programming problems and design effective solutions using object-oriented techniques, including creating objects and defining their relationships. - Enable students to read, understand, and maintain object-oriented code, with the ability to make modifications and fix errors as needed. - Enhance programming and design skills through practical projects and real-world applications that reinforce the theoretical concepts learned.
9. Teaching and Learning Strategies	
Strategy	This course relies on a combination of theoretical lectures and practical sessions to strengthen concept understanding. Presentations, programming



examples, and class discussions are used to explain theories and fundamental concepts. Laboratory sessions are dedicated to exercises and project development, allowing students to apply what they have learned in practice. Students are encouraged to work in groups and solve problems to enhance critical thinking and teamwork skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical + 2 Practical	Understand programming paradigms	Programming Paradigms Non structured (unstructured) Programming , Procedural Oriented Programming Modular Programming	Lecture + Lab /	Assignments
2,3	2 Theoretical + 2 Practical	Identify and define OOP concepts	Introduction to OOP Class notation and definition (with graphical examples) A comparison among programming paradigms Class relation types (is a , type of)	Lecture + Lab	Assignments
4,5	2 Theoretical + 2 Practical	Understand abstraction and encapsulation	OOP concepts Abstraction concept and abstract data type Data hiding concept Encapsulation concept Reuse concept Class definition using Java Class body Methods (operations) within class Examples	Lecture + Lab	Quiz
6,7,8	2 Theoretical + 2 Practical	Create and use objects in Java	Creating objects Access attributes Access methods Examples Constructor and destructor methods Definition Access type Private, and public Examples	Lecture + Lab	Exercises
9,10	2 Theoretical + 2 Practical	Apply polymorphism	Polymorphism concepts first part Method Overloading Constructor Overloading Array of objects Examples	Lecture + Lab	Quiz
11,12	2 Theoretical + 2 Practical	Manipulate strings and use them in methods	Strings Declaration and Initialization Reading and printing Processing (sorting, searching, concatenating, ... etc) String as the method parameters and return values Examples	Lecture + Lab	Exercises
13	2 Theoretical	Understand inheritance	- Inheritance Inheritance types	Lecture + Lab	



	+ 2 Practical				
14,15,16	2 Theoretical + 2 Practical	Apply inheritance and abstract concepts	Constructor methods in subclass Two layers Inheritance Protected Access type Polymorphism concepts second part Method overloading (in subclass) Method overridden Abstract Method Abstract Class Definition Examples	Lecture + Lab	Midterm Exam
17,18	2 Theoretical + 2 Practical	Implement interfaces	Multiple Inheritance concepts Interface definition Examples	Lecture + Lab	Project Work
19,20	2 Theoretical + 2 Practical	Differentiate static and dynamic binding	Polymorphism concepts third part Static and dynamic binding Examples	Lecture + Lab	Exercises
21,22	2 Theoretical + 2 Practical	Use static members and methods	Static class and members Static attributes Static methods Static class Examples	Lecture + Lab	
23	2 Theoretical + 2 Practical	Understand special Java keywords	- - - Special java keywords This keyword in java Super keyword in java Final keyword in java Examples	Lecture + Lab	Quiz
24,25	2 Theoretical + 2 Practical	Use Math and Number classes	Math class and Number types class - Math methods - Number (Integer, Float,...,etc) methods - Examples	Lecture + Lab	Exercises
26,27,28	2 Theoretical + 2 Practical	Implement nested classes and packages	Nested Classes, and Other Details Nested Classes Anonymous Inner Classes Mixing Static and Non-Static Import Enums as Classes Java Packages Examples	Lecture + Lab	Project
29,30	2 Theoretical + 2 Practical	Explore additional OOP features	Other Java properties for OOP	Lecture + Lab	Final Project Presentation

11. Course Evaluation

The final grade (out of 100) is distributed according to student tasks such as daily preparation, quizzes, oral exams, monthly exams, written exams, and submitted reports. This includes daily, midterm, and final examinations.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	• Java Software Solutions, 8th Edition, J. Lewis & William L. • Introduction to Java Programming, 8th Edition, Y. Daniel Liang

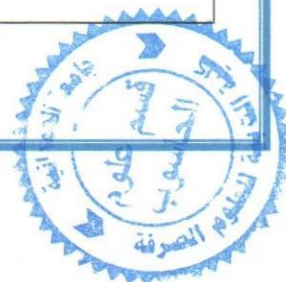


Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



Course Description Form

1. Course Name	
Numerical analysis	
Course Code	
CS203	
Semester/Year	
annual	
Date of preparation of this description	
17/9/2025	
Available Forms of Attendance	
Attendance is mandatory. (Theoretical and practical)	
2. Number of Hours (Total) / Number of Credits (Total)	
120 Hours (60 Theoretical + 60 Practical) / 6 Units	
3. Course administrator name (if more than one name mentioned)	
Name: Dhuha amer Jaleel Email: dhuha.am93@uohamdaniya.edu.iq	
Name: Rasha Raad Hadi Email: rasharaad@uohamdaniya.edu.iq	
4. Course Objectives	
The second stage student learns through the numerical analysis course how to calculate the errors that result from the use of iterative methods, as well as how to program algorithms that work on calculating the roots of nonlinear linear equations, as well as how to calculate integration and derivation based on the principles of numerical analysis.	Course Objectives
5. Teaching and Learning Strategies	
A1. Knowledge of numerical methods to find the solution of nonlinear equations.	Strategy



A2. Employing numerical analysis in specific integrations.
A3. Use numerical methods to find specific integrals.
A4- Knowledge of numerical methods to find the solution of linear equations.
A5- Concepts related to numerical programming in MATLAB
A6- Employing MATLABs to reach numerical solutions.
The student should be able to program the algorithms given in the theoretical aspect by applying them in the MATLAB language

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
quiz	Theoretical + Practical	Errors	The student understands the subject	2 Theoretical + 2practical	1
	Theoretical + Practical	Error Spread in Calculations (Multiplication and Division)		2 Theoretical + 2practical	2
	Theoretical + Practical	Numerical Solution of the System of Nonlinear Equations		2 Theoretical + 2practical	3
	Theoretical + Practical	Solid Point Method		2 Theoretical + 2practical	4
	Theoretical + Practical	How to accelerate the Standing Point		2 Theoretical + 2practical	5
	Theoretical + Practical	Method of halving the period		2 Theoretical + 2practical	6
	Theoretical + Practical	The Newton-Ravson method		2 Theoretical	7



				+ 2practical	
	Theoretical + Practical	Special cases of the Newton- Ravson method		2 Theoretical + 2practical	8
	Theoretical + Practical	False position method		2 Theoretical + 2practical	9
	Theoretical + Practical	Cutter Method		2 Theoretical + 2practical	10
	Theoretical + Practical	Numerical Solution of the System of Linear Equations		2 Theoretical + 2practical	11
	Theoretical + Practical	Systems of Linear Equations		2 Theoretical + 2practical	12
	Theoretical + Practical	Method of deletion for Kauss		2 Theoretical + 2practical	13
	Theoretical + Practical	The Kauss-Jordan Method		2 Theoretical + 2practical	14
	Theoretical + Practical	Kraut's trigonometric analysis method		2 Theoretical + 2practical	15
	Theoretical + Practical	Doult triangular analysis method		2 Theoretical + 2practical	16
	Theoretical + Practical	Jacoby Method		2 Theoretical + 2practical	17



	Theoretical + Practical	The Kauss-Seidl method		2 Theoretical + 2practical	18
	Theoretical + Practical	Relaxation method		2 Theoretical + 2practical	19
	Theoretical + Practical	Registration		2 Theoretical + 2practical	20
	Theoretical + Practical	Reverse Insertion Method		2 Theoretical + 2practical	21
	Theoretical + Practical	Progressive and regressive spreads		2 Theoretical + 2practical	22
	Theoretical + Practical	Relative Differences		2 Theoretical + 2practical	23
	Theoretical + Practical	Numerical Integration		2 Theoretical + 2practical	24
	Theoretical + Practical	The Simpsons Third Method and the Simpsons Eighths Third Method		2 Theoretical + 2practical	25
	Theoretical + Practical	Paul's Method and the Weddell Method		2 Theoretical + 2practical	26
	Theoretical + Practical	Rumbrick Method Algorithm		2 Theoretical + 2practical	27



	Theoretical + Practical	The Taylor Method and the Euler Method		2 Theoretical + 2 practical	28
	Theoretical + Practical	Range-Cota Method		2 Theoretical + 2 practical	29
	Theoretical + Practical	Adam-Moulten Method		2 Theoretical + 2 practical	30

7. Course Evaluation

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

- 1- Quiz.
- 2- Daily, quarterly and annual exams.
- 3- Seminars.
- 4- Duties.

8. Learning and Teaching Resources

	Required textbooks (methodology if available)
1- William Stalling, " cryptography and network security principles and practice " , 6 th ed. , 2015, Pearson.	Main References (Sources)
	Recommended books and references (scientific journals, reports...)
https://www.pluralsight.com/courses/learn-program-cplusplus	Electronic References, Websites



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.



1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

3. Program Objectives

General statements describing what the program or institution intends to achieve.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				



Department				
Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program

Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods

Implemented at all stages of the program in general.



11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan



[illegible]

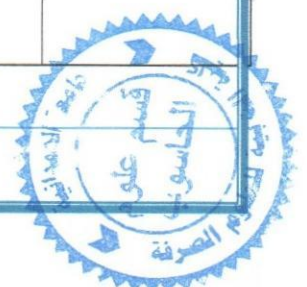
-

Course Description Form

1. Course Name:					
Microprocessors					
2. Course Code:					
CS202					
3. Semester / Year:					
Yearly					
4. Description Preparation Date:					
2025/9/21					
5. Available Attendance Forms:					
Attend classrooms + laboratories					
6. Number of Credit Hours (Total) / Number of Units (Total)					
120 hours (60 theoretical + 60 practical) / 6 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Firas Abdulrahman Yousif					
Email: firasabdulrahman@uohamdaniya.edu.iq					
8. Course Objectives					
Course Objectives			To familiarize students with the internal structure of the microprocessor and how it works, as well as executing programs using the 8086 emulator.		
9. Teaching and Learning Strategies					
Strategy		- The student acquires technical information about the internal structure of the processor and how it works. - He acquires the skill of executing programs using the 8086 emulator program.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4		Introduction Microprocessor		
2	4		Memory		
3	4				



4	4		Fetch and Execute instruction	
5	4			
6	4		Programming model	
7	4		Flag register	
8	4		Segment memory	
9	4		Addressing model part1	
10	4		Addressing model part2	
11	4		Logic instructions	
12	4		Shift instructions	
13	4		Rotate instructions	
14	4		Arithmetic instructions & Addition instruction Subtraction instructions	
15	4		Subtraction instructions	
16	4		Multiplication instruction	
17	4		Transfer of control instruction & jump unconditional instructions	
18	4		Jump conditional instructions	
19	4		Stack concept & application	
20	4		Push instructions	
21	4		Pop instructions	
22	4		String instructions	
			The interrupts	



23	4		Instructions set (form, no. of addressing)		
24	4		Brief introduction to machine code		
25	4		Machine assembly		
26	4		Coding the program		
27	4		Decoding		
28	4		i/o port		
29	4		Instructions		
30	4		Programmed i/o		

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Microprocessor 8086
Main references (sources)	THE INTEL MICROPROCESSORS 8086/80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, Core2 with 64-Bit Extensions Architecture Programming, and Interfacing.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.sathyabama.ac.in/sites/default/files/course--1-material/2020-10/MC4.pdf -2 https://userpages.umbc.edu/~squire/intel_book.pdf



Course Description Form

1. Course Name

Computational Theory

Course Code

CS205

Semester/Year

annual

Date of preparation of this description

21/9/2025

Available Forms of Attendance

Weekly theoretical only

2. Number of Hours (Total) / Number of Credits (Total)

90 Hours/ 6 Units

3. Course administrator name (if more than one name mentioned)

Name: Laith Saadi Salman Ahmed

Email: (laith.s.alsalman@uohamdaniya.edu.iq)

4. Course Objectives

- The main purpose of the course is to understand and design the foundation of a programming language compiler by achieving the objectives mentioned below:
- Through the Computational Theory course, the student learns how to deal with the different devices that make up the computer.
- And how to interpret and solve simple and complex mathematical problems.

Course Objectives



- Familiarize yourself with machine algorithms in the process of generating different languages to solve related problems.
- Computer Theory, Computational Theory, or Computational Theory in computer science studies the possibility of solving problems posed by a computer with high efficiency and examines what a computer can calculate now and can be developed in the future.
- Dealing with mathematical models that help solve simple and complex problems within the context of the machine's operation.
- Effective problem solving through a computational model using an algorithm.
- The basic capabilities and limitations of computers in the theory of self-operation and languages, computer theory, and the theory of computational complexity.
- Creating models of all kinds in the field of computer science in which mathematics and logic are used.

5. Teaching and Learning Strategies

- Introduction to computational theory.
- Introduce students to the importance of computational theory.
- Distinguish between types of automation systems and the way standard languages are found.
- Develop standard language concepts and generate standard grammar.

Strategy



- Fully prepare the student and prepare him for the translator's material.
- Presenting the lecture in detail and sequentially and linking it to examples from reality to form a clear mental image in the student.
- The ability to summarize the class.
- The ability to read and understand the class.
- Ability to discuss within the classroom.
- The ability to solve the exercises of the class.

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
quiz	Lectures	Introduction Computability theory	Give an idea of the basics and mathematical concepts and define standard rules	3 Theoretical	1
	Lectures	Automata theory	Give an idea of the basics and mathematical concepts and define standard rules	3 Theoretical	2
	Lectures	Language theory	Give an idea of the basics and mathematical concepts and define standard rules	3 Theoretical	3
	Lectures	Grammar	Give an idea of the basics and mathematical concepts and	3 Theoretical	4



<https://ocw.mit.edu/courses/18-404j-theory-of-computation-fall-2020/>

Electronic References, Websites

https://en.wikipedia.org/wiki/Theory_of_computation



Course Description Form

1. Course Name

The crimes of the Baath regime in Iraq

Course Code

CS211

Semester/Year

annual

Date of preparation of this description

2025/9/17

Available Forms of Attendance

My Weekly Attendance

2. Number of Hours (Total) / Number of Credits (Total)

30 hours/two units

3. Course administrator name (if more than one name mentioned)

Name: Dilshad Muhammad Zara

4.

Introduce students to the crimes of the Baath regime in Iraq, such as mass graves in Iraq before 2003.

Provide an opportunity to understand the details of one of the most important dark periods in Iraq's modern history.

Course Objectives

5. Teaching and Learning Strategies

1. Understand the nature of the ruling regime during the period of the Baath Party's rule in Iraq.

2. Introducing students to the enormity of the crimes of the Baath Party in Iraq.

3. Developing students' knowledge about the darkest period in Iraq's contemporary history.

Strategy



B. Skill Objectives of the Course

- The skill objectives of the Baath regime crimes course in Iraq in the second phase may include:
- Analysis Skill:
 - Analysis of important facts in Iraq's political history.
 - The ability of students to understand the differences between a dictatorial system and a democratic system.

Reading Skill:

- Understand the legal texts on human rights in dictatorial states.

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Direct Questions	Lecture, Discussion and Dialogue	The concept of crimes and their divisions, and the definition of crime in language and idiom	Theoretical Knowledge	1	1
Direct Questions	Lecture, Discussion and Dialogue	Crimes and Crimes Sections of the Baath Regime according to the Documentation of the Law of the Iraqi Supreme Criminal Court in 2005	Theoretical Knowledge	1	2



Direct Questions	Lecture, Discussion and Dialogue	Types of International Crimes	Theoretical Knowledge	1	3
Direct Questions	Lecture, Discussion and Dialogue	Decisions issued by the Supreme Criminal Court, and the most prominent cases heard by the court: the crime of the Dujail massacre and the crime of the bombing of Halabja	Theoretical Knowledge	1	4
Direct Questions	Lecture, Discussion and Dialogue	The crime of Anfal operations and the crime of executing a number of Iraqi merchants	Theoretical Knowledge	1	5
Direct Questions	Lecture, Discussion and Dialogue	The crime of suppressing the popular uprising, the crime of the Friday prayer events, the liquidation of religious and secular parties, and the crime of displacing the Feyli Kurds	Theoretical Knowledge	1	6



Direct Questions	Lecture, Discussion and Dialogue	Levels of protection of the legal interests of the community	Theoretical Knowledge	1	7
Direct Questions	Lecture, Discussion and Dialogue	Psychological Crimes and Their Mechanisms	Theoretical Knowledge	1	8
Direct Questions	Lecture, Discussion and Dialogue	Effects of Psychological Crimes	Theoretical Knowledge	1	9
Direct Questions	Lecture, Discussion and Dialogue	Social crimes and the militarization of society	Theoretical Knowledge	1	10
Direct Questions	Lecture, Discussion and Dialogue	The Baathist regime's position on religion	Theoretical Knowledge	1	11
Direct Questions	Lecture, Discussion and Dialogue	Continuation of the discussion on the Baathist regime's position on religion and the results of the popular uprising	Theoretical Knowledge	1	12
Direct Questions	Lecture, Discussion and Dialogue	Violations of Iraqi laws and forms of human rights violations and crimes of the authority	Theoretical Knowledge	1	13
Direct Questions	Lecture, Discussion and Dialogue	A review of some of the crimes of the	Theoretical Knowledge	1	14



		Baath Party against the Iraqi people And talking about some of the decisions of the political and military violations of the Baath regime			
		Monthly exam	Theoretical Knowledge	1	15
Direct Questions	Lecture, Discussion and Dialogue	Places of Prisons and Detention of the Baath Regime	Theoretical Knowledge	1	16
Direct Questions	Lecture, Discussion and Dialogue	The Environmental Crimes of the Baath Regime in Iraq: War and Radioactive Pollution	Theoretical Knowledge	1	17
Direct Questions	Lecture, Discussion and Dialogue	Use of internationally prohibited weapons, such as chemical weapons, and their effects in some areas	Theoretical Knowledge	1	18
Direct Questions	Lecture, Discussion and Dialogue	Radioactive Material Contamination	Theoretical Knowledge	1	19
Direct Questions	Lecture, Discussion and Dialogue	Destruction of Cities and Villages	Theoretical Knowledge	1	20



		(Scorched-Earth Policy)			
Direct Questions	Lecture, Discussion and Dialogue	Draining the marshes	Theoretical Knowledge	1	21
Direct Questions	Lecture, Discussion and Dialogue	Dredging palm groves, trees and crops	Theoretical Knowledge	1	22
Direct Questions	Lecture, Discussion and Dialogue	Mass Grave Crimes	Theoretical Knowledge	1	23
Direct Questions	Lecture, Discussion and Dialogue	Events of the genocide graves committed by the Baathist regime in Iraq	Theoretical Knowledge	1	24
Direct Questions	Lecture, Discussion and Dialogue	Events from 1979 to 2003 and their relationship to mass graves	Theoretical Knowledge	1	25
Direct Questions	Lecture, Discussion and Dialogue	Temporal Classification of Mass Grave Crimes in Iraq for the Period 1963–2003	Theoretical Knowledge	1	26
Direct Questions	Lecture, Discussion and Dialogue	Genocide graves related to the Iran–Iraq War	Theoretical Knowledge	1	27



Direct Questions	Lecture, Discussion and Dialogue	Kurdish Genocide Cemeteries and Genocide Cemeteries of Anfal Massacre Victims	Theoretical Knowledge	1	28
Direct Questions	Lecture, Discussion and Dialogue	Genocide graves of victims of the 1991 popular uprising	Theoretical Knowledge	1	29
		Monthly exam	Theoretical Knowledge	1	30

7. Course Evaluation

Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports... etc
Oral Dialogue and Direct Question
Written and oral tests

8. Learning and Teaching Resources

Ministerial Platform "Crimes of the Baath Regime in Iraq"

Required textbooks (methodology if available)

Main References (Sources)

The coup d'état of July 17, 1968 – 2003, the suspicious beginning and the tragic end of Seif al-Din al-Douri.
 The Epistemological Foundation for the Study of the Crimes of the Baath Party in Iraq by Qais Nasser and Abdulhadi Ma'touq Al-Hatem.

Recommended books and references (scientific journals, reports...)



Supreme National Accountability and
Justice Commission (SACRA) website

Electronic References, Websites



Course description form

1.Name of the course

Arabic

Course code

CS209

Semester/year

Annual

The date this description was prepared

2025 /9/20

Available attendance forms

My attendance weekly

(Number of study hours (total)/number of units (total .

30hours/2 units

(Name of the course administrator (if more than one name is mentioned

Name: M. M. Yaseen Abdullah Saeed. Email: yaseen12345alkorane@gmail.com

1. Course objectives

tadhkir altaalib biqawaeid allughat alearabiat aleama
'an yataealam altaalib qawaeid alsiyaghat bi'uslub wadihi.
'an yataealam altaalib kitabat nasin mdbwtaan bialshakl waealamat altarqimi.
'an yataearaf altaalib ealaa juz' basit 'aw nubdhat eamat min turathih alearabii al'adbi.
'an yabqaa altaalib ealaa silat balaghath al'umu (allughat alearabiatu) alati tubqih ealaa silat bihuiatih al'asilati.

**Objectives of the study
subject**

Teaching and learning strategies

.The student gets to know the parts of speech
.For the student to recognize the call
The student should differentiate between poetry and
.prose
For the student to become familiar with the most
.important sources of literature
The student should distinguish between severing and
.connecting hamzas
The student should enumerate the conjunctions and
.their meanings

Strategy



.Proper reading of prose and poetic texts
 .Clear parsing of nominal and verbal sentences
 Memorizing the keys to the seven pendants, which
 .represent the finest works written in the literary heritage
 .Adjusting written texts in form and punctuation
 Formulating representative sentences that are precise in
 .form and meaning

Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Watches	Week
		Parts of speech, noun .signs			1
		The meaning of .literature and its eras			2
		Hamzat al-Qat' and Hamzat al-Wasl, their definition and where they are used in nouns, verbs, and .letters			3
		Verb signs, letter signs, types of sentences, their .elements, and syntax			4
		The concept of poetry, its sections, sources and purposes, and some representative poetic .verses			5
		Punctuation marks: their definition, where they are used, and an applied .example			6
		Dividing the verb according to its tense, and parsing the present tense verb: its subjunctive and subjunctive, tools,			7



		meaning, and .parsing			
		Caller: calling letters/del etion and its causes, calling letter, its grammati cal analysis, grammati cal .examples			8
		The meaning of prose, its sections, .and some of its types			9
		Minions The adjective, its purposes and parts, and the ruling on its parsing Emphasis and its types Conjunction and its letters Substitution, its types, meanings and .parsing			10



[illegible]

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

	Learning and teaching resources
Alfiyyah Ibn Malik, Explanation of Ibn Aqeel/Al-Amali in Islamic Literature by .Ibtisam Marhoon Al-Saffar	Learning and teaching resources
The Clear Grammar by Ali Al-Jarim /	(Main references (sources

The Wafi Grammar by Abbas Hassan / Poetry and the Days of the Arabs in the Pre-Islamic Era by Dr. Afif Abdel Rahman / The Pre-Islamic Era by Shawqi .Deif The clear dictation of Abdul Majeed Al .Nuaimi	
The Seven Commentaries by Al-Zouzani / A History of Arabic Literature by Shawqi .Deif	Recommended supporting books and (...references (scientific journals, reports
	Electronic references, websites



Course Description Form

1. Course Name

Computer Graphics

Course Code

CS302

Semester/Year

annual

Date of preparation of this description

21/9/2025

Available Forms of Attendance

Weekly / Theoretical + Practical

2. Number of Hours (Total) / Number of Credits (Total)

120 Hours (60 Theoretical + 60 Practical) / 6 Units

3. Course administrator name (if more than one name mentioned)

Name: Hani Ghassan Abdulkarim Email:

4. Course Objectives

Through the course, the student will be introduced to a set of algorithms used to draw geometric shapes from the perspective of an electronic calculator. These include the Brenham and DDA line drawing algorithms.

Learn how to program drawing geometric shapes, lines, and curves in C using Codeblock.

Course Objectives

5. Teaching and Learning Strategies

Identify the working philosophy of the geometric shape drawing algorithm and how to apply it practically
The student learns to gain enough experience to program drawing shapes through OpenGL Drawing Offices

Strategy



6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
	Classrooms	History, uses, pipeline Primitives Graphic system and models		4	1
	Classrooms	Raster Devices How a Monitor Works Physical Devices		4	2
	Classrooms	Line Equation and slopes		4	3
	Classrooms	DDA line drawing algorithm		4	4
	Classrooms	Brezenham Line Drawing algorithm		4	5
	Classrooms	Brezenham circle drawing algorithm		4	6
	Classrooms	Brezenham mid-point algorithm		4	7
	Classrooms	2D: Objects representation, Coordinates transformation		4	8
	Classrooms	3D: Objects representation, Coordinates transformation,		4	9
	Classrooms	Cohen-Surherland line clipping algorithm		4	10
	Classrooms	Image overview and compression		4	11
	Classrooms	Histogram in Digital Image		4	12
	Classrooms	Area filling algorithm		4	13
	Classrooms	Bezier Curve		4	14
	Classrooms	Boundary Filling Algorithm		4	15



	Classrooms	Fractal Geometry		4	16
	Classrooms	Shearing and Reflection in 2D		4	17

7. Course Evaluation

Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports... etc
Written Tests, Oral Tests, Daily Posts, Completion of Assignments

8. Learning and Teaching Resources	
Computer Graphics Principles and Practice Third Edition John F. Hughes	Required textbooks (methodology if (available
Computer Graphics Principles and Practice Third Edition- Computer Graphics C_version Interactive Computer Graphics (a top down approach)	Main References (Sources)
Computer Graphics Principles and Practice Third Edition	Recommended books and references (...scientific journals, reports)
Ahmed A. Mostfa - YouTube	Electronic References, Websites



Course Description Form

1. Course name:	Curricula and teaching methods
2. Course code:	CS306
3. Semester/Year: Annual System	2025-2026
4. Date of preparation of this description:	17/9/2025
5. Available attendance forms: Daily morning attendance	In-person education
6. Number of study hours / Number of units	60 hours / 4 units
7. Course Supervisor Name (if more than one name is mentioned)	Name: Email: M.M. Younis Dharar Jassim youniesdrar12345@uohamdaniya.edu.iq
8. Course objectives	The curriculum and teaching methods course aims to enable the student to: 1. Recognize the teacher's message in society.



Feedback	discussion, lecture, debate	Types of calendar	Enable students to identify and apply types of educational assessment.	2	7
Feedback	discussion, lecture, debate	Types Objectives	Students were able to identify the types of Educational objectives and its field applications	2	8
Feedback	discussion, lecture, debate	Sources of educational objectives	Students were able to identify Sources of derivation of educational objectives	2	9
Feedback	discussion, lecture, debate	role in formulating the behavioral objective	Students were able to Defining the formulation of behavioral objectives	2	10
a test	discussion, lecture, debate	Teaching objectives	Students were able to identify Classification of behavioral objectives	2	11



Feedback	discussion, lecture, debate	Behavioral Objectives Areas	Enabling students to know how to Linking the fields of objectives	2	12
Feedback	discussion, lecture, debate	Teaching methods	Empowerment A For students of determination Strateg ic concepts, methods and style	2	13
Feedback	discussion, lecture, debate	Teaching methods	Enabling students to Knowing the specifications of successful teaching	2	14
Semi- annual news	discussion, lecture, debate	Teaching methods	Empowering students To learn about the types of teaching methods	2	15
Feedback	discussion, lecture, debate	Teaching Jokes	Enabling students to Knowing the method of delivery and its steps	2	16
Feedback	discussion, n,	Teaching methods	Enabling students to Knowing how	2	17



	lecture, debate		DiscussionandMenti on her steps		
Feedback	discussio n, lecture, debate	Objective tests	Empowering studentsIdentify the problem method and mention its advantages and disadvantages.	2	18
Feedback	discussio n, lecture, debate	Classification of tests by method	Enabling students to identify different testing methods	2	19
Feedback	discussio n, lecture, debate	strategy	Enabling students toLearn about cooperative learning	2	20
Monthly exam	–	Knowing the students' level and the information they have acquired	Monthly exam	2	21
Feedback	discussio n,	Teaching methods	Enabling students toKnowing the role	2	22



	lecture, debate		of the teacher during collaborative work		
Feedback	discussion, lecture, debate	Teaching methods	Enabling students to Master one method in reality	2	23
Feedback	discussion, lecture, debate	Teaching methods	Enabling students to Applying the standard method in teaching	2	24
a test	discussion, lecture, debate	Teaching methods	Enabling students to Model teaching steps	2	25
Feedback	discussion, lecture, debate	Teaching methods	Enabling students to apply methods In teaching	2	26
Feedback	discussion, n,	Field visits	Enabling students to identify On field visits	2	27



	lecture, debate				
Feedback	discussion, lecture, debate	Field visits	Enabling students toPreparing reports when visiting schools	2	28
Feedback	discussion, lecture, debate	Teaching methods	Enabling students toModel teaching steps	2	29
Feedback	discussion, lecture, debate	Calendar	Enabling students toKnowing the calendar and the characteristics of the calendar	2	30

11- Learning and teaching resources

1- Required textbooks	-General teaching methods Its planning and educational applications,Walid Ahmed,Jaber,Dar Al Fikr for Publishing and Distribution 2013
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	-Curriculum and teaching methods,Ramadan Masoud Badawi,Dar Al Fikr for Publishing and Distribution 2011 AD -General teaching methods and their evaluation,Abdul-Hayy Ahmed Al-Subhi Mohammed Abdullah Al-Qasaymeh Khwarazm Scientific Publishers and Libraries 2011 AD -Teaching methods,Khaled Al-Sarayrah and others ,Dar Al Masirah for Printing and Publishing 2010 AD
2- Main references (sources)	- Teaching strategies. Ali Munir Al-Husari Dar Al-Asar Al-Ilmi for Printing and Publishing 2015 2- Creativity in teaching,Khalil Abdel Fattah Hammad,And my name is Yasra Badr,Al-Falah Library for Publishing and Distribution 2014
A- Recommended books and references (scientific journals, reports, etc.)	
B - Electronic references, Internet sites	-Al-Noor Library (electronic library) is free on the search engine.Google



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.

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Concepts and terminology:

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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.

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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.



1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

3. Program Objectives

General statements describing what the program or institution intends to achieve.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				



Department				
Requirements				
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods
Implemented at all stages of the program in general.



11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan



[illegible]

Course Description Form

1. Course Name:					
Computer architecture					
2. Course Code:					
CS304					
3. Semester / Year:					
Yearly					
4. Description Preparation Date:					
٢٠٢٥/٩/١٧					
5. Available Attendance Forms:					
Attend classrooms					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours/4 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Firas Abdulrahman Yousif					
Email: firasabdulrahman@uohamdaniya.edu.iq					
8. Course Objectives					
Course Objectives			.To introduce students to the internal structure of the computer and how the memory and processor work with external and internal peripheral devices.		
9. Teaching and Learning Strategies					
Strategy		The student acquires technical information about the internal structure of the computer and how it works.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Blackboard +data show	Introduction of computer architecture		Daily exams
٢	٢		Memory system architecture		



٣	٢	Memory devices characteristics-RAM units components	
٤	٢	RAM organization -one dimensional memory Segment memory	
٥	٢	Two dimensional memory	
٦	٢	RAM design Logic instructions	
٧	٢	Cache memory	
٨	٢	Principles of locality of reference	
٩	٢	Structure of cache memory-cache design	
١٠	٢	Performance of cache memory	
١١	٢	Cache mapping/ Direct cache mapping	
١٢	٢	Associative cache mapping Stack concept & application	
١٣	٢	Set associative cache mapping	
١٤	٢	Set cache mapping part2	
١٥	٢	Replacement algorithms -write policies	
١٦	٢	Virtual memory -Virtual memory principle	
١٧	٢	Paging technique	



١٨	٢	Translation look aside buffer		
١٩	٢	Segmentation technique -segmentation with paging		
٢٠	٢	Direct memory access(DMA) -DMA controller-Types of DMA		
٢١	٢	Central processing unit(CPU) -single bus organization -multi bus organization		
٢٢	٢	CPU structure -register organization		
٢٣	٢	Control unit -hard ware control unit -micro programmed unit		
٢٤	٢	Branching		
٢٥	٢	Pipelining -cycle time of pipelining process -Pipeline Latency		
٢٦	٢	Types of microinstructions -horizontal microinstructions -vertical microinstructions		
٢٧	٢	Input and output system -i/o port		
٢٨	٢	Addressing i/o		
٢٩	٢	Instructions& programmed i/o		
٣٠	٢	Execution of complete instructions		



11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			Basic Computer Architecture		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites			https://www.cse.iitd.ac.in/~srsarangi/archbook/archbook.pdf		



Academic Program Description Form

University Name:

Faculty/Institute:

Scientific Department:

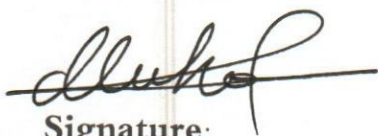
Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date:

File Completion Date:



Signature:

Head of Department Name:

Dr. Samah Fakhri Aziz

Date: 23/9/2025





Signature:

Scientific Associate Name:

Dr: Muhmmmed Abbas Kazim

Date: 23/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

Course Description Form

1. Course Name

Artificial Intelligence

Course Code

CS300

Semester/Year

annual

Date of preparation of this description

2025 /9/1

Available Forms of Attendance

Weekly / Theoretical + Practical

2. Number of Hours (Total) / Number of Credits (Total)

120 Hours/6 Units

3. Course administrator name (if more than one name mentioned)

Name: Mahmoud Mohamed Younis

Email: mahmood.younis@uohamdaniya.edu.iq

4. Course Objectives

The main purpose of the course is to understand and design the foundation of a programming language compiler by achieving the objectives mentioned below.

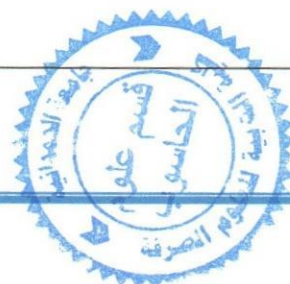
Through the Artificial Intelligence course, the student learns how to deal with the theories of artificial intelligence technologies and artificial neuron networks through machine learning.

Learn about machine learning algorithms

Enable the student to understand how data is collected and analyzed to extract information that is prepared for the training process.

Dealing with the practical aspect of applying algorithms

Course Objectives



Effective problem solving through a computational model using an algorithm.

5. Teaching and Learning Strategies

A. Cognitive Objectives

- 1- Introducing the concepts of artificial intelligence
- 2- Introducing students to the importance of artificial intelligence applications
- 3- Distinguishing between the types of technologies used in machine learning
- 4- Developing the concepts of the programming language used in the application of algorithms
- 5- Fully preparing the student and preparing him for the translator's material.

B. Skill Objectives of the Course

- Presenting the lecture in detail and sequentially and linking it to examples from reality to form a clear mental image in the student.
- The ability to summarize the class.
- The ability to read and understand the class.
- Ability to discuss within the classroom.
- The ability to solve the exercises of the class.

Strategy

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
quiz	Lectures	Artificial intelligent Introduction Definition		4 Theoretical+ practical	1
	Lectures	Artificial intelligent Applications, Programming		4 Theoretical+ practical	2
	Lectures	Characteristic of A.I. Programming language and A.I., Problem Solving		4 Theoretical+ practical	3



	Lectures	Graph Theory ,travel sales man problem		4 Theoretical+ practical	4
	Lectures	Derivation		4 Theoretical+ practical	5
	Lectures	Types of grammar -Phrase structure grammar (PSG)		4 Theoretical+ practical	6
	Lectures	8-puzzel Game , Search method		4 Theoretical+ practical	7
	Lectures	Systematic Methods		4 Theoretical+ practical	8
	Lectures	Depth – First Search		4 Theoretical+ practical	9
	Lectures	Breadth – First Search		4 Theoretical+ practical	10
	Lectures	Heuristic Methods, Hill – Climbing Search		4 Theoretical+ practical	11
	Lectures	Best – First Search		4 Theoretical+ practical	12
	Lectures	A Star (A*) algorithm		4 Theoretical+ practical	13
	Lectures	Artificial Neural Network(ANN),Introduction		4 Theoretical+ practical	14
	Lectures	ANN component, How Are ANN used Common Activation functions, ANN Architecture		4 Theoretical+ practical	15
	Lectures	Application(logical Function)		4 Theoretical+ practical	16
		Mid-year Break			17



	Lectures	Hebb Net (Algorithm, Applications)		4 Theoretical+ practical	18
	Lectures	Perceptron Net (Algorithm, Applications)		4 Theoretical+ practical	19
	Lectures	Adaline Net (Algorithm, Applications)		4 Theoretical+ practical	20
	Lectures	Madaline Net (Algorithm, Applications)		4 Theoretical+ practical	21
	Lectures	Pattern Association ,Introduction, Hebb rule ,Outer Production		4 Theoretical+ practical	22
	Lectures	Hetro Associative Memory N.N, (Architecture, Algorithm)		4 Theoretical+ practical	23
	Lectures	Auto Associative Memory N.N, (Architecture, Algorithm, Applications		4 Theoretical+ practical	24
	Lectures	Discrete Hopfield Net		4 Theoretical+ practical	25
	Lectures	Expert System (Introduction, Architecture, Characteristic)		4 Theoretical+ practical	26
	Lectures	Knowledge representation		4 Theoretical+ practical	27
	Lectures	Fact and rule, Production system and rule base		4 Theoretical+ practical	28
	Lectures	Application of Expert System		4 Theoretical+ practical	29
	Lectures	The role of expert system in learning by computer		4 Theoretical+ practical	30

7. Course Evaluation



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

- Freedom to express opposing views is correct.
- Participate in scientific discussions.
- Help with homework.
- Daily attendance and commitment within the lecture hall.

8. Learning and Teaching Resources

1. Stephen Marche (2020), the Alignment Problem.

Required textbooks (methodology if (available

Artificial Intelligence, by Melanie Mitchell (2019)

Main References (Sources)

1. Artificial Intelligence – A Modern Approach (3rd Edition)
– By Stuart Russell & Peter Norvig

Recommended books and references (...scientific journals, reports)

<https://www.javatpoint.com/machine-learning/>

Electronic References, Websites

<https://www.coursera.org/learn>



Course Description Form

1. Course Name:	
Visual Programming	
2. Course Code:	
CS303	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
21/9/2025	
5. Available Attendance Forms:	
Weekly - Theoretical Lectures and Practical Sessions	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours (60 theoretical + 60 practical)	
Credit Units: 6	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lecturer Ahmed Abdulrahman Idris Email: ahmed-alkaddo@uohamdaniya.edu.iq Name: Asst. Lecturer Hani Ghassan Abdul Kareem Email: hani.alsaigh@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	- To understand the fundamentals of the C# programming language and the use of integrated development environments (IDEs) such as Visual Studio for application development. - To explore the use of visual programming techniques for designing user interfaces (UI), including creating windows, buttons, text boxes, and other UI components using tools such as Windows Forms or Windows Presentation Foundation (WPF). - To handle events and manage user-interface interactions, such as responding to mouse clicks or button presses. - To work with databases and integrate them into applications, including inserting, updating, and deleting data using C# and visual programming tools. - To develop web applications using C# for building and managing websites and web-based solutions. - To enhance students' skills in designing and implementing efficient software applications using C# and visual programming.
9. Teaching and Learning Strategies	
Strategy	A. Knowledge and Skills Development



A1: Building visual applications using graphical user interfaces (GUI) and various visual components.

A2: Utilizing visual development tools such as the form designer and window designer in the Visual Studio environment.

A3: Understanding how visual applications handle events and respond to user interactions with the interface.

A4: Developing graphic design skills through the customization and formatting of visual elements in user interfaces.

A5: Managing and manipulating data within visual applications, including reading from and writing to databases and interacting with them effectively.

A6: Enhancing debugging skills and performance optimization in visual application development.

B. Advanced Competencies

B1: Applying advanced features of the C# language to develop sophisticated visual applications.

B2: Enabling students to master the use of graphical interface development tools in Visual Studio to design advanced and attractive user interfaces.

B3: Applying project management and scheduling skills in visual application development to ensure timely project delivery.

B4: Strengthening students' ability to analyze problems and provide innovative and effective software solutions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 - 2	4	Understanding the concept of visual programming,	Introduction to Visual Programming	- Theoretical lectures (PDF, power point). - Practical laboratory sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project



		its definition, features, and characteristics.		-Class discussions and Q&A sessions.	-Class Participation and Activities
3 - 4	4	Understanding how interfaces work and how to utilize their properties.	Form	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
5 - 6	4	Understanding how to use the tools and familiarizing with the properties of each component.	Check Box, Radio Buttons and Group Box	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
7 - 8	4	Understanding how to use multiple interfaces, link them together, and the mechanism to access them	Multi Forms	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
9 - 10	4	Understanding how to use the list box tool, including adding and removing items.	Listbox	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
11 - 12	4	Understanding how to use the drop-down list tool, including adding and removing items, and exploring its properties.	ComboBox and NumericUpDown	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities



13 - 14	4	Understanding how to detect and resolve errors.	Errors handling and more Controls	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
15 - 16	4	Understanding how to work with files, including reading from and writing to them using Stream Files.	Files	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
17 - 18	4	Understanding how to use the most commonly used windows, including how to add them and access them.	Common Dialogs	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
19 - 20	4	Understanding how menus work in interfaces, their properties, and how to access them.	MenuStrip Control	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
21 - 22	4	Understanding how a tree view works, including adding and removing items.	TreeView Control	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
23 - 24	4	Understanding how to use the web browser tool.	Web Browser	- Theoretical lectures (PDF, power point).	- Written Exams/ Quizzes. - Practical Assignments / Lab Work.



				-Practical laboratory sessions. -Group projects. -Class discussions and Q&A sessions.	- Project -Class Participation and Activities
25 – 26	4	Understanding how to use the timer control tool and apply it in programs.	Timer Control	- Theoretical lectures (PDF, power point). -Practical laboratory sessions. -Group projects. -Class discussions and Q&A sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project -Class Participation and Activities
27 – 28	4	Understanding how to create a database, access it, and modify it using SQL commands.	Database Programming	- Theoretical lectures (PDF, power point). -Practical laboratory sessions. -Group projects. -Class discussions and Q&A sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project -Class Participation and Activities
29 – 30	4	Understanding how to create an image viewer application and edit images within it.	Image Viewer	- Theoretical lectures (PDF, power point). -Practical laboratory sessions. -Group projects. -Class discussions and Q&A sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project -Class Participation and Activities

11. Course Evaluation

The grade is distributed based on the tasks assigned to the student, including daily preparation, quizzes, oral and monthly tests, written assignments, lab reports, etc.

Active Class Participation

Homework Assignments

Attendance

Laboratory Tasks

Quizzes / Tests

Midterm and Final Exams (Theoretical and Practical)



12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Sharp J. Microsoft Visual C# 2013 Step by Step. Pearson Education; 2013 Nov 15.
Main references (sources)	-Lectures delivered by the course instructor -Books available in the college library
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Any other materials available on the web



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Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical



13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan



[illegible]

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Course Description Form

1. Course Name:	
Software Engineering	
2. Course Code:	
CS305	
3. Semester / Year:	
Year	
4. Description Preparation Date:	
21/9/2025	
5. Available Attendance Forms:	
Weekly / Theoretical	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ziadoon Abdullah Otaiwi Email: ziadoonotaiwi@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	The objectives of a software engineering course vary depending on the course content and level of education, but in general, the objectives may include: Understanding software engineering principles: The course aims to introduce students to software engineering concepts and the foundations upon which they are based, such as software design, development, testing, and software project management. Developing programming skills: The course seeks to improve students' programming skills through practicing coding and understanding the basic concepts of programming languages and technologies used in software development. Learning software design techniques: Students learn the concepts and methods used in effective and organized software design, helping them develop high-quality and maintainable software. Analyzing and understanding requirements: Students learn how to interact with customers and understand their requirements to properly define and document software requirements. Applying project management concepts: Students learn how to effectively plan, organize and manage software development projects, including resource management, work schedules, and risk assessment. Acquiring skills in dealing with development teams: Students learn how to communicate and collaborate with development team members and achieve coordination and communication understanding to achieve project objectives. Enhancing analytical and programming reasoning skills: Students develop the



	ability to analyze programming problems and use reasoning to find effective and innovative solutions. Enhancing awareness of security, privacy, and ethics issues: Students learn about security, privacy, and ethics issues related to software development and deployment, and learn how to apply security, privacy, and ethics practices to their software projects. These objectives aim to provide students with the knowledge and skills necessary to achieve success in the field of software engineering and develop high-quality, reliable software.
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9. Teaching and Learning Strategies

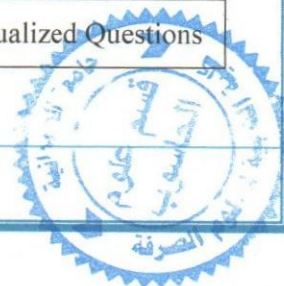
Strategy	A- Cognitive Objectives Software engineering objectives vary and are constantly evolving, but the main cognitive objectives include: Understanding computational processes: The software engineering program aims to understand software development and improvement processes, including the methods, tools, and concepts used. Software design: This objective includes understanding how to design software to meet user needs and functional and non-functional requirements. Software development: This objective includes understanding the software development process and using coding, testing, and project management techniques to efficiently implement the specified design. Quality management: Software engineering aims to ensure the quality of software produced through the use of quality standards, quality management, and quality assurance. Performance improvement: The software engineering program aims to improve software performance through the use of performance and continuous improvement techniques. Project management: This objective includes understanding how to effectively manage software development projects, including planning, organizing, controlling, evaluating. Continuous learning: The software engineering program encourages continuous learning keeping abreast of technological developments and new methods in the field of software development.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Cognitive and scientific	Introduction, S/W definition	Theoretical	Quiz
2	2	Cognitive and scientific	S/W characteristics, S/W applications	Theoretical	Individualized Questions
3	2	Cognitive and scientific	S/W Crisis, S/E definition	Theoretical	Individualized Questions



4	2	Cognitive a scientific	Characteristics of engineering, goals of S/W	Theoretical	Individualized Questions
5	2	Cognitive a scientific	S/W life Cycle	Theoretical	Individualized Questions
6	2	Cognitive a scientific	Linear Sequential model	Theoretical	Individualized Questions
7	2	Cognitive a scientific	Prototyping model	Theoretical	Individualized Questions
8	2	Cognitive a scientific	Incremental model Spiral model	Theoretical	Individualized Questions
9	2	Cognitive a scientific	Requirements analysis & definition, Requirements Specification	Theoretical	Individualized Questions
10	2	Cognitive a scientific	Software Specification, Software Requirements document	Theoretical	Individualized Questions
11	2	Cognitive a scientific	Formal Requirements: structure analysis	Theoretical	Individualized Questions
12	2	Cognitive a scientific	Analysis model objectives	Theoretical	Individualized Questions
13	2	Cognitive a scientific	The elements of analysis model	Theoretical	Individualized Questions
14	2	Cognitive a scientific	Data modeling	Theoretical	Individualized Questions
15	2	Cognitive a scientific	Creation of ERD, DFD	Theoretical	Individualized Questions
16	2	Cognitive a scientific	Exam	Theoretical	Exam
17	2	Cognitive a scientific	Software design: Software design definition	Theoretical	Individualized Questions
18	2	Cognitive a scientific	Activities of S/W design: Data Design, Architectural design	Theoretical	Individualized Questions
19	2	Cognitive a scientific	Interface design, Procedural design	Theoretical	Individualized Questions
20	2	Cognitive a scientific	Effective modular design: Functional independence, Cohesion, Coupling	Theoretical	Individualized Questions
21	2	Cognitive a scientific	Introduction to object oriented design	Theoretical	Individualized Questions
22	2	Cognitive a scientific	Top – down & Bottom – up design methods	Theoretical	Individualized Questions
23	2	Cognitive a scientific	Real-time design concepts	Theoretical	Individualized Questions
24	2	Cognitive a scientific	Software testing: the primary objective of S/W testing, system testing goals	Theoretical	Individualized Questions
25	2	Cognitive a scientific	Unit-testing, integration testing, system testing	Theoretical	Individualized Questions



26	2	Cognitive a scientific	Categories of system testing techniques: Black& White- box testing	Theoretical	Individualized Questions
27	2	Cognitive a scientific	Alpha testing, Beta testing	Theoretical	Individualized Questions
28	2	Cognitive a scientific	Project planning	Theoretical	Individualized Questions
29	2	Cognitive a scientific	Team organization & management	Theoretical	Individualized Questions
30	2	Cognitive a scientific	Quality Assurance: Quality Concept	Theoretical	Exam

11.Course Evaluation

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

- Exams
- Student feedback
- Oral assessment by involving students in discussions
- Quizzes

Professionally and individually configure technical reports

12.Learning and Teaching Resources

Required textbooks (curricular books any)	
Main references (sources)	Software Engineering: A Practitioner's Approach
Recommended books and references (scientific journals, reports...)	http://www.rspa.com/index.html
Electronic References, Websites	https://www.mheducation.com/highered/product/software-engineering-a-practitioners-approach-pressman.html

Curriculum Development Plan – Software Engineering

Unit / Topic	Learning Outcomes	Teaching & Learning Methods	Assessment Methods
1. Introduction to SE & Software Crisis	Define software, SE, and explain key characteristics	Lecture, discussion	Quiz / short assignment
2. Software Life Cycle Models (Waterfall, Prototyping, Incremental, Spiral)	Compare and evaluate different SDLC models	Lecture, case studies	Midterm exam questions
3. Requirements Engineering & Specification (SRS, ERD, DFD)	Document and model requirements using analysis techniques	Lab, group exercise	Assignment (SRS/ERD/DFD)



4. Software Design (data, architecture, modularity, OO design)	Apply design principles (cohesion, coupling, modularity)	Lecture + UML lab	Project design deliverable
5. Software Testing (black-box, white-box, alpha, beta)	Apply testing strategies at different levels (unit, integration, system)	Lab (test cases, tools)	Lab report + exam
6. Project Planning & Quality Assurance	Plan a small project, manage tasks, apply QA concepts	Group project, seminar	Group project report & presentation
Capstone / Integration	Demonstrate complete SE cycle in practice	Team project	Final project evaluation

Assessment Distribution

- Quizzes & Assignments: 20%
- Midterm Exam: 20%
- Group Project: 20%
- Final Exam: 40%



Academic Program Description Form

University Name:

Faculty/Institute:

Scientific Department:

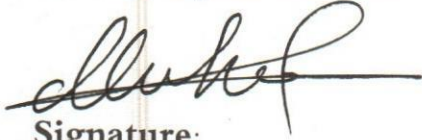
Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date:

File Completion Date:



Signature:

Head of Department Name:

Dr. Samah Fakhri Aziz

Date: 23/9/2025





Signature:

Scientific Associate Name:

Dr: Muhmmmed Abbas Kazim

Date: 23/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

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.



1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

3. Program Objectives

General statements describing what the program or institution intends to achieve.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				



Department				
Requirements				
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods
Implemented at all stages of the program in general.



11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan



[illegible]

-

Course Description Form

1. Course Name:	
Compilers	
2. Course Code:	
CS301	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
21/9/2025	
5. Available Attendance Forms:	
Weekly / Theory + Practical	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 Hours (60 Theory + 60 Practical) / 6 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lecturer Noor Basim Abdullah Email: noorbasim@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	- Understand the fundamental principles and rules of translating high-level programming languages into machine language, and what happens during program execution inside the computer, from the source program to the machine-understandable program. - Identify the main tasks of a compiler and describe how it works. - Distinguish between compilers and



interpreters.

- Describe the architecture and phases of a compiler step by step.

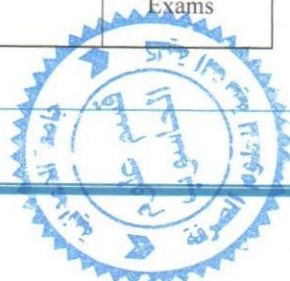
9. Teaching and Learning Strategies

Strategy

Understand the basic properties of compilers.
Familiarize with essential compiler-related terminology.
Recognize the basic differences between compilers and interpreters.
Develop general electronic and informatics knowledge.
Build theoretical background through lectures, examples, and Q&A sessions.
Encourage classroom discussion, allowing students to express their opinions and suggestions.
Provide classroom exercises and motivate students to ask and answer questions.
Assign homework exercises, with discussion of mistakes and weaknesses, leading to collective optimal solutions

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theory / 2 Lab	Identify compiler, assembler, and linker	Introduction Compilers	Lecture + Lab	Quizzes & Exams
2	2 Theory / 2 Lab	Define compiler phase	Compilers Translation Programs	Lecture + Lab,	Quizzes & Exams
3	2 Theory / 2 Lab	Understand error type	Errors and Debugging	Lecture + Lab,	Quizzes & Exams
4	2 Theory / 2 Lab	Understand symbol table	Types of Symbol Tables with Examples	Lecture + Lab	Quizzes & Exams
5	2 Theory / 2 Lab	Understand lexical analysis	Lexical Analysis	Lecture + Lab	Quizzes & Exams
6	2 Theory / 2 Lab	Design lexical analyzer	Steps of Lexical Analyzer Design	Lecture + Lab	Quizzes & Exams
7	2 Theory / 2 Lab	Identify grammar type with examples	Grammar Construction Tools	Lecture + Lab	Quizzes & Exams
8	2 Theory / 2 Lab	Convert between grammar forms	Converting Grammar Representations	Lecture + Lab	Quizzes & Exams
9	2 Theory / 2 Lab	Represent finite state automata	FSA, ϵ -closure, Types	Lecture + Lab	Quizzes & Exams
10	2 Theory / 2 Lab	Understand parsing derivation	Syntax Analyzer, Derivation	Lecture + Lab	Quizzes & Exams



			(Left/Right-most)		
١١	2 Theory / 2 Lab	Apply Top-down pars	Top-down Parser	Lecture + Lab	Quizzes & Exams
١٢	2 Theory / 2 Lab	Solve Top-down issue	Backtracking, Recursion, Ambiguity	Lecture + Lab	Quizzes & Exams
١٣	2 Theory / 2 Lab	Eliminate recursion	Immediate and Indirect Recursion	Lecture + Lab	Quizzes & Exams
14	2 Theory / 2 Lab	Solve exercises	Top-down Parser Examples	Lecture + Lab	Quizzes & Exams
15	2 Theory / 2 Lab	Find First sets	Examples of First Sets	Lecture + Lab	Quizzes & Exams
16	2 Theory / 2 Lab	Find Follow sets	Examples of Follow Sets	Lecture + Lab	Quizzes & Exams
17	2 Theory / 2 Lab	Apply parsing	Top-down Parsing Practice	Lecture + Lab	Quizzes & Exams
18	2 Theory / 2 Lab	LL(1) Grammar	LL(1) Grammar	Lecture + Lab	Quizzes & Exams
19	2 Theory / 2 Lab	Error recovery	Error Recovery LL(1) Parsing	Lecture + Lab	Quizzes & Exams
20	2 Theory / 2 Lab	Understand bottom-up parsing	Shift-Reduce Parsing & Handle	Lecture + Lab	Quizzes & Exams
21	2 Theory / 2 Lab	Operator precedence parser	Operator Precedence Parsing	Lecture + Lab	Quizzes & Exams
22	2 Theory / 2 Lab	LR parsing	LR Parser	Lecture + Lab	Quizzes & Exams
23	2 Theory / 2 Lab	SLR parsing	SLR Parser	Lecture + Lab	Quizzes & Exams
24	2 Theory / 2 Lab	LALR parsing	LALR Parser	Lecture + Lab	Quizzes & Exams
25	2 Theory / 2 Lab	Syntax-directed translation	SDT (Syntax Directed Translation)	Lecture + Lab	Quizzes & Exams
26	2 Theory / 2 Lab	Semantic analysis	Static & Dynamic Semantic Checks, Polish Notation (infix, prefix, postfix)	Lecture + Lab	Quizzes & Exams
27	2 Theory / 2 Lab	Intermediate generation	Three Address Code, Triples, Quadruples, Conversions	Lecture + Lab	Quizzes & Exams
28	2 Theory / 2 Lab	Code optimization	Principles Optimization, Peephole Optimization	Lecture + Lab	Quizzes & Exams
29	2 Theory / 2 Lab	Optimization	Block & Loop Optimization in Flow Graphs	Lecture + Lab	Quizzes & Exams
30	2 Theory / 2 Lab	Code generation	Target Machine, Storage Management, Flow Graph, Code Generator	Lecture + Lab	Quizzes & Exams



11. Course Evaluation

The course will be assessed through a combination of:

- Written exams (mid-term and final)
- Oral examinations
- Daily participation and class discussions
- Homework assignments and reports
- Quizzes and short tests
- Practical lab exercises

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Compiler Construction – Dhamdere (McMillan) • Principles of Compiler Design – Alfred V. Aho, Jeffrey D. Ullman • Basics of Compiler Design – Torben Mogensen (2000-2008)
Main references (sources)	Introduction to Compiler Design – Torben & Egidius Mogensen • Compiler Construction for Digital Computers – David Gries
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Compiler Construction – Dhamdere (McMillan) • Principles of Compiler Design – Alfred V. Aho, Jeffrey D. Ullman • Basics of Compiler Design – Torben Mogensen (2000-2008)



Course Description Form

1. Course Name	
Data Security	
Course Code	
CS402	
Semester/Year	
annual	
Date of preparation of this description	
2025 /9/21	
Available Forms of Attendance	
Attendance at the university weekly / theoretical and practical	
2. Number of Hours (Total) / Number of Credits (Total)	
120 Hours / 6 Units	
3. Course administrator name (if more than one name mentioned)	
Name: Dr. Samah Fakhri Aziz Emailsamah.fakhri@uohamdaniya.edu.iq Hani Ghassan Abdel Karim hani.alsaigh@uohamdaniya.edu.iq	
4. Course Objectives	
Through the Data Security course, the student learns how to protect personal information from unauthorized access and learns about the algorithms used in the encryption and decryption process Protecting information from hackers and hacking, as well as identifying the most important security services and mechanisms used to implement these services against security attacks. Study some principles of encryption and cracking methods Study on types of security threats	Course Objectives



Study of some traditional and modern encryption systems

5. Teaching and Learning Strategies

- A1. Understand the principles and mechanics of security services.
- A2- Understanding the network security model.
- A3. Understand the algorithms of classical and modern encryption systems and their mathematical principles, and the ways in which they are designed and built.
- A4- Understanding the methods and methods of breaking codes.
- A5. Understand the methods and methods of carrying out attacks and how to exploit security vulnerabilities in computer systems and networks and methods of protecting against them (detect, repel, mitigate, and prevent).
- A6- Knowledge of programming and implementation of some encryption algorithms.
- Mathematical understanding of the principles of number theory and alphabets used in coding algorithms.
 - Understand the principles of encryption and cracking methods.
 - Understand how to carry out attacks on computer systems and networks
 - Understand how to exploit vulnerabilities and how to protect against them.
 - Programming some encryption algorithms.

Strategy

6. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Quiz	Theoretical + Practical	Basic Data Security Concepts	Cognitive	2 Theoretical	1



				+ 2pract ical	
Individ ualize d Target ed Questi ons	Theoretical + Practical	Aspects of Information Security	Cognitive	2 Theor etical + 2pract ical	2
Individ ualize d Target ed Questi ons	Theoretical + Practical	Computer Crimes	Cognitive	2 Theor etical + 2pract ical	3
Individ ualize d Target ed Questi ons	Theoretical + Practical	Information System Security Classification	Cognitive	2 Theor etical + 2pract ical	4
Individ ualize d Target ed Questi ons	Theoretical + Practical	Classification based on Function	Cognitive	2 Theor etical + 2pract ical	5
Individ ualize d Target ed Questi ons	Theoretical + Practical	Type of Attacks	Cognitive	2 Theor etical + 2pract ical	6
Individ ualize	Theoretical + Practical	Networking Simple Principle	Cognitive	2 Theor	7



d Target ed Questi ons				etical + 2pract ical	
Individ ualize d Target ed Questi ons	Theoretical + Practical	Steps to Better Security	Cognitive	2 Theor etical + 2pract ical	8
Individ ualize d Target ed Questi ons	Theoretical + Practical	Steps to Better Security	Cognitive	2 Theor etical + 2pract ical	9
Individ ualize d Target ed Questi ons	Theoretical + Practical	Networked Storage Security Guidelines	Cognitive	2 Theor etical + 2pract ical	10
Individ ualize d Target ed Questi ons	Theoretical + Practical	Encryption	Cognitive	2 Theor etical + 2pract ical	11
Individ ualize d Target ed Questi ons	Theoretical + Practical	Symmetric and Public Key Systems	Cognitive	2 Theor etical + 2pract ical	12



Individualized Targeted Questions	Theoretical + Practical	The Security Challenge	Cognitive	2 Theoretical + 2practical	13
Individualized Targeted Questions	Theoretical + Practical	The Future of Security	Cognitive	2 Theoretical + 2practical	14
Individualized Targeted Questions	Theoretical + Practical	Steganography	Cognitive	2 Theoretical + 2practical	15
Individualized Targeted Questions	Theoretical + Practical	Historical secret key cryptography	Cognitive	2 Theoretical + 2practical	16
	Theoretical + Practical	Conventional systems	Cognitive	2 Theoretical + 2practical	17
	Theoretical + Practical	Column and Double Transposition	Cognitive	2 Theoretical + 2practical	18



	Theoretical + Practical	Caesar Cipher	Cognitive	2 Theoretical + 2practical	19
	Theoretical + Practical	Multiplicative Cipher	Cognitive	2 Theoretical + 2practical	20
	Theoretical + Practical	Affine Cipher	Cognitive	2 Theoretical + 2practical	21
	Theoretical + Practical	Keyword Mixed	Cognitive	2 Theoretical + 2practical	22
Individualized Targeted Questions	Theoretical + Practical	Playfair Cipher	Cognitive	2 Theoretical + 2practical	23
Individualized Targeted Questions	Theoretical + Practical	One-time pads	Cognitive	2 Theoretical + 2practical	24
Individualized	Theoretical + Practical	Stream Cipher	Cognitive	2 Theoretical	25



Target ed Questi ons				+ 2pract ical	
Individ ualize d Target ed Questi ons	Theoretical + Practical	Linear Feedback Shift Register	Cognitive	2 Theor etical + 2pract ical	26
Individ ualize d Target ed Questi ons	Theoretical + Practical	Feedback Function & Random Sequence	Cognitive	2 Theor etical + 2pract ical	27
Individ ualize d Target ed Questi ons	Theoretical + Practical	Non-Linear Feedback Shift Register	Cognitive	2 Theor etical + 2pract ical	28
Individ ualize d Target ed Questi ons	Theoretical + Practical	Block Cipher	Cognitive	2 Theor etical + 2pract ical	29
test	Theoretical + Practical	Data Encryption Standard	Cognitive	2 Theor etical + 2pract ical	30

7. Course Evaluation



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

- Exams of all kinds
- Student feedback
- Oral assessment by involving students in discussions
- Quizzes

Professionally and individually configure technical reports

	8. Learning and Teaching Resources
	Required textbooks (methodology if available)
1- William Stalling," cryptography and network security principles and practice " , 6 th ed. , 2015, Pearson.	Main References (Sources)
	Recommended books and references (scientific journals, reports...)
https://www.pluralsight.com/courses/learn-program-cplusplus	Electronic References, Websites



Academic Program Description Form

University Name:

Faculty/Institute:

Scientific Department:

Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date:

File Completion Date:



Signature:

Head of Department Name:

Dr. Samah Fakhri Aziz

Date: 23/9/2025





Signature:

Scientific Associate Name:

Dr: Muhmmmed Abbas Kazim

Date: 23/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

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.

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1. Program Vision

- To establish Image Processing as a cornerstone for understanding modern techniques in image and video analysis.
- To prepare students to connect theoretical knowledge with practical applications in medical, industrial, security, and engineering fields.
- To empower students to keep pace with rapid advancements in artificial intelligence and its applications in images.

2. Program Mission

- To provide students with both fundamental and advanced knowledge in digital image processing techniques.
- To develop students' skills in applying software tools and algorithms for analyzing and interpreting images.
- To strengthen the practical aspect through labs and exercises that link theory to real-world applications.
- To encourage research and innovation in computer vision and the development of solutions for real-life problems.

3. Program Objectives

- Understand the basics: digital image representation, transformations, and mathematical foundations.
- Image enhancement and restoration: noise removal, contrast adjustment, and color correction.
- Feature extraction and analysis: edge detection, shape recognition, and identifying important image features.
- Practical applications: training on algorithms for tasks such as:
 - Face recognition



- Medical image processing
- Industrial vision and quality inspection
- Research development: encouraging students to engage in projects or research in advanced fields (e.g., computer vision, deep learning for images).
- Link to the job market: equipping students with the necessary skills for careers in programming, AI, and visual data analysis.

4. Program Accreditation

None

5. Other external influences

None

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
4 th Class	CS404	Digital image processing	60 Hr.	60 Hr.



8. Expected learning outcomes of the program

Knowledge

Cognitive goals

1. Introducing image processing, imaging systems, image representation, and the basics of digital images
2. Improving images, whether in the spatial or frequency domain
3. Converting images from one domain to another
4. Image retrieval, image segmentation, and object recognition
5. Image compression
6. Color image processing

Skills

Ability to apply image processing algorithms :

1. Familiarity with writing and developing programs related to image processing
2. Familiarity with writing and developing algorithms related to image processing
3. Enabling the student to solve problems related to image processing programs
4. Enable the student to work in a group to solve problems related to image processing programs.

Ethics

Applying ethical and professional principles through:

1. **Apply ethical principles** when handling, processing, and sharing image data, ensuring respect for privacy and confidentiality.
2. **Demonstrate academic integrity** by avoiding plagiarism and adhering to proper research and coding practices.
3. **Recognize the social and ethical implications** of image processing technologies in areas such as surveillance, medical diagnosis, and biometrics.
4. **Promote responsible use of AI and computer vision** in ways that benefit society while minimizing risks of misuse or bias.
5. **Exhibit professionalism** in teamwork, project management, and communication within academic and practical contexts.
6. **Commit to lifelong learning and professional growth** to adapt to evolving challenges in digital image processing and computer vision.



7. Teaching and Learning Strategies

- **Tutorials:** by providing the student with basic and secondary topics related to Digital image processing
- **Practical laboratories:** translating theoretical topics and vocabulary related to Digital image processing into computer programs.
- **Discussions and Presentations:** Presentation of topics and theoretical vocabulary related to Digital image processing in the form of slides and their explanation and discussion.
- **Self-learning method** (assigning students to complete learning some skills after giving them the basics).

8. Evaluation methods

1. Active participation,
2. Homework assignments,
3. Attendance
4. Lab Tasks
5. Quizzes
6. Middle and Final Exams (Theoretical and Practical).

9. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer



Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

10. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

11. The most important sources of information about the program

1. Textbooks

- *Digital Image Processing* by Rafael C. Gonzalez and Richard E. Woods (considered the standard reference).
- *Fundamentals of Digital Image Processing* by Anil K. Jain.

2. Academic Journals and Articles

- *IEEE Transactions on Image Processing (TIP)*.
- *Pattern Recognition (Elsevier)*.
- *Computer Vision and Image Understanding (CVIU)*.

3. Conferences and Proceedings

- *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*.
- *International Conference on Computer Vision (ICCV)*.

4. Online Resources and Databases

- ScienceDirect (Elsevier).
- SpringerLink (Lecture Notes in Computer Science).
- ResearchGate for accessing articles and collaboration.



12. Program Development Plan

Familiarity with everything new in modern methods, algorithms and programs related to **digital image processing**.



[illegible]

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Course Description Form

1. Course Name:	
Digital Image Processing	
2. Course Code:	
CS404	
3. Semester / Year:	
Year	
4. Description Preparation Date:	
21 – 9 – 2025	
5. Available Attendance Forms:	
Theoretical + Practical (In-Person)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours theory + 60 hours practical / 6 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Omar Farook Mohammad Email: ofmalobaigy@uohamdaniya.edu.iq Name: Asst. Lecturer Ahmed Abdulrahman Idris Email: ahmed-alkaddo@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	a. Learn the digital image processing techniques and their uses. b. Learn the basics of digital images and analyze them through the use of different techniques c. Dealing with images, whether images are in the space or life field d. Learn the transformations and techniques for enhancing digital images. e. Restore images and how to segment it. f. Using a set of transformations, such as Fourier Transform, specialized in analyzing the characteristics and properties of images. g. Develop the student's ability to write software in digital image processing.
9. Teaching and Learning Strategies	
Strategy	a. Introducing image processing, imaging systems, image representation, and the basics of digital images b. Improving images, whether in the spatial or frequency domain



- c. Converting images from one domain to another
- d. Image retrieval, image segmentation, and object recognition
- e. Image compression
- f. Color image processing

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 - 2	4	Introduction to Image Processing	Introduction to Image Processing	PDF power point Video	Daily and monthly exams
3 - 4	4	The basics of displaying digital images and what processes can be applied to digital images	Digital Image Fundamental	PDF power point Video	Daily and monthly exams
5 - 7	6	Determining important areas in images, zooming, and performing certain processes on it	Image Analysis	PDF power point Video	Daily and monthly exams
8 - 9	6	Learning ways to enhance the digital images in all medical, space, and other fields	Image Enhancement in the Spatial Domain	PDF power point Video	Daily and monthly exams
10 - 12	6	Learning ways to enhance the digital images in the frequency domain	Image Enhancement in the Frequency Domain	PDF power point Video	Daily and monthly exams
13 - 15	6	Learn to reduce image size by using Lossy or lossless image compression	Image Compression	PDF power point Video	Daily and monthly exams
16 - 18	6	Learn to apply the Wavelet method to digital images and what its uses	Wavelet Transform	PDF power point Video	Daily and monthly exams
19 - 21	6	Learn to restore distorted images	Image Restoration	PDF power point Video	Daily and monthly exams
22 - 24	10	Learn the process of partition digital images based on point, line, or edge	Image Segmentation	PDF power point Video	Daily and monthly exams
25 - 30	6	Learn the basis for extracting features of interest in an image.	Color Image Space	PDF power point Video	Daily and monthly exams

11. Course Evaluation

- Quiz
- Homework
- Middle and final exams (theoretical and practical)
- Interaction during the lecture
- Reports



12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	R. C. Gonzalez and R. E. Woods., "Digital Image Processing", third edition. ISBN: 0-13-168728-x, 978-0-13-168728-8, Pearson-Prentice-Hall, 2008. www.imageprocessingplace.com : (website) R. C. Gonzalez, R. E. Woods, S. L. Eddins, "Digital Image Processing using Matlab", 2nd edition, ISBN: 0-13-008519-7, Pearson-Prentice-Hall, 2004
Main references (sources)	- Lectures given by the subject teacher - Books available in the college library
Recommended books and references (scientific journals, reports...)	- IEEE Transactions on Image Processing (TIP). - Pattern Recognition (Elsevier). - Computer Vision and Image Understanding (CVIU).
Electronic References, Websites	- ScienceDirect (Elsevier). - SpringerLink (Lecture Notes in Computer Science). - ResearchGate for accessing articles and collaboration.



Course Description Form (Measurement and Evaluation)

Course name: .١	
Measurement and Evaluation	
Course code: .٢	
CS405	
Chapter/Year: .٣	
2025-2026	
Date of preparation of this description: .٤	
17/9/2025	
Available attendance forms: .٥	
In-person education	
Number of study hours (total) / Number of units (total) .٦	
60 hours / 4 units	
Course Supervisor Name (if more than one name is mentioned) .٧	
Name: M.M. Younis Dharar Jassim Email: youniesdrar12345@uohamdaniya.edu.iq	
Course objectives .٨	
The importance of evaluation and measurement and its role in -١ improving the educational process. Basic concepts in educational measurement and evaluation -٢ Types of achievement tests, advantages and disadvantages of -٣ each, and methods of preparing them Testing methods and the advantages and disadvantages of -٤ each Educational objectives, their types and formulation -٥	Course objectives
Teaching and learning strategies .٩	
Self-learning strategy-brainstorming-Problem solving- Cooperative Learning - Active Learning	Strategy



10-Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	AFor a week
Feedback	discussion, lecture, debate	The historical development of the concept of both measurement and evaluation	-Enable learners to identify historical stages across different cultures for both measurement and evaluation.	2	1
Feedback	discussion, lecture, debate	Understanding the concept of tests	Forming students to define the concept of the test and link it with other concepts	2	2
Feedback	discussion, lecture, debate	Understand the concept of (values and appreciation)	Enabling students to define the terms measurement and evaluation and find the difference between them	2	3
Feedback	discussion, lecture, debate	Defining the concept of each of (measurement and evaluation)	Enabling students to define the concepts of measurement and evaluation and to find the relationship between them	2	4
Feedback	discussion, lecture, debate	The relationship between (measurement, testing, evaluation)	Students are able to distinguish between concepts and create a diagram that links them together.	2	5
Feedback	discussion, lecture, debate	Characteristics of educational measurement	Enable students to employ educational measurement skills	2	6
Feedback	discussion,	Types of calendar	Enable students to identify and apply	2	7



	lecture, debate		types of educational assessment.		
Feedback	discussion, lecture, debate	Types of measurement	Students are able to identify types of measurement and their applications.HField	2	8
Feedback	discussion, lecture, debate	Evaluation and measurement in educational fields	Students are able to identify types of assessment.	2	9
Feedback	discussion, lecture, debate	The role of evaluation in improving education	Enable students to use educational applications for assessment.	2	10
a test	discussion, lecture, debate	Teaching objectives	Enable students to identify the primary objectives of teaching.	2	11
Feedback	discussion, lecture, debate	Measurement and evaluation and their relationship to goals	Enabling students to link measurement and evaluation to educational goals	2	12
Feedback	discussion, lecture, debate	Steps for constructing educational tests	Enable students to identify the main steps for constructing tests.	2	13
Feedback	discussion, lecture, debate	Specifications table	Enabling students to take steps to prepare a specification table in the educational field	2	14
Semi-annual news	discussion, lecture, debate	Statistical concept of tests	Enabling students to understand the main concepts of statistical analysis of different types of tests.	2	15
Feedback	discussion,	Types of tests	Enabling students to identify types of tests	2	16



	lecture, debate				
Feedback	discussion, lecture, debate	Essay tests	Enabling students to identify the types of essay tests and their features	2	17
Feedback	discussion, lecture, debate	Objective tests	Enabling students to identify the types of objective tests and their features	2	18
Feedback	discussion, lecture, debate	Classification of tests by method	Enabling students to identify different testing methods	2	19
Feedback	discussion, lecture, debate	Correction keys	Enabling students to define correction instructions and keys for tests	2	20
Monthly exam	-	Knowing the students' level and the information they have acquired	Monthly exam	2	21
Feedback	discussion, lecture, debate	Good test specifications	Enabling students to define new test specifications	2	22
Feedback	discussion, lecture, debate	Honesty and its types	Enabling students to define the concept of validity for tests	2	23
Feedback	discussion, lecture, debate	Persistence and its methods	Enabling students to define the concept of reliability of educational tests	2	24
a test	discussion, lecture, debate	Objectivity in educational testing	Enabling students to define the concept of objectivity in educational testing	2	25
Feedback	discussion,	Evaluation without tests	Enabling students to apply assessment	2	26



	lecture, debate		methods other than exams		
Feedback	discussion, lecture, debate	Cumulative records	Enabling students to identify types of honesty	2	27
Feedback	discussion, lecture, debate	Educational and learning observation	Enabling students to define the concept of educational observation	2	28
Feedback	discussion, lecture, debate	Educational checklists	Enabling students to make the connection between concurrent validity and predictive validity	2	29
Feedback	discussion, lecture, debate	The interview	Enabling students to identify the role of the interview in the educational aspect	2	30

11- Learning and teaching resources

Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	1- Required textbooks
Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	2- Main references (sources)



Educational Measurement and Evaluation in the Educational Process, Salah El-Din Mahmoud Allam Measurement and Evaluation in the Teaching Process, Rahim Al-Azzawi	A- Recommended books and references (scientific journals, reports, etc.)
General Curriculum and Teaching Methods Library (Telegram) -Al-Noor Library (electronic library) is free on the search engine.Google	B - Electronic references, Internet sites



Academic Program Description Form

University Name:

Faculty/Institute:

Scientific Department:

Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date:

File Completion Date:



Signature:

Head of Department Name:

Dr. Samah Fakhri Aziz

Date: 23/9/2025



Signature:

Scientific Associate Name:

Dr: Muhmmmed Abbas Kazim

Date: 23/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

Course Description Form

1. Course Name	
Computer Networks	
Course Code	
CS401	
Semester/Year	
annual	
Date of preparation of this description	
2025 /9/17	
Available Forms of Attendance	
Attendance at the university weekly / theoretical and practical	
2. Number of Hours (Total) / Number of Credits (Total)	
120 Hours / 6 Units	
3. Course administrator name (if more than one name mentioned)	
Name: Prof. Dr. Nawras Younis Enad Email nawrasyounis@gmail.com Alaa Salem Abdulrazaq alaasalimabd161194@uohamdaniya.edu.iq	
4. Course Objectives	
Through the Computer Networks course, the student will learn about the protocols used in networks, the basics of the communication system, how to communicate through the network, identify the devices connected to it, exchange information, and send and receive the packet. Preparing and qualifying scientifically and practical qualified graduates to meet the requirements of the labor market in both the public and private sectors	Course Objectives



Achieving leadership and excellence in the field of IT computer networks

Acquire the skills necessary to design, configure, and implement secure and efficient computer networks.

Develop the student scientifically and culturally in the field of networks and practical application in connecting networks and protocols.

5. Teaching and Learning Strategies

A1. The student's knowledge in the field of computer networks, their types, and the methods of connecting them.

A2. Knowledge of the methods of dealing with these networks

A3. The student identifies the most important basic characteristics of any type of network.

A4- The student knows the various ways to design any type of network through the experiments he performs.

A5- Knows how to name the essential parts that make up any network

A-6Layers of the Network Model Model

A7. TCP/IP Practical Model Layers

A8 - Devices and equipment for networks, applications and advanced tools

B1 – Network software tools such as tracer packet

B2 – Networking hardware and physical equipment such as router and switch

B3 – Connecting Network Devices and Ways to Deal with Them

B4 – Knowledge Skills – Recall

B5 – Skills of remembrance and analysis

B6 - Skills of Evolution

Strategy

6. Course Structure



Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Individualized Targeted Questions	Theoretical + Practical	-Living In Network - What Is Network - Data Communication - The Fundamental Of a Communication System - Transmission Mode - Serial And Parallel	Cognitive	2 Theoretical + 2practical	1
Individualized Targeted Questions	Theoretical + Practical	-Communication Over The Network - The Element Of Communication - Communicating The Messages - Component Of The Network	Cognitive	2 Theoretical + 2practical	2
Individualized Targeted Questions	Theoretical + Practical	- Network Media - LAN, WAN, And Internet Network - Network Protocol	Cognitive	2 Theoretical + 2practical	3
Individualized Targeted Questions	Theoretical + Practical	- Network Devices - Network Interface Card - Repeater - Hub	Cognitive	2 Theoretical + 2practical	4
Individualized Targeted Questions	Theoretical + Practical	- Switch - Router - Gateway	Cognitive	2 Theoretical + 2practical	5



Individual Targeted Questions	Theoretical + Practical	- Layered Models - The Benefits Of Layered Model - Protocol And Reference Models - OSI Model	Cognitive	2 Theoretical + 2practical	6
Individual Targeted Questions	Theoretical + Practical	- TCP/IP Model - Comparing OSI & TCP/IP Model	Cognitive	2 Theoretical + 2practical	7
Individual Targeted Questions	Theoretical + Practical	- Application Layer Functionality And Protocol - User Application Services - Application Protocol Examples	Cognitive	2 Theoretical + 2practical	8
Individual Targeted Questions	Theoretical + Practical	- Client / Server Model - Servers	Cognitive	2 Theoretical + 2practical	9
Individual Targeted Questions	Theoretical + Practical	- Transport Layer - TCP & UDP - Port Address	Cognitive	2 Theoretical + 2practical	10
Individual Targeted Questions	Theoretical + Practical	- TCP: Communication With Reliability	Cognitive	2 Theoretical + 2practical	11



Questions					
Individual Targeted Questions	Theoretical + Practical	- UDP: communication with low overhead	Cognitive	2 Theoretical + 2 practical	12
Individual Targeted Questions	Theoretical + Practical	- Network layer - IPv4 - Dividing Host Into Groups	Cognitive	2 Theoretical + 2 practical	13
Individual Targeted Questions	Theoretical + Practical	- Network layer - IPv4 - Dividing Host Into Groups - examples	Cognitive	2 Theoretical + 2 practical	14
Individual Targeted Questions	Theoretical + Practical	- Addressing The Network - IPv4 Address - IPv4 Address For Different Purposes	Cognitive	2 Theoretical + 2 practical	15
Individual Targeted Questions	Theoretical + Practical	- Special Addresses - Assigning Addresses - Class full and Classless	Cognitive	2 Theoretical + 2 practical	16
	Theoretical + Practical	application	application	2 Theoretical +	17



				2practical	
	Theoretical + Practical	application	application	2 Theoretical + 2practical	18
	Theoretical + Practical	application	application	2 Theoretical + 2practical	19
	Theoretical + Practical	application	application	2 Theoretical + 2practical	20
	Theoretical + Practical	application	application	2 Theoretical + 2practical	21
	Theoretical + Practical	application	application	2 Theoretical + 2practical	22
Individualized Targeted Questions	Theoretical + Practical	- Calculate Addresses - Testing The Network Layer	Cognitive	2 Theoretical + 2practical	23
Individualized Targeted	Theoretical + Practical	- Data Link Layer - Accessing The Media	Cognitive	2 Theoretical + 2practical	24



Questions					
Individualized Targeted Questions	Theoretical + Practical	- MAC Techniques - Addressing And Framing Data	Cognitive	2 Theoretical + 2practical	25
Individualized Targeted Questions	Theoretical + Practical	- Physical Layer - Communication Signals - Transmitting Media	Cognitive	2 Theoretical + 2practical	26
Individualized Targeted Questions	Theoretical + Practical	- Representing Bits - Connecting Communication	Cognitive	2 Theoretical + 2practical	27
Individualized Targeted Questions	Theoretical + Practical	- Ethernet - Overview Of Ethernet - IEEE Standard	Cognitive	2 Theoretical + 2practical	28
Individualized Targeted Questions	Theoretical + Practical	- Communication Through The LAN - Ethernet Frame - Ethernet Mac	Cognitive	2 Theoretical + 2practical	29
test	Theoretical + Practical	Quiz	assessment	2 Theoretical +	30



				2practical	
--	--	--	--	------------	--

7. Course Evaluation

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

- Exams of all kinds
- Student feedback
- Oral assessment by involving students in discussions
- Quizzes

Professionally and individually configure technical reports

	8. Learning and Teaching Resources
	Required textbooks (methodology if available)
Behrouz A. Forouzan ,” Data Communications and Networking “,Fourth Edition, 2007 ,(McGraw-Hill Forouzan networking series)	Main References (Sources)
	Recommended books and references (scientific journals, reports...)
	Electronic References, Websites



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 has 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.



5. Other external influences

Industry advisory boards shape the curriculum and the evolving technical standards set by the World Wide Web Consortium (W3C). Furthermore, it has designed to develop the critical soft skills in communication and teamwork that employers consistently demand.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	5	20	20%	Exam & Coursework
College Requirements	5	20	20%	Exam & Coursework
Department Requirements	20	80	60%	Exam, Project, & Portfolio
Summer Training	–	–	–	–
Other	–	–	–	–

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2025–2026/ stage 4	CS403	Web Design	theoretical	practical
			2	2

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1	Demonstrate comprehensive knowledge of fundamental web technologies, including the structure of HTML, the
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	styling of CSS, and the core principles of JavaScript programming.
Skills	
Learning Outcomes 2	Design, prototype, and develop fully functional, responsive, and accessible websites that provide effective user experiences (UX) across various devices and browsers.
Learning Outcomes 3	Critically evaluate web designs and implementations using industry-standard tools and methodologies, and apply version control systems (e.g., Git) for collaborative project management.
Ethics	
Learning Outcomes 4	Apply ethical principles and professional codes of conduct in web design, demonstrating an understanding of intellectual property, copyright, and privacy laws (e.g., GDPR).
Learning Outcomes 5	Advocate for and implement universal design principles to create equitable, inclusive, and non-discriminatory web experiences that are accessible to all users.

9. Teaching and Learning Strategies

Teaching Strategies: A blended approach combining flipped classrooms for theory with hands-on, project-based lab sessions. This is complemented by direct instruction on core concepts followed by collaborative workshops and critical peer reviews of design work.

Learning Strategies: Students engage in active learning through building a progressive portfolio, problem-based learning scenarios, and iterative prototyping. This is supported by peer programming and consistent self-evaluation against rubrics and web standards.



training programs focused on enhancing teaching strategies, learning outcome assessment, and curriculum development.

12. Acceptance Criterion

Student admission has primarily based on achieving the minimum high school grade point average (GPA) or standardized national exam score set annually by the Ministry of Higher Education for central admission. The college may apply additional competitive criteria for high-demand programs, such as specific prerequisite course grades, personal interviews, or portfolio assessments.

13. The most important sources of information about the program

The primary sources are the official Program Specification Document and the University Catalog/Course Handbook (syllabus), which detail the curriculum, outcomes, and policies. Prospective and current students are also direct to the program's dedicated website and the university's online learning portal for dynamic information like course schedules, college details, and project galleries.

14. Program Development Plan

The Web Design subject's development has driven by an annual review of student projects and formal feedback from the Computer Science department's academic staff. Updates focus on integrating emerging front-end frameworks and accessibility standards relevant to the current job market. This ensures the capstone-level subject remains a rigorous synthesis of design theory and advanced application, preparing final-year students for their careers.



Program Skills Outline

Required program Learning outcomes

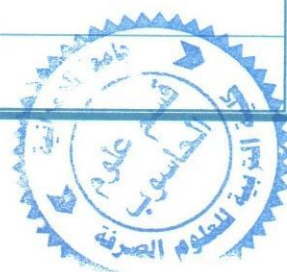
[illegible]

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



Course Description Form

1. Course Name: Web Design	
2. Course Code: CS403	
3. Semester / Year: 1&2/ 4	
4. Description Preparation Date: September 20, 2025	
5. Available Attendance Forms:	
The program utilizes both a traditional paper-based sign-in sheet for physical lectures and an electronic attendance system integrated with the university student ID cards or online learning portal for digital tracking and record keeping.	
6. Number of Credit Hours (Total) / Number of Units (Total)	
This total has distributed across the program's duration, with students completing approximately 4 credit hours per week (2 theory + 2 practical) over 30 weeks in an academic year.	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mohammed Abbas Alkhuzaie Email: mak@uohamdaniya.edu.iq Name: Mohammed Abulsattar Email: mohmd.a.sattar@uohamdaniya.edu.iq	
8. Course Objectives	
This course aims to equip students with the advanced skills to design, prototype, and develop functional, responsive, and accessible websites using modern front-end technologies and frameworks. The key objective is to foster a user-centered design mindset, enabling students to critically evaluate usability, implement ethical principles, and solve complex design problems for their final-year portfolio.	
9. Teaching and Learning Strategies	
Strategy	We champion a "design studio" ethos where learning is an active, hands-on journey. Theory is flipped on its head—consumed independently before our in-class time, which is dedicated to collaborative building, critical reviews, and iterative prototyping in guided lab sessions. Cultivate a problem-solving mindset for the students by constructing a professional portfolio piece-by-piece, constantly honing their craft against real-world challenges.



standards and ethical principles, transforming from a student into skilled and thoughtful web practitioner.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T/2P	Understand core HTML5 semantics and CSS3 fundamentals.	Modern Web Foundations	Lecture, Live Demo	In-class HTML/CSS Exercise
2	2T/2P	Implement responsive layouts using Flexbox.	CSS Layouts: Flexbox	Workshop, Code-Along	Lab Assignment: Responsive Menu
3	2T/2P	Implement complex responsive layouts using CSS Grid.	Advanced Layout: CSS Grid	Workshop, Code-Along	Lab Assignment: Grid Portfolio Page
4	2T/2P	Apply JavaScript for DOM manipulation and handling events.	Interactive JavaScript	Lecture, Pair Programming	Quiz, Code Submission
5	2T/2P	Develop a dynamic single-page application feature.	Front-End Interactivity	Project-Based Learning	Milestone Project 1 Submission
6	2T/2P	Understand and utilize a CSS framework (e.g., Bootstrap).	CSS Frameworks & Libraries	Workshop, Exploration	Lab Assignment: Framework Layout
7	2T/2P	Apply principles of User	UX & Wireframing	Case Study, Design Studio	Wireframe Submission & Critique



		Experience (UX) and wireframing.			
8	2T/2P	Design and create high-fidelity interactive prototypes.	UI Prototyping	Demo, Hands-on Lab	Interactive Prototype Submission
9	2T/2P	Implement web accessibility standards (WCAG).	Web Accessibility	Lecture, Audit Activity	Accessibility Audit Report
10	2T/2P	Understand and utilize version control (Git) for collaboration.	Version Control & Collaboration	Workshop, Group Activity	Git Repository Submission
11	2T/2P	Integrate and display data from a public API.	Working with APIs	Lecture, Guided Project	API Integration Assignment
12	2T/2P	Learn core concepts of web performance optimization.	Web Performance	Lecture, Analysis	Performance Analysis Exercise
13	2T/2P	Begin building a comprehensive final project.	Final Project Kick-off	Self-Directed Learning	Project Proposal & Scope
14	2T/2P	Continue development and receive feedback on the final project.	Final Project Workshop	Mentoring, Peer Review	Progress Check & Code Review
15	2T/2P	Present and defend the complete final project.	Project Presentation	Presentations, Q&A	Final Project Submission & Viva
16	2T/2P	Introduction to a modern	JS Framework Fundamentals	Lecture, Live Coding	Framework Setup Exercise



		JavaScript framework (e.g., React, Vue).			
17	2T/2P	Build reusable components within the chosen framework.	Component Architecture	Workshop, Code-Along	Component Library Assignment
18	2T/2P	Manage application state within the framework.	State Management	Lecture, Guided Project	State Implementation Task
19	2T/2P	Explore advanced framework concepts like routing.	Advanced Framework Topics	Demo, Exploration	Quiz, Code Challenge
20	2T/2P	Introduction to server-side rendering or static site generation.	Full-Stack Concepts	Lecture, Discussion	Research Brief
21	2T/2P	Learn basic command line and build tools (e.g., Webpack, Vite).	Development Tools	Workshop, Hands-on Lab	Build Configuration Exercise
22	2T/2P	Understand principles of web security (e.g., HTTPS, CORS, OWASP).	Web Security	Lecture, Case Studies	Security Analysis Report
23	2T/2P	Explore UI motion and animation for enhanced UX.	UI Animation	Workshop, Demo	Animated Component Submission
24	2T/2P	Dive deeper into advanced CSS	Advanced CSS	Workshop, Code-Along	SASS Stylesheet Assignment



No.	Task / Assessment Type	Score out of 100	Description
1	Quizzes & In-Class Exercises	10%	Short, periodic assessments on theoretical concepts (e.g., HTML5 semantics, JavaScript fundamentals, security).
2	Lab Assignments & Milestone Projects	30%	Practical, hands-on coding tasks evaluating the application of specific skills (e.g., CSS Grid layout, API integration, component building).
3	Mid-Term Written Exam	20%	A comprehensive written exam covering all theoretical concepts and principles taught in the first half of the course.
4	Final Project (Capstone)	30%	A comprehensive, practical project demonstrating the integration of all learned skills (design, development, accessibility, deployment).
5	Participation & Professionalism	10%	Based on peer review feedback, active participation in workshops and adherence to ethical practices like version control commit history.
Total		100%	

12. Learning and Teaching Resources

Required textbooks (curricular books any)	HTML and CSS: Design and Build Websites by Jon Duckett (John Wiley & Sons, 2011). ISBN: 978-1118008188. JavaScript and JQuery: Interactive Front-End Web Development by Jon Duckett (John Wiley & Sons, 2014). ISBN: 978-1118531648.
Main references (sources)	Learning Web Design: A Beginner's Guide by Jennifer Robbins (O'Reilly Media, 2018). ISBN: 978-1491960202. Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability by Steve Krug (New Riders, 2014). ISBN: 978-0321965516.
Recommended books and references	A Book Apart series (brief books for people who make websites). Smashing Magazine online articles and print books. ACM Transactions on the Web (TWEB) journal.



(scientific journals, reports...)	
Electronic References, Websites	MDN Web Docs (Mozilla Developer Network): https://developer.mozilla.org W3C Web Accessibility Initiative (WAI): https://www.w3.org/WAI/ CSS-Tricks: https://css-tricks.com/ Stack Overflow: https://stackoverflow.com/
Other Essential Resources	GitHub / GitLab: For version control and collaboration. CodePen / JSFiddle: For rapid prototyping and sharing code examples. Figma / Adobe XD: For UI/UX prototyping and design.



Course Description Form

1. Course Name:	
Operating System	
2. Course Code:	
CS400	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
23/9/2025	
5. Available Attendance Forms:	
Weekly – Theoretical Lectures and Practical Sessions	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours (60 theoretical + 60 practical)	
Credit Units: 6	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Noora Hashim Mohammed Email: noora@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	-Fundamental Understanding To understand the basic concepts, structure, and functions of operating system To study how operating systems act as an interface between hardware and users. Process & Thread Management To learn about processes, threads, and CPU -scheduling. To understand concepts of concurrency, synchronization, and deadlocks. -Memory Management To study various memory management techniques such as paging, segmentation, and -virtual memory. -File & Storage Management To understand file systems, directory structures, allocation methods, and storage management. -Input/Output Systems To learn about I/O management, device drivers, and interrupt handling. -Security & Protection To explore mechanisms for protecting processes, memory, and files. To introduce concepts of authentication, access control, and system security. -Distributed & Modern OS Concepts To gain knowledge of distributed systems, cloud operating systems, and mobile OS fundamentals. -Practical Skills To develop skills in system programming and -shell scripting.



- To provide hands-on experience in implementing and simulating operating system components.

9. Teaching and Learning Strategies

Strategy	Understanding with hands-on practice through problem-solving, simulations, and case studies of real OS implementations. ١. Conceptual Understanding First Start with the role of OS as a resource manager. Use real-life analogies (e.g., CPU scheduling like waiting in a queue, memory allocation like a hostel room assignment). Build from simple to complex: process → threads → scheduling → memory → file systems → security ٢. Visualization & Simulation Use diagrams and animations for scheduling algorithms, memory allocation, and deadlocks. Simulate algorithms with tools (e.g., Gantt charts for scheduling). Try out OS simulators (like LittleMan Simulator, NachOS, or Minix).
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 - 2	٤	Management, Efficiency, Convenience, Security, Architecture	Introduction Definition, goals, influence On Computer architecture	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Class discussions and Q&A sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project -Class Participation and Activities
3 - 4	٤	reduce idle time, improve throughput, make computers easier to use.	History of operating system Bare machines, advent of I/O devices, batch processing, off-line processing, spooling, buffering	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. -Group projects. -Class discussions and Q&A sessions.	-Written Exams/ Quizzes. -Practical Assignments / Lab Work. - Project -Class Participation and Activities



5 - 6	٤	automate sequential job execution and reduce CPU idle time, resulting in improved system efficiency despite the lack of user interaction during processing	B-Process	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
7 - 8	٤	required to efficiently allocate CPU time among processes, maximizing utilization and minimizing waiting and turnaround times, enabling learners to understand, compare, and apply various scheduling algorithms and evaluate their performance.	C-CPU scheduling	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
9 - 10	٤	managing and preventing situations where processes are permanently waiting for each other's resources, enabling learners to identify, analyze, and apply strategies for prevention, avoidance,	D-Deadlocks	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities



		detection, and recovery			
11 - 12	٤	allocate and manage a computer's memory among processes, enabling learners to understand techniques for allocation, tracking, protection, and optimization to maximize system performance and prevent conflicts	E-Memory Management	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
13 - 14	٤	manage and allocate memory by dividing it into fixed-size blocks, enabling learners to understand how logical memory is mapped to physical memory, reduce fragmentation, and support effective memory utilization	Paging	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
15 - 16	٤	organize, allocate, and access secondary storage, enabling learners to understand file systems, disk scheduling, and techniques to optimize storage	F-Storage Management	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities



		utilization and data retrieval			
17 - 18	٤	safeguard system resources and data from unauthorized access or misuse, enabling learners to understand access control, security mechanisms, and strategies to ensure integrity, confidentiality, and safe operation of the system	Protection	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
19 – 20	٤	store, organize, and manage files on storage devices, enabling learners to understand file allocation methods, directory structures, access control, and techniques to optimize storage and retrieval performance	File system Implementation	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
21 – 22	٤	manage large volumes of data on secondary and tertiary storage devices, enabling learners to understand storage hierarchy, device characteristics,	G-Mass storage Structure	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities



		data access methods, and techniques for efficient storage and retrieval			
23 – 24	٤	organize and manage data on disk storage, enabling learners to understand disk organization, tracks, sectors, cylinders, and techniques for effective data access, allocation, and retrieval	Disk structure	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
25 – 26	٤	manage the order of read/write requests to improve disk efficiency and reduce seek time, enabling learners to understand and apply algorithms such as FCFS, SSTF, SCAN, C-SCAN, LOOK, and C-LOOK to optimize disk performance and response time	Disk scheduling FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities
27 – 28	٤	allocate, organize, and maintain disk storage, enabling learners to understand partitioning, file systems, disk	Disk management	- Theoretical lectures (PDF, power point). - Practical laboratory sessions. - Group projects. - Class discussions and Q&A sessions.	- Written Exams/ Quizzes. - Practical Assignments / Lab Work. - Project - Class Participation and Activities



12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Operating System Concepts Authors: Abraham Silberschatz, Peter Baer Galvin, Greg Gagne Publisher: Wiley Latest Edition: 10th Edition (2020)
Main references (sources)	-Lectures delivered by the course instructor -Books available in the college library
Recommended books and references (scientific journals, reports...)	Scientific Journals and Articles ACM Transactions on Computer Systems (TOCS) Topics: OS design, process scheduling, memory management, storage systems. Highly cited research papers on OS performance and architectures. IEEE Transactions on Computers / IEEE Transactions on Parallel and Distributed Systems Topics: CPU scheduling, deadlocks, multiprocessor OS, disk scheduling. Reports on experimental and theoretical studies. Journal of Systems and Software Topics: File systems, OS implementation, memory management techniques. Practical implementations and system case studies. Elsevier Computer Science Journals (e.g., Future Generation Computer Systems)



	Topics: Mass storage, protection, virtual memory, modern OS trends. Useful for recent developments in OS design
Electronic References, Websites	• Linux Kernel Documentation – https://www.kernel.org/doc/html/latest/ • Official documentation for Linux OS internals, including process scheduling, memory, and file systems. • Microsoft Docs – Windows OS – https://learn.microsoft.com/en-us/windows/win32/sysinfo/ • Detailed reference on Windows OS architecture, memory, disk, and process management. • GeeksforGeeks – Operating Systems – https://www.geeksforgeeks.org/operating-systems/ • Tutorials on CPU scheduling, memory management, deadlocks, and disk scheduling. • TutorialsPoint – Operating Systems – https://www.tutorialspoint.com/operating_system/index.htm • Beginner-friendly explanations with diagrams and examples of OS concepts. • IEEE Xplore Digital Library – https://ieeexplore.ieee.org/ • Access to scientific papers and research articles on operating systems, scheduling, storage, and memory management.

