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

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

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

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

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

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

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

Academic Program Description Form

University Name: ....Wasit University............

Faculty/Institute: ....College of Education and Pure Sciences.............

Scientific Department: ....Computer Department..........

Academic or Professional Program Name: ....Bachelor........

Final Certificate Name: .....Bachelor of Education.........

Academic System: ...Annual.........

Description Preparation Date: 2023–2024

File Completion Date: 3/3/2024

Signature:

Head of Department Name:
Assist. Prof. Dr. Esraa Saleh Alomari

Date: 28/3/2024

Signature:

Scientific Associate Name:

Assist Prof. Dr.Mahdi Alwan Al-Quraishi
Asst Dean for Academic Affairs
& Graduate Studies

Date: 28/3/2024

The file is checked by: Saja Hussain Dilfy

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 28/3/2024

Signature:

Approval of the Dean

Prof.
Dr.Ali H. Shuaa Al-Taie
Dean of Education College
for Pure Science

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1. Program Vision

The Computer Department aspires to leadership and excellence in the field of computer science education studies, achieving quality standards and program accreditation, making it an outstanding academic and research department at the local, Arab, regional, and global levels.

2. Program Mission

Building individuals to become teachers and educators equipped with theoretical and applied knowledge in the fields of computer science and education, ensuring sustainable human development, in accordance with the requirements of the era.

3. Program Objectives

1. Prepare teaching staff to supply middle, high, and preparatory schools with the necessary teaching skills for computer science subject through the department's scientific programs and activities to create a generation committed to the ethics and values of the profession.
2. Prepare academic cadres in the field of master's studies in computer science specialization to meet the requirements of the job market, and support the educational and pedagogical process in our beloved Iraq.
3. Contribute to serving the community and enhancing continuous interaction between the college and scientific and social institutions to achieve community partnership and implement the motto "The University in the Service of the Community".
4. Produce rigorous scientific and educational research in the field of computer science that addresses issues enriching scientific knowledge in this field.
5. Work on improving and developing the capabilities and skills of faculty members and all staff at the college to ensure achieving comprehensive quality management in scientific and administrative areas.

6. Obtain national academic accreditation for the computer department from educational quality assurance institutions.

7. Develop computer department laboratories in line with laboratory quality.

8. Activate mechanisms of mutual cooperation and openness to universities and various educational institutions at the local, regional, and international levels in a manner that includes all components of the educational system.

9. Collaborate with other departments of the college to enter global rankings.

4. Program Accreditation

So far, accreditation standards for educational colleges have not been obtained, as program accreditation standards for educational colleges were approved on 21/2/2024, according to Circular No. JD/A 905 dated 22/2/2024.

5. Other external influences

None

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	39	190	100%	Core+Optional
College Requirements	15	52	38.46%	Optional
Department Requirements	19	120	48.7%	Core
Summer Training	1	4	2.56%	Core
Other	1	4	2.56%	Core

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
First	103CsSp	Structured Programming	Theoretical	Practical
First	102CsLd	Logic Design	2	2
First	109CsDs	Discrete Structures	2	2
First	104CsCo	Computer Architecture and Organization	2	–
First	101CsMa	Mathematics	2	2
First	108CsEs	Educational Psychology	2	–
First	110CsHr	Democracy and Human Rights	2	–
First	107CsAl	Arabic Language	1	–
First	105CsBb	Foundations of Education	1	–
First	106CsEl	English Language	2	–
First	220CsMm	Numerical Analysis	2	–
Second	212CsDa	Data Structures and Algorithms	2	2
Second	219CsOo	Object–Oriented Programming	2	2
Second	218CsSa	Systems Analysis and Database	2	2
Second	211CsCt	Computational Theory	2	2
Second	213CsMp	Microprocessors	2	–
Second	216CsEm	Educational Management and Secondary Education	2	2
Second	214CsRm	Curriculum and Textbook	2	–
Second	217CsDp	Developmental Psychology	2	–
Second	215CsEl	English Language	2	–
Second	221CsAl	Arabic Language	2	–
Second	222CsBc	Crimes of the Baath Party	2	–
Third	322CsAi	Artificial Intelligence	1	–
Third	326CsC	Compiler	2	2
Third	321CsCg	Computer Graphics	2	2
Third	340CsVb	Visual Basic	2	2

Third	327CsCa	Computer Architecture	2	2
Third	325CsSw	Software Engineering	2	–
Third	323CsAp	Counseling and Mental Health	2	–
Third	324CsCt	Curriculum and Teaching Methods	2	–
Third	328CsDd	Database Design	2	–
Fourth	433CsOs	Operating System	2	2
Fourth	432CsCn	Computer Networks and Communications	2	2
Fourth	441CsWd	Website Design	2	2
Fourth	442CsIo	Internet of Things	2	2
Fourth	431CsSe	Data Security	2	2
Fourth	429CsP	Project	2	2
Fourth	428CsMe	Measurement and Evaluation	2	–
Fourth	430CsPe	Practical Education	2	–

8. Expected learning outcomes of the program

Knowledge

A1: Technical knowledge in computer science fields A2: Understanding computer systems, understanding the practical applications of information technology A3: Teamwork and communication skills A4: Equipping students with teaching skills, educational guidance, and classroom management	A1: Providing students with deep knowledge in various computer science fields such as programming, databases, information systems, web development, software design, and development. A2: Equipping students with a deep understanding of computer systems and software engineering, including designing and developing large and complex systems. Students should also gain an understanding of the practical applications of information technology in various fields such as education, health, business, and entertainment. A3: Developing students' teamwork and collaboration skills with software development teams, as well as effective communication skills in an information technology work environment. A4: Providing students with necessary information about teaching strategies, methods, and techniques, and equipping them with teaching skills such as planning, implementation, assessment, and time management.

Skills

B1: Programming skills and software design B2: Web and mobile applications development B3: Database management B4: Proficiency in modern teaching methods	B1: This includes students' ability to write and understand code in various programming languages such as Python, Java, C++, and others. It also involves the ability to solve problems using algorithms. This skill relates to students' ability to analyze user needs and design and develop software that effectively meets those needs. B2: This skill includes students' ability to develop applications, websites, and mobile applications that interact effectively with users. B3: Students'

	ability to design and manage databases using various database management systems such as MySQL, Oracle, MongoDB. B4: Modern teaching methods skills include a variety of strategies and techniques aimed at enhancing the learning experience and promoting student engagement.
J1: Adherence to professional ethics J2: Commitment to electronic values J3: Integrity and ethics J4: Knowledge and learning	J1: Students are encouraged to understand and apply professional ethical values in the field of information technology and computer science, such as honesty, respect, responsibility, and protection of privacy and security. J2: Students should refrain from spying on others and maintain the confidentiality of information, and should not harm others by spreading harmful viruses. J3: The program takes care to promote ethical values and integrity in the field of computer science, teaching students the importance of ethical principles and proper conduct in the field of technology. J4: The program enhances the value of knowledge and learning by providing an educational environment that encourages the acquisition of knowledge and the development of skills in various areas of computer science.

9. Teaching and Learning Strategies

The strategies and teaching methods adopted in implementing the program are as follows:

1- Lecture method supported by technology in learning.

2- Active learning, including problem-solving-based learning.

3- Project-based learning.

4- Cooperative learning.

5- Demonstration experiments method.

10. Evaluation methods

1- Monthly exams
2- Daily exams
3- Group projects
4- Reports
5- Observation card

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assoc.Prof.Dr.Esraa Saleh Hasoon	Computer Science	Network Security			√	
Assoc.Prof.Dr.Baraa Ismail	Computer Engineering	Science and Computer Engineering			√	
Assoc.Prof.Dr.Riyahd Rehaif	Computer Science	Cyber Security			√	
Assoc.Prof.Dr.Rawaa Ismail	Computer Science	Information System			√	
Assoc.Prof.Dr.Jamal Khudair	Computer Science	Information and Communication Technology			√	
Assoc.Prof.Iman Khadum	Computer Science	Computer Science			√	
Dr.Ali fhadel	Computer Science	AI			√	
Lecturer. Zaman Abood	Computer Science	Computer Science			√	
Lecturer. Manar Bashar Murtatha	Computer Science	Computer Science			√	
Lecturer. Jafar Sadeq	Computer Science	Computer Science			√	
Assist.Lecturer. Abdulhadi Nadhum	Computer Science	Computer Science			√	
Assist.Lecturer.Baraa Muhammed	Computer Science	Computer Science			√	

Assist.Lecturer.Abbas Hadi	General Teaching Methods and Curricula	General Teaching Methods and Curricula				√	
Assist.Lecturer.Zahraa Albatool Majeed	Mathematics	Mathematics				√	
Assist.Lecturer.Muhammed Ali Wanas	Mathematics	Mathematics				√	
Assist.Lecturer.Suhad Salman	History	Modern History				√	
Assist.Lecturer.Alaa Abdulameer	History	Islamic Curriculum and Resources				√	

Professional Development
Mentoring new faculty members
1- Development and training programs 2- Guidance and mentoring programs 3- Participation in professional learning communities 4- Academic advising
Professional development of faculty members
1- Needs analysis 2- Implementation of training programs and workshops 3- Application of modern teaching strategies 4- Monitoring and evaluation of performance 5- Feedback assessment and support

12. Acceptance Criterion

1- Admission is centralized through the Ministry of Higher Education and Scientific Research. 2- Parallel admission channel. 3- Admission channel for top teachers.

13. The most important sources of information about the program

- Sectoral committee
- Ministerial committees for curriculum updating
- University and college website
- Ministry of Higher Education and Scientific Research website

14.	Program Development Plan
Implementing programmatic accreditation standards for educational colleges.	

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
First	103CsSp	Structured Programming	Core	√	√	√	√	√	√	√	√	√	√	√	√
	102CsLd	Logic Design	Core	√	√	√	√								
	109CsDs	Discrete Structures	Core	√	√	√	√					√	√	√	√
	104CsCo	Computer Architecture and Organization	Core	√	√	√	√	√	√	√	√	√	√	√	√
	101CsMa	Mathematics	Core					√	√	√	√				
	108CsEs	Educational Psychology	Optional	√	√	√	√								

Year	Code	Course	Type												
	110CsHr	Democracy and Human Rights	Optional	√	√	√	√								
	107CsAl	Arabic Language	Optional	√	√	√	√								
	105CsBb	Foundations of Education	Optional	√	√	√	√								
	106CsEl	English Language	Optional	√	√	√	√								
Second	220CsMm	Numerical Analysis	Core	√	√	√	√	√	√	√	√	√	√	√	√
	212CsDa	Data Structures and Algorithms	Core	√	√	√	√	√	√	√	√	√	√	√	√
	219CsOo	Object-Oriented Programming	Core	√	√	√	√	√	√	√	√	√	√	√	√

Code	Course	Type												
218CsSa	Systems Analysis and Database	Core	√	√	√	√	√	√	√	√	√	√	√	√
211CsCt	Computational Theory	Core	√	√	√	√	√	√	√	√	√	√	√	√
213CsMp	Microprocessors	Core	√	√	√	√	√	√	√	√	√	√	√	√
216CsEm	Educational Management and Secondary Education	Optional					√	√	√	√				
214CsRm	Curriculum and Textbook	Optional					√	√	√	√				
217CsDp	Developmental Psychology	Optional					√	√	√	√				
215CsEl	English Language	Optional					√	√	√	√				

Year	Code	Course Name	Type												
	221CsAl	Arabic Language	Optional					√	√	√	√				
	222CsBc	Crimes of the Baath Party	Optional					√	√	√	√				
	322CsAi	Artificial Intelligence	Core	√	√	√	√	√	√	√	√	√	√	√	√
Third	326CsC	Compiler	Core	√	√	√	√	√	√	√	√	√	√	√	√
	321CsCg	Computer Graphics	Core	√	√	√	√	√	√	√	√	√	√	√	√
	340CsVb	Visual Basic	Core	√	√	√	√	√	√	√	√	√	√	√	√
	327CsCa	Computer Architecture	Core	√	√	√	√	√	√	√	√	√	√	√	√
	325CsSw	Software Engineering	Core	√	√	√	√	√	√	√	√	√	√	√	√
	323CsAp	Counseling and Mental Health	Optional	√	√	√	√								

Year	Code	Course	Type	1	2	3	4	5	6	7	8	9	10	11	12
	324CsCt	Curriculum and Teaching Methods	Optional	√	√	√	√								
	328CsDd	Database Design	Core	√	√	√	√	√	√	√	√	√	√	√	√
Fourth	433CsOs	Operating System	Core	√	√	√	√	√	√	√	√	√	√	√	√
	432CsCn	Computer Networks and Communications	Core	√	√	√	√	√	√	√	√	√	√	√	√
	441CsWd	Website Design	Optional									√	√	√	√
	442CsIo	Internet of Things	Optional									√	√	√	√
	431CsSe	Data Security	Core	√	√	√	√	√	√	√	√	√	√	√	√
	429CsP	Project	Core	√	√	√	√	√	√	√	√	√	√	√	√

	428CsMe	Measurement and Evaluation	Optional	√	√	√	√								
	430CsPe	Practical Education	Core	√	√	√	√	√	√	√	√	√	√	√	√

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

Course Description Form

1. Course Name:	
structured programming	
2. Course Code:	
103CsSp	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
21/3/2024	
5. Available Attendance Forms:	
Actual mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 theoretical hours and 60 practical hours	
7. Course administrator's name (mention all, if more than one name)	
Responsible for the theoretical and practical course Name: Dr Riyadh Rahef Nuiaa	

Email: riyadh@uowasit.edu.iq
Responsible for the practical course Name: BSc. Nooralhuda Lateef
Email: nooralhudalateef@gmail.com

8. Course Objectives	
Course Objectives	1. Master the foundational concepts of structured programming paradigms using C++ language syntax. 2. Develop proficiency in writing clear, modular, and efficient C++ code following best practices. 3. Explore control structures, functions, arrays, and pointers to manipulate data and control program flow. 4. Understand the principles of object-oriented programming (OOP) and apply them using classes and inheritance. 5. Learn debugging techniques, error handling, and memory management to create robust and reliable C++ programs.
9. Teaching and Learning Strategies	
Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continue learning

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-8	4	Introduction, procedural, programming principles, Algorithms and flowcharts, properties and design, C++ Language Basics (Character set, Identifiers, keywords , Variables, Constants, C++ operators (Arithmetic Operators, Assignment operators, relational operator, comparison and logical operators, bitwise logical operators), type conversion, Statements, getting started with C++, order evaluation.	structured programming	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	Selection Statements (Selection Statements, The Single If Statement Structure, The Single If Statement Structure (Blocks), The If/else Statement	structured programming	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems,	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics)

		Structure, Nested If and If/else Statements, else if statement, Switch statement, nested switch, conditional statement		and blended learning	3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	loop iteration Statements (while Repetition Structure, Do/While Statement, For Statement, More about For Statement, Nested for Loops Break and Continue Control Statements, goto statements).	structured programming	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Functions (introduction, defining a function, ret statement, types o functions. actual a formal arguments local and glo variables, recursiv functions) Arr (Array of One Dimension (Declaration Arrays, Initializing Ar Elements, Accessi	structured programming	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to

		Array Elemer Read / Write Process Array Elements)			complete mini projects 4-Daily questions and discussions
28-30	4	Array of Two Dimension (Declaration of 2D-Arrays, Initializing 2D-Array Elements, Read / Write / Process Array Elements)) String (Read / Write / Process Array Elements, Member Function of String), Structure, structure within structure Array of structures, functions and structures.	structured programming	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning.	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Mastering C++ Programming (Palgrave Master Series (Computing), 10)
Main references (sources)	Mastering C & C++ Programming: From Fundamentals to Advanced

Recommended books and references (scientific journals, reports...)	C++ for Beginners: Mastering C++ Programm Essentials
Electronic References, Websites	

1.	Course Name:
Logic circuits	

2.	Course Code:
102CsLd	

3.	Semester / Year:
2023-2024	

4.	Description Preparation Date:
17/11/2024	

5.	Available Attendance Forms:
Actual mandatory attendance	

6.	Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours	

7.	Course administrator's name (mention all, if more than one name)
Responsible for the theoretical Name: teacher Hussein najm abd ali Email: hnajim@uowasit.edu.iq	

8.	Course Objectives	
Course Objectives	1. To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. 2. To prepare students to perform the analysis and design of various digital electronic circuits. 3. Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. 4 To understand and examine the structure of various number systems and its application in digital design.5. The ability to understand, analyze and design various combinational and sequential circuits. 6. Ability to identify basic requirements for a design application and propose a cost effective solution7. The ability to identify and prevent various hazards and timing problems in a digital design. 8. To develop skill to build, and troubleshoot digital circuits.

9.	Teaching and Learning Strategies	
Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continuous learning

10.	Course Structure				
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

1-8	3	Number System, Binary Codes and Boolean Algebra : Conversion of bases, Representation of negative numbers, 1's complement, 2's complement, arithmetic using 2's complement Hexadecimal code, weighted codes - BCD, Excess-3 code, Gray Code. Logic gates and Boolean Algebra	Logic circuits	Theoretical lectures , application in the laboratory, the use of the group system to solve problems, and blended learning	1-Conducting theoretical and practical tests (daily and quarterly) 2-Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	3	Boolean function representation and minimization techniques: Standard and canonical representation and minimization of Boolean expressions using Karnaugh map	Logic circuits	Theoretical lectures, application in the laboratory, the use of the group system to solve problems, and blended learning	1-Conducting theoretical and practical tests (daily and quarterly) 2-Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

17-22	4	Combinational Logic Circuits : Half Adder, Full Adder, Half Subtractor, Full Subtractor, Full adder using half adder, BDC Adder. Carry Look ahead, Multipliers. Multiplexer/de-multiplexers, Encoders and Decoders	Logic circuits	Theoretical lectures, application in the laboratory, the use of the group system to solve problems, and blended learning	1-Conducting theoretical and practical tests (daily and quarterly) 2-Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	3	Sequential Logic Circuits: Latches Edge Triggered Flip Flops: SR, D JK, Master slave JK,. Excitation tables, conversion of Flip Flops. State Diagrams Counters: Synchronous and Asynchronous counters, Up/Down Counters, Design of Synchronous counters, Cascade Counters, Count Decoding, Count applications 9 8 Shift registers: Shift register functions, Serial in/serial out shift registers, serial parallel out/shift	Logic circuits	Theoretical lectures, application in the laboratory, the use of the group system to solve problems, and blended learning	1-Conducting theoretical and practical tests (daily and quarterly) 2-Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	3		Normal logarithm Exponential function there graph Inverse trigonometric function Hyperbolic function	Theoretical lectures, application in the laboratory, the use of the group system to solve problems, and blended learning	

		registers, Parall In/ Parallel out shift registers, bidirectional Shi registers, Shift register counter Shift register Applications.	polar coordinates		1-Conducting theoretical and practical tests (daily and quarterly) 2-Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The 40th annual session is divided into
- 30 marks for the semester exams (at last two test in each semester0
-5 marks for participation, activities and reports.
-5 marks for total daily attendance
- Final out of 40

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	M. Morris Mano. "Digital Logic and Computer Design",
Main references (sources)	. M . Morris Mano, "Digital Design", Pearson Education Asia,.
Recommended books and references (scientific journals, reports...)	. T h o m a s L F l o y d " D i g i t a l F u n m e n t a l s "
Electronic References, Websites	https://www.geeksforgeeks.org/logic-gates/

Course Description Form

1. Course Name:	
Discrete Structures	
2. Course Code:	
109CsDs	
3. Semester / Year:	
2023-2024 Yearly	
4. Description Preparation Date:	
1/4/2023	
5. Available Attendance Forms:	
Actual mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 theoretical hours	
7. Course administrator's name (mention all, if more than one name)	
Assist.porf.Dr Ahmed Shihab Hamad Email: ahmed.cos@uowasit.edu.iq	

8. Course Objectives	
Course Objectives	1- Introducing the student to the basics of the structure discrete 2- The teachers covered by the structure discrete and the services it provides 3- Practical application of computer problem.

9. Teaching and Learning Strategies	
Strategy	1- Using practical examples 2- Discussions and effective exchange of ideas 3- Providing theoretical lessons paralleled by practical application:

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Fundamentals of Mathematics :Induction Introduction, Definitions	**Mathematical Induction**	Theoretical lectures and question	Conducting theoretical and practical tests

3-7	2	Introduction ,Sim Logic Statement ,Variables use i proposition statement Compound logi logic Equivalence, Tautology, Contradiction ,logical Implication, Alge of Proposition, conditional Statements, Variations , Quantifiers ,Logi Reasoning	**Mathematical Logic**	Theoretical lectures and question	Conducting theoretical and practical tests
8-11	2	Introduction ,Methods of expressing sets Principle Concepts of set Venn_ Diagrams, Sets 8_ordered Pairs products Sets ,Boolean Algebra.	**Sets Theory**	Theoretical lectures and question	Conducting theoretical and practical tests
12-114	2 2	Introductions , Binary relation Graph of the Relations ,Photographer Representatior of the relation, T Domain and the range Of relation , Identit relation, Invers	**Relations**	Theoretical lectures and question	Conducting theoretical and practical tests
15 -18	2	relation , Composition relation , Type of Relatior Equivalence Relations	**Functions**	Theoretical lectures and question s	Conducting theoretical and

		Introduction ,Principle Concepts and Definition, Models of Functi ,Composition Functions, Algeb of Functions, Discussion Functions throug The planned equ ,Draw Graph Function	**Vectors**		practical tests)
19 -22	2			Theoretical lectures and question	
	2		**Graph Theory**		Conducting theoretical and practical tests
23 -25	2	Introduction, Vectors , Matrices ,Models of Square Matrices Algebra the Matrices ,Determinants, Fi Inverse square None Singular Matrix , Solving System of Linear equations ,Using t Non homogeneou ,Matrix inverse, Grammar Rules .	**Formal Langua And Machines**	Theoretical lectures and question	
26 -27			**The Mathemat System and the Groups**		Conducting theoretical and practical tests
				Theoretical lectures and question	
28 -30		Introduction Principle Concept Types of Graphs ,Definitions Examples of Grap , Graphs and Relation , Graphs and Matrices		Theoretical lectures and question	
				Theoretical lectures and question	Conducting theoretical and practical tests

		Introduction Principle Concept Languages, Crammers ,Type Of Crammer ,Machines,Finite States Machine ,Finite Automata			Conducting theoretical and practical tests
		Introduction, Principle Concept Mathematical Systems, Groups, Cossets, Normal Subgroups, Quotient group, Homomorphism And Isomorphism Rings , Fields			

11. Course Evaluation
- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.   - Final out of 60

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	"The Internet of things Connecting "
Main references (sources)	The Internet of things: Key Application and Protocols
Recommended books and references (scientific journals, reports...)	Foundation Elements an IoT Solut
Electronic References, Websites	https://www.techtarget.com

Course Description Form

1. Course Name:	
	Computer Organization
2. Course Code:	
	104CsCo
3. Semester / Year:	
	2023/2024
4. Description Preparation Date:	
	26/3/2024
5. Available Attendance Forms:	
	Actual mandatory attendance
6. Number of Credit Hours (Total) / Number of Units (Total)	
	2 theoretical hours per week
	2 hours of practical lab per week
7. Course administrator's name (mention all, if more than one name)	
	Name: Zain Alabideen Ali Raheem
	Email: zainalabidin123.zaa@gmail.com
8. Course Objectives	

Course Objectives	**This academic curriculum is a basic introduction to knowledge of the computer system. The student will learn the main elements of a computer system. Such as introduction to computer science, basic concepts in computer science, definition of computer, classification of computers, development or generations, parts of the computer system including hardware and software. The curriculum aims to:-** 1. **The goal required of the student to successfully pass the course requirements is the student's awareness and understanding of the computer system.** 2. **Distinguish between hardware and software.**

9. Teaching and Learning Strategies	

Strategy	1. Giving lectures by giving logical explanations of the topic being taught. 2. Class participation through preparing reports related to the subject and discussing them.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2		**hardware**	theoretical	Discussion/questions and answers
2.	2		**Representing data in a computer**	theoretical	Discussion/questions and answers
3.	2		**Input and output units**	theoretical	Discussion/questions and answers
4.	2		**Software**	theoretical	Discussion/questions and answers
5.	2		**Networks**	theoretical	Discussion/questions and answers
6.	2		**Information technology in our daily life**	theoretical	Discussion/questions and answers
7.	2		**Security and protection**	theoretical	Discussion/questions and answers
8.	2		**Exam**		Questions
9.	2		**Legal issues**	theoretical	Discussion/questions and answers
10.	2		**Windows**	theoretical	Discussion/questions and answers
11.	2		**start menu**	theoretical	Discussion/questions and answers
12.	2		**control Panel**	theoretical	Discussion/questions and answers
13.	2		**Install and uninstall programs**	theoretical	Discussion/questions and answers
14.	2		**Create folders**	theoretical	Discussion/questions and answers
15.	2		**anti-virus**	theoretical	Discussion/questions and answers

10. Course Structure

16.	2		**Exam**	theoretical	Questions
17.	2		**Microsoft Word 2010**	theoretical	Discussion/questions and answers
18.	2		**Insert text into the document**	theoretical	Discussion/questions and answers
19.	2		**Text formatting**	theoretical	Discussion/questions and answers
20.	2		**Tables**	theoretical	Discussion/questions and answers
21.	2		**Header and footer**	theoretical	Discussion/questions and answers
22.	2		**page numbering**	theoretical	Discussion/questions and answers
23.	2		**Insert an image**	theoretical	Discussion/questions and answers
24.	2		**Design tab**	theoretical	Discussion/questions and answers
25.	2		**References tab**	theoretical	Discussion/questions and answers
26.	2		**Correspondence tab**	theoretical	Discussion/questions and answers
27.	2		**Preview and print the document**	theoretical	Discussion/questions and answers
28.	2		**Spelling and grammatical errors**	theoretical	Discussion/questions and answers
29.	2		**Prepare a report**	theoretical	Discussion/questions and answers
30.	2		**Exam**	theoretical	Questions

31. Course Evaluation

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

*Semester/30%
*Daily preparation, activities and attendance/10%

*Final exam/60%	
32. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Computer Organization
Main references (sources)	Basic computer and software skills
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:
English language

Course Code:	
UOB102(1)	

Semester / Year:
2023-2024

Description Preparation Date:
20/9/2023

Available Attendance Forms:
Actual mandatory attendance

Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical hours

Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer Nagham Fadhil Hussein Email: nahussain@uowasit.edu.iq

Course Objectives	
Course Objectives	**To enrich the students' knowledge about English language** **2- Improve students' ability in listening, speaking, reading and writing** **3-Mak the students feel with the English language in their study**

Teaching and Learning Strategies	
Strategy	Discussion and ask questions, giving the chance to students to participate by speaking, reading and translation.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method

1-8	8	Acquire social manner, like introduction and greeting Know his environment as some cities, the phone numbers Know some information's about his identity	Unit one: Hello Unit 2: your world Unit3: All about you	Theoretical lectures ,
9-16	8	Know how to use the possessives Review Know some nationalities and countries, the present simple Know how to arrange the times and preference Review	Unit4: family and friends Exercises and solutions Unit 5: The way live Unit 6: Every day Exercises and solutions	Theoretical lectures
17-22	6	How to use pronouns and the questions word Know house parts and furniture Learn the past tense	Unit 7: My favorites Unit 8: Where I live Unit 9: Times past	Theoretical lectures

23-27	5	Know the importance of doing homework and some sports Review	Unit 10: We had a great time	Theoretical lecture
			Exercises and solutions	
		Use the model verb can		
		The present continues tense How to use means of trans portion	Unit 11: I can do that	
28-30	3	Express with full sentences about good manner Review	Unit:12 Please and thank you	
				Theoretical lecture
			Unit 13: Here and now	
			Unit 14: It's times to go	
			Exercise and solution	

.	Course Evaluation
- The 40th annual session is divided into - 30 marks for the semester exams (at last two test in each semester0 -5 marks for participation, activities and homework	

.	Learning and Teaching Resources	
Required textbooks (curricular books, if any)	New Headway Pulse for Beginners, John and Liz Soars, Oxford
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
The crimes of the Baath regime in Iraq

2. Course Code:

3. Semester / Year:
2023/2024

4. Description Preparation Date:
21/3/2024

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical hours

7. Course administrator's name (mention all, if more than one name)
Name: Suhad Dawood Saiman Email: **suhaddawood2@gmail.com**

8. Course Objectives	
Course Objectives	**The student learns about the topics of the course that s[...] light on the crimes committed by the previous regime in Iraq thro[...] clarification The concept of crime in general in terms of its types and ty[...] an explanation of the violations that have affected human rights, and [...] an explanation of environmental problems Which Iraq fa[...] because of this system.**

9. Teaching and Learning Strategies	
Strategy	*Giving lectures by giving logical explanations of the to[...] being taught *Class participation through preparing reports related to t[...] subject and discussing them

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	The concept of crime (definition - types -its sections)	Baath crimes	theoretical	Discussion/questions and answers
2	1	Crimes ofthe Baath regime (international crime - its types)	Baath crimes	theoretical	Discussion/questions and answers
3	1	Decisions issued by court The Iraqi Supreme Criminal Court	Baath crimes	theoretical	Discussion/questions and answers
4	1	Psychological crimes (mechanisms and consequences)	Baath crimes	theoretical	Discussion/questions and answers
5	1	Social crimes (militarization of society)	Baath crimes	theoretical	Discussion/questions and answers
6	1	The Baath regime's position on religion	Baath crimes	theoretical	Discussion/questions and answers
7	1	Violating Iraqi laws	Baath crimes	theoretical	Discussion/questions and answers
8	1	First semester exam	Baath crimes		
9	1	Pictures of human rights violations	Baath crimes	theoretical	Discussion/questions and answers
10	1	Decisions on political and military violation of the Baath regime	Baath crimes	theoretical	Discussion/questions and answers
11	1	Prison and detention places of the Baath regime	Baath crimes	theoretical	Discussion/questions and answers
12	1	Environmental crime of the Baath regime	Baath crimes	theoretical	Discussion/questions and answers
13	1	Military and radioactive contamination and mine explosions	Baath crimes	theoretical	Discussion/questions and answers
14	1	Bombing the city of Halabja with chemical weapons	Baath crimes	theoretical	Discussion/questions and answers

15	1	Destruction of cities and villages (scorch earth policy)	Baath crimes	theoretical	Discussion/questions answers
16	1	Bombing of holy shrines, mosques and Husseiniyas	Baath crimes	theoretical	Discussion/questions answers
17	1	Drying the marshes	Baath crimes	theoretical	Discussion/questions answers
18	1	Razing palm groves, trees and crops	Baath crimes	theoretical	Discussion/questions answers
19	1	Mass grave crimes	Baath crimes	theoretical	Discussion/questions answers
20	1	The events of 1963 and their relationship to mass graves	Baath crimes	theoretical	Discussion/questions answers
21	1	Events extending from (1979 -2003) and their relationship In mass graves	Baath crimes	theoretical	Discussion/questions answers
22	1	Chronological classification of genocide graves in Iraq	Baath crimes	theoretical	Discussion/questions answers
23	1	Genocide graves related to the Iraq War Iranian (1980-1988)	Baath crimes	theoretical	Discussion/questions answers
24	1	Graves of the 1983 Barzanian Kurdish genocide	Baath crimes	theoretical	Discussion/questions answers
25	1	Genocide graves for the victims of the Anfal massacre the period (1987-1988)	Baath crimes	theoretical	Discussion/questions answers
26	1	Genocide graves for victims of the Shaabaniya uprising For the year 1991	Baath crimes	theoretical	Discussion/questions answers
27	1	Limiting the the ruling powers to the Baath Party	Baath crimes	theoretical	Discussion/questions answers

28	1	Violation of the rig to party pluralism the Baath regime	Baath crimes	theoretical	Discussion/questions a answers
29	1	Violation of international law (the first and secor Gulf wars). - International blockade 1990	Baath crimes	theoretical	Discussion/questions a answers
30	1	The impact of the transitional period on combatins authoritarian politic Law No. 32 of 2016 banning the Baath Party	Baath crimes	theoretical	Discussion/questions a answers
31	1	Second semes exam	Baath crimes		

11. Course Evaluation

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

*Semester/30%
*Daily preparation, activities and attendance/10%
*Final exam/60%

12. Learning and Teaching Resources

Required textbooks (curricular books any)	The crimes of the Baath regime in Iraq
Main references (sources)	1 - The Permanent Iraqi Constitution of 2005 2- A law prohibiting the Baath Party, entities, parties , and racist, terrorist, and takfiri activities No. 32 of 2016 3- General principles in the Iraqi Penal Code / Prof. Dr. Ali Hussein Al-Khalaf, Prof. Dr. Sultan Abdɨ Qadir
Recommended books and references (scientific journals, reports…)	

Electronic References, Websites	Baath crimes documentaries on the Internet

Course Description Form

1. Course Name:	
Arabic language	
2. Course Code:	
3. Semester / Year:	
2024 -2023	
4. Description Preparation Date:	
2024 /3/3	
5. Available Attendance Forms:	
Actual mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Kawthar Qasim Sahn Email:kawthard402@gmail.com	

8. Course Objectives	
Course Objectives	It aims to contribute to the formation of teachers who have competence, ability, good linguistic and scientific performance, and active scientific practice. ☐

9. Teaching and Learning Strategies	
Strategy	- Introducing the student to the correct Arabic language words, their correct structures and methods in an interesting and attractive way. - Enabling the student to read correctly, and to acquire the ability to use the language correctly in communicating with

others, such as speed, quality of delivery, and good expression.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	method
8-1	1	The student understands the meanings of texts in which objects appear and differentiates between them in terms of significance	The accusative ones object The effect is with him Effect for it Absolute effect	Explanation and discussion	Exams and daily discussion
16-9	1	Mistakes are widespread in our daily speech and in texts. We teach the student a set of these mistakes to avoid them	Common linguistic errors	Explanation and discussion	Exams and daily discussion
17-22	1	The student avoids making mistakes in writing "dha" and "dha" and differentiates between the meanings of the words -Writing numbers in the correct way	Writing the dā' and ḍā' Rules for writing numbers	Explanation and discussion	Exams and daily discussion
27 -23	1	Get acquainted with some Qur'anic texts and learn the subtle linguistic differences in the noble verses	Linguistic differences -The difference between rain and rain The difference between an oath and an oath The difference between light and light The difference between obligation and duty	Explanation and discussion	Exams and daily discussion

30 -28	1	The student senses the beauty of the words in these texts and their meanings	Poetic texts For the jeweler	Explanation and discussion	Exams and daily discussion

Description of the second stage course

Course Description Form

13.	Course Name:
English language	

14.	Course Code:
215CsEL	

15.	Semester / Year:
2023−2024	

16.	Description Preparation Date:
20/9/2023	

17.Available Attendance Forms:
Actual mandatory attendance

18.Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical hours

19.	Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer Nagham Fadhil Hussein Email: nahussain@uowasit.edu.iq	

20.	Course Objectives
Course Objectives	2- To enrich the students' knowledge about English language 2- Improve students' ability in listening, speaking, reading and writing 3-Mak the students feel with the English language in their study

21.	Teaching and Learning Strategies
Strategy	Discussion and ask questions, giving the chance to students to participate by speaking, reading and translation.

22. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-8	8	Tenses, Questions, using bilingual dictionary, part of speech, words with more one meaning Present simple, present continuous, using have got &has got describing countries Past simple, past continuous, irregular verb, making connections, suffixes to make different words& negatives Review	Unit 1: Getting to know Unit 2: The way we live Unit3: It all went wrong Exercises and solutions	Theoretical lectures ,	Examinations and daily activity
9-16	8	Quantity (much, many), some and any (someone, anyone, somewhere, anywhere…), learning buying things Review Verb patterns1, future	Unit4: Lets go shopping Exercises and solutions Unit 5: What do you want to do	Theoretical lectures	Examinations and daily activity

		intentions, hot verbs (have, go and come) What's like, comparative & superlative adjectives, talking about cities, synonyms and antonyms Present perfect and past simple ,for and since tense revision, past participle, adverbs and words pairs.	Unit 6: Tell me what's like Exercises and solutions Unit 7: Fame		
17-22	6	Review Obligation (have(got), should& must) jobs, words that go together and compound nouns Time and conditional clauses, hot verbs (take, get, do and make) Verb patterns2 infinitive purpose , describing feelings and situations	Exercises and solutions Unit 8: Do's and don't Unit 9: Going places Unit 10: Scared to death	Theoretical lectures	Examinations and daily activity

23-27	5	Review Passive, verbs participles, v and nouns go toget second conditional, mi phrasal verbs	Exercises and solutions Unit 11: Thing that changed the world	Theoretical lecture	Examinations and daily activity
28-30	3	present perfect and present perfect continuous, word formation and adverbs	Unit:12 Dreams and reality	Theoretical lecture	Examinations and daily activity
		past perfect, reported statement, hot verbs (bring, take, go and come)	Unit13: Earning a living Unit 14: Family ties		

23. Course Evaluation

- The 40th annual session is divided into
- 30 marks for the semester exams (at last two test in each semester0
- 5 marks for participation, activities and homework

24. Learning and Teaching Resources

Required textbooks (curricular boo if any)	New Headway Pulse for Pre-Intermediate, John and Liz Soars, Oxford
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Microprocessor

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Assist. porf. Dr Rawaa Ism Farhan
Email: ralrikabi@uowasit.edu.iq

8. Course Objectives

Course Objectives	
	1- **Introducing the student to the basics of 8086 microprocessors, their internal structure, registers and the transportation system.**
	2- **The basic operations carried out by microprocessors: reading and writing.**
	3- **Methods of dividing memory, addressing patterns, and encoding instructions.**

				4– **Practical** **application** **of** **programming** **microprocessors** **in** **assembly language**

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continuo learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Fundamentals of Computer: Introduction, Definitions & Characteristics of computer components (Memory, CPU, I/O devices), computer types, CPU architecture, three –bus system architecture, Bus cycle timing, fetch and execute.	Microprocessor	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

9-16	4	Memory: Memory location & addresses, Segmented memory, Real memory, Physical address, Effective address, segmentation advantages.	Microprocessor	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	Addressing: addressing modes, Instruction sets, (form), data transfer instruction, Arithmetic instruction, logic instruction, string instruction.	Microprocessor	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Coding: Transfe control, instruct Brief introductio machine c coding instruction, machine instruction.	Microprocessor	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	4	Structured Assembly Language: programming	Microprocessor		1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics)

		using procedure, Interrupts and interrupts service, routines, Stack (concepts and applications), i/0 Port_ i/o instruction		Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The annual course of 40 is divided into 20marks for the practical subject and 20 marks for the theoretical subject.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Barry B. Brey, "The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, and Pentium Pro processor Architecture, Programming, and Interfacing", 6th Edition, Prentic-Hall Inc., 2003.
Main references (sources)	Walter A. Triebe, "The 8086 Microprocessor: Architecture, Software, and Interfacing Techniques", Prentic-Hall Inc., 1998.

Course Description Form

25.	Course Name:
numerical analysis	

26.	Course Code:

27.	Semester / Year:
2023−2024	

28.	Description Preparation Date:
27/2/2024	

29.Available Attendance Forms:
Actual mandatory attendance

30.Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours

31. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical Name: teacher Muhammad Ali Email: **mwannas@uowasit.edu.iq**

32. Course Objectives

Course Objectives	1. To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. 2. To prepare students to perform the analysis and design of various digital electronic circuits. 3. Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. 4 To understand and examine the structure of various number systems and its application in digital design.5. The ability to understand, analyze and design various combinational and sequential circuits. 6. Ability to identify basic requirements for a design application and propose a cost effective solution7. The ability to identify and prevent various hazards and timing problems in a digital design. 8. To develop skill to build, and troubleshoot digital circuits.

33.	Teaching and Learning Strategies	
Strategy	• Students acquire knowledge of the principles o numerical analysis • The student acquires the skill of using program on the computer • Students acquire skills that enable them to tea mathematics	

10. Course Structure

Week	Hours	Learning Outcomes	Unit/Topic Name	Learning Method
1-3	4	Introduction to Numerical Analysis	Numerical Analysis: What is it? Floating-point numbers and roundoff errors. Errors: Sources of error in numerical computation. Absolute and relative errors. Stable and unstable computations: Conditioning.	Lecture Notes, YouTube
4-6	4	Solving Systems of Linear Equations	LU and Cholesky factorizations. Pivoting and constructing an algorithm. Neuman series and iterative refinement. Norms of matrix and vectors. Solution of equations by iterative methods: (i) Jacobi method (ii) Gauss-Siedel method	Lecture Notes, YouTube
7	4	Solution of Nonlinear Equations	Bisection method. False-position method. Newton's Method. Secant method. Fixed points and functional iteration. Acceleration of a fixed point.	Lecture Notes, YouTube
8-10	4	Systems of Nonlinear Equations	Fixed point method. Newton method. Modified Newton method	Lecture Notes, YouTube
11-13	4	Interpolation	Finite difference operators. Newton forward difference interpolation formula. Newton backward difference interpolation formula. Besiel interpolation formula. Polynomial interpolation (Lagrange interpolation). Divided differences. Spline (degree one, two and three) interpolation. Least square theory (discrete and continuous)	Lecture Notes, YouTube
14-16	4	Numerical Differentiation and Integration	Numerical differentiation. Numerical integration based on interpolation	Lecture Notes, YouTube
17-28	4	Numerical Solution of Ordinary Differential Equations	Existence and uniqueness of solutions. Taylor-series method. Runge-Kutta methods. Multistep methods. Euler method. Modified Euler	Lecture Notes, YouTube

11. Evaluation of the Course:	12. Learning and Teaching Resources:
Distribution of grades out of 100 based on tasks assigned to students:	**Prescribed Textbook:**
- Daily preparation	- "Numerical Analysis"

- Daily quizzes	**Main References:**
- Oral and written exams	- "Numerical Analysis"
- Reports, etc.	**Recommended Supplementary Books and References:**
	- "Numerical Analysis with Matlab Programming"
	Electronic Resources, Internet Sites:
	- **atozmath.com**

Course Description Form

1. Course Name:
data structures and algorithm

2. Course Code:

3. Semester / Year:
2023-2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: **Assistant Lectur** **Baraa Mohammed Hassn** Email: bhassan@uowasit.edu.iq

8. Course Objectives	
Course Objectives	**1** – **The student can choose the appropriate method for sorting and searching data according to the size and arrangement of the data.** **2** – **The student acquires skills in different ways of storing data in computer memory and dealing with it.**

	3- **Learn how to represent data linearly and non-linearly. Learns how to choose the optimal algorithm To solve a problem based on time and amplitude analysis.** **4 – Practical application of algorithms, how to deal with data, and sorting methods.**

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons parallele by practical applications 7- Encouraging self-exploration a continuous learning

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

1-8	4	Introduction to data structure Benefits of data structures Types of data structures How to select the suitable data structure Representation element in one dimensional array Representation element in two dimensional array Representation element in array with structures	data structures and algorithm	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	Stack : definition ,operations and algorithms Array representation of stack record implementation of stack Queue: definition,operations, and algorithms Array representation of Queue	data structures and algorithm	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	record implementation of Queue Circular queue: definition ,operations, and algorithms Array representation of Circular Queue recod implementation of Circular Queue Linked structures: sequential & dynamic storage Allocation Linked list: definition,operations, and algorithms	data structures and algorithm	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects

					4-Daily questions and discussions
23-27	4	Linked Stack &Queue Double linked list Half-Year Break Graphs: Directed graphs Undirected graphs Trees: Types of t and its algorithms	data structures and algorithm	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	4	Transfer binary tree to ordinary tree & vise versa Transfer mathematical expression to binary tree & vise versa Tree representation Searching algorithm : sequential &binary search Sorting algorithms : bubble,insertion,quick,and hashing storing	data structures and algorithm	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussis

11. Course Evaluation	
- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily. - Final out of 60	

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Data Structures and Algorithms Made Easy: Data Structures and Algorithmic Puzzles
Main references (sources)	Data Structures and Algorithms with C++: 100+ Coding Q&A (Code of Code)
Recommended books and references (scientific journals, reports…)	Data Structure and Algorithmic Thinking with Python
Electronic References, Websites	

Course Description Form

1. Course Name:
Computation theory

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical :assistant teacher Rasha hani salman Email: rsalman@uowasit.edu.iq

8. Course Objectives	
Course Objectives	It provides the theoretical foundations on which computer science is based, and it also gives the student the ability to think logically in building algorithms because they require mental thinking abilities and deduction and deduction, that is, it requires a creative mind.

9. Teaching and Learning Strategies	
Strategy	1- Participate in lectures, discussions, and practical activities to enhance learning, including problem-solving sessions, group projects, and programming assignments to apply theoretical concepts in practice. 2- Use self-learning resources such as textbooks, online courses, and tutorials to explore computational theory concepts at

your own pace, complementing classroom learning for deeper understanding.

3- Regularly practice solving arithmetic problems and exercises to enhance proble solving skills and reinforce theoretical concepts, while working on solving variou problems to develop diversity in applying different concepts.

4- Utilize visualization tools, softw simulations, and interactive platforms visually explore abstract concepts such machines, rules, and algorithms, which he in understanding complex theoretical idea

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Introduction, some application of computation theory basic operation on set ,plandrome ,kleene clouser ,regular expression , (definition, examples) regular	Computation theory	Blended learning, theoretical lectures,and problem-solving techniques in groups	1. Holding daily and quarterly tests, including theoretical and practical 2. Seminars, in which students are assigned topics 3. Finishing small jobs by working in groups 4-Daily queries and conversations
9-16	4	Language grammer ,grammars Contect free grammer Derivatuion tree Leftmost derivation	Computation theory	Blended learning, theoretical lectures,and problem-solving techniquesin groups	1. Holding daily and quarterly tests, including theoretical and practical

		Right most derivation Ambiguity in grammer			2. Seminars, in which students are assigned topics 3. Finishing small jobs by working in groups 4-Daily queries and conversations
17-22	4	-Finite automata (FA) -Deterministic Finite Automata (DFA) -Nondeterministic Finite Automaton -Proprieties of NFA -Convert Nondeterministic finite automation -Finite State Machine with Output (Moore and Mealy Machine)	Computation theory	Blended learning, theoretical lectures, and problem-solving techniques in groups	1. Holding daily and quarterly tests, including theoretical and practical 2. Seminars, in which students are assigned topics 3. Finishing small jobs by working in groups 4-Daily queries and conversations
23-27	4	-Chomsky Normal Form (CNF) -Conver CFG to CNF) -Chomsky Hierarc	Computation theory	Blended learning, theoretical lectures, and problem-solving techniques in groups	1. Holding daily and quarterly tests, including theoretical and practical 2. Seminars, in which students are assigned topics 3. Finishing small jobs by

| 28-30 | 4 | - PushDown Automata (PDA)
- Top – Down/ Bottom – Up Parsi
-Turning machine | Computation theory | Blended learning, theoretical lectures, and problem-solving techniques in groups | 1. Holding daily and quarterly tests, including theoretical and practical
2. Seminars, in which students are assigned topics
3. Finishing small jobs by working in groups
4-Daily queries and conversations |

11. Course Evaluation

- The 40th annual session is divided into 35 grades for the practical subject and 5 grades for student participation in class and solving homework assignments..
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricular boo if any)	Introductiont to Computation Theory
Main references (sources)	Theory and Practice of Computation
Recommended books and references (scientific journals, reports…)	Introduction to Theory of Computation
Electronic References, Websites	

Course Description Form

34.	Course Name:
System Analysis & Database	

35.	Course Code:

36.	Semester / Year:
2023−2024	

37.	Description Preparation Date:
20/9/2023	

38. Available Attendance Forms:
Actual mandatory attendance

39. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

40. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: **Samar Kareem Tuama** Email: gl707@uowasit.edu.iq

41. Course Objectives

Course Objectives	
	1. Understanding Fundamentals: Gain a comprehensive understanding of the fundamental concepts of Database Management Systems, including data models, database architectures, and the role of database systems in modern computing environments.
	2. Relational Database Theory: Explore the theoretical foundations of relational databases, including relational algebra, normalization, and the principles of structured query language (SQL).
	3. Database Design: Develop skills in conceptual, logical, and physical database design, encompassing entity-relationship modeling, schema refinement, indexing, and data storage optimization techniques.
	4. Data Manipulation: Learn techniques for querying, inserting, updating, and deleting data in a relational database using SQL, and understand the importance of transaction management and concurrency control in ensuring data integrity.
	5. Database Administration: Acquire knowledge of database administration tasks, such as user management, backup and recovery, performance tuning, and security measures to protect sensitive data.
	6. Data Modeling and Analysis: Gain proficiency in data modeling techniques for representing real-world entities and relationships in a database context, and explore methods for analyzing and interpreting data stored in databases to support decision-making processes.
	7. Database Connectivity: Understand the mechanisms for connecting databases to applications, including the use of application

		programming interfaces (APIs), middleware, and object-relational mapping frameworks.
	8.	Emerging Trends and Technologies: Stay abreast of emerging trends and technologies in the field of database management, such as NoSQL databases, distributed databases, cloud-based database services, and big data analytics platforms.
	9.	Database Security and Privacy: Develop an awareness of the security and privacy issues inherent in database systems, and learn best practices for safeguarding sensitive information against unauthorized access, data breaches, and cyber threats.
	10.	Real-World Applications: Apply database management concepts and techniques to real-world scenarios and projects, including the development of database-driven applications, data warehousing solutions, and business intelligence systems.

42.	Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continuous learning

43. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	• Introduction to Database Management Systems (DBMS) • Object of Database Management Systems (DBMS) • Database Design Data Redundancy • Purpose of Database Systems	System Analysis Database	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	• Database Schema -Database Instanc • Database Management System (DBMS Overview) • DBMS – Architecture • DBMS - Data Models	System Analysis Database	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning

					students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	• Entity-Relationship Model • Relational Model • Primary key in DBMS • How to choose a primary key? • Foreign key in DBMS	System Analysis Database)	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	• Composite key in DBMS • Candidate Key in DBMS • ER diagram consists of • - Entity sets. • -Relationship sets. • Many-to-many: • One-to-many: • One-to-one • Data Independence	System Analysis Database	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	4	• Logical Data Independence • Physical Data Independence • Normalization • 1. First Normal Form (1NF). • 2. Second Normal Form (2NF). • 3. Third Normal Form (3NF). • Problems without Normalization • Functional dependency • What is Partial Dependency (PD) • Structure Query Language (SQL) • SQL Types: • System Analysis and Design • Computer system: • Systems Development Methods • Systems Analysis and Design	System Analysis Database	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

44. Course Evaluation

The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily. - Final out of 60	

45. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"Database System Concepts" by Abraham Silberschatz, Henry F. Korth, and S. Sudarshan – Fundamentals of Database Systems" by Ramez Elmasri and Shamkant B. Navathe
Main references (sources)	"Database Management Systems" by Raghu Ramakrishnan and Johannes Gehrke
Recommended books and references (scientific journals, reports…)	• IEEE Transactions on Knowledge and Data Engineering (TKDE) - This journal focuses research in knowledge and data engineerin including topics such as data mining, mach learning, distributed databases, and data warehousing. • Journal of the ACM (JACM) - Publishes high quality research articles in computer scien including theoretical and practical aspects database systems, algorithms, and complex theory.
Electronic References, Websites	**Database Journal**: Database Journal offers arti tutorials, and news on database management to including database design, administration, performa tuning, and emerging technologies

Course Description Form

1. Course Name:
Baath crimes

2. Course Code:

3. Semester / Year:
2023−2024

4. Description Preparation Date:
10/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
30My watch

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name :M.M. Alaa Ab Amir Ahmed Email: alaamohammed@uowasit.edu.iq

8. Course Objectives	
Course Objectives	**This course aims to introduce students and inform them of the heinous crimes committed by the Baath regime in Iraq** **Track it, document it.** **Analysis and study of the truth about what happened in our country of tragedies, woes and calamities carried out by the unjust Baath regime.** **Which included all aspects of social life.**

9. Teaching and Learning Strategies	
Strategy	1- Theoretical lectures 2- Scientific discussions are analytical 3-Continuous assessment: Evaluate students' learning on an ongoir basis to determine their strengths and weaknesses.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	1		Introduction to the academic subject - The Iraqi Supreme Criminal Court Law of 2 against the Baath regime. - The concept of Baath crimes and their type - Definition of crime. - Crime departments. - International crimes. - Decisions issued by the Supreme Crimina Court. - The Baath regime's psychological crimes a their effects - Mechanisms of psychological crimes Psychological effects of crimes.	theoretical theoretical theoretical theoretical theoretical theoretical theoretical theoretical	Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis
9-16	1		The Baath regime's social crimes and their effe on society. - The Baath regime's economic crimes and thei effects. - The international crimes of the Baath regime their effects. - The most prominent violations of the Baath regime in Iraq. - The Baath regime's position on religion. - Violations of Iraqi laws. - First semester exam	theoretical theoretical theoretical theoretical theoretical theoretical theoretical theoretical	Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis

| 17-22 | 1 | | -Human rights violations.
- Political violations of the Baath regime.
- Military violations of the Baath regime.
- The most prominent torture prisons of the Ba regime.
- Environmental crimes in Iraq.
- Military and radioactive pollution | theoretical
theoretical
theoretical
theoretical
theoretical
theoretical
theoretical
theoretical | Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis |
| 23-27 | 1 | | - Mine explosions.
- Destruction of cities and villages by the Baat regime.
- Drying the Iraqi marshes.
Draining the Iraqi marshes. | Discussion sessions (seminar) Discussion theoretical theoretical theoretical theoretical theoretical theoretical theoretical | One minute paper test Short reports Questions and discussions Discussion and analysis Discussion and analysis Discussion and analysis |

						Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis
28-30	1			- Mass grave crimes. - Chronological classification of mass graves 1963-2003. - Creating cemeteries for the genocide commit by the Baath regime. - Pictures of power crimes. - Second semester exam	theoretical theoretical theoretical theoretical	Discussion and analysis Discussion and analysis Discussion and analysis Discussion and analysis

11. Course Evaluation

- The 40th annual session is divided into
- 30 marks for the semester exams (at least two tests in each semester)
- 5 marks for participation, activities and reports.
- 5 marks for total daily attendance

12. Learning and Teaching Resources

Required textbo (curricular books, if any)	The crimes of the Baath regime in Iraq
Main references (sources	1- The Iraqi Center for Documentation of Baath Crimes, reports condemning the Baath regime (human rights violations) 2- Abdul Razzaq Al-Saadi, A Bitter Legacy (Lessons from the De-Baathification Process in Iraq)
Recommended books and references (scientific journals, reports…)	The Poisoned Chalice (United Nations reports on decision of the Iraqi Supreme Court in the Dujail ca

Electronic Referenc Websites	

Course Description Form

1. Course Name:
Object Oriented Programming

2. Course Code:

3. Semester / Year:
2024/1

4. Description Preparation Date:
2023/10/1

5. Available Attendance Forms:
Study hall and Lab

6. Number of Credit Hours (Total) / Number of Units (Total)
4/3

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

8. Course Objectives	
Course Objectives	Design and write programs in object oriented programming style which depend on object oriented programming features and concepts and introduce C++ as an object-oriented programming language.

9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	4	C++ Program to write functions and inline function with parameter transmission	Overview for functions and parameter transmission, inline functions	Theoretical lecture and practical laboratory	Quiz
2	4	C++ Program to deal with function overloading and default arguments	function overloading and default arguments	Theoretical lecture and practical laboratory	Solve laboratory exercises
3	4		Introduction to OOP and its main features	Theoretical lecture and practical laboratory	Solve laboratory exercises
4	4	OO Program to define a Simple Class	Defining a Simple Class	Theoretical lecture and practical laboratory	Quize
5	4	Exam 1			
6	4	OO Program to define a Class with Inline Member Functions	Defining a Simple Class, with inline Member Functions	Theoretical lecture and practical laboratory	Solve laboratory exercises
7	4	OO Programs deal with Constructors and destructors functions	Constructors and destructors functions	Theoretical lecture and practical laboratory	Solve laboratory exercises

8	4	OO Program to write Friends functions	Friends concept	Theoretical lecture and practical laboratory	Solve laboratory exercises
9	4	OO Program to write Friend class	Friend class	Theoretical lecture and practical laboratory	Quiz
10	4	Exam 2			
11	4	OO Program deals with Constant Members and Scope Operator,	Constant Members and Scope Operator,	Theoretical lecture and practical laboratory	Solve laboratory exercises
12	4	OO Program deals with Member Initialization List, and Static members	Member Initialization List methods and Static members	Theoretical lecture and practical laboratory	Solve laboratory exercises
13	4	OO Program deals with pointers to objects and reference members	Pointers to objects and reference members	Theoretical lecture and practical laboratory	Quiz
14	4	OO Program to write Class object members	Class object members	Theoretical lecture and practical laboratory	presentation

Course Description Form

Course Name:
Developmental psychology

Course Code:

Semester / Year:
Chapter one

Description Preparation Date:
27/2/2024

Available Attendance Forms:
In presence

Number of Credit Hours (Total) / Number of Units (Total)
40hour/   2hour

Course administrator's name (mention all, if more than one name)
Name: Noora Karim Saleh Email: nsalih@uowasit.edu.iq

46. Course Objectives		
Course Objectives ... Increasing the student's understanding of the educational and social reality throughout the ages, realizing the educational process at its utmost necessity, and understanding educational theories on various peoples, ancient and modern. Interpreting the educational process from a historical and philosophical point of view 0 Shedding light on upbringing and education, highlighting the importance of the role of social pedagogical upbringing institutions and helping students to train and feel the importance of the educational process.	• • •	....

It is also a science that describes and explains the impact of educational systems on determining the educational reality revealed by schools Historical reality, past and present Philosophical education, defining the goals of community education, and applying educational concepts	

47.	Teaching and Learning Strategies
Strategy	

48. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	2	Growth and maturity Life stages and developmental demands Research methods in psychology Growth Factors affecting growth			
9-16	2	Maturity and learning Deprivation Developmental psychology theories The child's physical development			

17-22	2	The child's linguistic development The child's mental development The child's motor development The child's emotional development Congenital development of the child			
20-27	2	Moral standards Conscience formation Ideals Social development of the child Means of socialization adolescence			
28-30	2	The nature of adolescence, the stages of adolescence Physical development of the adolescent			

		Mental development			
		moral development			
		Social growth Family patterns			
		School problem tendencies and trends			
		Choosing a profession			
		Adolescent and school			
		Adolescents and peers			
		Adolescents a the media			
		The importance teenage work			

49. 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

50. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Developmental Psychology
Main references (sources)	Developmental Psychology
Recommended books and references (scientific journals, reports…)	Jamal Hussein Al-Alusi Umaima Ali Khan

	Psychology of childhood and adolescence Ahmed Abdel Latif Abu Saad, Developmental Psychology, Hisham Ahmed Ghorab, Developmental Psychology
Electronic References, Websites	

Description of the Third stage course

Course Description Form

1. Course Name:
Data security

2. Course Code:

3. Semester / Year:
2023−2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
30 My watch

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name :Assistant teac Abbas Hadi Abdel Sayed Email: ahadi@uowasit.edu.iq

8. Course Objectives

Course Objectives	
	− **Building a good background for students of computer science departments on teaching methods in general.** −**How to employ it during the application period and prepare teaching plans for the applied student.** −**Training students on classroom management and using teaching methods and activities**

		Teaching methods and student evaluation. −In addition, the course represents applications of computer teaching methods.

9. Teaching and Learning Strategies

Strategy	1-Active learning: Cooperative Learning: Dividing students into small groups work on group projects or assignments. Project-based learning: Assigning students to real-world projects that challenge them and require them to apply wh they have learned. For problem-based learning: posing problems for students solve using thinking skills To critique and solve problems. 2- Use of technology: Integrating technology into the educational process: using computers, the Internet, and tablets in educational activiti Using e-learning platforms: Using e-learning platforms to present course content and allow interaction between the student and the teacher. Linking theory to practice 3-Continuous assessment: Evaluate students' learning or ongoing basis to determine their strengths and weaknesse

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	2	Enabling students to know the nature of teaching Teaching as an experience Teaching as a discipline Teaching as a communication process Teaching concept Teaching as a science and an art Learning and teaching Education and teaching Elements of the educational process Foundations and principles of teaching	Teaching - its nature - Its foundations its principles His concept	Discussion sessions (seminar) Discussion Cooperative education Active learning	One minute paper test Short reports Questions and discussions A written test

		Characteristics of a successful teacher Pillars of the teaching process The concept of teaching strategy The concept of teaching method Advantages of the teaching method The rules on which teaching methods are based The difference between learning and teaching Types of teaching methods The difference between the concept of strategy, method and method			
9-16	2	Educational goals Sources for deriving educational objectives Levels of educational objectives Meaning of behavioral goal Formulate the behavioral goal Conditions for behavioral goals How to set behavioral goals Classification of behavioral goals Classification of cognitive domain Classification of the emotional domain Classification of the psychomotor domain The importance of formulating behavioral goals Regarding the teacher Regarding the student Regarding scientific material	Educational objectives	Discussion sessions (seminar) Discussion Cooperative education Active learning	One minute paper test Short reports Questions and discussions A written test

17-22	2	Classification of teaching methods
		Lecture method
		Discussion method
		Interrogation method
		Survey method
		Exploration method
		Method of solving problems
		Programmed learning method using computers
		Computer assisted education
		Advantages of programmed education
		Using a computer
			Teaching meth
			Classification
			Its types
			  Her class
			  questions
				Discussion sessions (seminar)
				Discussion
				
				Cooperative education
				
				Active learning
					One minute paper test
					Short reports
					Questions and discussions
					A written test

23-27	2	Planning concept The concept of planning in teach The importance of planning for teaching The foundations of good planning Characteristics of effective plann Types of teaching plans Daily plan Preparing the daily study plan The importance of preparing a da study plan The importance of daily preparat for lessons Daily preparation functions Preparation notebook	Lesson planni	Discussion sessions (seminar) Discussion Cooperative education Active learning Training students to prepare a daily plan	One minute paper test Short reports Questions and discussions A written test
28-30	2	Calendar concept Calendar functions Types of calendar Calendar methods Objective tests Essay tests	Calendar	Discussion sessions (seminar) Discussion Cooperative education Active learning Training students on how to formulate objective and essay questions	One minute paper test Short reports Questions and discussions A written test

11. Course Evaluation

 - The 40th annual session is divided into
- 30 marks for the semester exams (at least two tests in each semester)
- 5 marks for participation, activities and reports.
- 5 marks for total daily attendance

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book of general curricula and teaching methods
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Learning and teach strategies
Electronic References, Websites	

Course Description Form

1. Course Name:
Artificial Intelligence

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Ass porf. Dr Rawaa Ismael Farhan Email: ralrikabi@uowasit.edu.iq

8. Course Objectives

Course Objectives	1–Introducing the student to the basic concepts and applications of artificial intelligence. 2– Using artificial intelligence algorithms in the research process. 3– Drawing planning strategies to solve various problems. 4– Using artificial intelligence in natural language processing.	

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration a continuous learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method
1-8	4	Fundamentals of Artificial Intelligence (AI): General introduction to artificial intelligence, foundation and history of artificial intelligence, applications of artificial intelligence, architecture of a artificial intelligence, language and environment of A.I. and artificial intelligence branches.	Artificial Intelligence	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning
9-16	4	state space: define the problem as a state space , production system(add new example) ,problem characteristics , some example of A.I problem (8-puzzle , monkey and banana,….)(add new example), search technique (blind search) DFS and BFS(add new example), intelligent search technique (hill climbing, generate and test), best first search(add new example), A-algorithms(add new example) , A*- algorithms(add new example),min – max and alpha-beta algorithms(add new example)	Artificial Intelligence	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning

17-22	4	Problems: problem reduction and (and/ or) graph(add new example), forward and backward chaining(add new example), black board approach(add new example).		Artificial Intelligence	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning
23-27	4	knowledge representation: (propositional log predicate logic) (new example), log representation, (procedural network structured) representations, clause f algorithm, resolu in prepositional l algorithm;	Artificial Intelligence	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	4	prepositional resolution (add example), unification algorit resolution predicate l algorithm; resolu (add new exam (continue resolution predicate l algorithm; resolu (add new example

Expert System: expert system (introduction, architecture, characteristic), rule-based application of expert system, example on expert system, | Artificial Intelligence | Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning | 1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) |

		introduction to neural network, (continue to) introduction to neural network, introduction to genetic algorithm.			3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The annual course of 40 is divided into 20marks for the practical subject and 20 marks for the theoretical subject.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricbooks, if any)	"Luger, George F. (2009) Artificial Intelligence: Structures and Strategies for Complex Problem Solving, 6th edition.
Main references (sources)	Boston: Addison-Wesley Pearson Education (Book)"

Course Description Form

Course Name:
Computer architecture
Course Code:
Semester / Year:
2023−2024
Description Preparation Date:
20/9/2023
Available Attendance Forms:
Actual mandatory attendance
Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours
Course administrator's name (mention all, if more than one name)
Responsible for the theoretical course Name: Lec. zamen abood ramadaan Email: z.ramadaan@uowasit.edu.iq

51.	Course Objectives
Course Objectives	1. **Introduction the student to the basics of computer architecture.** 2. **Components of computer architecture and its basics.** 3. **The security challenges and problems it suffers from.**
52.	Teaching and Learning Strategies

Strategy	1- Using practical examples
	2- Project-based learning
	3- Discussions and effective exchange of ideas
	4- Use interactive resources and software applications
	5- Enhancing cooperation and teamwork
	6- Providing theoretical lessons paralleled by practical applications
	7- Encouraging self-exploration and continue learning

53. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Cache Memory &Memory Address Mapping & DIRECT MAPPING:& Fully Associative Mapping	Computer architecture	Theoretical and, the use of the group system to solve problems, and blended learning	1- Conducting theoretical (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	Cache Memory &Memory Address Mapping & DIRECT MAPPING:& Fully Associative Mapping	Computer architecture	Theoretical and, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to

					complete mini projects 4-Daily questions and discussions
17-22	4	SET ASSOCIATIVE &Replacement Technique & Input/ output (I/O)&Direct Memory Access(DMA) & Input/ Output (I/O) Concept	Computer architecture	Theoretical and, the use of the group system to solve problems, and blended learning	1- Conducting theoretical (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	PrInterrupt-Driven I/Oogrammed I/O & Direct Memory Access (DMA) & Single bus, detached DMA-I/O confrguration. &Single bus, Integrated DMA- I/O confrguration.	Computer architecture	Theoretical and, the use of the group system to solve problems, and blended learning	1- Conducting theoretical (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

28-30	4	Using separate I/O bus -I/O Channals Processors AssociativeOperation Associative Memo Memories & Applicat &Cache Coherence B Concept	Computer architecture	Theoretical and, the use of the group system to solve problems, and blended learning	1- Conducting theoretical (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

54. Course Evaluation

- The annual course of 40 is divided into 35 marks for the theoretical subject, including 5 marks for the totals of projects and the daily.
- Final out of 60

55. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Fundamental of computer architecture
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
Data base design

Course Code:

Semester / Year:
2023−2024

Description Preparation Date:
20/9/2023

Available Attendance Forms:
Actual mandatory attendance

Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Lec. Mar Mohammed Abood   Email: gl1101@uowasit.edu.iq   Responsible for the practical course Name: Email: :@uowasit.edu.iq

56.	Course Objectives

Course Objectives	4. **1− Enable the student to understand the importance of collecting and analyzing information correctly and how to use it to build**
	5. **Good designs for tables.**
	6. **The importance of DBMS and its classifications.**
	7. **Concepts of relational algebra.**
	8. **Using models of relationships, advanced entities EER and entities and converting them to relational tables.**

		9. Conversion of the relational chart S directives

57. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continue learning

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Introduction to dB concepts, Goals of Effective Database Design, Classification of (DBMS), Database design steps, E-R Model (Constructs), Basic Objects: Entities, Relationships, Basic Objects: Relationships, Total /Partial participation & Alternative Conceptual Data Modeling Notations,	Data design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

9-16	4	Logical Database Design: ER to Relational, Entity Sets to Tables Relationship Sets (without Constraints) to Tables, Translating Relationship Sets with Key Constraints, Translating Relationship Sets ER to Relational: Additional Examples, (EER) Superclass / Subclass Generalization/ Specialization Union or category Aggregation, Translating ER Diagrams to relational schema, Transforming the Conceptual Data Model to SQL, Transforming the Conceptual Data Model to SQL	Data design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	Logical Database Design, Relational algebra, Relational calculus, Advanced SQL: TRIGGERS AND ACTIVE DATABASES, STORED PROCEDURES, view	Data design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects

						4-Daily questions and discussions
23-27	4		Create & Drop view in MySQL, Index Basic Concepts, SQL Joins: Inner join Left join, SQL Joins: Right join Full join Cross join, Accessing SQL from a Programming Language	Data design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	4		New DB Data Mod Types, Ne DB Data Model Ty	Data design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

59. Course Evaluation
- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 5 marks for the totals of projects and the daily. - Final out of 60

60. Learning and Teaching Resources	
1. DATABASE SYSTEM CONCEPTS, Sixth editi 2006 2. DATABASE MANAGEMENT SYSTEI Third edition. 2003 3. FUNDAMENTALS OF Database Systems SIX EDITION. 2011 4. Database Modeling & Design Fourth Editi 2006 5. Begging database design solution, F Stephens, Wiley Publishing, Inc.,2009 6. Database Solution step by step, Thomas Connolly, Carolyn E. Begg, 2004	

Electronic References, Websites	
1. MySQL https://www.mysql.com/ 2. SQL Course https://www.sqlcourse.com/ 3. SQL Bolt https://www.sqlbolt.com/	

Course Description Form

1. Course Name:
visual basic

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name **Assistant Lectu** **Baraa Mohammed Hassn** Email: bhassan@uowasit.edu.iq

8. Course Objectives	
Course Objectives	– **The course aims to provide students with the basic concepts and tools for configuring an environment (.NET FRAMEWORK) to give them the ability to design and develop applications on the (WINDOWS) environment using the programming language (VISUAL BASIC.NET) and the database (SQL SERVER).**

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange o ideas 4- Use interactive resources and softwa applications 5- Enhancing cooperation and teamwor 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration a continuous learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Basic components of VB windows toolbox variables Library function & string function branching statements	visual basic	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	looping statements control tools option combo box, check box, button frame ,list box directory and files shapes control , box massage	visual basic	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

17-22	4	arrays dimensional tow-array bubble and selection sort sequential and binary search collections control array	visual basic	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Multi form and menus the menu editor , sub menus) Pop-up m (creating using)	visual basic	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
				Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

28-30	4	the common dialogs control procedures and modules subroutines and functions Mechanisms argument – passing graphics controls	visual basic	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Visual Basic .NET**
Main references (sources)	visual-basic--net-language
Recommended books and references (scientific journals, reports…)	Introduction to Visual Basic.NET
Electronic References, Websites	

Course Description Form

61.Course Name:
Computer graphics
62.Course Code:
63.Semester / Year:
2023-2024
64.Description Preparation Date:
1/9/2023
65.Available Attendance Forms:
Actual mandatory attendance
66.Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours
67.Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Dr Saif Ham Abbood Email: saifhameed.it@gmail.com Responsible for the practical course Name: BSc. Nooralhuda Lateef Email :nooralhudalateef@gmail.com

68.Course Objectives	
Course Objectives	- Understand the basics of computer graphics. - Explore the concept of computer graphics and its digital representation. - Comprehend computer drawing strategies and how to display them on electronic screens. - Understand computer graphics algorithms. - Grasp static and animated engineering graphics in various dimensions and their direct relevance to all electronic applications, especially smart applications.

69.Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled [t] practical applications 7- Encouraging self-exploration a[ ] continuous learning

70. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	What are computer graphics? Overview. Computer graphics applications. Display hardware.	Computer graphics	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
9-16	4	Graphics elements: - Mode (text mode, graphic mode) Picture elements. Raster scan display Draw the point algorithm.	Computer graphics	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects

					4-Daily questions and discussions
17-22	4	Colors and intensities. Raster and vector. Raster types. Draw horizontal line algorithm. Draw vertical line algorithm.	Computer graphics	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Cathode ray tube. Raster scan. Random scan or vector scan. Introduction of frame buffer. Draw the slop algorithm. DDA algorithm	Computer graphics	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

28-30	4	Frame buffer: Normal frame buffer. RGB frame buffer. Bresenham's line algorithm. Midpoint algorithm Bresenham's ci algorithm	Computer graphics	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning.	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

71. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

72. Learning and Teaching Resources

Required textbooks (curricular books any)	Fundamental of computer graphics. Computer graphics: principals and practice.
Main references (sources)	Computer Graphics: Principles and Practice is a textbook written by James D. Foley, Andries van Dam, Steven K. Feiner, John Hughes, Morgan McGuire, David F. Sklar, and Kurt Akeley and published by Addison–Wesley
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:
Software Engineering

Course Code:

Semester / Year:
2023−2024

Description Preparation Date:
20/9/2023

Available Attendance Forms:
Actual mandatory attendance

Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours

Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Dr Ali Fadhil Rasl Email: alirashid@uowasit.edu.iq

Course Objectives	
Course Objectives	**The program will prepare our students to be successful professionals in the field with solid fundamental knowledge of software engineering.** **to be successful professionals in the field with solid fundamental knowledge of software engineering** **Utilize and exhibit strong communication and interpersonal skills, as well as professional and ethical principles when functioning as members and leaders of multi−disciplinary teams**

		Apply their foundations in software engineering to adapt to readily changing environments using the appropriate theory, principles and processes
		• **Understand the concept of Software Engineeing**
		• **Knowledge of Software Life cycle Steps**

73.	Teaching and Learning Strategies
Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of idea: 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continuo learning

74. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	2	• Introduction to Software Engineering • Object of Software Engineering • Software Engineering life cycle OR System Development Life Cycle • SDLC Phases • Planning Phases • Analysis Phases • Design Phases	Software Engineering	Theoretical lectures	1-Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions

		• Implementation Phases			and discussions
9-16	2	• System Development Methodologies • Waterfall Development Methodology • Parallel Development Methodology • V-model development Methodology • Phased Development Methodology • Prototyping Methodology • Throwaway Prototyping Methodology • Selecting a Methodology Table		Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	2	• What is a Requirement? • REQUIREMENTS-GATHERING TECHNIQUES • Interviews • Joint Application Development (JAD) • Questionnaires • Document Analysis • Observation • Selecting the Appropriate Requirements-Gathering Techniques	Software Engineering	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

		• The Analysis Phase Activity • Models and Modeling • Types of Models			
23-27	2	• Events Affecting a Charge Account Processing System • Types of Events • Process Modeling Process Data flow diagramming • Data Flow Diagram Symbols • PDFD Example For a Hospital • Student software engineering projects discussion • Evaluating DFD	Software Engineering	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
28-30	2	• Quality • Validating the DFD • Consistency Rules • Syntax errors • Typical errors that can occur in a data flow diagram (payroll example) • Logical and Physical Data Flow Diagrams • Moving to The Design • The Design Strategies • Technology and Operation Managements • Case tool (computer Aided S/W Engineeri tool	Software Engineering	Theoretical lectures	1- Conducting theoretical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

75. Course Evaluation

The annual course of 40 is divided into

20   marks for the theoretical exams subject (at least two exams)
10   marks for the theoretical daily exams.
5   marks for the totals of projects and the daily.
5   marks for the totals of daily attendance

76. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Software Engineering
Main references (sources)	Fundamentals Of Software Engineering
Recommended books and references (scientific journals, reports…)	Software Engineering & Testing
Electronic References, Websites	

Description of the Fourth stage course

Course Description Form

1. Course Name:
Practical education

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
20 weeks in college, 10 practical applications in high schools

7. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name :Assistant teacher Abl Hadi Abdel Sayed Email: ahadi@uowasit.edu.iq

8. Course Objectives

Course Objectives	
	1. Helping the student teacher to identify the components of the school and institutional system and the systemic interaction between these components.
	2. The student teacher or trainee gains a true understanding of his abilities and professional qualities, and works to develop them to the maximum extent possible.
	3. Linking theory and application by putting what the student teacher and trainee learned in the theoretical aspect of the courses he studied in college.
	4. Testing the extent to which the student teacher or trainee is capable of the scientific subject that he is teaching and training in and the extent of his ability to develop it during the education and training process and increase his understanding of the planning subject and his positivity towards it.
	5. Respect the teaching profession and the services related to it, appreciate its workers, and form positive attitudes toward it.

	6. Helping the student teacher to acquire professional competencies that will enable him to perform his duties successfully in the field of personal qualities, training, evaluation, and diversity of activities toward students.

9. Teaching and Learning Strategies

Strategy	1.Imitation and emulation 2.Discussion and dialogue 3.Cooperative learning 4. Problem solving 5.Brainstorming

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	2	1. The student's definition of practical education 2. Introducing the student to watching 3. Introducing the student to public speaking 4. The student's definition of microlearning 5. Identify the types of teaching methods 6. Enable students to apply examples of types of lesson plans 7. Enabling students to recognize the evaluation items	1. Introduction practical educat 2. Watching 3. Diction 4. Microlearnin 5. Types of teaching metho 6. Planning for teaching 7. Evaluation fo	They participate in presentation and discussion They participate in presentation and discussion They participate in presentation and discussion They participate in presentation and discussion They participate in presentation and discussion They participate in presentation and discussion They participate in presentation and discussion Participation and discussion They participate in presentation and discussion	Discussion and exchange of opinions Discussion and exchange of opinions Discussion and exchange of opinions Discussion and exchange of opinions Discussion and exchange of opinions Discussion and exchange of opinions Participation and discussion They participate in presentation and discussion

9-15	2	Providing a mini-lesson by the students Directing students to schools for the purpose of practical application Directing students to schools for the purpose of practical application Directing students to schools for the purpose of practical application Directing students to schools for the purpose of practical application Directing students to schools for the purpose of practical application Identify the most important problems that students face during the application period			

11. Course Evaluation

- The 100th annual session is divided into
- 40 marks for the practical education subject (evaluated by the subject professor)
- 30 marks evaluated by the educational supervisor during the application period in schools
- 30 marks are evaluated by the scientific supervisor during the practical application period in schools

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-The book on practical education (observation and application) by Prof. Dr. Daoud Abdel Salam. Naz Badr Khan Sindhi
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Practical education website: How to be a successful implementer

Course Description Form

77.	Course Name:
Computer Communication and Networks	

78.	Course Code:
432CsCn	

79.	Semester / Year:
2023-2024	

80.	Description Preparation Date:
12/3/2024	

81.	Available Attendance Forms:
Actual mandatory attendance	

82.	Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours	

83.	Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Assoc.prof.Dr Esraa Saleh Alon Email: ealomari@uowasit.edu.iq Responsible for the practical course Name: Lect. Manar Bashar Murtadha Email: :manar@uowasit.edu.iq	

84.	Course Objectives	
Course Objectives	1- Providing students with the necessary knowledge and skills in the field of information technology and communications. 2- Through this course, students can understand how to build and manage computer networks, transfer data, secure communications, and manage network-dependent systems.

		3- This course helps students develop skills in dealing with advanced computer networking technologies, qualifying them to work in areas such as network design and development, network support, information security, and web applications.			

<table>
<tr><td colspan="6">85.   Teaching and Learning Strategies</td></tr>
<tr>
<td colspan="1">Strategy</td>
<td colspan="5">
1- Utilizing practical examples
2- Project-based learning
3- Discussions and effective exchange of ideas
4- Using interactive resources and applications
5- Promoting collaboration and teamwork
6- Providing parallel theoretical lessons with practical applications
7- Encouraging self-exploration and continuous learning
</td>
</tr>
</table>

86. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	-Transmission Mode a. Serial And Parallel b. Simplex-half and full duplex Modulation : modem , pm fm am ,Multiplexing ,TDM and FDM .	computer communicat and Networks	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

| 9-16 | 4 | −Living In Network − What Is Network − Network Media −LAN, WAN, MAN and Internet Network −Network Protocol − Component Of The Network −Networks Criteria ,Network Topologies, 1 −Transmission Media:guided media , Unguided Media , −OSI model , a. Application , presentation and session b. transport , network data link and physical Different Purposes− Network layer − IPv4 | computer communication and Networks | Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning | 1− Conducting theoretical and practical tests (daily and quarterly) 2− Seminars (assigning students to topics) 3−Using the group system to complete mini projects 4−Daily questions and discussions |

17−22	4	−Network Devices : Hub, Network Interface Card Repeater bridge Switch Router Gateway − broadcast collision domain , Unicast multicast broadcast, Ethernet , − tcp/ip protocols Addressing The Network Delivery and routing of IP packet, Connection oriented Connection less services Direct and indirect delivery of packets Routing methods Next hop routing, Network specific routing	computer communication and Networks	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1− Conducting theoretical and practical tests (daily and quarterly) 2− Seminars (assigning students to topics) 3−Using the group system to complete mini projects 4−Daily questions and discussions
23−27	4	Addressing The Network −IPv4 Address −IPv4 Address For Different Purposes− Network layer − IPv4 ,− Dividing Host Into	computer communication and Networks	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve	1− Conducting theoretical and practical tests (daily and quarterly) 2− Seminars (assigning students to topics)

| 28–30 | 4 | Groups ,– examples– Special Addresses – Assigning Addresses ,Class full , Supernetting. – tcp/ip protocols IPv4 Address –I Address F | | problems, and blended learning

Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning | 3–Using the group system to complete mini projects
4–Daily questions and discussions

1– Conducting theoretical and practical tests (daily and quarterly)
2– Seminars (assigning students to topics)
3–Using the group system to complete mini projects
4–Daily questions and discussions |

87. Course Evaluation

– The annual grade consists of 40 marks, distributed as 10 marks for the practical component and 20 marks for the theoretical component, including 10 marks for project and daily totals.

– The final exam is out of 60 marks.

88. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer Networking: A top-down approach
Main references (sources)	Computer Networks
Recommended books and references (scientific journals, reports…)	Network Warrior
Electronic References, Websites	https://www.guru99.com/ar/best-computer-networks-books.html?gpp&gpp_sid

Course Description Form

89.	Course Name:
Operating system	

90.	Course Code:

91.	Semester / Year:
2023–2024	

92.	Description Preparation Date:
20/9/2023	

93. Available Attendance Forms:
Actual mandatory attendance

94. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

95. Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: Lec. zam abood ramadaan Email: z.ramadaan@uowasit.edu.iq Responsible for the practical course Name: programmer Fatima ali Email: :@uowasit.edu.iq

96. Course Objectives

Course Objectives	10. Introduction the student to the basics of operating systems and approved algorithms in its application
	11. Components of operating system and its basics.
	12. The security challenges and problems it suffers from.

		13. **Practical application of implementing algorithms for operating system.**

97.	Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration a continuous learning

98. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Introduction to Operating Systems &Operating System – Overview & Why do we need an operating system?& Operating system goals: & What Operating Systems Do &History of Operating Systems	Operating system	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

9-16	4	The following are some of the important functions of an operating system:& Operating Systems Structure & The Operating Systems Services &The System Calls and System Programs	Operating system	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	Types of Operating Systems &Batch operating system &Time-sharing operating systems & Real Time operating System & Distributed operating SystemParallel systems & Process Management	Operating system	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Process State &Process Control Block &Thread & CPU Scheduling &CPU - I/O Burst Cycle & CPU Scheduler & Context Switch & Preemptive Scheduling & Dispatcher & Scheduling Criteria &	Operating system	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects

		Scheduling Algorithms			4-Daily questions and discussions
28-30	4	First-Come, First-Served Scheduling (FCFS) & Shortest-Job-First Scheduling (SJF) &Priority Scheduling & Round-Robin Scheduling (RR) & R.R (preemptive) & Multilevel Queue Scheduling & Multilevel Feedback Queue Scheduling	Operating system	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1-Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

99. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 5 marks for the totals of projects and the daily.
- Final out of 60

100. Learning and Teaching Resources

Required textbooks (curricular boo if any)	

Main references (sources)	Fundamental of operating system
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
educational measurement and evaluation

2. Course Code:
428CsMe

3. Semester / Year:
year

4. Description Preparation Date:
27/2/2024

5. Available Attendance Forms:
is mandatory

6. Number of Credit Hours (Total)(60) / Number of Units (Total)(2)
6. Number of Credit Hours (Total)(60) / Number of Units (Total)(2

7. Course administrator's name (mention all, if more than one name)
Name: Hazem jassim suhaib Email: hazmwe23@jmail.com

8. Course Objectives

Course Objectives	Preparing teachers capable working i

9. Teaching and Learning Strategies

Strategy	
	All learning strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

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)	educational measurement and evaluation
Main references (sources)	educational measurement and evaluation dr.abdel salam jawdt
Recommended books and references (scientific journals, reports…)	educational measurement and evaluation
Electronic References, Websites	Magazines and newspapers

Course Description Form

1. Course Name:
Data security

2. Course Code:

3. Semester / Year:
2023–2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

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

Responsible for the theoretical and practical course Name: Dr Riyadh Ra Nuiaa
  Email: riyadh@uowasit.edu.iq
  Responsible for the practical course Name: BSc. Nooralhuda Lateef
  Email :nooralhudalateef@gmail.com

8. Course Objectives

Course Objectives	1– **Understand the fundamentals of data protection, encryption, and access control mechanisms.** 2– **Explore common cybersecurity threats, vulnerabilities, and attack vectors.** 3– **Learn techniques for securing networks, systems, and applications against cyber threats.** 4– **Develop skills in incident detection, response, and recovery to mitigate security breaches.**

		5- **Gain insight into legal, ethical, and regulatory considerations in data security and cybersecurity practices.**

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration a continuous learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	What security is about in general? Information security in past and present, Factor on Computer Crime Information System Security Classification, Classification based on Function.	Data Secu	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

9-16	4	Type of Attacks Information hiding Sitganography Water marking Encryption Decryption Symmetric and Public Key Systems The Future of Security	Data Secu	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	Basic Terminology of Cryptography Principles of virus types Historical secret key cryptography Application in High (Junior) School Caesar's cipher Monoalphabetic ciphers, Playfair cipher Transposition or Permutation Diffusion Confusion	Data Secu	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
23-27	4	Data Encryp Standard DES, Taxonomy of netw security One-time pad ciph Rotor machines, Stream Cipher, Block Cipher Public Algorithms RSA Ethical Hacking Types of Hacking Purpose of Hackir The Phases of Eth Hacking	Data Secu	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects

28-30	4	Cybersecurity Importance Cybersecurity Cybersecurity objectives Elements Cybersecurity The Cybersecu Trends Cybersecurity Challenges Cybersecurity Awareness Difference betwee Ethical Hacking a Cyber Security	Data Secu	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning.	4-Daily questions and discussions 1-Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

11. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricular books any)	CRYPTOGRAPHY AND NETWORK SECURITY PRINCIPLES AND PRACTICE FIFTH EDITION, William Stallings
Main references (sources)	Mark Stamp, Information Security Principles and Practice, John Wiley & Sons, 2006.
Recommended books and references (scientific journals, reports…)	Charles P. Pfleeger and Shari Lawrer Pfleeger, Security in Computing, John Wiley Sons, Inc., 2007.
Electronic References, Websites	

Course Description Form

101.	Course Name:
Web Design	
102.	Course Code:
103.	Semester / Year:
2023-2024	
104.	Description Preparation Date:
20/9/2023	
105.	Available Attendance Forms:
Actual Mandatory Attendance	
106.	Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours	
107.	Course administrator's name (mention all, if more than one name)
Responsible for the theoretical and practical course Name: **M.Sc. Muntadher Naeem Yasir** Email: muntadher.naeem@uowasit.edu.iq	
108.	Course Objectives

Course Objectives	The objectives of the website design course include several main points: 1. **Understanding the principles of good design:** Students learned how to apply good design principles in creating and developing websites, such as balance, harmony, ease of use, and visual appeal. 2. **Learn web design techniques:** This includes understanding the basics of web design techniques such as HTML, CSS, and JavaScript, in addition to various design tools such as Bootstrap and WordPress. 3. **Develop programming skills:** Learn programming and web development using programming languages such as PHP, Python, or Ruby on Rails to add dynamic functionality to websites. 4. **Understanding user experience:** Studying how to improve user experience on websites by designing user interfaces that are easy to use and attractive. 5. **Dealing with search engine optimization (SEO) techniques:** Understanding how to optimize websites to appear better in search engine results, which increases the site's reach and increases the number of visitors. 6. **Learn about security requirements:** Learn how to protect websites from electronic attacks and ensure the integrity of the data and information used on the site.

| | | 7. **Developing practical projects:** Providing students with the opportunity to apply the concepts and skills they have acquired through designing and developing practical projects such as personal websites or commercial websites. |

109.   Teaching and Learning Strategies

| **Strategy** | **Teaching and learning strategies for web design can be diverse and comprehensive, including:**
1. **Active and interactive learning.**
2. **Cooperative learning and teamwork.**
3. **Project-based learning and practical applications.**
4. **Using technology in learning and teaching.**
5. **Provide comprehensive evaluation and constructive feedback.**
6. **Benefit from real life lessons and stories.**
7. **Diversify and modify educational methods according to students' needs and curriculum objectives.** |

110. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-8	4	- Website and Web Application - Static and Dynamic Websites - What are the main differences between static and dynamic websites? - Examples of static and dynamic content? - Types of Websites ? - What is a Web Browser? Code (HTML)	Web Design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1. Conducting theoretical and practical tests (daily and quarterly) 2. Seminars (assigning students to topics) 3. Using the group system to complete mini projects 4. Daily questions and discussions
9-16	4	- What is a database server?	Web Design	Theoretical and practical lectures,	1. Conducting theoretical and practical tests (daily and quarterly)

		- Uses for a database server - How do database servers work? - Database vs. server - Types of database servers - What is an Application Server? - Web page programming options - Code (HTML+CSS)		practical application in the laboratory, the use of the group system to solve problems, and blended learning	2. Seminars (assigning students to topics) 3. Using the group system to complete mini projects 4. Daily questions and discussions
17-22	4	- Web Communication Protocols - What is a TLD? - Publishing Your Web Site (step-by-step) - What is an Application Server? - Web page programming options - Code (HTML+CSS)	Web Design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1. Conducting theoretical and practical tests (daily and quarterly) 2. Seminars (assigning students to topics) 3. Using the group system to complete mini projects 4. Daily questions and discussions
23-27	4	- Website Prototype: How to Make a Website Prototype? - Website prototype — what is it, and why do you need it? - A prototype looks	Web Design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems,	1. Conducting theoretical and practical tests (daily and quarterly) 2. Seminars (assigning students to topics) 3. Using the group system to complete mini projects 4. Daily questions and discussions

		something like this. - Advantages of website prototyping - What tasks can the development team solve with a website prototype? - How to build a website prototype? - Top 3 popular ways of prototyping: Paper prototyping - Top 3 popular ways of prototyping: Prototyping with professional apps - Top 3 popular ways of prototyping: Prototyping with online tools - Code (JAVA+MY SQL)		and blended learning	
28-30	4	- What's a website structure? - The 3 most common types of website structures - 5 tips for building a good website structure	Web Design	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve	1. Conducting theoretical and practical tests (daily and quarterly) 2. Seminars (assigning students to topics) 3. Using the group system to complete mini projects 4. Daily questions and discussions

		- Website structure examples to inspire you!? - Code (PHP)		problems, and blended learning	

5. Course Evaluation

- The annual course of 40 is divided into 20 marks for the practical subject and 20 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

6. Learning and Teaching Resources

Required textbooks (curricular books, if any)	- "HTML and CSS: Design and Build Websites" by Jon Duckett. - "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics" by Jennifer Robbins. - "JavaScript and jQuery: Interactive Front-End Web Development" by Jon Duckett. - "Responsive Web Design with HTML5 and CSS3" by Ben Frain. - "Web Design with HTML, CSS, JavaScript and jQuery Set" by Jon Duckett. - "Designing with Web Standards" by Jeffrey Zeldman and Ethan Marcotte.
Main references (sources)	- "HTML and CSS: Design and Build Websites" by Jon Duckett - Covers HTML and CSS concepts in a simplified and detailed manner, making it suitable for beginners and advanced users alike. - "JavaScript and jQuery: Interactive Front-End Web Development" by Jon Duckett - presents applications of JavaScript and the jQuery library in developing interactive and dynamic user interfaces. - "Responsive Web Design with HTML5 and CSS3" by Ben Frain - focuses on responsive web design techniques using HTML5 and CSS3. - "Designing with Web Standards" by Jeffrey Zeldman and Ethan Marcotte - reviews modern design standards and smart design techniques to improve the user experience on websites. - "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics" by Jennifer Robbins - Includes HTML, CSS, and JavaScript concepts as well as web graphics.
Recommended books and references (scientific journals, reports...)	- "Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability" by Steve Krug - Focuses on user experience and usability in web design.

	- "Mobile First" by Luke Wroblewski - Focuses on designing websites for mobile devices first. - "The Elements of User Experience: User-Centered Design for the Web" by Jesse James Garrett - Provides a comprehensive approach to user experience in web design. - "Designing Interfaces: Patterns for Effective Interaction Design" by Jenifer Tidwell - presents effective interaction patterns for interface design. - "Web Form Design: Filling in the Blanks" by Luke Wroblewski - Focuses on designing effective website forms and entries. - "Responsive Design Workflow" by Stephen Hay - presents an effective working process for responsive website design. - "The Principles of Beautiful Web Design" by Jason Beaird - focuses on the principles of aesthetic website design.
Electronic References, Websites	- Official design techniques websites such as MDN Web Docs (https://developer.mozilla.org/) and W3Schools (https://www.w3schools.com/) - Provide resources, tutorials, and demonstrations on web design techniques. - Other reference books related to graphic design, user experience, and front-end development

Course Description Form

1. Course Name:
Internet of Thing

2. Course Code:

3. Semester / Year:
2023−2024

4. Description Preparation Date:
20/9/2023

5. Available Attendance Forms:
Actual mandatory attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours and 60 practical hours

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

Responsible for the theoretical and practical course Name: Assist.porf.Dr Ba Ismael Farhan
  Email: bfarhan@uowasit.edu.iq
  Responsible for the practical course Name: Lec. Hussein Najm Abd
  Email: :hnajim@uowasit.edu.iq

8. Course Objectives	
Course Objectives	**1**− **Introducing the student to the basics of the Internet of Things and the approved protocols for its application** **2**− **The layers covered by the Internet of Things and the services it provides** **3**− **The security challenges and problems it suffers from** **4**− **Practical application of connecting sensors, controller**

		parts, and platforms for the Internet of Things

9. Teaching and Learning Strategies

Strategy	1- Using practical examples 2- Project-based learning 3- Discussions and effective exchange of ideas 4- Use interactive resources and software applications 5- Enhancing cooperation and teamwork 6- Providing theoretical lessons paralleled by practical applications 7- Encouraging self-exploration and continuo learning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-8	4	Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M	Internet of Think	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3- Using the group system to complete mini projects 4- Daily questions and discussions

9-16	4	Sensors Networks : Definition, Types of Sensors, Types of Actuators, Examples and Working, IoT Development Boards: Arduino IDE and Board Types, , RFID Principles and components, Wireless Sensor Networks: History and Context, The node, Connecting nodes, Networking Nodes, WSN and IoT.	Internet of Think	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions
17-22	4	Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE 802.15.4, Zigbee, HART, NFC, Z-Wave, BLE, Bacnet, Modbus. IP Based Protocols for IoT IPv6, 6LowPAN, RPL, REST, AMPQ, CoAP, MQTT. Edge connectivity and protocols	Internet of Think	Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning	1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions

| 23-27 | 4 | Data Handling& Analytics: Introduction, Bigdata, Types of data, Characteristics of Big data, Data handling Technologies, Flow of data, Data acquisition, Data Storage, Introduction to Hadoop. | Internet of Think | Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning | 1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions |
| 28-30 | 4 | Introduction to data Analytics, Types of Data analytics, Local Analytics, Cloud analytics and applications | Applications of IoT: Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection. | Theoretical and practical lectures, practical application in the laboratory, the use of the group system to solve problems, and blended learning | 1- Conducting theoretical and practical tests (daily and quarterly) 2- Seminars (assigning students to topics) 3-Using the group system to complete mini projects 4-Daily questions and discussions |

11. Course Evaluation

- The annual course of 40 is divided into 15 marks for the practical subject and 25 marks for the theoretical subject, including 10 marks for the totals of projects and the daily.
- Final out of 60

12. Learning and Teaching Resources

Required textbooks (curricular books any)	"The Internet of things Connecting "
Main references (sources)	The Internet of things: Key Application and Protocols
Recommended books and references (scientific journals, reports…)	Foundation Elements an IoT Solution
Electronic References, Websites	https://www.techtarget.com