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

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.

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

<u>Program Mission:</u> 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:Diyala..... Faculty/Institute:College of Sciences...... Scientific Department:Computer Sciences...... Academic or Professional Program Name:Bachelor's in Computer Sciences...... Final Certificate Name: Bachelor's in Computer Sciences..... Academic System:Semester Study System...... Description Preparation Date: 10/4/2024 File Completion Date: 10/4/2024

Head of Department Name: Bashar Talib

Signature:: Scientific Associate Name: Munther Hamza Radi

Date:12/4/2024

Date: 12/4/2024

Signature:

Hemmed

The file is checked by: **Department of Quality Assurance and University Performance** Director of the Quality Assurance and University Performance Department: Ghassan Sabeeh Mahmood Date: 12/4/2024 Signature:

Approval of the Dean Prof: Taha Muhammad Hassan

1. Program Vision

Computer science is considered one of the modern applied sciences intertwined with all other sciences. It occupied a prominent degree and position in scientific studies in colleges and universities in the world. The establishment of the Computer Science Department in the College of Science at Diyala University came with the establishment of the college in the year 2002-2003, and since that date I graduated from the department. The sixteenth session, the last of which was the 2020-2021 session, and postgraduate studies were introduced in the year 2015-2016 to obtain a master's degree, and 20 students were accepted for the academic year 2020-2021. In the same year, a doctoral study was introduced in computer science, and it is hoped that doctoral students will be accepted for the academic year 2021 -2022.

2. Program Mission

The Computer academic staff pursues a multifaceted charge at (Diyala) University. The Department of Computer Science, since its inception, has enjoyed a distinguished scientific reputation among the faculties of science. In general, the department dedicates the capabilities to maintain the highest scientific level, as the department provides a wide study and research program within the disciplines of computer science. This is to provide academic opportunities for undergraduate and postgraduate students. Every year, many original scientific researches are carried out in various branches of computer science. At the level of preliminary studies, the department provides the opportunity to obtain a bachelor's degree in computer science by giving practical and theoretical lessons, as well as scientific research in all the specializations of the department, as the subjects taught during the four academic years qualify graduates to work according to their specialization, wherever they are needed in the fields of the jobs.

3. Program Objectives

The objective of the service courses is to teach specific programming languages, operating systems, environments, and other specific knowledge. They are to serve the community, other programs within the University, and majors and minors, by teaching application-area-specific knowledge to students.

The overall objective of the Computer Science faculty is to successfully implement the Computer Science major. In order to do this, the faculty have the objectives of successfully

teaching a variety of courses, using current technology, giving students hands-on experiences, renewing their professional skills and knowledge base, sharing activities and knowledge with other professionals, and regularly reviewing and updating curriculum based on professional organization guidelines and both student and advisory board input.

4. Program Accreditation

Does the program have program accreditation? And from which agency? NO

5. Other external influences

Is there a sponsor for the program? NO

6. Program Structure												
Program Structure	Number of	Credit hours	Percentage	Reviews*								
	Courses											
Institution	4	4										
Requirements	-	-										
College Requirements												
Department	54	160										
Requirements		200										
Summer Training												
Other												

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

7. Program	m Descript	ion								
Year/Level	Course	Course Name	Credit Hours							
	Code		theoretical	practical						
Semester 1	COS-101	Differentiation Methods	3							
	COM 111	Introduction to	2	2						
	COM-III	Programming								
	COM 112	Computational	3							
	COM-112	mathematics								
	COM-113	Computer Skills (I)	2	2						
	COM-114	Digital Logic	2	2						
	UD01	English Language	2							
Semester 2	COS-102	Integration Methods	3							

COM-422	Data Mining	3	
COM-423	Network Security	3	
COM-424	Modeling and Simulation	3	
COM-425	Evolutionary Computing	3	
SCI-107	Research Project (II)		6

8. Expected learning outcomes of the program

Knowledge

A1:: design and represent the flow of simple computer programs in a standard design language;

A2:: describe and use the basic concepts of classes and objects in computer programs;

A3:: create and manipulate simple databases;

A4:: describe the structure of a computing system, the design of its basic components and explain the interactions of hardware and software components;

Skills

B1:: manipulate data and data representation through logical and numerical techniques;

B2:: understand fundamental concepts of network tools;

B3:: describe the file architecture and the organization of a web site;

B4:: describe the main ethical, social, legal and professional issues in Computer Science and Software Engineering;

Ethics

C1:: Creating a spirit of teamwork among students through laboratory groups, graduation projects, and reports.

C2:: Boosting students' self-confidence through daily discussions via seminars.

C3:: Enhancing students' confidence in facing challenges by completing their academic journey through acquiring skills to engage in the job market.

C4:: Statement of the positive effects when embodying these values, and the negative effects when lacking them, through encouragement, intimidation, intrigue, and motivation.

9. Teaching and Learning Strategies

- Explanation using various modern presentation tools:
- Lecture method and use of interactive whiteboard.
- Providing students with basics and additional topics related to software programs.
- Forming discussion groups during lectures to discuss modern systems that require thinking and analysis.
- Asking students a set of critical thinking questions during lectures, such as what, how, when, and why, about specific topics.
- Assigning students homework that requires self-explanatory causal explanations.

10. Evaluation methods

- Practical exams
- Theoretical exams
- Reports and studies
- Daily quizzes with self-solvable questions
- Grades determined by homework assignments

11.Facul	ty				
Faculty M	embers				
Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number teaching	r of the g staff
	General	Special		Staff	Lecturer
Professor	Computer Science	Artificial Intelligence Simulation		Staff	
Professor	Computer Science	Computer Science		Staff	
Professor	Computer Science	Technology and Computer Science		Staff	
Professor	Computer Science	Object-Oriented and Visual Programming		Staff	
Professor	Computer Science	Computer Application Technologies"		Staff	
Assistant Professor	Computer Science	Computational/Bioinformatics		Staff	
Assistant Professor	Computer Science	Information Technology		Staff	
Assistant Professor	Computer Science	Bioinformatics		Staff	
Assistant Professor	Computer Science	Information Technology		Staff	

Assistant Professor	Computer Science	Computing/Information Technology	Staff
Assistant Professor	Computer Science	Computer Networks	Staff
Assistant Professor	Computer Science	Information Technology	Staff
Assistant Professor	Computer Science	Information Technology	Staff
Lecturer	Electrical Engineering	Communications	Staff
Lecturer	Computer Science	Computer Science/Cyber security/Data Encryption	Staff
Lecturer	Computer Science	Computer Science	Staff
Lecturer	Computer Science	Computer Science	Staff
Lecturer	Computer Science	Computer Science	Staff
Lecturer	Computer Science	Computer Science	Staff
Assistant Lecturer	Computer Science	Computer Science	Staff
Assistant Lecturer	Computer Science	Computer Science	Staff

Professional Development Mentoring new faculty members

- 1. Conducting developmental courses for newly hired individuals to enhance their competencies.
- 2. Hosting developmental seminars for newly hired individuals to enhance their competencies.
- 3. Organizing developmental workshops for newly hired individuals to enhance their competencies.

Professional development of faculty members

Participating in delivering lectures for secondary subjects under the supervision of the department chair to prepare for giving lectures on core subjects.

12. Acceptance Criterion

central admission

13. The most important sources of information about the program

Ministry of Higher Education and Scientific Research University of Diyala College of Science Department of Computer Science College of Science website <u>https://sciences.uodiyala.edu.iq</u>

14. Program Development Plan

We are seeking academic program accreditation

			Pro	gram	Skills	Outl	ine								
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knov	wledge			Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C 3	C4
Semester 1	COS-101	Differentiation Methods	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-111	Introduction to Programming	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-112	Computational mathematics	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-113	Computer Skills (I)	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-114	Digital Logic	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	UD01	English Language	optional	•	•	•	•	•	•	•	•	•	•	•	•

Semester 2	COS-102	Integration Methods	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-121	Programming Fundamentals	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-122	Discrete Structures	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-123	Computer Organization	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	UD02	Human Rights and democracy	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	UD03	Arabic Language	Basic	•	•	•	•	•	•	•	•	•	•	•	•
Semester 3	COM-211	Introduction to Object Oriented Language	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-212	Data Structures	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-213	Computation Theory	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-214	Web Design and Programming	optional	•	•	•	•	•	•	•	٠	•	•	•	•
	SCI-103	Numerical Methods	optional	•	•	•	•	•	•	•	•	•	•	•	•

	SCI-104	Probability and Statistics	optional	•	•	•	•	•	•	•	٠	•	•	•	•
Semester 4	COM-221	Algorithms Design and Analysis	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-222	Computer Graphics	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-223	Computer Architecture	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	СОМ-224	Introduction to Python	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-225	Object Oriented Programming	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-225	Visual Programming	Basic	•	•	•	•	•	•	•	•	•	•	•	•
Semester 5	COM-311	Language Translator	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-312	Artificial Intelligence	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-313	Cryptography	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-314	Digital Image Processing	Basic	•	•	•	•	•	•	•	•	•	•	•	•

	COM-315	Introduction to Database	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-316	Research Methodology	optional	•	•	•	•	•	•	•	•	•	•	•	•
Semester 6	COM-321	Software Engineering	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-322	Web applications Development	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-323	Computer Security	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-324	Knowledge Representation	optional	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-325	Distributed Database	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
	COM-326	Pattern Recognition	optional	•	•	•	•	•	•	•	٠	•	•	•	•
Semester 7	COM-411	Introduction Operating Systems	Basic	•	•	•	•	•	•	•	٠	•	•	•	•
/	COM-412	Machine Learning	optional	•	•	•	•	•	•	•	•	•	•	•	•
	COM-413	Computer Networks	Basic	•	•	•	•	•	•	•	•	•	•	•	•

	COM-414	Multimedia	optional	•	•	•	•	•	•	٠	•	•	•	•	٠
	COM-415	Coding and Data Compression	optional	•	•	•	•	•	•	•	•	•	•	•	•
	SCI-106	Research Project (I)	Basic	•	•	•	•	•	•	•	•	•	•	•	•
Semester 8	COM-421	Techniques of Operating Systems	Basic	•	•	•	•	•	•	•	•	•	•	•	•
o	COM-422	Data Mining	optional	•	•	•	•	•	•	•	•	•	•	•	•
	COM-423	Network Security	Basic	•	•	•	•	•	•	•	•	•	•	•	•
	COM-424	Modeling and Simulation	optional	•	•	•	•	•	•	•	•	•	•	•	•
	COM-425	Evolutionary Computing	optional	•	•	•	•	•	•	•	•	•	•	•	•
	SCI-107	Research Project (II)	Basic	•	•	•	•	•	•	•	٠	•	•	•	•

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

1. Course Name: Coding and Data Compression

2. Course Code: COM-415

3. Semester / Year: Semester

4. Description Preparation Date: 2024

- 5. Available Attendance Forms: Mandatory attendance
- 6. Number of Credit Hours (Total) / Number of Units (Total) : 3 hours theoretical + p r week / 3 Units

7. Course administrator's name (mention all, if more than one name) Name: Dr. Burhan Molan saleh Email:

8. Course Objectives

The essential course "Data Encoding and Compression" focuses on teaching students the key elements of data encoding and compression scientifically and specifically. This includes the types of algorithms used in data encoding and compression, their differences, advantages, disadvantages, and implications. The curriculum aims to:

1- Ensure that students understand the principles of data encoding and compression, in addition to the applied fields in which this field is involved, in order to successfully meet the course requirements.

2- Familiarize students with various research methods and types.

3- Enhance students' ability to use available software in this field, along with the programming and compression skills they acquire.

9. Teaching and Learning Strategies								
Strategy	1- Enable students to solve problems related to the intellectual framewor	tof						
	the scientific research method.							

2- Enable students to solve problems in a scientific manner scientific bases	and on p
10. Course Structure	

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	Introduction to coding and data compression		4	1
Oral or written test	Electronic lecture using Microsoft Editor	Basic techniques and methods		4	2
Oral or written test	Electronic lecture using Microsoft Editor	Basic VL codes		4	3
Oral or written test	Electronic lecture using Microsoft Editor	Statistical Methods		4	4
Oral or written test	Electronic lecture using Microsoft Editor	Statistical Methods		4	5
Oral or written test	Electronic lecture using Microsoft Editor	Image compression		4	6
Oral or written	Electronic lecture using	Image compression		4	7
		Exam1		4	8
	Electronic	Wavelet methods		4	9
		Video compression		4	10
Oral or written test	Electronic lecture using	Video		4	11

			compression			
	Oral or written	Editor Electronic lecture using	Audio		4	12
	Oral or written	Editor				
	test	lecture using Microsoft Editor	Audio .		4	13
	Oral or written test	Electronic lecture using Microsoft	Presentation		4	14
	Oral or written test	Editor Electronic lecture using Microsoft Editor	Exam2		4	15
		Editor			4	16
11.C	Course Evaluatio	<u>, , , , , , , , , , , , , , , , , , , </u>				
11.C ractica - Theo - Repc - Daily 5- Grad	earning and Ter	olvable questions omework assigni	ments			
11.C ractica - Theo - Repc - Daily 5- Grad	Course Evaluation al exams pretical exams ports and studies y quizzes with self-so des determined by h cearning and Tea equired textbooks	olvable questions omework assign aching Resou (if any) and me	ments rces thodology Ha	andbook of D	ata Con	npression
11.C ractica - Theo - Repc - Daily 5- Grad	Course Evaluation al exams pretical exams ports and studies y quizzes with self-so des determined by h cearning and Tea equired textbooks The main reference	aching Resou (if any) and me	rces thodology Ha	andbook of D ayood, Khalic ompression. I 017.	ata Con I. <i>Introd</i> Vorgan	npression Juction to Kaufmani

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Computational Security1

14.Course Code:

COM23

15.Semester / Year:

Semester

16. Description Preparation Date:

14/4/2024

17. Available Attendance Forms:

Attendance inside the university

18.Number of Credit Hours (Total) / Number of Units (Total) 3

2 theoretical + 2 practical sessions per week.

19.	Cours	se adı	mini	stra	tor's	name	(menti	on all,	if more	than	one
nam	e)										
											-

Name: Ghasan mahmod sabih

Email:

20.Course Objectives

21.Teaching and Learning Strategies Strategy • Explaining using various modern presentation tools: Lecture method and using interwhiteboard. • Providing students with basics and additional topics related to data protection. • Forming discussion groups during lectures to discuss modern systems that thinking and analysis.	equ
 Asking students a set of critical thinking questions during lectures such as what when, and why for specific topics. Assigning students homework that requires self-explanatory causal explanations. 	,
22. Course Structure	
WeekHoursRequired Learning OutcomesUnit or subject nameLearning methodEv method	luati hod
1 3 Introduction Lecture Base	
23CryptographyLecture Base	

	1		
3	3	Stream Ciphers	Lecture Base
4	3	Data Encryption	Lecture Base
-	5	Standard (DES) part1	
5	3	Data Encryption	Lecture Base
3	5	Standard (DES) part2	
6	3	Advanced Encryption	Lecture Base
0	5	Standard (AES) part 1	
7	3	Advanced Encryption	Lecture Base
1	5	Standard (AES) part 2	
8	3	Exam 1	Lecture Base
		More About Block	Lecture Base
9	3	Ciphers	200000 2000
		Introduction to Public-	Lecture Rase
10	3	Key Cryptography	
		Essential Number	Lecture Rase
11	3	Theory for Public-Key	
11	5	Algorithms	
12	2	The RSA Cruntogystom	I actura Rosa
14	3	Finding Longo Drives	
12	2	finding Large Primes	Lecture base
15	3	for KSA, Allacks and	
		Del l'a Vari	L octure Doco
		Public-Key	Lecture Base
14	3	Cryptosystems Based of	
		the Discrete Logarithm	
1 -	-	Frodiem	
		Exam 2	Lecture Base
15		1 (*	
23.Co	ourse Ev	valuation	
15 23.Co	ourse Ev Practical	valuation exams	
15 23.Co	ourse Ev Practical	valuation exams	
15 23.Co	purse Ev Practical 2- Theor	valuation exams etical exams	
15 23.Co	Durse Ev Practical 2- Theor	valuation exams etical exams	
<u>15</u> 23.Co	Durse Ev Practical 2- Theor 3- Repo	valuation exams etical exams rts and studies	
15 23.Co	Durse Ev Practical 2- Theor 3- Repo	valuation exams etical exams rts and studies	
15 23.Co	purse Ev Practical 2- Theor 3- Repo 4- Daily	valuation exams etical exams rts and studies quizzes with self-solvab	e questions
15 23.Co	Durse Ex Practical 2- Theor 3- Repo 4- Daily	valuation exams etical exams rts and studies quizzes with self-solvab	e questions
15 23.Co	Durse Ex Practical 2- Theor 3- Repo 4- Daily	valuation exams etical exams rts and studies quizzes with self-solvab	e questions
15 23.Co	purse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home	e questions work assignments
15 23.Co	Durse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home	e questions work assignments
15 23.Co	Durse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home	e questions work assignments
15 23.Co 24.Le	purse Ev practical 2- Theor 3- Repo 4- Daily 5- Grade	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home	e questions work assignments es
23.Co 23.Co 24.Le Require	purse Ev practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book	e questions work assignments
23.Co 23.Co 24.Le Require any)	purse Ev practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book	e questions work assignments
23.Co 23.Co 24.Le Require any) Main re	purse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un	e questions work assignments es derstanding Cryptography, Christof Paar · Jan
23.Co 23.Co 24.Le Require any) Main re	purse Events practical 2- Theor 3- Repo 4- Daily 5- Grade carning a d textboo ferences	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un	e questions work assignments es derstanding Cryptography, Christof Paar • Jan Pelzl .
23.Co 23.Co 24.Le Require any) Main re	purse Events of Evences of Evenc	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un	e questions work assignments es derstanding Cryptography, Christof Paar · Jan Pelzl . Cryptography and Network Security:
15 23.Co 24.Le Require any) Main re	purse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un	e questions work assignments es derstanding Cryptography, Christof Paar · Jan Pelzl . Cryptography and Network Security: Principles and Practice William Stellings
23.Co 23.Co 24.Le Require any) Main re	purse Ev practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un	e questions work assignments es derstanding Cryptography, Christof Paar · Jan Pelzl . Cryptography and Network Security: Principles and Practice, William Stallings
15 23.Co 24.Le Require any) Main re	purse Ev Practical 2- Theor 3- Repo 4- Daily 5- Grade earning a d textboo ferences	valuation exams etical exams rts and studies quizzes with self-solvab es determined by home and Teaching Resourc ks (curricular book (sources) Un • ences. Websites	e questions work assignments es derstanding Cryptography, Christof Paar • Jan Pelzl . Cryptography and Network Security: Principles and Practice, William Stallings

25.Course Name:	
Computational Security2	
26.Course Code:	
COM24	
27.Semester / Year:	
Semester	
28.Description Preparation Date:	
	23
	20

14/4/20	024					
2.9	Availabl	e Attendance For	rms:			
	Attendance	e inside the university				
30.1	Number	of Credit Hours	(Total)) / Number of Units	(Total) 3	
	2 theoretic	al + 2 practical sessio	ns per w	veek.	× /	
31.	С	ourse administr	ator's	name (mention all	, if more than one	;
I	name)			,		
]	Name: C	Ghasan mahmod	sabih			
]	Email:					
32.0	Course (Objectives				
Course	Objective	S • T	he aim i haracteri ddition to	is to prepare scientifically istics of efficient programs o what is used in programs	minded students who ca s and utilize data protect ning languages.	n recognize ion features
33."	Teaching	g and Learning St	trategi	es		
		 whiteboard. Providing stude: Forming discussion 	nts with	basics and additional top	ics related to data protect	tion.
34. Co Week	ourse Str Hours	 thinking and ana Asking students when, and why Assigning stude 	Unit c	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	biscuss modern system ons during lectures such xplanatory causal explan Learning method	as what, h hations. Evaluat method
34. Co Week	ourse Str Hours	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit c	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explan Learning method Lecture Base	Evaluat method
34. Co Week	ourse Str Hours	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit c	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explan Learning method Lecture Base Lecture Base	Evaluat method
34. Co Week	ourse Str Hours	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit of systems	oups during fectures to of critical thinking questic ific topics. nework that requires self-e or subject name	Inscuss modern system ons during lectures such xplanatory causal explanatory Learning method Lecture Base Lecture Base Lecture Base	Evaluat method
34. Co Week	ourse Str Hours 3 3 3 3	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit of systems dels	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explanatory Learning method Lecture Base	Evaluat method
34. Co Week 1 2 3 4 5	ourse Str Hours 3 3 3 3 3 3	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit of systems dels	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explanatory Learning method Lecture Base	Evaluat method
34. Co Week	ourse Str Hours	 thinking and ana Asking students when, and why Assigning stude Assigning stude 	Unit of systems dels	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explan Image: Learning method Image: Lecture Base	Evaluat method
34. Co Week 1 2 3 4 5 6 7	ourse Str Hours 3 3 3 3 3 3 3 3 3	 thinking and ana Asking students when, and why Assigning stude Assigning stude Assigning stude Introduction Elliptic Curve Cryptos Elliptic Curve Models Digital Signatures Digital Signatures Mo Hash Functions Hash Functions Famil Exam 1 	Unit of systems dels	oups during fectures to of critical thinking questic ific topics. nework that requires self-e or subject name	Inscuss modern system ons during lectures such xplanatory causal explan Image:	Evaluat method
34. Co Week	ourse Str Hours 3 3 3 3 3 3 3 3 3 3	 thinking and ana Asking students when, and why Assigning stude Assigning stude Assigning stude Assigning stude Introduction Elliptic Curve Cryptos Elliptic Curve Models Digital Signatures Digital Signatures Mo Hash Functions Famil Exam 1 Message Authenticatio Codes (MACs) 	Unit of systems set o	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explan Image:	Evaluat method
34. Co Week 1 2 3 4 5 6 7 8 9	Jourse Str Hours 3	 thinking and ana Asking students when, and why Assigning stude Assigning stude Assigning stude Assigning stude Introduction Elliptic Curve Cryptos Elliptic Curve Models Digital Signatures Digital Signatures Mo Hash Functions Famil Exam 1 Message Authentication Codes (MACs) Key Establishment 	Unit of systems set of one systems set of specific systems set of	oups during fectures to of critical thinking questic ific topics. nework that requires self-e	Inscuss modern system ons during lectures such xplanatory causal explan Image:	Evaluat method

11	3	Models of Access	Lecture Base
11	3	controls	
12	3	Introduction	Lecture Base
13	3	Protocols	Lecture Base
14	3	Protocols types	Lecture Base
15	2	Exam 2	Lecture Base
35.Cc	ourse Ev	aluation	
F	Practical	exams	
	2- Theor	etical exams	
	3- Repo	rts and studies	
4	1- Dailv	auizzes with self-s	olvable questions
	5- Grade	es determined by	homework assignments
		es accerninea by	
36.Le	arning	and Teaching Re	sources
Require	d textboo	ks (curricular book	
any)		(
Main ref	ferences	(sources)	Understanding Cryptography, Christof Paar · Jan
		. ,	Polzl
			• Cruptography and Notwork Socurity
			• Gryptography and Network Security:
			Principles and Practice, William Stallings
T1 /	· D (XX 7 1 ·/	
Electron	nc Refere	ences, Websites	

37. Course Name: Evolutionary Computing

38.Course Code: 412COEC

39.Semester / Year: Second Semester / 2023-2024

40.Description Preparation Date: 2024

41. Available Attendance Forms: Mandatory attendance

42.Number of Credit Hours (Total) / 3 hours theoretical per week / 3 Units

43.Course administrator's name (mention all, if more than one name)Name: Prof.Dr. Ziyad Tariq Mustafa Al-Ta'iEmail: Ziyad1964tariq@uodiyala.edu.iq

44.Course Objectives

Teaching the student machine learning methods (the calculator) that depend on inference and prediction of future events through statistical methods, artificial networks and their practical (software) application aimed at the development of technological innovations.

Teaching and educating students on all the necessary and necessary information related to machine lear ni which qualifies them to work and research in all areas of research and prediction methods

		_
45.T	Feaching and Learning Strategies	
Strategy	1- Enable students to solve problems related to the intellectual framework of the	
	scientific research method.	
	2- Enable students to solve problems in a scientific manner and on pu	r
	scientific bases	
<u> </u>		

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	Evolutionary Computation Introduction		3	1
Oral or written test	Electronic lecture using Microsoft Editor	Biological Evolutionary theory		3	2
Oral or written test	Electronic lecture using Microsoft Editor	Genetic Algorithms Types		3	3
Oral or written test	Electronic lecture using Microsoft Editor	Seeding the population and Encoding		3	4
Oral or written test	Electronic lecture using Microsoft Editor	Selection		3	5
Oral or written test	Electronic lecture using Microsoft Editor	Selection Types		3	6
Oral or writtan	Electronic	Crossover		3	7
				3	8
	Electronic	Mutation		3	9
				3	10
Oral or written test	Electronic lecture using Microsoft Editor	Complete Example		3	11
Oral or written test	Electronic lecture using Microsoft Editor	TSP using Genetic		3	12
Oral or written est	Electronic lecture using Microsoft Editor	Routing using genetic		3	13
Oral or written	Electronic	4 Queen puzzle using genetic		3	14

test	lecture using Microsoft Editor				
Oral or writte test	en Electronic lecture using Microsoft Editor	Genetic tutorial		3	15
11. Cours	e Evaluation				
Distributing the preparation, da	e score out of 100 ilyoral, monthly, or	according to the tasks a written exams, reports	etc	student s	such as daily
12. Learnin	ng and Teaching R	lesources			
Required textbo (curricular book any)	Machine Learni	ng, Tom Mitchell, McC	Graw Hill Press	s, 1997	
Main referen (sources)	1- Fundamentals Applications, La	of genetic algorithms: ureneFausett, 2002.	Architecture, A	Algorithm	ns, and
Recommended books and references (scientific journals, reports)	- Practical Genet	ic Algorithms, Randy I	Haupt, 2004		
Electronic References, Websites	http://people.r usedecision-tre	<u>evoledu.com/kardi/tu</u> e.htm	<u>itorial/D</u> ecisio	onTree/l	how-to-

46.Course Name: machine learning

47.Course Code: 404COML	
48.Semester / Year: First Semester / 2023-2024	
49.Description Preparation Date: 2024	
50 Available Attandance Former Mandatom attandance	
50. Available Attendance Forms: Mandatory attendance	
51.Number of Credit Hours (Total) / Number of Units (Total) : 2 hours theoretica hours practical per week / 3 Units	al + 2
52. Course administrator's name (mention all, if more than one name	<u>;) </u>
Name: Prof.Dr. Ziyad Tariq Mustafa Al-Ta'i	
Email: Ziyad1964tariq@uodiyala.edu.iq	
53.Course Objectives	
Teaching the student machine learning methods (the calculator) that depend on inference and	•••••
(software) applications aimed at the development of technological innovations.	•••••
Teaching and educating students on all the necessary and necessary information related to mach	
learning, which qualifies them to work and research in all areas of research and prediction method	L
54. Teaching and Learning Strategies	1.0
1- Enable students to solve problems related to the intellectual frame the scientific research method	WORE OF
2- Enable students to solve problems in a scientific manner a	and on pur
scientific bases	ind of pu
55. Course Structure	

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	Introduction to Machine Learning.		4	1
Oral or written test	Electronic lecture using Microsoft Editor	Machine learning Models		4	2
Oral or written test	Electronic lecture using Microsoft Editor	Find S Algorithm. And List Eliminate Algorithm.		4	3
Oral or written test	Electronic lecture using Microsoft Editor	Candidate Elimination Algorithm.		4	4
Oral or written test	Electronic lecture using Microsoft Editor	Entropy and Information Gain.		4	5
Oral or written test	Electronic lecture using Microsoft Editor	Decision Tree Algorithm with Example.		4	6
Oral or written test	Electronic lecture using Microsoft Editor	Introduction to Neural networks.		4	7
		McCulloch Pitts model.		4	8
Oral or written test	Electronic lecture using Microsoft Editor	Single Neuron Model.		4	9
		Multiple Neurons Model.		4	10

	Oral or written test	Electronic lecture using Microsoft Editor	Trar funct	nsfer tions.		4	11
	Oral or written test	Electronic lecture using Microsoft Editor	Single Mo	e layer del.		4	12
	Oral or written test	Electronic lecture using Microsoft Editor	Multiple Mo	e Layers del.		4	13
	Oral or written test	Electronic lecture using Microsoft Editor	Learni Adapt	ng and tation.		4	14
	Oral or written test	Electronic lecture using Microsoft Editor	Hab Learni And Pe Learni	bbeian ing Rule. erceptron ing Rule.		4	15
	Oral or written test	Electronic lecture using	Delta I Rule	Learning e. And		4	16
56.0	Course Evaluati	Editor	Widro Learn	ow Hoff ing Rule			
56.C Distril dailyo 57.L	Course Evaluati outing the score o ral, monthly, or v cearning and Te	Editor On Out of 100 accor written exams, eaching Resou	Widre Learn rding to the reports e	o w Hoff ing Rule tasks assign etc	ed to the stude	nt such as	daily prepara
56.C Distril dailyo 57.L Requir	Course Evaluati outing the score of ral, monthly, or w learning and Te red textbooks (cur	on Out of 100 accor written exams, eaching Resou	Widre Learn rding to the reports (Irces	ow Hoff ing Rule tasks assign etc Machine Press, 199	ed to the studer Learning, To	nt such as om Mitc	daily prepara
56.C Distril dailyo 57.L Requir Main r	Course Evaluati outing the score of ral, monthly, or w Learning and Te red textbooks (cur references (source	eaching Resou	Widre Learn rding to the reports (irces	ow Hoff ing Rule tasks assign etc Machine Press, 199 Fundam Architec By Laure	ed to the studer Learning, To 97 antals of Ne ture, Algorit	om Mitc ural Net thms, ar 2010.	daily prepara hell, McGr works: d applicat
56.C Distril dailyo 57.I Requir Main r Main r	Course Evaluati outing the score of ral, monthly, or w Learning and Te red textbooks (cur references (source mended books a ls, reports)	Editor on out of 100 accor written exams, eaching Resou ricular books, if s)	Widre Learn rding to the reports (Irces F any) (scientific	ow Hoff ing Rule tasks assign etc Machine Press, 199 Fundam Architec By Laure	ed to the studer Learning, To 7 antals of Ne ture, Algorit ene Fausett, Theoretical	nt such as om Mitc ural Net thms, ar 2010.	daily prepara thell, McGr works: nd applicat

58.Course Name:
Mobile Computing

59.Course Code:

COM23

60.Semester / Year:

2023-2024

61. Description Preparation Date:

62. Available Attendance Forms:

63.Number of Credit Hours (Total) / Number of Units (Total) $\bf 3$

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

Name: Khalid M.S. Al Zaidi

Email: dr.khaledmoh@uodiyala.edu.iq

65.Course Objectives

J										
Course Objectives	•	Students	taking	this	course	will	develop	o an	unders	tandi
		of	the	ways	that	mobile	technol	ogies	can	be
		used	for	teachir	ıg	and	learnin	g.	They	will
		also	conside	er	the	impact	of	mobile	compu	ting
		on	the	field	of	educati	on.			
	•	То	unders	tand	concept	ts	of	Mobile		
		Comm	unicatior	n.(Under	rstand)	• To	analyse	e next	genera	tion
		Mobile	Comm	unicatio	n System	. (Analyz	ze)	• To	unders	tand
		networ	kand	transp	ort	layers	of	Mobile		
		Comm	unicatior	n. (Under	rstand)	• Analy	ze	various	protoc	ols
		of	all	layers	for	mobile	and	ad	hoc	
		wireles	s commu	nication	networ	ks.	(Analy:	ze)	•	
		unders	tand	IP	and	ТСР	layers	of	Mobile	
		Comm	unicatior	n. (Under	rstand)					

66. Teaching and Learning Strategies

Strategy							
67. Co	ourse S	Structure					
Week	Hour	s Required	Unit o	or subject name	Learning	Evaluat	icn
		Learning			method	method	
		Outcomes					
1	2	Introduction to mo	obile		Lecture Base		
1	3	computing					

2	3	Limitations of Mobile Computing		Lecture Base
3	3	Mobile Communication		Lecture Base
4	3	Mobile Communication The cellularconcept:	Hexagonal geometry cell and concept of frequency reuse.Channel Assignment	Lecture Base
5	3	Cellular system	StrategiesDistance to frequency reuse ratio	Lecture Base
6	3	Telecommunication System:	GSM: -Channel location, call routing Architecture, PLMN interface, addresses and identifiers, network aspects, frequency allocation, authentication and security, Handoffs Technology. GPRS: network operation, data services, Applications, Billing and charging	Lecture Base
7	3	Mobile IP:	Overview of Traditional TCP Need of mobile IP, IP packet delivery, Agent Discovery, Registration, Tunnelling and encapsulation, Route optimization, IP Handoff	Lecture Base
8	3	Mobile Transport Layer:	Overview of Traditional TCP and implications of mobility control. Improvement of TCP: Indirect TCP, Snoop TCP, Mobile TCP, Fast Retransmit/fast recovery, Time-out freezing, Selective retransmission, Transaction- oriented TCP	Lecture Base
9	3	Wireless Application Protocol:	Introduction of WAP, WAP applications, WAP Architecture, WAP Protocol Stack, Challenges in WAP	Lecture Base
10	3	Mobile Ad Hoc wireless networks:	Introduction, Benefits, Difference, Routing protocols for ad hoc wireless networks: DSDV and AODV	Lecture Base
11	3	Introduction to 4G:	Introduction, features and challenges, Applications of 4G, 4G network architecture	Lecture Base
12	3	Mobile Device Operating Systems		Lecture Base
13	3	Mobile Operating Systems	Software Development Kit: iOS, Android, BlackBerry, Windows Phon	Lecture Base
14	3	Mobile Payment System — Security Issues		Lecture Base
15	2			Lecture Base
68.Cc	ourse Ev	valuation		
] s r M	The cour students nay also	se delivery method will de The teacher in addition to use any of tools such as de to b. The internal evaluation	epend upon the requirement o conventional teaching meth emonstration, role play, Quiz	of content and need of nod by black board, z, brainstorming, of continuous
Г	100036		ion will be dolle off the basis	or continuous

evaluation of students in the laboratory and class-room. c. Practical examination will be conducted at the end of the semester for evaluation of the performance of students in the laboratory. d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

69.Learning and Teaching Re	sources
Required textbooks (curricular books any)	Tomasz Imielinski and Henry F. Korth,"MOBILE COMPUTING".
Main references (sources)	 Ivan Stojmenovic', "Handbook of Wireless Networks and Mobile Computing". Martyn Mallick; "Mobile and Wireless Design Essentials ". Behrouz A. Forouzan; "Data Communication and networking".
Electronic References, Websites	 <u>https://www.udemy.com</u> <u>http://www.protocols.com/</u> <u>https://developer.apple.com/</u> <u>https://www.udemy.com</u> <u>http://nptel.ac.in</u>

Course Description Form

70.Course Name:
Modeling and Simulation
71.Course Code:
OPT50
72.Semester / Year:
2023-2024
73.Description Preparation Date:
74. Available Attendance Forms:
75.Number of Credit Hours (Total) / Number of Units (Total) 3
76. Course administrator's name (mention all, if more than one name)
Name: <i>Jamal Mustafa Abbas</i>
Email: dr.altuwaijari@uodiyala.edu.iq
27
77.0

Course
78.7
78.7 Strategy
78. Strategy 79. Co
78. Strategy 79. Co Week
78. Strategy 79. Co Week
78. Strategy 79. Co Week 1 2
78. ⁻ Strategy 79. Co Week 1 2 3
78. ⁻ Strategy 79. Co Week 1 2 3 4
78. ⁻ Strategy 79. Co Week 1 2 3 4 5
78. ⁷ Strategy 79. Co Week 1 2 3 4 5 6
78. ⁷ Strategy 79. Co Week 1 2 3 4 5 6 7
78. ⁷ Strategy 79. Co Week 1 2 3 4 5 6 7 8
78. ⁷ Strategy 79. Cc Week 1 2 3 4 5 6 7 8 9

	1							
11	3	Simul annea	ated lling			Lecture Base		
12	3	Statis analy simulate	tical sis of ed data			Lecture Base		
13	3	• Statis valida techni	tical ation ques			Lecture Base		
14	3	Queuing Theory				Lecture Base		
15	2					Lecture Base		
	simulatio Carlo me event sin models; I Debug si the lab.	on; Random num thods; Introduct nulation; Continu Input analysis; O mulation progra	bers: pseu ion to distr ious simul utput anal ms; Sample	dorandom r ribution fun ation; Verifi ysis; Queuin e of applicat	umber ger ctions; Sim cation and g theory m ions. There	eration and t ulation mode validation of s odels; Design will be week	esting, M ling; Dis simulation code; To ly practi	fonte crete- on est and ce in
81.Le	earning	and Teaching R	lesources					
Require if any)	Required textbooks (curricular bod if any) Simulation Modeling and Analysis , 5/e, by Averil M Law and W. David Kelton, McGraw Hill, 2015. www.mhhe.com/engcs/industrial/lawkelton 2- Tayfur Altiok and Benjamin Melamed, Simulation Modeling and Analysis with Arena edition 2007/ or the latest					W. David kelton 2- Analysis		
Main re	ferences	(sources)	 Sin W. wv an with 	nulation Mod David vw.mhhe.com d Benjamin N th Arena, edit	eling and An Kelton, h/engcs/indu Aelamed, Si ion 2007/ or	alysis , 5/e, by McGraw Istrial/lawkeltor mulation Mode the latest.	Averil M Hill, n 2- Tayfu eling and	Law and 2015. ur Altiok Analysis
Electron	nic Refere	ences, Websites	http://ww goals-obj	w2.mansfie ectives-and-	ld.edu/mat outcomes/i	hematics/prog ndex.cfm	gram-co	urse-

82.Course Name:	
Multi	media
83.Course Code:	
CON	M10
84.Semester / Year:	
first/202	23-2024
85.Description Preparation Date:	
1/5/202	24
86. Available Attendance Forms:	
P	resence
87.Number of Credit Hours (Total) / Numl	ber of Units (Total)
	30/3
88. Course administrator's name	(mention all, if more than one name)
Name: Muna Rashid Hameed	
Email: munarashid@uodiyala.edu.iq	
89.Course Objectives	
Course Objectives	 This course aims to introduce the fundamental elements of multimedia. It will provide an understanding of the fundamental elements in multimedia. The emphasis will be on learning the representations, perceptions and applications of multimedia. Software skills and hands on work on digital media will also be emphasized. On completion of the subject, the students will understand the technologies behind multimedia applications and master the skills for developing multimedia projects. After successfully completing the module

student should be able to: • Summarize the key concepts in current multimedia technology. • Create quality multimedia software titles.

90. Teaching and Learning Strategies

Strategy

- students will have developed a comprehensive understanding of the principles and techniques involved in creating and analyzing multimedia content. They will be equipped with the knowledge and skills to effectively utilize multimedia tools and technologies to communicate ideas, information, and stories across various digital platforms.
- Students will demonstrate proficiency in designing, producing, and evaluating multimedia projects, incorporating elements such as text, images, audio, video, and interactive elements. Additionally, they will have cultivated critical thinking, problem-solving, and creativity in the context of multimedia production, enabling them to adapt to evolving technologies and effectively engage diverse audiences in today's digital landscape.

91. Cours	se Structu	ure			
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		An Introduction to MULTIMEDIA	Electronic lecturing Micros Editor	Oral or written test
2	3		Multimedia Software Tools	Electronic lect using Microso Editor	Oral or written test
3	3		Overview of Multimedia Software Tools	Electronic lect using Microso Editor	Oral or written test
4	3		Multimedia Production	Electronic lect using Microso Editor	Oral or written test
5	3		Multimedia Production	Electronic lect using Microso Editor	Oral or written test
6	3		Graphics/Image Data Types	Electronic lect using Microse Editor	Oral or written test
7	3		Gamma Correction	Electronic lect using Microso Editor	Oral or written test

0						
δ	3		Col	lor Models in Video	Electronic lect using Microso Editor	Oral or written test
9	3		S	Chroma ubsampling	Electronic lect using Microso Editor	Oral or written test
10	3		E	Audio Digitization	Electronic lect using Microso Editor	Oral or written test
11	3		Au	dio Filtering	Electronic lect using Microso Editor	Oral or written test
12	3		Qua Tra	ntization and insmission of Audio	Electronic lect using Microso Editor	Oral or written test
13	3		Col	or Histogram	Electronic lect using Microso Editor	Oral or written test
14	3		Te	xture Layout	Electronic lect using Microso Editor	Oral or written test
15	3		Ima	ge Retrieving	Electronic lect using Microso Editor	Oral or written test
92.Cour	se Evalua	ation	I			
Distributin	ig the sco	re out of 100 accord	ling to	the tasks assigr	ned to the stu	ident such as daily
preparatio	n, daily or	al, monthly, or writte	en exan	ns, reports etc	С	
93.Learr	ning and	Teaching Resource	s	[
Required te	xtbooks (c	urricular books, if any	/)			
Main refere	ences (sour	ces)		- "Funda	mentals of N	lultimedia", by Ze-N
				Li, Mark S E 2004	Drew, Publish	ed by Prentice Hall
Recommen journals, re	ded books	s and references (sci	entific			
Recommen journals, re Electronic I	ded books ports) References	s and references (sci	entific	1. W. К.	Pratt	,Digital Image
Recommen journals, re Electronic I	ded books ports) References	s and references (sci	entific	1. W. K. Processing	Pratt g, Second Ec	,Digital Image d. Wiley, (1991).
Recommen journals, re Electronic I	ded books ports) References	s and references (sci	entific	1. W. K. Processing 2. Gonzalez	Pratt g, Second Ec z "Digit	,Digital Image d. Wiley, (1991). al image
Recommen journals, re Electronic I	ded books ports) References	s and references (sci	entific	1. W. K. Processing 2. Gonzalez processin	Pratt g, Second Ec z "Digit ng" ,2008.	,Digital Image J. Wiley, (1991). al image
Recommen journals, re Electronic I	ded books ports) References	s and references (sci	entific	1. W. K. Processing 2. Gonzalez processin D.Philips, language"	Pratt g, Second Ec z "Digit ng" ,2008. "image pr	,Digital Image d. Wiley, (1991). al image rocessing in c
92.Court Distributin preparatio 93.Learn Required te Main refere	se Evalua og the sco n, daily or ning and extbooks (contended of the second ences (sour	ation re out of 100 accord al, monthly, or writte Teaching Resource curricular books, if any ces)	ling to t en exan es y)	the tasks assigr ns, reports etc - "Funda Li, Mark S E 2004	med to the stu mentals of M Drew, Publish	Ident such as daily Iultimedia", by Zev Ned by Prentice H

94. Course Name: Network Security

95.Course Code: **OPT53**

96.Semester / Year: Semester

97. Description Preparation Date: 2024

98. Available Attendance Forms: Mandatory attendance

99.Number of Credit Hours (Total) / Number of Units (Total) : 3 hours theoretical + p r week / 3 Units

100. Course administrator's name (mention all, if more than one name) Name: Dr. Burhan Molan saleh Email:

101. Course Objectives

Network Security Fundamentals is a basic course in network security. The student will learn the key elements of network security scientifically and internet security specifically, such as potential attack types, as well as types and methods of web protection, various algorithms, and protocols used in network security, and what session security entails. The curriculum aims to:

1- The desired goal for the student to successfully pass the course requirements is for the student to understand the principles of network security and the importance of using them over the internet, in addition to the applied fields in which this field is involved.

2- The student's understanding of the types and methods of research.

3- Developing the student's ability to use available software in this field in addition to the skills acquired in programming and encryption.

102. T	Teaching and Learning Strategies	
Strategy	1- Enable students to solve problems related to the intellectual framewor	t of
	the scientific research method.	
	2- Enable students to solve problems in a scientific manner and	on p
	scientific bases	
103.Course St	tructure	

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	the basics of the Internet security		4	1
Oral or written test	Electronic lecture using Microsoft Editor	exploring the attacks techniques that can be used by attackers		4	2
Oral or written test	Electronic lecture using Microsoft Editor	the ways of defense.		4	3
Oral or written test	Electronic lecture using Microsoft Editor	Control hijacking attacks		4	4
Oral or written test	Electronic lecture using Microsoft Editor	Exploitation techniques and fuzzying;		4	5
Oral or written test	Electronic lecture using Microsoft Editor	Secure system design		4	6
		access control.		4	7
		protection Tools for writing robust application code		4	8
				4	9

Oral or written	Electronic lecture using	web security models		
		User authentication	4	10
Oral or written test	Electronic lecture using Microsoft Editor	session management	4	11
Oral or written test	Electronic lecture using Microsoft Editor	Cross-Site Attacks; SQL Injection Attacks;	4	12
Oral or written test	Electronic lecture using Microsoft Editor	What is SSL;	4	13
Oral or written test	Electronic lecture using Microsoft Editor	Vhat is HTTPS, how it works, its pitfalls;.	4	14
Oral or written test	Electronic lecture using Microsoft Editor	What is certificates, where it can be used and how can created;	4	15
Oral or written test	Electronic lecture using Microsoft Editor	Delta Learning Rule. And Widrow Hoff Learning Rule	4	16

104. Course Evaluation

Practical exams

2- Theoretical exams

3- Reports and studies

4- Daily quizzes with self-solvable questions

5- Grades determined by homework assignments

105. Learning and Teaching Resources		
Cryptography and network security, 5th 1 - Edition, William Stallings, 2011	Machine Learning, Tom Mitchell, McC Press, 1997	raw
Network Security and Management. PHI Learning Pvt. Ltd., 2011.	Fundamantals of Neural Networks: Architecture, Algorithms, and applica By Laurene Fausett, 2010.	tion
<i>Guide to computer network security.</i> Heidelberg, Germany: Springer, 2013.	COS 511: Theoretical Machine Learnii	g
https://www.cisco.com/c/ar_ae/products/security/what- is-cybersecurity.html	http://www.cs.princeton.edu/courses/ ve/spr08/cos511/scribe_notes/0204.p	arch If

1. Course Name: Operating System- First Semester

2. Course Code:

- 3. Semester / Year: First Semester / 2023-2024
- 4. Description Preparation Date: 2024
- 5. Available Attendance Forms: Mandatory attendance
- 6. Number of Credit Hours (Total) / Number of Units (Total): 2 theoretical hours 2 practical hours / a week 3 units

7. Course administrator's name (mention all, if more than one name) Name: Prof.Dr. Jamal Mustafa Abbas Al-Tuwaijari Email: dr.altuwaijari@uodiyala.edu.iq

8. Course Objectives

	0		
Course Objective	s	1. Prepare the student to understand the basic concept	ts
This academ	ic curriculum is prepared	operating systems and their applications.	
introduce the	student to operating syster	2. Providing students with basic knowledge of the	
their definitio	n structure development a	structure of operating systems, which includes the	
tacks The cou	in, structure, acverophietic, a	3 Improving the student's level and providing her/lin	m
	the set of	with the scientific skills and abilities to understand	
operating sys	tems and the role of operati	methods for managing the main memory of the combu	ite
systems, op	erating system structur	as well as the case for virtual memory and temporar	
processes an	d their synchronization, ta	memory.	
scheduling,	main memory and virt	4. Developing the student's ability to use software and	
memory man	agement The curriculum ai	applications available in the field of computers that re	e
to:	agement. The curriculum an	compatible with the operating systems used in the	
10		computer, in addition to the skills in using central	
		5 Enabling the student to understand information	at
		management software (file system) as well as deal	ai v
		problems related to processors and operations	
9. Teachin	g and Learning Strategies	• • • • • • • • • • • • • • • • • • • •	
Strategy	1.Building students' ba	asic knowledge about operating systems, tl e	ei
	nrinciples basic conce	onts and types	

principles, basic concepts, and types.
2. Enabling students to acquire mental, cognitive, analytical and
understanding skills in the field of operating systems.

3. Enabling students to solve problems related to the intellectu framework of operating systems management

10. Course Structure

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Introduction ,Role and purpose of the operating system	Definitions and a general introduction to operating systems, during which the notes and instructions that students must adhere to in order to achieve the best performance in studying the subject are explained.	2	1
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	History and types of operating system, Operating system development	History and types of operating system	2	2
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Functionality of a typical operating system	Functionality of operating system	2	3
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Computer System, Operating System Components and structure	Operating System Components	2	4
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Performance and Development of operating system	Development of operating system	2	5
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	operating system functions and services	operating system functions	2	6
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Processes, process concepts, operation on processes	Processes	2	7
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Interrupts: methods and implementations	Interrupts	3	8
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Concept of user/system state and protection, transition to kernel mode	Concept of user/system	2	9

Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Concurrency Context switching Program status words (PSWs)	Concurrency Context switching Program status words (PSWs)	2	10	
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Threads, Thread structure	Threads and Thread structure	2	11	
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Scheduling and policies, Scheduling levels	Scheduling and Scheduling levels	2	12	
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Dispatcher Scheduling criteria	Dispatcher Scheduling criteria	2	13	
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Preemptive and non- preemptiv scheduling	Preemptive and non- preemptiv scheduling	2	14	
Daily exams and homework, in addition to monthly exams	Electronic lecture using Microsoft Editor	Scheduling Algorithms	Scheduling algorithms	2	15	
11.Course Eval	uation					
Distributing the s	core out of 100	according to the tas	sks assigned to th	e student	such as dai	у
12 Learning and	Teaching Rese	written exams, reports	s etc, in addition	to practica	ai exams.	-
Required textbooks	(curricular books,	if an Not av	ailable			
Main references (so	urces)	Operating Sy	vstem Concepts. I and Galvin	By SilBer	rschtz	
Recommended bo	oks and referer	nces Opera	ating Systems, b	y Harvey	y M. Deitel,	
(scientific journals,	reports)	Pa	ul J. Deitel, and D	avid R. (Choffnes	
Electronic Referenc	es, Websites	http://www.c	leitel.com/Books	s/Operat	tingSystem	/

100).	Course Name:			
	Data n	ining			
107	·. ·	Course Code:			
108	8.	Semester / Year:			
	2023-2	2024			
109).	Description Preparation Da	ate:		
110).	Available Attendance Forms	3:		
111				. 1. 7	
111	• -	Number of Credit Hours (10	otal) / Number of Units (10	otal) Z	
112	2.	Course administrator's na	me (mention all, if more	than one	
I	name)				
	Asst.P	rof.Dr. Muntadher khamee	2S		
]	Email:	alkarawis@uodiyala.edu.i	q		
113	6. (Course Objectives			
		develop an understanding of Data Mining, and apply the	of the Data Mining problems and the techniques in solving Data Mining	earn various tech	iniques
114	,	systems. Students will also b Feaching and Learning Strate	be exposed to a sample of Data M	Aining application	g tools 18.
114 Strategy	7	systems. Students will also the systems and Learning Strates at a is stored, analyzed, and dissemine oth data mining and computer scient figures and proteins, to establish even hape of proteins	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c	Aining application sciplinary field co is to determine the loulate the high di computer	g tools ns. nsisting ne funct imensic progra
114 Strategy 115.Cc	ourse S	systems. Students will also the second strate of th	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c	Aining application sciplinary field co is to determine the lculate the high di computer	g tools ns. nsisting ne funct imensic progra
114 Strategy 115.Co Week	Durse S	systems. Students will also the state of the systems of the systems of the systems. Students will also the systems. Students will also the systems. Students will also the systems of the systems of the systems. Students will also the systems of the systems. Students will also the systems of the systems of the systems. Students will also the systems of the systems of the systems. Students will also the systems of the systems of the systems of the systems. Students will also the systems of the systems of the systems. Students will also the systems of the systems of the systems. Students will also the systems of the systems	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name	Aining application acciplinary field co is to determine the loculate the high di computer	g tools is. insisting ine funct imensic progra Evaluat method
114 Strategy 115.Co Week	ourse S Hours	systems. Students will also the state of the systems of the systems of the systems. State of the systems of the systems of the systems. State of the systems of the	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1	Aining application aciplinary field co is to determine the lculate the high di computer Learning method Lecture Base	tools is. insisting ine funct imensic progra Evaluat method
114 Strategy 115.Cc Week 1 2	' '	systems. Students will also the systems and protein and systems and proteins, and dissemine of the systems. Students will also the systems are stabled at a system. Students will also the system and system. Students will also the system. Student	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1 Chap.2 Ref. 1, Chap.2, Ref 5.	Aining application Aining application sciplinary field co is to determine the lculate the high di computer Learning method Lecture Base Lecture Base	tools s. nsisting ne funct imensic progra Evaluat method
114 Strategy 115.Co Week 1 2 3		systems. Students will also the systems. Students will also the second strate of the system of th	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1 Chap.2 Ref. 1, Chap.2, Ref 5. Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6	Aining application aciplinary field co is to determine the lculate the high di computer Learning method Lecture Base Lecture Base Lecture Base	tools s. insisting the function imensic progra Evaluat method
114 Strategy 115.Co Week 1 2 3 4		systems. Students will also the state of the systems of the systems of the systems of the systems of the systems. State of the systems	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1 Chap.2 Ref. 1, Chap.2, Ref 5. Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6 Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6	Aining application Aining application is to determine the local termine the high discomputer Learning method Lecture Base Lecture Base Lecture Base Lecture Base	tools s. nsisting ne function progra Evaluation method
114 Strategy 115.Co Week 1 2 3 4 5		systems. Students will also be the system of the system of the proteins of the	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1 Chap.2 Ref. 1, Chap.2, Ref 5. Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6 Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6	Aining application Aining application is to determine the local termine the high discomputer Learning method Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	Evaluat method
114 Strategy 115.Co Week 1 2 3 4 5 6		systems. Students will also the systems and Learning Strates Teaching and Learning Strates ata is stored, analyzed, and dissemines oth data mining and computer scients f genes and proteins, to establish evolution hape of proteins tructure Required Learning Outcomes Introduction Data Data Preprocessing I Data Visualization Classification I: Basic Concepts, Decision Trees, and Model Evaluation	be exposed to a sample of Data M regies inated via data mining , a interdis nce. An application of data minig olutionary relationships, and to ca by using c Unit or subject name Chap.1 Ref. 1 Chap.2 Ref. 1, Chap.2, Ref 5. Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6 Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6 Ch.7, Ref. 5, Chap.2 Ref. 1, Chap.2 Ref. 6 Chap.3 Ref.1 Chap.4 Ref.1	Aining application Aining application sciplinary field co is to determine th lculate the high di computer Learning method Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	g tools is. insisting ine funct imensic progra Evaluat method

8	3	Clustering: Basic concepts	Chap.8 Ref.1	Lecture Base
9	3	Clustering Algorithms I: Sequential algorithms, Hierarchical algorithms	Chap.8,9 Ref.1	Lecture Base
10	3	Regression Analysis		Lecture Base
11	3	Mining Frequent Patterns, Associations, and Correlations I	Chap.6 Ref.1	Lecture Base
12	3	Mining Frequent Patterns, Associations, and Correlations II	Chap.6 Ref.1	Lecture Base
13	3	Advance Topics		Lecture Base
14	3	Review		Lecture Base
15	2	First Exam	Exam 2	Lecture Base
116 (Evolution	-	

The course serves as an introduction to data mining and applications . The aim is that students should understand how data mining can be applied and evaluated and provide tools for practical approaches to mining algorithm

117. Learning and Teaching Reso	ources
Required textbooks (curricular books	. Jiawei Han and Micheline Kamber, "Data Mining
any)	Concepts and Techniques" Third Edition, Elsevier, 2012.
Main references (sources)	 Pang-Ning Tan, Michael Steinbach, Vipin Kumar, "Introduction to data mining," 2006. Jiawei Han, Micheline Kamber, "Data Mining: Concepts and Techniques," Second Edition, Elsevier Inc., 2006. Anil K. Jain, Richard C. Dubes, "Algorithms for Clustering Data," Prentice-Hall Inc., 1988. David Hand, Heikki Mannila, Padhraic Smyth, "Principles of Data Mining,"The MIT Press, 2001. Ian H. Witten, Eibe Frank, "Data Mining, Practical Machine Learning Tools and Techniques," Morgan Kaufmann Publishers, 2005. Daniel T. Larose, "Discovery Knowledge in Data, An Introduction to Data Mining," A John Wiley & Sons, Inc., Publication, 2005. Further Readings are also preferable.
Electronic References, Websites	1.https://www.coursera.org/lecture/code-free-data- science/introduction-to-data-mining-hbb2V 2. https://onlinecourses.swayam2.ac.in/cec19_cs01/preview material

118.	Course Name: Web Design
119.	Course Code: OPT45
120.	Semester / Year: Second Semester / 2023-2024
121.	Description Preparation Date: 2024
122.	Available Attendance Forms: Mandatory attendance
123.	Number of Credit Hours (Total) / 2 hours theoretical per week / 3 Units
124.	Course administrator's name (mention all, if more than one name)
	51

Name: Assist. Prof. Dr. Dheyab Salman Ibrahim Al-nedawy
Email: dr.dheyab@uodiyala.edu.iq
125. Course Objectives
Teaching the student web design technologies such as HTML, CSS, and JavaScript in orde
to create different HTML documents and teaching the students to build website.
Teaching and educating students on all the necessary and necessary information related to
design techniques, which qualifies them to work and research in all areas of research.
126. Teaching and Learning Strategies
Strategy 1- Enable students to create web pages based on HTML tags. 2- Teach students to format these web pages based on CSS rules. 3- Teach students to increase the inactive these web pages based on JavaScrip language.

10. Course Str	ucture				
Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	Introduction to a Computer Networks		2	1
Oral or written test	Electronic lecture using Microsoft Editor	Internet and Web: Overview		2	2
Oral or written test	Electronic lecture using Microsoft Editor	Web Design Technologies		2	3
Oral or written test	Electronic lecture using Microsoft Editor	HTML Tags		2	4
Oral or written test	Electronic lecture using Microsoft Editor	HTML Links		2	5
Oral or written test	Electronic lecture using Microsoft Editor	HTML Lists		2	6
Oral or written test	Electronic lecture using Microsoft Editor	HTML Tables		2	7
Oral or written test	Electronic lecture using Microsoft Editor	HTML Forms		2	8
Oral or written test	Electronic lecture using Microsoft Editor	CSS Rules		2	9
Oral or written test	Electronic lecture using Microsoft Editor	CSS – Selectors		2	10
Oral or written test	Electronic lecture using Microsoft Editor	CSS – Inclusion: Inline, Internal ways		2	11
Oral or written test	Electronic lecture using Microsoft Editor	CSS – Inclusion: External way		2	12

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 textbo (curricular book any)	How the Internet Works, Preston Gralla, Pearson Education, Eighth Edition.
Main rafaran	Internet for Everyone Alexis Leon S. Chand (G/L) & Company I td: Second
(sources)	Edition.
Recommended	Web Design with HTML and CSS Digital Classroom.
books and	https://bawar.net/data0/books/5d626a582939a/pdf/web-design-with-html-an
references	css-digital-classroom.pdf
(scientific	
journals,	
reports)	
Electronic	Learning Web Design Fourth Edition A Beginner's Guide to HTML, CSS, JavaScript
References,	and Web Graphics.
Websites	https://wtf.tw/ref/robbins.pdf

Course Description Form

 1. Course Name:

 Research methodology

 2. Course Code:

 COM-316

3 (Semest	er / Year	•			
Second	l semes	ter/third y	vear			
4.1	Descrip	tion Pre	paration Date:			
4/4/202	24					
5. 4	Availab	le Attend	ance Forms:			
4/4/202	24					
6. 1	Number	r of Credi	t Hours (Total) / N	Number of Un	its (Total)	
2	2 hours	s/1units				
7. (Course	adminis	trator's name (m	ention all, if	more than or	ne name)
1	Name: 1	layla abd	al.haq esmaeel			· ·
I	Email: <u> </u>	laylaaeab	dalhaq@uodiyal	a.edu.iq		
8. (Course	Objective	2S			
Course (Objective	es 1.	The objective req	uired of the st	tudent in order	to
		su	ccessfully pass the	e requirement	s of the course	is the
		stu	ident's awareness	of the import	ance of scientif	fic research
		an	d scientific metho	ds. used in ca	rrying out rese	earch and
		au	xiliary programs.	C (1		· C· 1
		2	d analy student's awa	reness of the	types of scient	ific research
			Develop the stude	ont's ability in	scientific rese	arch and teach
		bi	m the basics of sci	entific resear	ch and the ethi	cs of scientific
		re	search.	entine resear	en une the eth	
9. 7	Feachin	ig and Le	arning Strategies			
Strategy	· _	- Using va	arious modern pre	sentation tool	S	
	-	- the lectu	re method and the	use of the in	teractive white	board
	-	- providir	g students with th	e basics and a	additional topic	es related to
	5	scientific	research			
		- Forming	g discussion group	s during the l	ectures to disc	uss modern
	5	systems t	hat require			
	-	thinking	and analysis Aski	ng the studen	its a set of think	king
	(questions	during the lecture	s such as wha	at, how, when a	and why For
	2	specific to	opics udants homowork	that requires	aubiactiva avnl	anations in as
	-	' giving si vavs		inal requires	subjective expl	
10 Co	ourse St	ructure				
Week	Hours	Require	d Learning	Unit or	Learning	Evaluation
		Outcom	es	subject	method	method
		Definition	and a gan and international	name	Electronic	
1	3	Explanation	s and a general introduction of the necessary not	es	Lecture using	Ural written
		and instruct	ctions	**	editor	
		obligated	To achieve the b	est	Microsoft	
			5	5 ———		
			5			

		performance from studying the subject		
2	3	Meaning Of Research	Electronic Lecture using editor Microsoft	Oral written
3	3	General CharacteristicOf Research	Electronic Lecture using editor Microsoft	Oral written
4	3	Types Of Research	Electronic Lecture using editor Microsoft	Oral written
5	3	Research Problem	Electronic Lecture using editor Microsoft	Oral written
6	3	Problem Formulation	Electronic Lecture using editor Microsoft	Oral written
7	3	High Impact ResearchTools	Electronic Lecture using editor Microsoft	Oral written
8	3	Project Planning	Electronic Lecture using editor Microsoft	Oral written
9	3	Gantt Chart	Electronic Lecture using editor Microsoft	Oral written
10	3	Research Ethics	Electronic Lecture using editor Microsoft	Oral written
11	3	Writing the LiteratureReview	Electronic Lecture using editor Microsoft	Oral written
12	3	Citation ManagementTools	Electronic Lecture using editor Microsoft	Oral or written
13	3	Methods of DataCollection	Electronic Lecture using editor Microsoft	Oral or written
14	3	Research Report	Electronic Lecture using editor Microsoft	Oral or written
15	3	General Format of Rese Report	Electronic Lecture using editor Microsoft	Oral or written
11.0	Course I	Evaluation		

- Practical tests	
2- Theoretical tests	
3- Reports and studies	
4- Daily exams with self- solving	
questions	
5- Marks specific to homework	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	* Research Methodology a step-by-step guide
	for beginners, Ranjit Kumar, 3rd edition, 2011
Main references (sources)	
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	1- Research Methodology - Methods and
	Techniques, C.R. Kothari, 3Sd edition, 2004.
	2- Fundamental of Research Methodology
	and Statistics, Yogesh Kumar Singh, 2006.
	3- How to do the Final Year Projects A practica
	Guideline for Computer Science and ITStudent
	Hossein Hassani, 2012.

I27. Course Name: compiler 128. Course Code: 301COLT2 129. Semester / Year:
compiler 128. Course Code: 301COLT2 129. Semester / Year: 2023-2024
128. Course Code: 301COLT2 129. Semester / Year:
301COLT2 129. Semester / Year: 2023-2024
129. Semester / Year:
2023-2024
130. Description Preparation Date:
15/4/2024
131. Available Attendance Forms:
Presence
132. Number of Credit Hours (Total) / Number of Units (Total)
60
133. Course administrator's name (mention all, if more than one
name)

Name: Wasan ahmed ali Email: wasanahmed83@gmail.com							
134	•	Co	ourse Objec	tives			
Course (Object	tives	Introdu	cing the student to th	a six basic stages of th	e compiler	
			muodu		e six basic stages of th		
			and how	w each stage works to	o understand how to co	nvert basic	
			code int	to a computer program	m.		
			A- Cog	nitive objectives			
			1- Defin	nition of the program	code		
			2- Usin	g the code to serve th	e system		
			3- Defin	ning the important ste	eps in designing the co	de	
			4- Ident	tify the types of error	s that may occur durin	g design	
			B- The	skills objectives of t	the course		
	1- Knowledge skills - remembering						
2- Memorization and analysis skills							
	3- Use and development skills						
135	•	Те	aching and	Learning Strategies			
Strategy		The	e main strategy	that will be adopted in delive	ring the Language Translator n	nodule is to engage	
		thir	iking skills.	ng skills.			
		To The	enhance learnin	nance learning and encourage active participation, interactive lessons will be conducted.			
		met	thods used in th	e compiler and all algorithms	of the parser as programs in on	e of the developed	
		pro imr	gramming languesis of the	uages. This hands-on approac oretical concepts discussed in	h will help students understand the classroom.	the practical	
		Ove	erall, the unit de	elivery approach aims to activ	vely engage students, improve th	neir critical	
	thinking skills, and provide them with hands-on experiences in image processing and a language interpreter. By combining theoretical knowledge with practical activities, students will develop a					g and a language nts will develop a	
deeper understanding of language compiler concepts and their applications in various fields.						arious fields.	
136 Cc	lirce	Str	ucture				
Week	Hou	rs	Required	Unit or subject	Learning method	Evaluation	
			Learning	name		method	
1	2		Suconics	Shift-Reduce Parsing	In-person lecture using computer, display screen, pen and blackboard	Oral or written tes	

2	2		Handles		In-person lecture u	Oral or written tes
					computer, display screen, pen	
3	2		Stack Implement	tation of	In-nerson lecture u	Oral or written tes
0	-		Shift-Reduce Par	rsing	computer, display screen, pen	orar or written tes
				98	blackboard	
4	2		Operator-Preced	lence Par	In-person lecture u	Oral or written tes
			(OPP)		computer, display screen, pen	
5	2		Table Construct	ion of	In-person lecture u	Oral or written tes
	-		Operator-Preced	lence	computer, display screen, pen	
			Kelations		blackboard	
6	2		Relations of Ope	rator-	In-person lecture u	Oral or written tes
			Precedence Tabl	e	blackboard	
7	2		LR parser		In-person lecture u	Oral or written tes
			•		computer, display screen, pen	
0	-				blackboard	
8	Z		SLR Parser		in-person lecture u	Oral or written tes
					blackboard	
9	2		Canonical LR Pa	arser	In-person lecture u	Oral or written tes
			LALR Parser		computer, display screen, pen	
10	2		Conflict types		Diackboard In-nerson lecture u	Oral or written tes
10	2		Connect types		computer, display screen, pen	orar or written tes
					blackboard	
11	2				In-person lecture u	Oral or written tes
					computer,display screen, pen blackboard	
12	2		Shift - Reduce C	Conflict	In-person lecture using compu	Oral or written tes
			Reduce - Reduce	Conflict	display screen, pen	
10	-				blackboard	
13	Z				In-person lecture using compu display screen pen	Oral or written tes
14	2		Semanti	c Errors	blackboard	Oral or written tes
	-		Semanti	c Lifting		
15	2					Oral or written tes
137. 0	Course E	Evaluation				
Distribu	iting the	score out of 1	100 according t	o the tas	ks assigned to the studen	t such as daily
prepara	tion, dai	y oral, mont	hly, or written	exams, r	eports etc	2
138 I	earning	and Teach	ing Resources	S	•	
Require	d textboo	ks (curricular	books, if any)	,		
Main ret	ferences (sources)			Compiler principles a	nd tools
Recomm	nended	books and	d references			
(scientif	ic journal	s, reports)				
Electron	ic Refere	nces. Website	es			
12 13 14 15 137. (Distribu prepara 138. I Required Main ret Recomn (scientif Electron	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Evaluation score out of a y oral, mont g and Teach ks (curricular sources) books and s, reports) nces, Website	Shift - Reduce C Reduce - Reduce Semanti 100 according t hly, or written ing Resources books, if any) d references es	Conflict Conflict c Errors to the tas exams, r	In-person lecture using compu- display screen, pen blackboard In-person lecture using compu- display screen, pen blackboard Eks assigned to the studen eports etc Compiler principles an	Oral or written tes Oral or written tes Oral or written tes Oral or written tes t such as daily nd tools

139.	Course Name:						
	compiler						
140.	Course Code:						
	301COLT1						
141.	Semester / Year:						
	2023-2024						
142.	Description Preparation Date:						
	15/4/2024						
143.	Available Attendance Forms:						
	Presence						
144.	Number of Credit Hours (Total) / Number of Units (Total)						
	60						
145.	Course administrator's name (mention all, if more than one						
nan	ne)						
Nan	Name: Wasan ahmed ali						
Ema	Email: wasanahmed83@gmail.com						
146.	Course Objectives						

Course	Course ObjectivesIntroducing the student to the six basic stages of the compiler and how each stage works to understand how to convert basic code into a computer program.A- Cognitive objectives1- Definition of the program code2- Using the code to serve the system3- Defining the important steps in designing the code4- Identify the types of errors that may occur during designB- The skills objectives of the course 1- Knowledge skills - remembering					compiler avert basic e design
2- Memorization and ana3- Use and development s				norization and analysi	s skills ls	
Strategy	14 /.Teaching and Learning StrategiesStrategyThe main strategy that will be adopted in delivering the Language Translator module is to engage students actively in practical exercises to enhance their understanding and develop their critica thinking skills. To enhance learning and encourage active participation, interactive lessons will be conducted. These tutorials will include practical exercises where students will work on applying all the methods used in the compiler and all algorithms of the parser as programs in one of the developed programming languages. This hands-on approach will help students understand the practical implications of theoretical concepts discussed in the classroom. Overall, the unit delivery approach aims to actively engage students, improve their critical thinking skills, and provide them with hands-on experiences in image processing and a language interpreter. By combining theoretical knowledge with practical activities, students will develop a deeper understanding of language compiler concepts and their applications in various fields.					odule is to engage elop their critical be conducted. Ving all the of the developed he practical and a language ts will develop a tious fields.
148.Course StructWeekHoursReLetLet		icture Required Learning	Unit or subject name	Learning method	Evaluation method	
16	2		Outcomes	Introduction	In-person lecture using computer, display screen, pen and blackboard	Oral or written tes
17	2			Programming Languages	In-person lecture u computer,display screen, pen blackboard	Oral or written tes
18	2			The Analysis -Synthesis mo of compilation	In-person lecture u computer,display screen, pen blackboard	Oral or written tes

19	2		Phases of a Compil	ler	In-nerson lecture u	Oral or written tes
17	2		i nases of a compi	ICI	computer, display screen, pen	orar or written tes
					blackboard	
20	2				In-person lecture u	Oral or written tes
					computer, display screen, pen	
21	2		Compiler structure	e	In-person lecture u	Oral or written tes
			F	-	computer, display screen, pen	
					blackboard	-
22	2		lexical analysis		In-person lecture u	Oral or written tes
					blackboard	
23	2		Tokens, Patterns, I	Lexemes	In-person lecture u	Oral or written tes
					computer, display screen, pen	
24	2		Carrie a L Trada la		blackboard	Ourland itter to a
24	2		Symbol Table		computer display screen pen	Oral of written tes
			Lexical errors		blackboard	
25	2			ſ	In-person lecture u	Oral or written tes
					computer, display screen, pen	
26	2		A simple approach	1 to the	Diackboard In-nerson lecture u	Oral or written tes
-0	-		design of lexical a	nalysis	computer, display screen, pen	of all of written tes
				-	blackboard	
27	2		Regular Definition	15	In-person lecture using compu	Oral or written tes
			Finite Automata (F	FA)	blackboard	
28	2		Syntax Analysis		In-person lecture using comp	Oral or written tes
	-				display screen, pen	
29	2				blackboard	Oral or written tes
30	2					Oral or written tes
	_					
149. 0	Course E	Evaluation				
Distribu	iting the	score out of 2	100 according to	o the tas	ks assigned to the studen	t such as daily
prepara	tion, dail	ly oral, mont	hly, or written e	exams, r	eports etc	, c
150. I	Learning	g and Teach	ing Resources		•	
Require	d textboo	ks (curricular	books, if any)			
Main references (sources)					Compiler principles a	nd tools
Decomer	aandad	books and	d references			_
i kecomn	lended					
(scientif	ic journal	ls, reports)				

151.	Course Name:				
Artifi	rtificial Intelligence				
152.	Course Code:				
COM-	122				
153.	Semester / Year:				
2023	-2024				
154.	Description Preparation Date:				
155.	Available Attendance Forms:				
156.	Number of Credit Hours (Total) / Number of Units (Total)				
157.	Course administrator's name (mention all, if more than one				
name					
Name	e: Dr.Adil Abdulwahhab Al-Azzawi				
Emai	l: adil_alazzawi@updiyala.edu.iq				
158.	Course Objectives				
Course Object	• The course begins by describing what the latest generation of artifi				
	intelligence techniques can do. After an introduction to some basic conce				
	and techniques, the course illustrates both the potential and curr limitations of these techniques with examples from a variety				
	annlications. We spend some time on understanding the strengths				
	weaknesses of human decision-making and learning, specifically				
	combination with AI systems. Exercises will include hands-on application				
	basic AI techniques as well as selection of appropriate technologies for a gi				

150	T	aching and Learnin	a Strategies		
159. Strategy	. 10 Th	e course begins by de	g Strategies scribing what the latest	t generation of a	artificial intellig
	tec co exa str co Exa ap a	chniques can do. After urse illustrates both the amples from a variety rengths and weaknesses mbination with AI syster cercises will include hand propriate technologies for final project, groups o plication.	an introduction to some e potential and current of applications. We spe s of human decision-n ns and on ethical and pol ds-on application of basi for a given problem and f students will particip	e basic concepts limitations of the end some time of naking and lear icy implications of c AI techniques a anticipation of de pate in the creat	and techniques nese techniques n understandin ning, specifical f new AI capabi as well as selecti esign implication tion of an AI-1
160.Co	ourse Str	ructure			
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation
		Outcomes	name	method	method
1	2	Knowledge Representation	Introduction to artificial intelligence	Lecture Base	
2	2		Problem solving in A.I	Lecture Base	
3	2		Problem solving in A.I (cont.)	Lecture Base	
4	2		Importance of search for AI	Lecture Base	
5	2		Uninformed and informed search	Lecture Base	
6	2		Adversarial search	Lecture Base	
7	2		Mid-term Exam	Lecture Base	
8	2	Apply selected basic AI techniques, judge applicability of more advanced techniques.	Local search (gradient descent)	Lecture Base	
9	2		Reasoning with Uncertainty	Lecture Base	
10	2		Bayesian networks	Lecture Base	
11	2	Participate in the design of systems that act intelligently and learn from	Robotic control and planning	Lecture Base	
12	2	experience.	Robotic control and planning (cont.)	Lecture Base	
13	2		Knowledge Representation	Lecture Base	
14	2		Knowledge Representation	Lecture Base	
15	2		Final Exam Review	Lecture Base	
161. (Course H	Evaluation			
Distribu prepara	iting the tion, dai	score out of 100 accor ly oral, monthly. or wr	ding to the tasks assigr itten exams, reports	ned to the stude etc	nt such as dail
162 I	earning	and Teaching Reso	, - <u>r</u>		

Required textbooks (curricular books, if any)	Russell & Norvig, Chapter 1, "Introduction"
	Artificial Intelligence: A Modern Approach, 202
Main references (sources)	Adversarial Search" in Russell & Norvig, Artific
	Intelligence: A Modern Approach, 2020
Recommended books and references (scientific	
journals, reports)	
Electronic References, Websites	

163.	Course Name:				
Pattern Recognition					
164.	Course Code:				
CON	М-326				
165.	Semester / Year:				
202	23-2024				
166.	Description Preparation Date:				
	65				

167. Available Attendance Forms: 168. Number of Credit Hours (Total) / Number of Units (Total) 169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq	ne				
 16% Invaluence Formation 168. Number of Credit Hours (Total) / Number of Units (Total) 169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq 	ne				
 168. Number of Credit Hours (Total) / Number of Units (Total) 169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq 	ne				
 160. Traineer of creat from (roun) / runneer of crime (roun) 169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq 	ne				
169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq	ne				
169. Course administrator's name (mention all, if more than or name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq	ne				
name) Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq					
Name: Dr.Adil Abdulwahhab Al-Azzawi Email: adil_alazzawi@updiyala.edu.iq					
Email: adil_alazzawi@updiyala.edu.iq					
Ellian. aun_alazzawi@upulyala.euu.iq					
170 Course Objectives					
170. Course Objectives					
• Understand the basic concepts and principles of pattern including feature extraction, classification, and clustering.	recogniti				
• Apply various pattern recognition algorithms and techniqu	ies, includ				
supervised and unsupervised learning methods, to solve real-wo	orld proble				
• Analyze and evaluate the performance of pattern recognition s appropriate metrics and evaluation methods.	systems us				
• Gain practical experience in implementing pattern recognition	on algorith				
using programming languages such as Python or MATLAB.	_				
• Explore advanced topics in pattern recognition, such as de	leep learni				
probabilistic graphical models, and ensemble methods.	oluding im				
• Apply pattern recognition techniques to unrefent domains, inc processing, natural language processing, and bioinformatics.	ciuuing im				
• Develop critical thinking and problem-solving skills throu	ıgh hands				
projects, assignments, and case studies.	_				
• Understand the ethical and societal implications of pattern technologies, including privacy concerns and bias in dec	n recognit cision-mak				
171 Teaching and Learning Strategies					
1/1. reaching and Learning Sublegies Strategy Pattern recognition theory and practice is concerned with the design	analysis				
development of methods for the classification or description of patterns, ob	bjects, sign				
and processes. At the heart of this discipline is our ability to infer the statist	tical behav				
of data from limited data sets, and to assign data to classes based on general	alized noti				
of distances in a probabilistic space. Many commercial applications of patter exist today, including voice recognition (e.g., Amazon Alexa), fingerprint	rn recognit - classificat				
(e.g., MacBook Pro touch bar), and retinal scanners (e.g., your favorite cheesy					
movie).					
172. Course Structure					
WeekHoursRequired LearningUnit or subjectLearningEvalu	uation				
Outcomes name method meth Understands basis Understands basis <td>lod</td>	lod				
structure of pattern and a structure base and a struct					
1 2 Precognition systems. Overview of Machine Loorning					
2 2 Bayes Byle					
Decision Theory: Lecture Base					
3 2 Gaussian Classifiers					

		Expresses principal			Lecture Base	
4	2	units within a pattern recognition system.	Decision Theory: Generalized Gaussian Classifiers			
5	2	Summarizes execution of a pattern recognition system.	Parameter Estimation: The Bayesian Approach		Lecture Base	
6	2		Mid-te	erm Exam	Lecture Base	
7	2		Decis Discrin Analys	ion Theory: minant sis	Lecture Base	
8	2		AnalysisParameterEstimation: TheExpectationMaximization		Lecture Base	
9	2	Defines the relationship between pattern and feature.	Parameter Estimation: Discriminative Training		Lecture Base	
10	2		Experimental Design: Foundations of Machine Learning		Lecture Base	
11	2	Explains supervised and unsupervised pattern recognition approaches.	Experimental Design: Evaluation		Lecture Base	
12	2		Statistical Significance		Lecture Base	
13	2	Analyzes the success of a feature recognition system.	Jackknifing, Bootstrapping and Combining Classifiers		Lecture Base	
14	2		Introduction to Nonparametric Techniques		Lecture Base	
15	2		Final I	Exam Review	Lecture Base	
173. 0	Course I	Evaluation				
Distribu	iting the	score out of 100 accor	ding to	the tasks assign	ned to the studer	nt such as daily
prepara	ition, dai	ly oral, monthly, or wr	itten ex	ams, reports	etc	
174. J	Learning	and Teaching Reso	ources	A T ' 11 1	NT 337 11.	
Require	d textboo	ks (curricular books, if	any)	A. Lindholm, J T. Schon, Mac for Engineerir University Pres ISBN: 978-1- URL: http://sm	N. Wahlstrom, F chine Learning: A ng and Scientis ss, New York, No 108-84360-7, pj lbook.org/book/s	F. Lindsten and A First Course ts, Cambridge ew York, USA, p. 338, 2022. sml-book-

Main references (sources)	C.M. Bishop, Pattern Recognition and Machine Learning, Springer, ISBN: 978- 0387310732, 2003.
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	

1. Course Name:		
	Public Administration	
2. Course Code:		
	68	

	OTP9				
3. Semester / Year:					
	First/2023				
4. Descripti	ion Preparation Date:				
~ A '1 1 1	15/4/202	24			
5. Available	e Attendance Forms:				
6 Number (Pres of Cradit Hours (Total) / Number	ence of Units (Total)			
	Si Ciedit Houis (10tai) / Number	of Olitis (Total)			
	1	5			
7. Course a	7. Course administrator's name (mention all, if more than one name)				
Name: Sa	amah Jalil Saba	, , , , , , , , , , , , , , , , , , , ,			
Email: sa	ımahjalil@uodiyala.eud.iq				
8. Course O	bjectives				
Course Objectives		A- Cognitive objectives A- 1 The student knows public administration			
		A-2 The student enumerates the types			
		management A-3 The student understands each type			
		management			
		A-4 The student distinguishes betw			
		B - The program's skill objectives			
		B-1 Knowledge and remembering skills			
		B- 2 Memorization and analysis skills B- 3 Skills for use and development			
9. Teaching	and Learning Strategies				
Strategy					
	Some common strategies that	t may be helpful include:			
	Class interaction: Using inter	active methods in class such as group			
	discussions, practical case so	lving, and collaborative activities. This			
	understanding of the topics	n students and contributes to a deepe			
	Use of technology: Adopting t	echnology in education such as using			
	the Internet, multimedia, and	online educational platforms. These			
	tools can be useful to enhance	e understanding and stimulate			
	participation.	-			
	Practical lessons: Organize fie	eld visits, or invite guest speakers from			
	industry to share their experi	ences and knowledge in the field of			
	public administration.				

Promote Critical Thinking: Encourage students to think critically by asking open-ended questions, analyzing cases, and providing creati solutions to management problems.

Diversifying assessment methods: Using a variety of assessme methods, such as tests, individual work, group projects, a discussions, to evaluate various aspects of student learning

10. Cours	10. Course Structure				
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1		Introduction to public administration	Electronic lec using Microsoft Ed	Oral or written tes
2	1		Management principles	Electronic lec using Microsoft Ed	Oral or written tes
3	1		Management jobs	Electronic lec using Microsoft Ed	Oral or written tes
4	1		Areas of management	Electronic lec using Microsoft Ed	Oral or written tes
5	1		Project management	Electronic lec using Microsoft Ed	Oral or written tes
6	1		Administrative leadership	Electronic lec using Microsoft Ed	Oral or written tes
7	1		Technology a Communications Management	Electronic lec using Microsoft Edi	Oral or written test
8	1		Midterm exam	Electronic lec using Microsoft Edi	Oral or written test
9	1		Management ethic	Electronic lec using Microsoft Edi	Oral or written test
10	1		Criteria For Succ and Failure Enterprise Management	Electronic lec using Microsoft Edi	Oral or written test
11	1			Electronic lec using Microsoft Edi	Oral or written test
12	1		knowledge Management	Electronic lec using Microsoft Edi	Oral or written test

13	1				Electronic lec using Microsoft Edi	Oral or written test
14	1		Proje	ect presentatio	Electronic lec using Microsoft Edi	Oral or written test
15	1		Proje	ect presentatio	Electronic lec using Microsoft Edi	Oral or written test
11.Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily				such as daily		
preparation, daily oral, monthly, or written exams, reports etc						
12.Learning and Teaching Resources						
Required textbooks (curricular books, if any)						
Main references (sources)			1-Public Adn	ninistration (Foundations,		
			Functions and	d Modern Trends), 2013		
			2-Introductio	ion to management, written		
			by Agadir Sa	r Salem Al-Aidarous		
				<i>J</i> <u>G</u> <i>i i i i i i i i i i</i>		
Recommend	ed books	and references	(scientific			
journals, rep	orts)					
Electronic R	eferences, V	Vebsites				

1. Course Name:
Introduction to Operations Research
2. Course Code:
OR 201
3. Semester / Year:
Fall 2024
4. Description Preparation Date:
May 2, 2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
7. Course administrator's name (mention all, if more than one name)
Name: Email:
--
Q (
Course
StrategyLectures detailing theory an Hands-on labs using softwar Case studies to illustrate app Group projects to encourage
10. Co
Week
1-2
3-4 4 Linear I Programming O Models
5-6 4 Integer and Adv Nonlinear Mod Programming
7-8

9-10	4	Simulation and Risk Analysis	Simulation Techniques		Workshops]	Midterm Exam	
11-12	4	Decision Analysis and	Decision Making		Case Studie	es l	Final Projec	ct
		Game Theory						
11.Co	11.Course Evaluation							
Weekly	Weekly Assignments: 20%							
Project Work: 25%								
Midter	m Exam:	25%						
Final E	xam: 309	%						
12.Le	arning ar	nd Teaching Resou	urces					
Requir	ed textbo	ooks (curricular	books,	Operations	Research: A	.n Intr	oduction by	у
any)				Taha				
Main re	eferences	(sources)	Operations	Research:	Appli	cations an	nd	
Algorithms by Winston								
Recom	mended	books and refer	rences	The Science of Decision Making				
(scienti	ific journ	als, reports)						
Electro	nic Refe	rences, Websites		INFORMS (ww	vw.informs.org)			

175.	Course Name:
Syst	tem Programming
176.	Course Code:
OPT6	
177.	Semester / Year:
2023	3-2024
178.	Description Preparation Date:
179.	Available Attendance Forms:
180.	Number of Credit Hours (Total) / Number of Units (Total) 3
	73

181. Course administrator's name (mention all, if more than one name) Name: *Bashar Talib Alnuaimi* Email: alnuaimi_bashar@uodiyala.edu.ig

182. **Course Objectives Course Objectives** This course is an introductory course on computer systems. It introdu computer systems from a programmer's perspective, rather than a system implementer's perspective, which prepares students for more advan topics that discuss the internals of a computer system (e.g., operasystems or computer architecture). As a result, the focus of the cours teaching programmable interfaces of a computer system as well as how use them correctly and effectively when writing a program. The top mainly include hardware/software interfaces (e.g., data representation memory) and OS/application interfaces (e.g., syscalls). In discussing th topics, the course gives an overview of a complete computer system, hardware, operating system, compiler, and network, in order to gu students through various components that modern programs rely or accomplish their intended purposes 183. Teaching and Learning Strategies Strategy Overview of systems programming Users, files and manuals Directories, file properties and file systems Terminal control and signals Event driven programming Processes and programs i/o redirection and pipes Servers and sockets Threads 184. Course Structure Week Hours Required Unit or subject name Learning method **Evaluation** Learning method Outcomes System Programming: Lecture Base

Introduction, 3 1 **Operating System** Examples Lecture Base **Operating Systems** 2 3 Scheduling Shell, BIOS and Lecture Base 3 3 **Booting Process** Lecture Base Assembler and 4 3 Compiler Linker and Loader Lecture Base 5 3 3 **Lecture Base** 6

		System Calls	
		API(Application	
		Program Interface)	
7	3	Mid term exam	Lecture Base
8	3	Interrupt	Lecture Base
9	3	Exception handling	Lecture Base
10	3	Memory Mapped and DLLs (API Programming)	Lecture Base
11	3	Processes	Lecture Base
10	2	Device Drivers and	Lecture Base
12	3	Services	
13	3	Project presentation	Lecture Base
14	3	Project presentation	Lecture Base
15	2	Exam	Lecture Base
185. (Course l	Evaluation	
	The cours Fundame numbers: o distribu simulatio nalysis; Sample o	se is an introduction to mo ntal concepts of computer pseudorandom number go ation functions; Simulation n; Verification and validat Queuing theory models; I f applications. There will	deling and simulation. It includes the following topics: simulation; Models for computer simulation; Random eneration and testing, Monte Carlo methods; Introduction n modeling; Discrete-event simulation; Continuous tion of simulation models; Input analysis; Output Design code; Test and Debug simulation programs; be weekly practice in the lab.
186. l	Learning	g and Teaching Resou	rces
Required if any)	d textboo	ks (curricular bod Comp	uter Systems: Programmer's Perspective
Main re:	ferences	(sources) •	Simulation Modeling and Analysis , 5/e, by Averil M Law and
	·	•	 W. David Kelton, McGraw Hill, 2015. www.mhhe.com/engcs/industrial/lawkelton 2- Tayfur Altiok -Windows System Programming, 3rd edition
Electron	nc Refere	ences, Websites	

187.	Course Name: Computer Architecture
188.	Course Code: COM4
189.	Semester / Year: Semester
190.	Description Preparation Date:2023-2024
191.	Available Attendance Forms: presence
	^
192.	Number of Credit Hours (Total) / Number of Units (Total): 30 class
hour	, 2 hours per week, 15 weeks
193.	Course administrator's name (mention all, if more than one
nam	e)
Nam	e: Asst. Prof. Dr. Khalid Mohammed Saffer
Ema	l: dr.khaledmoh@uodivala.edu.ig
	in an initial out in a local of a
194.	Course Objectives
Course Object	tives Studying the basic concepts of computer architecture and the stages
	of its development, in addition to the mechanism of operation and
	interconnection of the various units that make up the computer.
	76
	/0

195	5. Tea	aching and 1	Learning Strategies				
Strategy	ÿ	- lecture - Condu - Giving - Asking	e cting discussion panels within weekly homework g questions during the lecture	the lectur	e		
196 C	ourse Stru	leture					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
1	2		Introduction to computer architectur	lecture	Short exam		
2	2		Basic organization of computer	lecture	Short exam		
3	2		Basic operational concept	lecture	Short exam		
4	2		Bus structures	lecture	Short exam		
5	2		Requirements of I/O system	lecture	Short exam		
6	2		I/O interfacing techniques	lecture	Short exam		
7	2		Memory system organization	lecture	Short exam		
8	2		Midterm exam				
9	2		Memory hierarchy	lecture	Short exam		
10	2		Memory structure and its requiremen	lecture	Short exam		
11	2		Associative memory	lecture	Short exam		
12	2		Cache memory	lecture	Short exam		
13	2		8085 Microprocessor	lecture	Short exam		
14	2		Intel core family	lecture	Short exam		
15	2		Intel core family	lecture	Short exam		
197. Distribution Shor Mont Degr Degr	Course E uting the s ation, daily t weekly thly exam ees of pa ees of ho	valuation core out of 1 y oral, month exams is rticipation mework	00 according to the tasks assigned to ly, or written exams, reports etc in answering the questions ask	the studen	t such as daily		
198	Learning	and Teaching	ng Resources				
198.	Learning	and Teaching	ng Resources				

Required textbooks (curricular books any)	 Mano, M. Morris, Computer System Architecture, 3rd Edit Prentice-Hall, Inc., 1993.
Main references (sources)	 Mostafa Abd-El-Barr, Hesham El-Rewini, "Fundamentals of Computer Organization and Architecture", A John Wiley & Sons, Inc Publication, 2005. M. Morris Mano, Computer Engineering Hardware Design, 1st Edit Prentice-Hall, Inc., 1988.
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	

199.	Course Name:					
	Design and Analys	is of Algorithms				
200.	Course Code:					
	COM10					
201.	Semester / Year:					
	Second/20	23-2024				
202.	Description Preparation Date:					
	1/5/2024	4				
203.	Available Attendance Forms:					
	Pro	esence				
204.	Number of Credit Hours (Total) /	Number of Units (Total)				
		30/3				
205	Course administrator's name (r	mention all if more than one name)				
Nar	ne: Muna Rashid Hameed					
Em	ail: munarashid@uodiyala.edu.ig					
206.	Course Objectives					
Course Obj	ectives	• This is an intermediate course				
		on algorithm design. The first part				
		of this course is intended to make				
		students familiar with some basic				
		granh algorithms and their				
		officiency analysis The second part				
		efficiency analysis. The second part				
		of this course will provide a				
		detailed introduction to different				
		algorithm design paradigms with				
		illustrative problems. The third				

			part of designing classical The last with problem approxim	this cours g algorit network part of this computat s and tack nation algo	e is looking at hms for the flow problem. course will deal ionally hard ling them using prithms.
207.	Teachi	ng and Learning S	trategies		
Sumegy		 To develop the correctness of b To be able to computational taught in the co To be able to preductions. To be able to algorithms. 	e ability to analyze the basic algorithms. design efficient algorit problems, using various burse. rove the hardness of NF do performance analy	running tim hms for mo s algorithm c P-Hard probl rsis of simpl	ne and prove the derately difficult lesign techniques ems using simple e approximation
208.Cours	se Structu	re			
Week					
W CCK	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms	Learning method Electronic lec using Micros Editor	Evaluation method Oral or written test
1 2	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms Asymptotic analysis upper and average complexity bound	Learning method Electronic lect using Micross Editor Electronic lect using Microso Editor	Evaluation method Oral or written test Oral or written test
1 2 3	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms Asymptotic analysis upper and average complexity bound Identifying different among best, averag and worst case behaviors	Learning method Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor	Evaluation method Oral or written test Oral or written test Oral or written test
1 2 3 4	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms Asymptotic analysis upper and average complexity bound Identifying different among best, averag and worst case behaviors Big O, little o, and theta notation	Learning method Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor	Evaluation method Oral or written test Oral or written test Oral or written test
1 2 3 4 5	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms Asymptotic analysis upper and average complexity bound Identifying different among best, averag and worst case behaviors Big O, little o, and theta notation Standard complexi classes	Learning method Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor	Evaluation method Oral or written test Oral or written test Oral or written test Oral or written test
1 2 3 4 5 6	Hours	Required Learning Outcomes	Unit or subject name An Introduction to algorithms Asymptotic analysis upper and average complexity bound Identifying different among best, averag and worst case behaviors Big O, little o, and theta notation Standard complexi classes Empirical measurements of performance of algorithms	Learning method Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor Electronic lect using Microse Editor	Evaluation method Oral or written test Oral or written test Oral or written test Oral or written test Oral or written test

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209. Cot	ırse Evalu	ation					
Distributin	g the score	e out of 100 accordi	ng to t	he tasks assigne	d to the stu	dent such as daily	
preparation	n, daily ora	al, monthly, or writte	n exam	s, reports etc			
210. Lea	rning and	Teaching Resourc	es				
Required te	xtbooks (cu	rricular books, if any)					
Main refere	nces (sourc	ees)		- Introduction to Algorithms By Thomas			
				Cormen, Charles E. Leiserson, Ronald L. Riv			
			Clifford Stein, Third Edition, 2009				
Recommend	ded books	and references (scie	entific				
journals, rej	ports)	XX7 1 1		T , T	·	·	
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211.	Course Name: Databases 1					
212.	Course Code: COM16					
212						
213.	Semester / Year: semester1/ s	econd stage				
214.	Description Preparation Date: 1	14/4/2024				
215.	Available Attendance Forms: Atte	endance inside the university				
216.	Number of Credit Hours (Total) /	[/] Number of Units (Total)				
2 the	eoretical + 2 practical sessions pe	er week."				
217.	Course administrator's name (mention all, if more than one name)				
Nam Emo	e: Lec. Zainab mohammed Ali Jas ال	sim				
EIIIa	11:					
218.	Course Objectives					
Course Objec	tives	Having a database environment entails				
		achieving several objectives, the most				
		Important of which are as follows:				
		A - The ability to represent the natural				
		structure of data in a way that reflects the				
		logical relationships between the data.				
		B - Ensuring that data can be segmented				
		among users to form a variety of products.				
		C - Overall low cost of storage				
		requirements.				
		D - Physical and logical organization of data so that it can meet expected queries with appropriate speed, as well as handle upplanned queries or produce non-				
		routine reports.				

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vv eek	Hours	Kequired Learning Outcomes	Unit or subject name	method	Evaluation method
220. Cours	se Structure	Doguirad	Unit or subject	Looming	Evolution
	Lectu used lectu educ self- relat	ures are present during practic res to discuss ational technolo explanatory inte ed to their ment	ed in electronic presentation al sessions. 2- Discussion modern systems that re ogies (tutorial videos). 4- A rpretations. 5- Providing s ral capacity.	tion format, and n/formation of equire thinking ssigning studer students with va	d interactive whiteboa discussion groups d and analysis. 3- U nt's homework that rec arious skills and know
219. Strategy	Teaching an	d Learning S	trategies		
			J - Allowing according to	the database o user needs.	e to evolve
			I - Allowing opinions ab physical sto	users to forn out the data rage method	n their own regardless of the l of the data.
			H - Achievir distributed database.	ng logical cor data within tl	relation between he sub-files of the
			G - Achievir users and th	ng interactior ne database.	n between multipl
			F - Flexibility systems. Or designing a that allows improvement application	y to interact w ne of the main database is t for modificat nts without th programs or	with future n objectives of to plan it in a way ions and he need to modify reorganize files.
			compatibilit system ado align with th procedures organization	ty with them. pted by the c ne programs, existing with n.	The database organization must data, and in the

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13 2 Basic ER Modelli Electronic lect oral or written test using Micros Editor 14 2 Basic Relationsh Electronic lect using Micros Editor 2 Mapping Electronic lect Oral or written test				1 11 Electronic loct Oral on written test
14 2 Basic Relationsh Electronic lect using Micross Editor Oral or written test 2 Mapping Electronic lect Oral or written test	13	2	Basic ER Mod	using Micros
14 2 Basic Relationsh Electronic lect using Microsy Editor Oral or written test 2 Mapping Electronic lect Oral or written test				Editor
14 Editor 2 Mapping Electronic lect Oral or written test	14	2	Basic Relation	nsh Electronic lect Oral or written test
2 Mapping Electronic lect Oral or written test	14			Editor
		2	Mapping	Electronic lect Oral or written test
15 Using Micros	15	_	Constraint	using Microse
	001 7		Constraint	
221. Course Evaluation	221. Co	urse Evaluation		

1-Academic Achievements	
2- Personal Achievements	
3- Reports and Studies	
4- Daily Assignments with Self-explanatory Solutions	
5- Multiple Choice Questions with Answers	
222. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	FUNDAMENTALS OF Database Systems, SIXTH EDITION, Ramez Elmasri &Shamkant B. Navathe -
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	

223.	Course Name: Databases 2
224.	Course Code: COM17
225.	Semester / Year: semester1/ second stage
	84

226.	Description Preparation Date: 14/4/2024
227.	Available Attendance Forms: Attendance inside the university
220	Number of Credit Hours (Total) / Number of Haits (Total)
228. 2 th	leoretical + 2 practical sessions per week."
229.	Course administrator's name (mention all, if more than one name)
Nar Em	ne: Lec. Zainab mohammed Ali Jasim ail:
230.	Course Objectives
ourse Objo	Having a database environment entails achieving several objectives, the most important of which are as follows: A - The ability to represent the natural structure of data in a way that reflects the logical relationships between the data. B - Ensuring that data can be segmented among users to form a variety of product C - Overall low cost of storage requirements. D - Physical and logical organization of data so that it can meet expected queries with appropriate speed, as well as handle
	 E - Alignment with existing systems and compatibility with them. The database system adopted by the organization must align with the programs, data, and procedures existing within the organization. F - Flexibility to interact with future systems. One of the main objectives of designing a database is to plan it in a way

232. Court Week 1 2 3 4 5	se Structure Hours 2 2 2 2 2 2 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in relational algebr Projection in relational algebr SET Operations semantics Set operations -	Learning method Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor	Evaluation method Oral or written te Oral or written tes Oral or written test Oral or written test
232. Court Week 1 2 3 4	se Structure Hours 2 2 2 2 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in relational algebr Projection in relational algebr SET Operations semantics	Learning method Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor	Evaluation method Oral or written te Oral or written te Oral or written te Oral or written test
232. Court Week 1 2 3	se Structure Hours 2 2 2 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in relational algebr Projection in relational algebr SET Operations	Learning method Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor	Evaluation method Oral or written te Oral or written tes Oral or written test
232. Court Week 1 2 3	se Structure Hours 2 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in relational algebr Projection in relational algebr	Learning method Electronic lect using Micross Editor Electronic lect using Micross Editor Electronic lect using Micross Editor	Evaluation method Oral or written te Oral or written te Oral or written te
232. Cour Week 1 2	se Structure Hours 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in relational algebr	Learning method Electronic lec using Micros Editor Electronic lect using Micros Editor	Evaluation method Oral or written te Oral or written te
232. Cour Week 1 2	se Structure Hours 2 2	Required Learning Outcomes	Unit or subject name Relational Algeb Selection in	Learning method Electronic lec using Micros Editor Electronic lect using Microso	Evaluation method Oral or written te Oral or written te
232. Cour Week 1	se Structure Hours 2	Required Learning Outcomes	Unit or subject name Relational Algeb	Learning method Electronic lec using Micros Editor	Evaluation method Oral or written te
232. Cour Week	se Structure Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
232.Cour Week	se Structure Hours	Required	Unit or subject	Learning	Evaluation
232.Cour	se Structure				
231. Strategy	Teaching an Lect usec lectu self- relat	d Learning S ures are present d during practic ures to discuss cational technolo explanatory inte red to their ment	database. I - Allowing opinions ab physical stor J - Allowing according to Strategies ted in electronic presentat cal sessions. 2- Discussion modern systems that re- ogies (tutorial videos). 4- Ac- erpretations. 5- Providing s- tal capacity.	users to forr out the data rage method the database o user needs o user needs ion format, an offormation of equire thinking ssigning studer tudents with va	n their own regardless of the d of the data. e to evolve d interactive whitebo discussion groups o g and analysis. 3- U nt's homework that rec arious skills and know
			H - Achievin	ig logical cor	rrelation between
			improvemen application	nts without t programs or	he need to modify reorganize files.
				or mounicat	ions and

Г	Т		T		
	2		Set operations	Electronic lect	Oral or written test
6		re	quirements (pa	Editor	
			2)		
7	2	Database Keys	Electronic lect	Oral or written test	
/				Editor	
0	2]	Primary Key &	Electronic lect	Oral or written test
8			Foreign Key	using Microso Editor	
0	2	S	econdary Key (Electronic lect	Oral or written test
9			Alternative Key	Editor	
	2		Examples on	Electronic lect	Oral or written test
10			databases keys	Editor	
11	2		Normalization	Electronic lect	Oral or written test
11				Editor	
	2		Un-Normalized	Electronic lect	Oral or written test
12			Form (UNF)	using Microso Editor	
				Electronic lect	Our lange with the start
13	2	Fi	rst-Normal For	using Micros	Ural or written test
_			(INF)	Editor	<u></u>
14	2		Second-Norma	using Micros	Oral or written test
14			Form (2NF)	Editor	
	2	Th	ird-Normal Fo	Electronic lect	Oral or written test
15			(3NF)	Editor	
233 Cou	rse Evaluation				
1-Academic A	Achievements				
2- Personal A	chievements				
3- Reports a	nd Studies				
4- Daily Assic	nments with Self-exp	Answers			
234 Lea	rning and Teachi	ng Resources			
Required tex	xtbooks (curricular	books, if anv)			
Main refere	nces (sources)	······································	FUNDAMENTALS OF Database		
	· · · · · · · · · · · · · · · · · · ·		Systems SIXTH EDITION Ramez		
			Elmasri & Sha	mkant R N	lavathe
			-	annunt D, 1	(u , util)
Recommend	led books and ref	erences (scientific			
journals, rep	ports)				
Electronic R	Reterences, Website	S			

1. Course Name:Basic Arithmetic Methods2. Course Code:MATH 1013. Semester / Year:Fall 20244. Description Preparation Date:May 2, 20245. Available Attendance Forms:6. Number of Credit Hours (Total) / Number of Units (Total)7. Course administrator's name (mention all, if more than one name)

8. Course Objectives						
Course Objectives				To understand the fundamental concepts of arithmetic including addition, subtraction, multiplication, and division.		
			To re	o apply al-wor	v arithmetic oper ld problems.	rations to solve
			Te ar	o deve nd estir	lop proficiency i nation technique	in mental math es.
			Te de	o intro ecimals	duce the basics of and percentage	of fractions, es.
0 Teaching and Learning Strategies						
9. 5 Strateg	Teaching gy I I V	g and Learning Stra ectures to introduc nteractive sessions Veekly practice ses	tegies ce each topic to engage s ssions to rein	c. tudents nforce	s in solving problearning through	olems. n exercises.
9. Strates	Teaching gy I I V U	g and Learning Stra ectures to introduc nteractive sessions Veekly practice ses Jse of technology a	tegies ce each topic to engage s ssions to rein and software	c. tudents nforce tools	s in solving prob learning through to enhance unde	olems. n exercises. erstanding.
9. ⁷ Strates	Teaching gy I I I V U Durse Str	g and Learning Stra ectures to introduc nteractive sessions Veekly practice ses Jse of technology a ucture	tegies ce each topic to engage s ssions to rein and software	c. tudents nforce tools	s in solving problearning through to enhance unde	olems. n exercises. erstanding.
9. Strateş 10. Co Week	Teaching gy L I V U Durse Str Hours	and Learning Stra ectures to introduc nteractive sessions Veekly practice ses Jse of technology a ucture Required Learning Outcomes	tegies ce each topic to engage s ssions to rein and software Unit or su name	c. tudents nforce tools	s in solving problearning through to enhance unde Learning method	blems. n exercises. orstanding. Evaluation method
<u>9.</u> Strates 10. Co Week	Teaching gy L I V U Durse Str Hours 3	and Learning Stra ectures to introduce nteractive sessions Veekly practice ses Jse of technology a ucture Required Learning Outcomes Understand and perform addition and subtraction	tegies ce each topic to engage s ssions to rein and software Unit or su name Basic Operations	c. tudents nforce tools tools	s in solving problearning through to enhance unde Learning method Lecture + Exercises	olems. n exercises. erstanding. Evaluation method Weekly Quiz
<u>9.</u> [Strate; 10. Co Week 1	Teaching gy I I V U Durse Str Hours 3	and Learning Stra ectures to introduce nteractive sessions Veekly practice ses Jse of technology a Required Learning Outcomes Understand and perform addition and subtraction Master multiplication tables	utegies xe each topic to engage s ssions to rein and software Unit or su name Basic Operations Multiplica	c. tudents nforce tools tools	s in solving problearning through to enhance unde Learning method Lecture + Exercises Interactive Practice	exercises. erstanding. Evaluation method Weekly Quiz In-class Activities
9. 7 Strates 10. Co Week 1 2 3	Teaching gy I I I V Ourse Str Hours 3 3 3	and Learning Stra ectures to introduce nteractive sessions Veekly practice sess Jse of technology a ucture Required Learning Outcomes Understand and perform addition and subtraction Master multiplication tables Apply division in various contexts	tegies ce each topic to engage s ssions to rein and software Unit or su name Basic Operations Multiplica	c. tudents nforce tools tools	s in solving problearning through to enhance unde Learning method Lecture + Exercises Interactive Practice Lecture + Exercises	exercises. erstanding. Evaluation method Weekly Quiz In-class Activities Homework Assignments

		-				
		operations in				
		real-world				
		scenarios				
5	3	Introduction to	Fracti	ions and	Lecture +	Quiz
		fractions and	Decir	nals	Demonstration	
		decimals				
6-10	3	Deepen	Adva	nced	Mixed	Midterm
		understanding	Topic	s	Methods	Examination
		of percentages,				
		ratios, and				
		proportions				
11.Co	ourse Eva	luation				
Daily F	Preparation	on: 10%				
Daily C	Oral Parti	cipation: 10%				
Month	ly Writte	n Exams: 30%				
Report	s: 20%					
Final E	Examinati	ion: 30%				
12.Le	earning ai	nd Teaching Resou	urces			
Requir	ed textb	ooks (curricular	books,	Elementary	y Arithmetic by J	ohn Doe
any)						
Main r	eferences	s (sources)		Principles of Mathematics by Jane R		
Recom	mended	books and refer	rences	Mathematical Foundations by A		
(scienti	(scientific journals, reports)			Turing		
Electro	nic Refe	rences, Websites		Khan Academy		
				(www.khai	nacademy.org), C	Coursera
				(www.cou	rsera.org)	

1. Course Name:
Data structure
2. Course Code:
204CODS
3. Semester / Year:
First semester/second year
4. Description Preparation Date:
4/4/2024
5. Available Attendance Forms:
4/4/2024
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours/3units
7. Course administrator's name (mention all, if more than one name)
01

l I	Name Emai	e: la l: <u>la</u>	yla abd al.haq esmaee ylaaeabdalhaq@uodiy	el yala.e	<u>du.iq</u>			
	~	-	· · ·		•			
8. (Cours	se O	bjectives					
Course (Object	ives	 The goal required requirements is to un inside the calculator. The student's awa Developing the stu addition to the skills represented inside th Developing the stu beau Representing it 	 The goal required of the student in order to successfully pass the course requirements is to understand how- Through it, data is represented and sto inside the calculator. The student's awareness of the types of algorithms used to represent data Developing the student's ability to use the software available in this field addition to the skills he acquires Here it is - in data processing - and how it represented inside the calculator Developing the student's ability to write software that processes data and 				
0.7	Taaal		now Representing it	mside	the calculator	••••		
9.	react	$\frac{\text{mg}}{4}$	and Learning Strategie					
Strategy	 gy 1-Follow up on scientific development by contacting international universities violate 2- Participation in scientific conferences inside and outside the country 3- Participation in scientific workshops and seminars inside and outside Qatar 4 - Field visits in industrial projects, state institutions, and pri 					ntry tside Qatar ons, and priva		
10 Cc		Sec	tor companies					
IU. CO	Jurse	Siri			T] 4	T	F L 4 ²	
vvеек	Hou	rs	Required Learning Outcomes		Unit or subject	Learning	Evaluation	
					name	literiou	incomo ca	
1	3		Definitions and a general introductio which Explanation of the required no instructions The students and the pro- adhere to it in order to achieve the be performance in studying the subject.	n during otes and ofessor m est		Electronic Lecture using editor Microsoft	Oral written t	
2	3		Data Structure an Introduction			Electronic Lecture using editor Microsoft	Oral written t	
3	3		Pointer and references			Electronic Lecture using editor Microsoft	Oral written t	
4	3		Strategies for choosing th structure	right		Electronic Lecture using editor Microsoft	Oral written t	
5	3		String and stringprocessing			Electronic Lecture using editor Microsoft	Oral written t	
6	3		Analysis of Algorithms			Electronic Lecture using editor Microsoft	Oral written t	
7	3		Representation of numeridata			Electronic Lecture using editor Microsoft	Oral written t	

		A muoxy			Flootnonia	Orral
8	3	Allay			Lecture using	Ural
					editor	written
					Microsoft	
Q	2	Stack			Electronic	Oral
9	5				Lecture using	written t
					editor	Wilceli
					Microsoft	
10	3	Queues			Electronic	Oral
					Lecture using	written t
					editor	
			<u>`</u>		Microsoft	
11	3	Linked list (Single andDouble))		Electronic	Oral
					Lecture using	written t
					editor	
10	2	Recursion			Floctronic	Oral or writton t
12	3	Recuision			Lecture using	
					editor	
					Microsoft	
12	3	Sorting and Searching	g		Electronic	Oral or written t
15	5		0		Lecture using	
					editor	
					Microsoft	
14	3	Trees			Electronic	Oral or written t
	Ū				Lecture using	
					editor	
					Microsoft	
15	3	Graph and Hash Tabl	e		Electronic	Oral or written t
					Lecture using	
					Microsoft	
11 (<u> </u>				MICIOSOIL	
11.0	Jourse E	evaluation				
Distri	buting th	e score out of 100 accordin	ig to the	e tasks assigr	ned to the stude	nt such as daily
prepa	ration, da	aily oral, monthly, or writte	en exan	ns, reports	. etc	
12.I	Learning	and Teaching Resource	S			
Requi	red textbo	ooks (curricular books, if any	*An I	ntroduction	to Data struc	tures with
1		× , , ,	Appli	actions by	Trombloy and	Sorongon
			Аррп	cations by		Solelisoli
			* Tan	enbaum A	aron M, Lang	sam
			Yedio	lvah. Auge	nstein I Mosh	e. Data
			Struc	tures using	σC	,
			struc * •			•.1
			* An	introductio	nto data struct	tures with
			applic	cations		
Main 1	references	s (sources)				
Recon	nmended	books and references				
(scient	tific journ	als, reports)				
Electro	onic Refe	rences. Websites	Data	Structures 1	Ry Sevmour Li	nschutz
			[Coh-	$m' \circ \Omega + 1 $		PSchutz
			locua	uni s ouun	lej	

235. Course Name: Computer Skills 2 236. COM2 237. Semester / Year: First Semester 2023-2024 238. Description Preparation Date: 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation		
Computer Skills 2 236. Course Code: COM2 237. Semester / Year: First Semester 2023-2024 238. Description Preparation Date: 2024 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq This academic lesson is the basic foundation	235. Course Name:	
236. Course Code: COM2 237. Semester / Year: First Semester 2023-2024 238. Description Preparation Date: 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	Computer Skills 2	
COM2 237. Semester / Year: First Semester 2023-2024 238. Description Preparation Date: 2024 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq This academic lesson is the basic foundation	236. Course Code:	
237. Semester / Year: First Semester 2023-2024 238. Description Preparation Date: 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	COM2	
First Semester 2023-2024 238. Description Preparation Date: 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	237. Semester / Year:	
238. Description Preparation Date: 2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	First Semester 2023-2024	
2024 239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	238. Description Prepara	tion Date:
239. Available Attendance Forms: Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	2024	
Presence 240. Number of Credit Hours (Total) / Number of Units (Total) 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawod Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	239. Available Attendance	Forms:
240. Number of Credit Hours (Total) / Number of Units (Total) 60 60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation	Presence	
60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives Course Objectives This academic lesson is the basic foundation	240. Number of Credit Ho	urs (Total) / Number of Units (Total)
60 241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives This academic lesson is the basic foundation		
241. Course administrator's name (mention all, if more than one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives Course Objectives This academic lesson is the basic foundation	60	
one name) Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives Course Objectives This academic lesson is the basic foundation	241. Course administrate	or's name (mention all, if more than
Name: Juliet Kadum Dawood Email: julietkadum@uodiyala.edu.iq 242. Course Objectives Course Objectives This academic lesson is the basic foundation	one name)	
Email: julietkadum@uodiyala.edu.iq 242. Course Objectives Course Objectives This academic lesson is the basic foundation	Name: Juliet Kadum Dawo	od
242. Course Objectives This academic lesson is the basic foundation	Email: julietkadum@uodiv	zala edu ig
242. Course Objectives Course Objectives This academic lesson is the basic foundation	Linan. Junetkadum@uoury	ala.cuu.lq
Z42. Course Objectives Course Objectives This academic lesson is the basic foundation	242 Course Objectives	
Course Objectives I his academic lesson is the basic foundation	242. Course Objectives	
	Course Objectives	This academic lesson is the basic foundation
for learning software applications, starting		for learning software applications, starting
from the academic subject to:		from the academic subject to:
1- The student learns how to use computer and		1- The student learns how to use computer and
programmed devices (Microsoft Office Word,		programmed devices (Microsoft Office Word,
Microsoft Office Excel, Microsoft Office		Microsoft Office Excel, Microsoft Office
Power Point) and networks, which is an		Power Point) and networks, which is an
essential part of computer skills.		essential part of computer skills.

2- Developing the student's skills using (MS- Office) in various fields to deal with its tools. 3- By trying out students' skills to achieve success and excellence in the current labor market, which requires computer knowledge and skills from them.					ls using (MS- vith its tools. ls to achieve current labor er knowledge
243	. Tead	ching and L	earning Strategies		
Strategy	1 e tl 2 d 3 4 5 k	- The lectu lectronical ne (practica - Discussio iscuss mod - Using edu - Giving stu - Giving stu nowledge	re is given in the for ly, and the interacti al) attendance. on/forming discussi lern systems that re ucational technolog udents homework t ng students with related to their mer	rm of (present ve whiteboard on groups dur equire thinking ies (education hat requires se many differ ital level.	ations) l is used durin ing lectures to g and analysis al video). elf-explanatio rent skills a
244 C					
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method
1.	2 theoretica 2 practical	Outcomes	Introduction to MS- office (Basic components and Window)	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
2.	2 theoretica 2 practical		Microsoft Office Word	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
3.	2 theoretica 2 practical		a)Fundamentals and Application b)menus	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
4.	2 theoretica 2 practical		c) General d)Editing e)formatting f)Navigation Pane and layout	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
5.	2 theoretica 2 practical		g) Text selection h) Tables I)Drawing and graphics	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
6.	2 theoretica 2 practical		Microsoft Office PowerPoint	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
7.	2 theoretica 2 practical		a)Fundamentals and	In-person lecture using computer, display screen pen	Oral or written test

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			b)ı	menus		
			c)C	Beneral		
8.	2 theoretica		d)E	Editing	In-person lecture	Oral or written test
	2 practical e)format		matting	display screen, pen and blackboard		
			f)Na	vigation		
			g) Tex	t selection		
9.	2 theoretica		h) sli	des show	In-person lecture	Oral or written test
	2 practical		de	livery	display screen, pen and blackboard	
			I)Dra	wing and		
			gra	aphics		
			j)Viev	<i>w</i> buttons		
10.	2 theoretica		Micros	soft Office	In-person lecture	Oral or written test
	2 practical		F	Excel	using computer, display screen, pen and blackboard	
11.	2 theoretica		a)Funda	mentals and	In-person lecture	Oral or written test
	2 practical		Арр	lication	display screen, pen and blackboard	
			b)ı	menus		
			c)(Jeneral		
12.	2 theoretica		d)H	Editing	In-person lecture	Oral or written test
	2 practical		e)foi	rmatting	display screen, pen	
			f) Na	vigation	and blackboard	
			g)formulas and functions			
13.	2 theoretica		h)	charts	In-person lecture	Oral or written test
	2 practical		i)workboo	k management	display screen, pen and blackboard	
14.	2 theoretica		Introd	luction of	In-person lecture	Oral or written test
	2 practical		Ne	twork	display screen, pen and blackboard	
15	2 theoretica		Types of	networking	In-person lecture	Oral or written test
101	2 practical		-) -) -) -) -) -) -) -) -) -)		using computer, display screen, pen	
16.Co	ourse Evalu	ation			and blackboard	
Distribu	iting the sco	ore out of 10	0 accordi	ng to the task	s assigned to th	e student such
as daily	preparation	n, daily oral,	monthly,	or written ex	ams, reports e	etc
17.Le	arning and	Teaching	Resource	S	-	
Required	d textbooks ((curricular bo	ooks, if any			
Main ref	ferences (sou	urces)	•	1-	Computer S	kill(2)
	× ×	,		2-	Basic Comp	uter Skills
Recomm	nended boo	oks and r	eferences		^	
(scientif	ic journals, r	eports)				
Electron	ic Reference	es, Websites				

245.	Course Name:		
	Human Computer Inte	eraction(HCI)	
246.	Course Code:		
	COM28		
247.	Semester / Year:		
	Second/2023-	-2024	
248.	Description Preparation Date:		
	15/4/2024	4	
249.	Available Attendance Forms:		
	Prese	ence	
250.	Number of Credit Hours (Total) / N	umber of Units (Total)	
	30	h	
251	Course administrator's name (me	ention all if more than one name)	
Nar	ne: Samah Ialil Saba		
Ema	ail: samahjalil@uodivala.edu.ig		
252.	Course Objectives		
Course Obje	ectives •	Cognitive goals	
	-	Introducing the student to the	
		basics of human-computer	
		interaction	
		Understanding the human element,	
	1	its interaction and cooperation	
		With the Interfaces.	
	- h	Demning the perception of the	
	 	The officer of interaction with	
		humans	
	נ די	numans Fraining students on many of th	
	1 ;	nteractive projects	
		Skills objectives of the course	
	•	Skins objectives of the course	
		-Knowledge skills -remembering	

			Domindi	ng and ana	lucio chillo
			-Ilsage ar	ng anu ana nd developr	iysis skills nent skills
253.	Teach	ing and Learning S	trategies		
Strategy		ing und Louining S			
	 Teaching and learning strategies for human-computer interaction can inc a variety of methods and techniques that help improve stude understanding and acquisition of concepts and skills in this complex field. I are some suggested strategies: Interactive learning: This approach encourages students to actively partici in educational processes, whether through group discussions, interac online activities, or even augmented reality applications that allow studen experience concepts practically. Problem-based learning: This approach is based on presenting real probl and challenges that students can interact with using the concepts learned. strategy can enhance students' understanding of how to apply concept solving practical problems. Cooperative Learning: This approach encourages teamwork and knowle sharing among students. This could include group projects, small discussi or even learning through collaborative online exercises. Use of technology: Technology can be used to enhance the learning experience provide the provide the particular of the provide the provide the particular of the provide the particular of the particu				
254 Cour	se Structu	re	-		
Week	Hours	Required	Unit or subject	Learning	Evaluation
		Learning	name	method	method
		Outcomes			
1	2		Introduction to H	Electronic lec using Micro Editor	Oral or written test
2	2		Human perception	Electronic lec using Micro Editor	Oral or written test
3	2		Human percept and informat processing	Electronic lec using Micro Editor	Oral or written test
4	2		Models of hun computer interaction	Electronic lec using Micro Editor	Oral or written
5	2		Interaction des basics	Electronic lec using Micro Editor	Oral or written
6	2		HCI in the softw process	Electronic lec using Micro Editor	Oral or written
7	2		Evaluation techniq	Electronic lec using Micro Editor	Oral or written

[]						
8	2		Mid	term exam	Electronic lec using Micro Editor	Oral or written
9	2		Usa	bility	Electronic lec using Micro Editor	Oral or written
10	2		Fun info visu	damentals rmation alization	Electronic lec using Micro Editor	Oral or written
11	2		Spa pres space	ce perception a senting data ce	Electronic lec using Micro Editor	Oral or written
12	2		Und	lerstanding Use	Electronic lec using Micro Editor	Oral or written
13	2		Use	r interface desig	Electronic lec using Micro Editor	Oral or written
14	2		Proj	ect presentation	Electronic lec using Micro Editor	Oral or written
15	2		Proj	ect presentation	Electronic lec using Micro Editor	Oral or written
255. Cot	ırse Evalu	ation				
Distributin	g the score	e out of 100 accordin	ng to th	e tasks assigned	d to the stude	nt such as daily
preparatio	n, daily ora	l, monthly, or writte	en exam	s, reports etc		
256. Lea	rning and	Teaching Resourc	ces			
Required te	xtbooks (cu	irricular books, if any)			
Main refere	nces (sourc	es)		Ben Shneic	lerman , Cat	herine Plaisan
				Designing	the User Inte	erface:
				Strategies	for Effective	Human-
				Computer	Interaction,'	' 4th Edition,
				2004. Addi	son Wesley.	IS Alan D. Jane
				E. Gregory	D. Russell B	" Human-
				Computer	Interaction '	' 2003 Prentic
l				Hall ISBN	013046100	1 BN
				02211070	613040107. 60	
				032119700 Alam D	UU Lanat E. Ci	
					, janet E. Gl	egory D. Kuss
				B., Hum	an-compute	er interactio
				2003, Pren	tice Hall, ISI	3N 013046109
Recommen	ded books	and references (sci	entific			
journals, rep	ports)	Wahaitaa				
Electronic F	keierences,	websites	•	/• •		
		Course De	escrip	tion Form		

210COC	3					
259.	Sen	nester / Yea	ar:			
Second Se	mester	r 2023-2024				
260.	Des	scription Pr	reparation Date	9:		
2024	Δυσ	vilabla Attar	ndanca Forms			
201. Dro		illaule Allel	idance Forms.			
262	262. Number of Credit Hours (Total) / Number of Units (Total)					
60						
263.	Со	urse admin	histrator's nam	e (mention all, if	more that	n one
nan	ne)			, , , , , , , , , , , , , , , , , , ,		
Name: Juliet Kadum Dawood						
Ema	ail: jul	ietkadum@	ouodiyala.edu.	iq		
	~					
264.	Cou	urse Objecti	ves	1 Duenening anoda	tog guolifical	to month in
the field of computer applications by representing data in the form of computer graphics. 2-Introducing the student to the field of computer graphics and processing visual and geometric information using computer technologies. It focuses on the mathematical and computational foundations of image generation and processing.						
265.	Tea	ching and L	earning Strateg	gies		
Strategy1- The lecture is given in the form of (presentations) electronically and the interactive whiteboard is used during the (practical) attendance. 2- Discussion/forming discussion groups during lectures to discus modern systems that require thinking and analysis. 3- Using educational technologies (educational video). 4- Giving students homework that requires self-explanation. 5- Providing students with many different skills and knowled related to their mental level.						
		cture				
266.Cours	e Stru	cture				
266. Cours Week Ho	e Stru ours	Required Learning	Unit or subject	name	Learning method	Evaluation method

		display screen, pen and	
		blackboard	1
2. 2 theoretica	Elementary Figures	In-person lecture using	Oral or written test
+ 2 practical	Plotting Points	computer, display screen,	
		pen and blackboard	
3. 2 theoretica	Line Drawing	In-person	Oral or written
+ 2 practical	Horizontal and Vertical Lines	lecture using computer,	test
		display screen,	
		blackboard	
4. 2 theoretica	Arbitrary Lines	In-person	Oral or written
+ 2 practical		computer,	test
		display screen,	
		pen and blackboard	
5. 2 theoretica	Circle Drawing	In-person	Oral or written
+ 2 practical	8	lecture using	test
		display screen,	
		pen and	
6. 2 theoretica	Different Circle Drawing	In-person	Oral or written
+ 2 practical		lecture using	test
		display screen,	
		pen and	
7. 2 theoretica	Bresenham's Circle Algorithm	In-person	Oral or written
+ 2 practical	Dresennam's Circle Algorithm	lecture using	test
1		computer, display screen.	
		pen and	
8. 2 theoretica	Introduction	In-person	Oral or written
+ 2 practical	Coometrie Transformations	lecture using	test
	Geometric Transformations	display screen,	
		pen and	
9. 2 theoretica	Two-Dimensional	In-person	Oral or written
+ 2 practical	Transformations	lecture using	test
		display screen,	
		pen and	
10.2 theoretica	Some Drawings related to Circle	In-person	Oral or written
+ 2 practical	Some Drawings related to Ciffle	lecture using	test
		display screen,	
		pen and	
11.2 theoretica	Some Drawings related to Line	In-person	Oral or written
+ 2 practical	Some Drumings related to Diffe	lecture using	test
		display screen,	
		pen and	
12.2 theoretica	Clinning	In-person	Oral or written
+ 2 practical	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	lecture using	test
	and Windowing	display screen.	
		pen and	
13,2 theoretica	Introduction	blackboard In-person	Oral or written
+ 2 practical		lecture using	test
F	I nree-Dimensional (3-D)	computer, display screen	
		pen and	
		blackboard	

^{14.} 2 theoretica	(3-D) T	hree Dimensional	In-person	Oral or written
+ 2 practical	Tra	Transformations		test
			display screen, pen and	
			blackboard	
15.2 theoretica + 2 practical	Scaling+R	efelection+Rotate	In-person lecture using	Oral or written test
· 2 practical			computer, display screen	
			pen and	
16 Course Evaluation			blackboard	
Distributing the score out o	f 100 according	to the tasks assigned to	the student	such as daily
preparation, daily oral, mor	nthly, or written	exams, reports etc	the statemet	buen ab uany
17.Learning and Teach	ing Resources	, T		
Required textbooks (curricul	ar books, if any)			
Main references (sources)		1- "Principles of	f Interactiv	<i>r</i> e
		Computer Graphics	", William	М.
		Newman and Robe	rt F. Sproo	ull,
		McGraw-Hill Intern	ational Bo	ok
		Company, 1984.		
		2- "Computer G	raphics wi	th Pascal",
		Marc Berger, the Be	enjamin / (Cummings
		Publishing Compan	y, 1986.	-
		3- "Computer G	raphics",Zl	higang
		Xiang and Roy A. Pl	astock, Scł	naum's
		outline Series, McG	raw-Hill Co	ompany,
		1992.		
		4- "Computer C	Graphics C	Version",
		Donald Hearn and	d M. Paul	ine Baker,
		Prentice-Hall Comp	any, 1997	•
Recommended books a	nd references	`	-	
(scientific journals, reports)			
Electronic References, Webs	ites			

267.	Course Name:
Com	putational mathematics
268.	Course Code:
COM-112	
269.	Semester / Year:
2023	3-2024
270.	Description Preparation Date:
271.	Available Attendance Forms:
	102

212	. N	Number of Credit Hours (Total) / Number of Units (Total) 5				
273	273. Course administrator's name (mention all, if more than one					
	name)					
]	Name: <i>F</i>	Khalid M.S. Al Zai	di			
	Email: <u>c</u>	l <u>r.khaledmoh@u</u>	iodiyala.edu.iq	<u> </u>		
274	$\frac{C}{C}$	ourse Objectives				
Course	Objective	s • T	he principal objective	e of this course is to deve	elop the analytic skills	need to
		• St	tudving basic mathem	natical concepts to solve	problems.	
		• T	o understand analyze	systems in a mathemati	cal manner.	
		• T	his course deals with	the basic concept of dise	crete mathematical.	
		• TI	his is the basic subj	ect for most compute	r science subjects.	
075		1 T				
Z15 Strata	$\cdot 10$	eaching and Lear	ning Strategies	or computer science: M	ny grass of computer	science
Strategy	rea	mire the ability to work	with concepts from d	liscrete mathematics, spe	cifically material from	n such
	are	eas as set theory, logic, g	graph theory, combina	atorics, and probability t	heory.	
	Th	e main strategy that w	ill be adopted in del	ivering the discrete ma	thematical structures	module i
	en	courage students' partic	cipation in the exerci-	ises, while at the same	time refining and exp	panding t
276 Ca		ucal minking skills. The	e module will include	a combination of classe	s, and interactive tutor	lais.
	Hours	Required	Unit or subject	name	Learning	Evaluatio
WEEK	liouis	Learning		name	method	method
		Outcomes				
1	3	Introduction - The bas	ic concepts		Lecture Base	
1 2	3 3	Introduction - The bas Sets	ic concepts		Lecture Base Lecture Base	
1 2 3	3 3 3	Introduction - The bas Sets Set Operations	ic concepts		Lecture Base Lecture Base Lecture Base	
1 2 3 4	3 3 3 3	Introduction - The bas Sets Set Operations	ic concepts		Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4	3 3 3 3	Introduction - The bas Sets Set Operations Set Operations Finite sets, counting p	rinciple		Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4 5	3 3 3 3 3	Introduction - The bas Sets Set Operations Set Operations Finite sets, counting p	rinciple		Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4 5 6	3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Set Operations Finite sets, counting pr Cardinality	rinciple		Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4 5 6 7	3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Set Operations Finite sets, counting p Cardinality Mid-term Exam	rinciple		Lecture Base	
1 2 3 4 5 6 7 8	3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations	rinciple		Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4 5 6 7 8 9	3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function	rinciple		Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	
1 2 3 4 5 6 7 8 9 10	3 3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function	rinciple		Lecture Base	
1 2 3 4 5 6 7 8 9 10 11	3 3 3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs	rinciple		Lecture Base Lecture Base	
1 2 3 4 5 6 7 8 9 10 11 12	3 3 3 3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs	rinciple		Lecture Base Lecture Base	
1 2 3 4 5 6 7 8 9 10 11 12 13	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs	rinciple		Lecture Base	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs Connectivity Special graph	rinciple		Lecture Base	
$ \begin{array}{r} 1 \\ 2 \\ 3 \\ 4 \end{array} $ $ 4 $ $ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 277 \\ 4 $	3 3 3 3 3 3 3 3 3 3 3 3 2	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs Connectivity Special graph Polish notation	rinciple		Lecture Base	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 277.0 1.1 2.77.0 3.1	3 3 <td< td=""><td>Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs Connectivity Special graph Polish notation Evaluation e the basic concept stand the fundame he basic sets operation</td><td>rinciple</td><td>athematical structu</td><td>Lecture Base Lecture Base</td><td></td></td<>	Introduction - The bas Sets Set Operations Finite sets, counting p Cardinality Mid-term Exam Inverse relations Function Graph of a function Graphs Graphs Connectivity Special graph Polish notation Evaluation e the basic concept stand the fundame he basic sets operation	rinciple	athematical structu	Lecture Base	

- 4. To study the sets types and counting principle.
- 5. Recognize the relations and functions to describe the relationship between the elements from two sets.
- 6. To learn several basic proof techniques.
- 7. Discuss the proof techniques to prove important results in set theory.

278. Learning and Teaching Resources				
Required textbooks (curricular books	- Discrete mathematical structures for computer science by Bernard			
any)	Kolman & Robert C. Busby			
Main references (sources)	- Theory and problems of Discrete mathematics, by Seymour Lipschutz			
	& Marc Lars Lipson, Schaum's Outline Series, third edition 2007.			
	- Mathematical foundation of computer science, Y.N. Singh, 2005.			
	- Discrete Mathematics and Its Applications, Seventh			
	Edition, Kenneth H. Rosen, AT&T Laboratories, 2012.			
Electronic References, Websites	- <u>http://www.math.uvic.ca/faculty/gmacgill/guide</u>			
	- http://en.wikibooks.org/wiki/Discrete mathemati			
	<u>cs/Set_theory</u>			

279.	Course Name:
Com	puter Organization
280.	Course Code:
COM-123	
281.	Semester / Year:
2023	3-2024
282.	Description Preparation Date:
283.	Available Attendance Forms:
284.	Number of Credit Hours (Total) / Number of Units (Total) 6
285.	Course administrator's name (mention all, if more than one
name	e)
Nam	e: Dr.Bashar Talib AL-Nuaimi
Emai	il: alnuaimi_bashar@uodiyala.edu.iq
286.	Course Objectives
	104
	104

Course Objectives		ves •	 To impart basic concepts of computer architecture and organization, To explain key skills of constructing cost-effective computer systems. To familiarize the basic CPU organization. To help students in understanding various memory devices. To facilitate students in learning IO communication Identify various components of computer and their interconnection Identify basic components and design of the CPU: the ALU and control unit. Compare and select various Memory devices as per requirement. Compare various types of IO mapping techniques Critique the performance issues of cache memory and virtual memory 			
287	,	Teaching and Le	Parning Strategies			
		The aim of the modu of a computer system range of practical s capable of interfacin	le is to provide students with an understar n and how they are organized to facilitate kills in the application and construction g with microprocessors.	nding of the functional execution. Student w of computer composi-	al compone vill also gat nents that	
		: The main strategy participation in the e skills. This will be simple experiments	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tuto nvolving some sampling activities that are	module is to encour nd expanding their cr prials and by conside e interesting to the stu	age stude itical think ering types udents.	
288.Co	ourse	: The main strategy participation in the e skills. This will be simple experiments	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tuto nvolving some sampling activities that are	module is to encour nd expanding their cr prials and by conside e interesting to the stu	age stude itical think ering types idents.	
288.Co Week	ourse Hou	: The main strategy participation in the e skills. This will be simple experiments Structure rs Required Learning Outcomes	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tuto nvolving some sampling activities that are Unit or subject name	module is to encour nd expanding their cr prials and by conside e interesting to the stu Learning method	age stude itical think ering types idents. Evaluation method	
288.Co Week	Durse Hour 3	 The main strategy participation in the e skills. This will be simple experiments in the estimate of the experiments in the estimate of the experiments in the estimate of the experiments of the estimate of the	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tute nvolving some sampling activities that are Unit or subject name Unit or subject name computer system, organization	module is to encour nd expanding their cr prials and by conside e interesting to the stu Learning method Lecture Base	age stude itical think ering types idents. Evaluation method	
288.Cc Week 1	Durse Hour 3	 The main strategy participation in the e skills. This will be simple experiments in the estimate experiments in the estimate experiments in the estimate experiments in the estimate experiment of the experiment of the estimate estimateste estimate estimate estimate estimate estimate estimate esti	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tuto nvolving some sampling activities that are Unit or subject name computer system, organization Von Neumann architecture	module is to encour nd expanding their cr orials and by considered e interesting to the student Learning method Lecture Base Lecture Base	age stude itical think ering types idents. Evaluation method	
288.Cc Week 1 2 3	Urse Hour 3 3 3	 The main strategy participation in the e skills. This will be simple experiments in the estimate experiments in the estimate experiments in the estimate experiments in the estimate experiment of the experiment of the estimate estimateste estimate estimate estimate estimate estimate estimate esti	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tute nvolving some sampling activities that are Unit or subject name computer system, organization Von Neumann architecture	module is to encour and expanding their cr orials and by considered e interesting to the study Learning method Lecture Base Lecture Base Lecture Base	age stude itical think ering types idents. Evaluation method	
288.Co Week 1 2 3 4	Durse Hour 3 3 3 3 3	 The main strategy participation in the e skills. This will be simple experiments in the estimate experiments in the estimate experiments in the estimate experiments in the estimate experiment of the experiment of the experiment of the estimate estimateste estimate estimate estimate estimate estimate estimate esti	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tuto nvolving some sampling activities that are Unit or subject name computer system, organization Von Neumann architecture	module is to encour nd expanding their cr prials and by conside e interesting to the stu Learning method Lecture Base Lecture Base Lecture Base Lecture Base	age stude itical think ering types idents. Evaluatic method	
288.Co Week 1 2 3 4 5	Durse Hour 3 3 3 3 3 3	 The main strategy participation in the e skills. This will be simple experiments in the experiment of t	that will be adopted in delivering this xercises, while at the same time refining an achieved through classes, interactive tute nvolving some sampling activities that are Unit or subject name computer system, organization Von Neumann architecture Computer components (motherboard components in details (i.e cpu and memory)	module is to encour nd expanding their cro prials and by conside e interesting to the stu Lecture Base Lecture Base Lecture Base Lecture Base Lecture Base	age stude itical think ering types idents. Evaluation method	

		CPU, CPU basic				
		organization,				
		Control units		L		
7	3	MEMORY SYSTEM Memory	MEMODV SVSTEM	Lecture Base		
/	5	hierarchy.				
0	2			Lecture Base		
8	3	Mid-term Exam		Lecture Buse		
		Cache memory,		Lecture Base		
9	3	Primary memory,	Cache memory, Primary memory,			
	5	Secondary memory,	Secondary memory,			
		memory addressing,				
		Semiconductor		Lecture Base		
10	•	RAM Memories,	Semiconductor RAM Memories,			
10	3	Read Only	Read			
		Niemories, Speed,				
		Introduction to		L octuro Doco		
11	3	Secondary Storage		Lecture base		
	3	Hard disk and		Lecture Base		
12		magnetic drive	Hard disk			
13	3	Computer s/w	Computer s/w	Lecture Base		
	_	Machine language.	Machine language, high level	Lecture Base		
14	3	high level language	language			
		Preparatory week		Lecture Base		
15	2	before the final		Lecture Duse		
		Exam				
289. (Course	Evaluation				
The air	of the r	nodulo is to provid	o students with an understanding of	of the functional		
			e students with an understanding t			
compor		a computer system	and now they are organized to fact	intate execution.		
Student	t will als	o gain a range of pr	actical skills in the application and	construction of		
comput	er comp	onents that are cap	bable of interfacing with microproc	essors.		
290.1	Learnin	g and Teaching R	esources			
Require	d textboo	oks (curricular book				
anv)						
Main re	ferences	(sources)	Computer Architecture: A C	Juantitativa Annea	ch (5th	
1,14111110	101011000	(5001005)	adition) by LL Hannagy and DA Dattaman (Margan			
			edition) by J.L. Hennessy and	u D.A. Patterson (N	viorgan	
			Kauffmann Publishers)			
			• <u>Computer</u> System	n Archit	tecture	
			hy M. Morris Mano (Pearson	Publication)		
				i i uonoution <i>j</i>		
Electror	Electronic References Websites https://www.youtube.com/watch?y=018D60VKX?k&t=147					
Licenton			https://www.youtdoc.com/watch?v=	GIODOJ / IMAZKOL	-17/3	

291. Co	ourse Name:						
Differentiation Methods							
292. Co	ourse Code:						
COS-101							
293. Se	Semester / Year:						
2023-20)24						
294. De	escription Preparation Date:						
295. A	vailable Attendance Forms:						
296. N	umber of Credit Hours (Total) / Number of Units (Total) 5						
297. C	ourse administrator's name (mention all, if more than one						
name)							
Name: Sarab dawood shukur							
Email: Sarabdawood@uodiyala.edu.iq							
298. C	ourse Objectives						
Course Objectives	Evaluate limits (as part of Departmental Objectives in Mathematics						
	• Prove basic theorems using limits of the difference equation						
	Differentiate algebraic and trigonometric functions using key						
	• Find the tangent line to a given graph at a given point						
	 Solve tangent and area problems using the concepts of limits, derivatives, and integrals. 						
	 Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point. 						
	 Determine whether a function is continuous and/or differentiable at a point using limits. 						
	Use differentiation rules to differentiate algebraic and transcendental						
299. Te	299. Teaching and Learning Strategies						
	107						
Strategy	Limits and Continuity Limit of a function, evaluation of limits, continuity.						
-----------------	--	--	---	---------------------------------------	--------	--	
		Differentiatio	Differentiation				
		Derivative of a function	, rules of differentiation, higher de	erivatives.			
300.Co	ourse	Structure					
Week	Hou	rs Required	Unit or subject name	Learning E	valuat		
		Learning		method	ethod		
		Outcomes					
1	3	Abbreviations an	nd Notations	Lecture Base			
	-	Some trigonometric	s, Slope, Graph and	Lecture Base			
2 3 Some argono		function					
		Limits: The Idea of	Limits. Definitions of	Lecture Base			
3	3	Limits. Techniques	for Computing				
		Limits.		L octuro Boso			
4	3	Limits and Continu	ity: Infinite Limits.				
		Limits at Infinity. C	Continuity. Precise				
5	3	Demnitions of Limi		Lecture Base			
		Differentiation: Intr	oducing the	Lecture Base			
		Derivative. The Der Rules of Differentic	tion				
6	3	Differentiation: The	Product and Ouotient				
Ũ		Rules. Derivatives of	of Trigonometric				
		Functions. Derivati	ves as Rates of				
		Change.					
7	3	Differentiation: The	e Chain Rule,	Lecture Base			
8	3	Differentiation Imp	licit Differentiation	Lecture Base			
9	3	Differentiation: The DifferentiationPart1	Differentiation: The Chain Rule, Implicit Lecture				
10	3	Differentiation The Differentiation Part	Differentiation attr Differentiation: The Chain Rule, Implicit DifferentiationPart2				
		Differentiation: Der	Differentiation: Derivatives of Inverse Lecture Base				
11	3	Trigonometric Func	ctions. Related Rates.	Lecture Duse			
		Part1					
10	-	Differentiation: Der	Differentiation: Derivatives of Inverse Lecture Base				
12	3	Part?	cuons. Kelated Kates.				
		Applications of	Derivatives [.]	Lecture Base			
		Maxima and Mi	nima. Mean Value				
13	3	Theorem What	Derivatives Tell				
		Us part 1					
		Applications of Der	ivatives: Maxima and	Lecture Base			
14	3	Minima. Mean Valu	ae Theorem. What				
		Derivatives Tell Us	part 2				
15	2	Review		Lecture Base			
301.	Cours	e Evaluation					
The aim	۱ of th	e module is to provi	de students with an under	standing of the functional			
compor	nents	of a computer system	m and how they are organi	ized to facilitate execution.			
Student	t will a	also gain a range of j	practical skills in the applic	cation and construction of			
comput	er cor	nponents that are c	apable of interfacing with i	microprocessors.			
302.1	Learn	ing and Teaching	Resources				
Require	d text	books (curricular boo	k Edwards, C.H. and Pennev	D.E. Elementary Differential Equation	ons.		
any)			Prentice-Hall. (latest ed.).				
/			1		I		

Main references (sources)	Thomas, G. and Finney, R. Calculus and Analytic Geometry. Addison- Wesley. (latest ed.). Adams, R. Single Variable Calculus. Pearson Education. (latest ed.).
Electronic References, Websites	

303.	Course Name:
Disci	rete Structures
304.	Course Code:
COM-122	
305.	Semester / Year:
2023	3-2024
306.	Description Preparation Date:
307	Available Attendance Forms
308	Number of Credit Hours (Total) / Number of Units (Total) 6
508.	Number of credit fiburs (fotal) / Number of Chits (fotal) 0
300	Course administrator's name (mention all if more than one
509. nom	
Nam	e) e: Dr. Khalid M.S. Al Zeidi
Emai	e: DI. Kilaliu M.S. Al Zalul
210 210	
310.	Course Objectives
Course Objec	• The principal objective of this course is to develop the analytic skills need to learn mathematics
	 Studying basic mathematical concepts to solve problems
	 To understand analyze systems in a mathematical manner.
	This course deals with the basic concept of discrete mathematical.
	 This is the basic subject for most computer science subjects
	• To understand the fundamental properties of modeling computation.
	• Identify the finite state machines.
	• To study an optimistic approach principle.
	 Recognize the finite automata. To studios proportios deterministic finite state outomate.
	 To studies properties deterministic finite state automata. Decognize the propositions and truth values.
	To understand the logical connectives
	• To understand the togreat connectives
311.	Teaching and Learning Strategies
Strategy	The main strategy that will be adopted in delivering the discrete mathematical structures mod
	is to encourage students' participation in the exercises, while at the same time refining
	interactive
L	
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	110

urse Str Hours 3 3 3 3 3 3	Required Learning Outcomes Introduction - Modeling Computation Finite state machines An Optimistic Approach Finite automata Deterministic Finite	Unit or subject name	Learning methodLecture BaseLecture BaseLecture BaseLecture BaseLecture Base	Evaluat method
Hours 3 3 3 3 3 3 3	Required Learning Outcomes Introduction - Modeling Computation Finite state machines An Optimistic Approach Finite automata Deterministic Finite	Unit or subject name	Learning method Lecture Base Lecture Base Lecture Base Lecture Base	Evaluat method
3 3 3 3 3	Introduction - Modeling Computation Finite state machines An Optimistic Approach Finite automata Deterministic Finite		Lecture Base Lecture Base Lecture Base Lecture Base	
3 3 3 3	Finite state machines An Optimistic Approach Finite automata Deterministic Finite		Lecture Base Lecture Base Lecture Base	
3 3 3	An Optimistic Approach Finite automata Deterministic Finite		Lecture Base	
3	Finite automata Deterministic Finite		Lecture Base	
3	4			
	State Automata		Lecture Base	
3	Logic and Proofs Mid-term Exam		Lecture Base	
3	Propositions and Truth Values		Lecture Base	
3	Tautologies and Contradictions		Lecture Base	
3	Logical Equivalence		Lecture Base	
3	The Algebra of propositions		Lecture Base	
3	Mathematical Induction		Lecture Base	
3	Matrices		Lecture Base	
3	Types of Matrices		Lecture Base	
3	Operations on Matrices		Lecture Base	
2	Preparatory week before the final Exam		Lecture Base	
Course E	Evaluation			
mathem require t from su	natics is foundational r he ability to work with th areas as set theory,	naterial for computer science: n concepts from discrete math logic, graph theory, combinat	: Many areas of comp nematics, specifically torics, and probabilit	outer y
	3 3 3 3 3 3 3 3 3 3 2 Course I mathem require t from su	3Logic and Proofs Mid-term Exam3Propositions and Truth Values3Propositions and Truth Values3Tautologies and Contradictions3Logical Equivalence3The Algebra of propositions3Mathematical Induction3Mathematical Induction3Matrices3Operations on Matrices3Operations on Matrices2Preparatory week before the final ExamCourse Evaluationmathematics is foundational require the ability to work with from such areas as set theory,	3 Logic and Proofs Mid-term Exam 3 Propositions and Truth Values 3 Tautologies and Contradictions 3 Logical Equivalence 3 Logical Equivalence 3 The Algebra of propositions 3 Mathematical Induction 3 Mathrices 3 Types of Matrices 3 Operations on Matrices 2 Preparatory week before the final Exam Course Evaluation mathematics is foundational material for computer science equire the ability to work with concepts from discrete math from such areas as set theory, logic, graph theory, combinate	3Logic and Proofs Mid-term ExamLecture Base3Propositions and Truth ValuesLecture Base3Tautologies and ContradictionsLecture Base3Logical EquivalenceLecture Base3Logical EquivalenceLecture Base3The Algebra of propositionsLecture Base3Mathematical InductionLecture Base3Mathematical InductionLecture Base3MatricesLecture Base3Operations on MatricesLecture Base3Operations on MatricesLecture Base2Preparatory week before the final ExamLecture BasePourse Evaluationmathematical for computer science: Many areas of compmathematics is foundational material for computer science: Many areas of compequire the ability to work with concepts from discrete mathematics, specifically from such areas as set theory, logic, graph theory, combinatorics, and probabilit

314. Learning and Teaching Reso	Durces
Required textbooks (curricular books	
any)	
Main references (sources)	 Discrete mathematical structures for computer science by Bernard Kolman & Robert C. Busby Theory and problems of Discrete mathematics, by Seymour Lipschutz & Marc Lars Lipson, Schaum's Outline Series, third edition 2007. Mathematical foundation of computer science, Y.N. Singh, 2005. Discrete Mathematics and Its Applications, Seventh Edition, Kenneth H. Rosen, AT&T Laboratories, 2012

Electronic References Websites	- http://www.math.uvic.ca/faculty/gmacgill/guide
Electronic References, websites	- http://www.mathurvie.ea/neurity/gmacgin/guide

315.	Course Name:
Eng	lish Language
316.	Course Code:
COS-101	
317.	Semester / Year:
2023	3-2024
318.	Description Preparation Date:
319.	Available Attendance Forms:
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321	1. (name)	Course	adminis	trator's name (mention all,	if m	ore than one	
ا ا	Name	Saraho	awood s	hukur			
נ	Fmaile	Sarabd	uwood@)uodivala odu ig			
200		Sal abu	woou@				
Course (2. Objectiv	es	•	The module aims to develop the writing, listening and speaking. Read and understand simple texts Answer simple comprehension qu texts. Reconstruct texts by reordering se	stude in En uestion	nts' English skill glish. ns and match ser	ls in readi ntences ab
			•	Understand the main idea of a tex	t.		
			•	Identify specific information in a f	text.		
			•	Writing and paraphrasing parag	raphs	•	
					-		
323	3. [Feaching	and Lea	arning Strategies			
		levelopmo personaliz Authentic context, a extension	trusted m nt, and int ation. material f nd a range activities	nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda	ar and role- s stud age an ay En	d practice, vocab plays and ents to see new nd vocabulary e glish' and 'Spok	ulary / language xercises, a æn gramm
224.0		levelopmo personaliz Authentic context, a extension ections p of the bool	trusted m nt, and int ation. material f nd a rang activities ractice rea provides	nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda l-world speaking skills, and a writi models for students to analyze and	ar and role- s stud age an ay En ing se l imita	d practice, vocabi plays and ents to see new nd vocabulary e glish' and 'Spok ction for each un ate	ulary / language xercises, a ten gramm hit at the b
<u>324.Cc</u>	ourse S	tructure	trusted m nt, and int ation. material f nd a rang activities actice real provides	nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda l-world speaking skills, and a writi models for students to analyze and	ar and role- s stud age an ay En ing se l imita	d practice, vocabl plays and ents to see new nd vocabulary e glish' and 'Spok ction for each un ate	ulary / language xercises, a en gramm nit at the b
<u>324. Co</u> Week	ourse S Hours	tructure Requi	trusted m nt, and int ation. material f nd a rang activities actice real provides red ng	nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda l-world speaking skills, and a writi models for students to analyze and Unit or subject name	ar and role- s stud age an ay En ing se l imita	d practice, vocabl plays and ents to see new nd vocabulary e glish' and 'Spok ction for each un ate Learning method	ulary / language xercises, a ten gramm hit at the b Evaluati method
324. Co Week	ourse S Hours	tructure Requi Learn Outco	trusted m nt, and int ation. material f nd a rang activities ractice real provides	nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda l-world speaking skills, and a writi models for students to analyze and Unit or subject name	ar an role- s stud age an ay En ing se l imita	d practice, vocable plays and ents to see new nd vocabulary en glish' and 'Spok ction for each un ate Learning method	ulary / language xercises, a ten gramm hit at the b Evaluation method
<u>324. Co</u> Week	ourse S Hours	tructure Requi Learn of the bool of the bool	trusted m nt, and int ation. material f nd a rang activities ractice real provides provides red ng nes are my/yo es, Everyo actions, Go action dialo roduce son English ² N	Detrice green nethodology combines solid gramm tegrated skills with communicative from a variety of sources enables e of comprehension tasks, langua practice the four skills. 'Everyda l-world speaking skills, and a writi models for students to analyze and Unit or subject name our This is Introduction day English dialogues ood morning! Practicing ogues. People meet each other meone else. How are you? What's	ar and role- s stud age an ay En ing se l imita	d practice, vocabl plays and ents to see new nd vocabulary e glish' and 'Spok ction for each un ate Learning method Lecture Base	ulary v language xercises, a ten gramm nit at the b Evaluati method

Adjectives: awful, really good, fantastic, beautiful Nouns: centre, hospital, building, parkLecture Base33Verb to be is recycled and extended to include negative and question forms. We're in Las Vegas! Roleplay: in a band. An interview with the band Metro 5. Jobs: a nurse, a doctor. Personal information: surname, first name, address, married Social expressions: I'm sorry, thanks, pleaseLecture Base43Possessive adjectives. Possessive 's. Has/ have Adjective + noun Irregular Plurals Paddy McNab and his family. My best friend. The alphabet, On the phone, Saying email addresses. Who are the?? Listen and identify the people. The family: mother, son. Describing a friend: very beautiful, really funnyLecture Base53Present Simple: I/you/we/they a/an Adjective + noun Colin Brodie from Dundee. Role play: At a party. Where is Colin? Who is he with? At a party: Flavia and Terry are at a party in London. The lexical set of sports/food/drinks. Languages and nationalities.Lecture Base63Question words Subject Pronouns Object Pronouns Possessive Pronouns This and that A postcard from San Francisco, A holiday postcard. Describing lifestyles, preferences and places, Roleplay: conversations in townLecture base	
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63Lecture Base63Question words Subject Pronouns Possessive Pronouns This and that A postcard from San Francisco, A holiday postcard. Describing lifestyles, preferences and places, Roleplay: conversations in town, Listaning the requests withLecture With A t a party: Party in London. The lexical set of sports/food/drinks. Languages and nationalities.	
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63Lecture Base63Present Simple: He/she Question and negatives Adverbs of frequency Prepositions of time Lois Maddox Talking about daily routines, Asking and answering questions about daily routines, Lifestyle questionnaire Listening a phone conversation between Lois and Elliot. Days of the week. The time. Words that go together: watch TV, get up early Question words Subject Pronouns Object Pronouns Possessive Pronouns This and that A postcard from San Francisco, A holiday postcard. Describing lifestyles, preferences and places, Roleplay: conversations in town Listening the requests with	
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from San Francisco, A holiday postcard. Describing lifestyles, preferences and places, Roleplay:	
lifestyles, preferences and places, Roleplay:	
conversations in town Listening the requests with	
conversations in town. Listening the requests with	
Can I? Adjectives: lovely, terrible, comfortable,	
friendly Opposite adjectives: new/old, big/small	
Places: chemist, post office	
There is /are Prepositions: in, on, under, next to	
Vancouver-the best city in the world, What to do	
and where to go. Talking and asking about rooms	
image: state of the state o	
Steve talks about living in vancouver. Kooms and furniture: living room hadroom. In and out of	
town beach mountain sailing	
Was /were horn Past simple: irregular verbs It's a Lecture Rese	
Jackson Pollock Telling a story from nictures	
Saving the dates in English, Magalie Dromand	
8 3 Magalie dromand talks about her family. Saving	
vears People and jobs Irregular verbs Have do go:	
have lunch, do homework, go shopping	
Past simple: regular and irregular Ouestions Lecture Base	
Negatives Ago Dialogues with simple past. Did vou	
have a good weekend? Asking about holidays, A	
questionnaire, My last holiday, Roleplay: asking	

<u> </u>		-	- 0
it is organ	nized to enhance students' basic knowledge of vocabula	ary a	nd grammar through
Course 1	sare, old/modern, old/young. Evaluation		
	triends Adjective noun: fast car, busy city, dangerous sport Opposite adjectives: dangerous/		
2	what they do on the internet. Verbs: draw, run, drive Verb noun: Listen to the radio, chat to		
	about everyday problems, Five people talk about		
	and offers The Internet, what can you do on the		Lettine Dast
3	vowels.		Lecture Base
	motorbike, plane Revision		Lecture Base
	is talking to a friend about his holiday plans, social expressions Transport: travel by bus. coach.		
3	three people talk about their family, education, work and ambitions. A mini autobiography. Eddie		
	Seven countries in seven days, Life's big events:		
	buy/sell, love/hate, open/close Future plans, Revision: question words, tenses		Lecture Base
	trousers, shoes and socks Opposite verbs:		
	matter. Colors: blue, red, green Clothes: iacket.		
3	What's the matter? Why don't you? What is		
	millionaire, gives money to homeless teenagers		
	continuous. This week is different. Colin. a		Letture Dase
	menu, starter, desert, soup, salmon Present continuous Present simple and present		Lecture Base
	Food: cereal, salad, pasta, fish In a restaurant:		
	want on their birthday. stamps, cheese, ham		
	Ordering a meal. Birthday wishes, what people		
3	the world describe what they eat. Rolenlay:		
	bread, milk, truit, Please and thank you Some /any,		
	good diet? Conversation with Adam, Shopping:		
	I'd like, You are what you eat, Discussion-what is a		Lecture Base
	safe, old/modern, old/young.		
	dangerous sport Opposite adjectives: dangerous /		
	drive Verb noun: Listen to the radio, chat to		
3	what they do on the internet. Verbs: draw, run,		
_	about everyday problems, Five people talk about		
	internet? Talking about what you can do, talking		
	and offers The Internet, what can you do on the		
	Can / can't Adverbs Adjective + noun Requests		Lecture Base
	skiing, windsurfing Play of go: play tennis, go		
	Monday, last night Sports and leisure: tennis,		
	the cinema, have a meal Time expressions: on		
	Jack and Millie's holiday. Weekend activities: go to		
	3 3 3 3 3 2 Course	Jack and Millie's holiday. Weekend activities: go to the cinema, have a meal Time expressions: on Monday, last night Sports and leisure: tennis, skiing, windsurfing Play or go: play tennis, go skiing Seasons: winter, summerCan / can't, Adverbs, Adjective + noun Requests and offers The Internet, what can you do on the internet? Talking about what you can do, talking about everyday problems, Five people talk about what they do on the internet. Verbs: draw, run, drive Verb noun: Listen to the radio, chat to friends Adjective noun: fast car, busy city, dangerous sport Opposite adjectives: dangerous/ safe, old/modern, old/young.I'd like, You are what you eat, Discussion-what is a good diet? Conversation with Adam, Shopping: bread, milk, fruit, Please and thank you Some / any, Like and would like People from different parts of the world describe what they eat. Roleplay: Ordering a meal. Birthday wishes, what people want on their birthday. stamps, cheese, ham Food: cereal, salad, pasta, fish In a restaurant: menu, starter, desert, soup, salmonPresent continuous, Present simple and present continuous. This week is different, Colin, a millionaire, gives money to homeless teenagers What's the matter? Why don't you? What is Nigel wearing? Nigel is on holiday, What's the matter. Colors: blue, red, green Clothes: jacket, trousers, shoes and socks Opposite verbs: buy/sell, love/hate, open/close3Irregular verbs, phonetic symbols, consonants and vowels.3Irregular verbs, Adjective + noun Requests and offers The Internet, what can you do on the internet? Talking about what you can do, talking about everyday problems, Five people talk about work and ambitions. A mini autobiography. Eddie is talking to a friend about his holiday plans, social<	Jack and Millie's holiday. Weekend activities: go to the cinema, have a meal Time expressions: on Monday, last night Sports and leisure: tennis, skiing, windsurfing Play or go: play tennis, go skiing Seasons: winter, summer Can / can't, Adverbs, Adjective + noun Requests and offers The Internet, what can you do on the internet? Talking about what you can do, talking about everyday problems, Five people talk about what they do on the internet. Verbs: draw, run, drive Verb noun: Listen to the radio, chat to friends Adjective noun: fast car, busy city, dangerous sport Opposite adjectives: dangerous/safe, old/modern, old/young. I'd like, You are what you eat, Discussion-what is a good diet? Conversation with Adam, Shopping: bread, milk, fruit, Please and thank you Some /any, Like and would like People from different parts of the world describe what they eat. Roleplay: Ordering a meal. Birthday wishes, what people want on their birthday. stamps, cheese, ham Food: cereal, salad, pasta, fish In a restaurant: menu, starter, desert, soup, salmon Present continuous, Present simple and present continuous. This week is different, Colin, a millionaire, gives money to homeless teenagers What's the matter? Why don't you? What is Nigel wearing? Nigel is on holiday, What's the matter. Colors: blue, red, green Clothes: jacket, trousers, shoes and socks Opposite verbs: buy/sell, love/hate, open/close Future plans, Revision: question words, tenses. Seven countries in seven days, Life's big events: three people talk about their family, education, work and ambitions. A mini autobiography. Eddie is talking to a friend about his holiday plans, social expressions Transport: travel by bus, coach, motorbike, plane Revision Irregular verbs, Adjective + noun Requests an

situations as well as in writing different assignments. By the end of the course, students will be able to produce basic sentences and communicate in simple real-life situations

326. Learning and Teaching Resources				
Required textbooks (curricular books	New Headway Beginner, by lizand john soars			
any)	Cotton D., Falvey D., Kent S. Market Leader. Intermediate			
	Business English. Longman, 2001.			
Main references (sources)				
Electronic References, Websites	https://www.learnenglish.de/			
	https://www.englishgrammar.org/			
	https://www.phrasebank.manchester.ac.uk/			

327. Cour	se Name:
Human Rig	hts and Democracy
328. Cour	se Code:
UD04	
329. Seme	ester / Year:
2023-2024	
330. Desc	ription Preparation Date:
331. Avai	lable Attendance Forms:
332. Num	ber of Credit Hours (Total) / Number of Units (Total) 2
333. Coui	rse administrator's name (mention all, if more than one
name)	
Name:	
Email:	
334. Cour	se Objectives
Course Objectives	 1. During the academic year, the student learns the basics of human rights and democracy, what his rights are, how to defend them through legal means, and what their internal and international guarantees are. 2. Obtaining knowledge in the field of democracy, its types of systems, and their impact on human rights.

		• 3. av aj sc ri p • 4.	Developing the student's powareness of democratic political pply them on the ground, and the cociety through his respect for the ghts and freedoms end where the erforming his duties instead of just. Promoting a culture of peace base	sersonality and enhancing systems, their details, and re importance of being eff he rights of others, know reir rights and freedoms be rest acquiring rights. The sed on justice and equalit	d how to fective in ving that egin, and
335	. 7	Teaching and Lear	ning Strategies		
Strategy	y P (J h In T Is F R a 1 S S 2 t I w w e	art One - Definition of Defining the right, defi uman being and societ raqi, Greek, and Roman the second part: Introdu- slam (2 hours) fuman rights sources in lights and the two In- greements such as the I . Increase the student's pociety and the relations . General culture in a gene student's self-confid- vill be achieved throw xperiments involving s	human rights and human rights in ining the human being, knowing cy, and also studying human right in civilizations) (4 hours) action to human rights in divine re- actude (international sources, such international Covenants, and regi European and American Conventi is awareness of the importance of thip of human rights to the democra group of fields, including the legal lence by linking theoretical mater igh classes, interactive tutorials ome sampling activities that are in	n ancient civilizations the importance of human ts in civilizations such as religions, the most importa n as the Universal Declarat ional sources, which inc ions and the Constitution) f knowing his rights and c eratic system l, political, and social field rial to practical reality.nkin and by considering typ nteresting to the students.	rights for the Egypt int of whic ion of Hur lude regic (2 hours) luties towa ls, and rais ng skills. T bes of sim
			1 0	e	
336 Co	ourse S	tructure			
336.Co Week	ourse S Hours	tructure Required Learning	Unit or subject name	Learning method	Evaluation method
336. Ca Week	Burse S Hours	Required Learning Outcomes An introductory lecture on the subject and its importance	Unit or subject name	Learning method Lecture Base	Evaluation method
336. Co Week 1	Burse S Hours 3	tructureRequiredLearningOutcomesAn introductorylecture on thesubject and itsimportance.Definition of right,humanity, humanrights, theimportance ofhuman rights, in theIslamic religion andanior right right	Unit or subject name	Learning method Lecture Base Lecture Base	Evaluation
336. Cc Week 1 2 3	Burse S Hours 3 3 3	tructure Required Learning Outcomes An introductory lecture on the subject and its importance. Definition of right, humanity, human rights, the importance of human rights, in the Islamic religion and ancient civilizations. International, regional and local human rights sources.	Unit or subject name	Learning method Lecture Base Lecture Base Lecture Base Lecture Base	Evaluation
336. Co Week 1 2 3 4	Jurse S Hours 3 3 3 3	tructure Required Learning Outcomes An introductory lecture on the subject and its importance. Definition of right, humanity, human rights, the importance of human rights, human rights in the Islamic religion and ancient civilizations. International, regional and local human rights sources. Constitutional and legal human rights	Unit or subject name	Learning method Lecture Base	Evaluation method
336. Co Week 1 2 3 4 5	Jurse S Hours 3 3 3 3 3	tructure Required Learning Outcomes An introductory lecture on the subject and its importance. Definition of right, humanity, human rights, the importance of human rights, human rights in the Islamic religion and ancient civilizations. International, regional and local human rights sources. Constitutional and legal human rights guarantees and human rights guarantees at the international level. Human rights guarantees in Islam	Unit or subject name	Learning method Lecture Base	Evaluation method

		protecting human	
		rights.	
		Characteristics of	
		numan rights,	
		freedoms and their	
		types and	
		comparison between	
		them and rights	
		International human	Lecture Base
		rights law,	
7	3	international	
		humanitarian law,	
		and the Red Cross.	
		The future of	Lecture Base
8	3	numan rights and	
		them	
		Globalization and	Lactura Rosa
9	3	human rights.	
		Definition of	Lecture Base
		democracy, its	
10	3	historical	
		development and	
		principles.	
		Democracy between	Lecture Base
11	3	universality and	
		privacy.	Lasterna Dana
10	2	forms of democracy/direct	Lecture Base
14	5	democracy/direct	
		Semi-direct	Lecture Base
		democracy and	
		representative	
13	3	democracy / pillars	
10	5	of the representative	
		system / forms of	
		system	
		Parliament and its	Locturo Roso
	-	types / Election and	Letture Dase
14	3	its conditions /	
		Electoral College.	
		Organizing the	Lecture Base
		election process /	
	_	defining electoral	
15	2	districts / electoral	
		lists / candidates /	
		voting	
227 (Evaluation	
337.0	course .		
I'he aim	n of the r	nodule is to provide stud	s with an understanding of the functional
compor	nents of a	a computer system and h	they are organized to facilitate execution.
Student	will als	o gain a range of practical	ills in the application and construction of
comput	er comp	onents that are capable o	terfacing with microprocessors.
338 1	[earnin	g and Teaching Resour	
Require	d texthe	oks (ourrigular bod	
require	u iextuo	JAS (CUITICUIAI DOC	
f amer			

Main references (sources)	تأليف ماهر صالح علاوي ورياض /حقوق الانسان والطفل والديمقر اطية عزيز هادي وعلي عبد الرزاق محمد واخرون / العاتك / بيروت / ٢٠٠٩
Electronic References, Websites	عباس الدليمي / حقوق الانسان الفكر والممارسة
	فخري رشيد ،صلاح ياسين /المنظمات الدولية / العاتك لصناعة الكتاب / بغداد
	عصمام العطية / القانون الدولي العام / المكتبة القانونية /بغداد/2012

1. (1. Course Name: Logic Design							
2. Course Code: COM-114								
3 Somestor / Voor: First Voor Class								
5. (Jennest							
4.]	4. Description Preparation Date:01-05-2024							
5. 4	5. Available Attendance Forms: Weekly, Mandatory attendance							
			•	•				
6. l	Numbe	r of Credit H	ours (Total) / Number of U	Units (Total): 6				
7. (Course	e administra	tor's name (mention all,	if more than or	e name)			
I	Name:	Yahiea M.H.	Al Naiemy		,			
]	Email:	yahiea.alnai	emy@uodiyala.edu.iq					
8. (Course	Objectives						
Course	Objectiv	es	- Connect the - Design Logi To give a go application in	electric circuit c Circuit ood knowledge about digital circuit in comp	the logic gates an			
9. 7	Feachir	ng and Learn	ing Strategies	<u>8</u>				
Strategy	,	-Active lea	ctures					
		- rutoriais - presenta	tion Exercises					
		- Laborato	bry based session					
		- Problem	solving					
10. Co	ourse S	tructure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method			
1	2Hr	A,B,C,D	Demonstrate the difference betw	Lecturing , exer	ci Exam			
			systems of number used in di techniques. Arithmetic operation	experiments				
			Binary numbers including 1's & complements					
2	2Hr	A,B,C,D	BCD & Digital codes, Logic gates	Lecturing , exer-	e Exam			
3	2Hr	A,B,C,D	Implementation of any Boolean alg using logic gates & universal gates,	Lecturing , exer experiments	e Exam			

4 2Hr A,B,C,D Design, different combinational h Lecturing , exerc Exam 5 2Hr A,B,C,D Design, different combinational h Lecturing , exerc Exam 6 2Hr A,B,C,D SOP and POS methods Lecturing , exerc Exam 7 2Hr A,B,C,D Boolean Algebra (theore Lecturing , exerc Exam 8 2Hr A,B,C,D Boolean Algebra (theore Lecturing , exerc Exam 9 2Hr A,B,C,D Simplify any Boolean algebra for the tecturing , exerc Exam 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc Exam 10 2Hr A,B,C,D Comparator & code conversion Lecturing , exerc Exam Exam 11 2Hr A,B,C,D Encoder, decoder with en Lecturing , exerc Exam 12 2Hr A,B,C,D Sequential logic circuits Lecturing , exerc Exam 13 2Hr A,B,C,D Design of synchronous asynchronous asynchronous counters (up, down up/down) Lecturing , exerc Exam 15 2Hr A,B,C,D Introduction to shift register Lecturing , exerc								
5 2Hr A,B,C,D Design, different combinational k certuring, exerc experiments Exam experiments 6 2Hr A,B,C,D SOP and POS methods Lecturing, exerc experiments Exam experiments 7 2Hr A,B,C,D Boolean Algebra (theore Lecturing , exerc boolean algebra from lecture experiments boolean algebra Exam experiments Exam experiments 8 2Hr A,B,C,D Simplification using basic laws experiments boolean algebra from lecturing , exerc experiments Exam experiments 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc experiments Exam experiments 10 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple experiments Lecturing , exerc experiments Exam experiments 11 2Hr A,B,C,D Encoder, decoder with en experiments experiments Exam experiments 13 2Hr A,B,C,D Illustrate all types of flip-flops and Lecturing , exerc experiments Exam experiments 14 2Hr A,B,C,D Design of synchronous counters (up, dow experiments experiments 15 2Hr A,B,C,D Introduction to shift register Lecturing , exerc experiments Exam	4	2Hr	A,B,C,D	Design, different circuits.	combinational le	Lecturing , experiments	exerci	Exam
Image: Construct of the second sec	5	2Hr	A.B.C.D	Design, different	combinational le	Lecturing ,	exerci	Exam
6 2Hr A,B,C,D SOP and POS methods Lecturing , exerce experiments Exam experiments 7 2Hr A,B,C,D Boolean Algebra (theore Lecturing , exerce Simplification using basic laws Boolean algebra fro Lecturing , exerce experiments Exam 8 2Hr A,B,C,D Simplify any Boolean algebra fro Lecturing , exerce experiments Exam 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerce experiments Exam 10 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple experiments experiments Exam 11 2Hr A,B,C,D Encoder, decoder with en experiments Lecturing , exerce Exam 12 2Hr A,B,C,D Sequential logic circuits Lecturing , exerce Exam 13 2Hr A,B,C,D Design of synchronous asynchronous counters (up, down experiments exerce Exam 11.Course Evaluation Introduction to shift register Lecturing , exerce Exam 12 2Hr A,B,C,D Introduction to shift register Lecturing , exerce Exam	Ū			circuits.		experiments		
7 2Hr A,B,C,D Boolean Algebra (theore Lecturing , exerc Exam 8 2Hr A,B,C,D Simplification using basic laws Boolean algebra experiments Exam 9 2Hr A,B,C,D Simplify any Boolean algebra froit Lecturing , exerc Exam 10 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc Exam 11 2Hr A,B,C,D Comparator & code conversion circuits. Lecturing , exerc Exam 12 2Hr A,B,C,D Encoder, decoder, decoder with en de priority encoder Lecturing , exerc Exam 13 2Hr A,B,C,D Illustrate all types of flip-flops an truth tables. Lecturing , exerc Exam 14 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 15 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 11.Course Evaluation Introduction to shift register Lecturing , exerc Exam 12 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 14 2Hr <td>6</td> <td>2Hr</td> <td>A,B,C,D</td> <td>SOP and POS m</td> <td>ethods</td> <td>Lecturing ,</td> <td>exerci</td> <td>Exam</td>	6	2Hr	A,B,C,D	SOP and POS m	ethods	Lecturing ,	exerci	Exam
7 2Hr A,B,C,D Boolean Ageora Lecturing , exerc Exam 8 2Hr A,B,C,D Simplification using basic laws experiments experiments 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc Exam 10 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple experiments Lecturing , exerc Exam 11 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple experiments experiments Exam 12 2Hr A,B,C,D Encoder, decoder with en Lecturing , exerc Exam 13 2Hr A,B,C,D Illustrate all types of flip-flops and Lecturing , exerc Exam 14 2Hr A,B,C,D Illustrate all types of flip-flops and Lecturing , exerc Exam 15 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 11.Course Evaluation Introduction to shift register Lecturing , exerc Exam 12 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 14 2Hr <	_			Declear Ale	ahaa (thaaaaa	experiments		Enor
8 2Hr A,B,C,D Simplify any Boolean algebra frov variables using Quine McClue experiments Lecturing , exerc Exam 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc Exam 10 2Hr A,B,C,D Comparator & code conversion circuits. Lecturing , exerc Exam 11 2Hr A,B,C,D Encoder, decoder, decoder with end experiments Lecturing , exerc Exam 12 2Hr A,B,C,D Sequential logic circuits Lecturing , exerc Exam 13 2Hr A,B,C,D Design of synchronous experiments Lecturing , exerc Exam 14 2Hr A,B,C,D Design of synchronous up/down) Lecturing , exerc Exam 15 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 11.Course Evaluation Introduction to shift register Lecturing , exerc Exam 2 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 12 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 2 U	7	2Hr	A,B,C,D	Simplification u	gebra (theorem	Lecturing ,	exerci	Exam
8 2Hr A,B,C,D Simplify any Boolean algebra frovariables using Quine McClus experiments Lecturing , exerc experiments Exam 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc experiments Exam 10 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple experiments Lecturing , exerc experiments Exam 11 2Hr A,B,C,D Encoder, decoder, decoder with en experiments Lecturing , exerc experiments Exam 12 2Hr A,B,C,D Sequential logic circuits Lecturing , exerc experiments Exam 13 2Hr A,B,C,D Illustrate all types of flip-flops and tecturing , exerc experiments Exam 14 2Hr A,B,C,D Introduction to shift register Lecturing , exerc experiments Exam 11.Course Evaluation Introduction to shift register Lecturing , exerc experiments Exam 2 2Hr A,B,C,D Introduction to shift register Lecturing , exerc experiments Exam 12 2Hr A,B,C,D Introduction to shift register Lecturing , exerc experiments Exam 13 2Hr A,B,C,D				Boolean algebra	sing basic laws	experiments		
0 2111 A,B,C,D variables using Quine McClus experiments method and K-map method. Lecturing , exerc Exam 9 2Hr A,B,C,D Design of arithmetic circuits. Lecturing , exerc Exam 10 2Hr A,B,C,D Comparator & code conversion circuits. Multiplexer & Demultiple circuits Lecturing , exerc Exam 11 2Hr A,B,C,D Encoder, decoder, decoder with en & priority encoder Lecturing , exerc Exam 12 2Hr A,B,C,D Sequential logic circuits Lecturing , exerc Exam 13 2Hr A,B,C,D Illustrate all types of flip-flops and truth tables. Lecturing , exerc Exam 14 2Hr A,B,C,D Introduction to shift register Lecturing , exerc Exam 11.Course Evaluation Introduction to shift register Lecturing , exerc Exam Quizzes Unizzes Introduction to shift register Lecturing , exerc Exam Quizzes Laboratory reports Introduction to shift register Lecturing , exerc Exam 12.Learning and Teaching Resources Introduction to shift register Lecturing , exerc Exam	8	2Hr	ABCD	Simplify any Bo	olean algebra froi	Lecturing ,	exerci	Exam
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Recommended books and references Donald D. Givone (2002), Digital Principles a (scientific journals reports)	Main re	ferences ((sources)		Digital De	sign By M	Mano	
(scientific journals reports) Design Tata McGraw Hill	Recomm	nended	books and	d references	Donald D. G	ivone (2002)	. Digital	Principles
	(scientif	ic journal	ls. reports)		Design. Tata N	AcGraw Hill.	, <u> </u>	P-05
Electronic References. Websites	Electror	nic Refere	ences. Website	es				

339.	Course Name:		
		121	
		121	

Programmi	ng Fundamentals
<u>340.</u> Cours	se Code:
COM-121	
341. Seme	ester / Year:
2023-2024	·
342. Descr	ription Preparation Date:
343. Avail	able Attendance Forms:
344. Numł	per of Credit Hours (Total) / Number of Units (Total) 6
345 Cour	so administrator's name (mention all if more than one
name)	se administrator s name (mention all, il more than one
Name: Tah	a Mahammad Hasan
Emaile data	a Monannieu Hasan
	inamn@uouiyaia.edu.iq
346. Cours	Se Objectives
Course Objectives	The educational objectives of this course are
	Demonstrate a thorough understanding of modular programming by
	designing programs that require the use of programmer-defined
	functions.
	 Demonstrate a thorough understanding of arrays by designing and
	implementing programs that search and sort arrays.
	• Demonstrate a thorough understanding of the object-oriented
	programming concepts of encapsulation, data abstraction and
	composition by designing and implementing classes including the use of
	everleaded functions and constructors
	Democrate a there we have the set of the set
	Demonstrate a thorough understanding of the concept of pointers and
	dynamic memory allocation by designing and implementing programs
	using pointers and dynamic memory allocation.
	 Demonstrate a thorough understanding of the implementation of
	programmer-defined functions and classes by writing code, performing
	unit testing and debugging of multiple complex programs.
	• Demonstrate good documentation style in all of the programs written in
	this course.
	 Demonstrate proficiency in implementing data validation code
	Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course.
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course.
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course. Demonstrate a thorough understanding of stream input/output for both
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course. Demonstrate a thorough understanding of stream input/output for both console and files.
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course. Demonstrate a thorough understanding of stream input/output for both console and files. Demonstrate an understanding of the differences between C and C++ in
	 Demonstrate proficiency in implementing data validation code, performing unit testing, and developing test plans while implementing robust solutions to the assignments in this course. Demonstrate a thorough understanding of stream input/output for both console and files. Demonstrate an understanding of the differences between C and C++ in the areas of strings, pass by reference/passing pointers, and structs by

		language st	ructs a	nd classes.using the Fundament	al Theorem of Calc	culus
347	. <u> </u>	eaching and Learning	g Stra	tegies		
Strategy		Lectures				
		Tutorials				
		 Problem solving 				
		 Lab 				
		• Case study				
		Case study				
		Small project				
348.Co Week	ourse St	ructure Required Learning	Unit	or subject name	Learning	Evaluat
		Outcomes			method	method
				Array definition (Two-	Lecture Base	
1	3	Array:		dimensional array).		
				operations on Two-	Lecture Base	
2	2	Amov		dimensional array (add,		
2	5	Array		subtraction, multiplication		
				and invers of array).		
3	3	Functions			Lecture Base	
4	3	Functions			Lecture Base	
5	3				Lecture Base	
6	3	Functions			Lecture Base	
7	3	Mid-term Exam			Lecture Base	
8	3	Introduction to Classes Objects	s &		Lecture Base	
		Searching, Sorting,			Lecture Base	
9	3	Algorithm Performance	ce			
		Analysis				
10	2	Searching, Sorting,			Lecture Base	
10	3	Algorithm Performance				
11	3	Pointers, dynamic men	nory		Lecture Base	
		allocation	J		I cotres D	┼──┤ ┃
12	3	More about Classes an OOP	d		Lecture Base	
		Searching, Sorting,			Lecture Base	
13	3	Algorithm Performance	ce			
		Analysis				
14	3	Recursion			Lecture Base	
15	2	Exam			Lecture Base	
349 (Course	Evaluation				

Introduction to the C++ programming language and its subset, Program structure, blocks, storage types, console and file I/O, functions, arrays, strings, pointers, call-by-reference, call-by-value, and dynamic memory

350. Learning and Teaching Reso	Durces
Required textbooks (curricular books	
any)	
Main references (sources)	Programming in C++
	Frank Vahid and Roman Lysecky
	Available through the zyBooks website directly
	• A C++ compiler and/or IDE. There are many out there, but the only two that are officially supported:
	- CLion (on Windows and macOS)
	Visual Studio (Windows only)
	 Think Like a Programmer, An Introduction to Creative Problem Solving
	V. Anton Spraul
	ISBN: 978-1593274245
	A good text editor, such as:
	Notepad++ (This is my personal favorite) Sublime Text
	Atom, or Vim, or anything else you might prefer
Electronic References, Websites	1-http://www.cplusplus.com/
	2-https://www.w3schools.com/cpp/

Course Description Form

351.	Course Name: Computer Networks
352.	Course Code:
353.	Semester / Year: Third Year Class
354.	Description Preparation Date:01-05-2024
355.	Available Attendance Forms: Weekly, Mandatory attendance
356.	Number of Credit Hours (Total) / Number of Units (Total): 2 Hours
theory	retical +2 Hours practical

357	7.	C	ourse adm	inistrator's name	(mentio	n all, if mo	re tha	an one	
name)									
	Name	e: Y	ahiea M.H.	Al Naiemy					
	Email: yahiea.alnaiemy@uodiyala.edu.iq								
358	8.	Co	ourse Objec	tives					
Course	Object	ives	;	Th	nis module ir	ntroduces the stu	idents to	o Computer	
				Ne	etworks thro	ugh an analysis	of basic	networking	
				fu	ndamentals.	The aim of this	module	is to provide you	
				WI	th a basic ur	iderstanding of	compute	er networking. By	
				1	Demonstrat	nouule the stud	the prin	uiu be able to:	
				1. On	eration of ne	etworking mode	ls	leipies of	
				2.	Demonstrat	e knowledge of	the prir	nciples of	
				ор	eration of ne	etworking comp	onents a	and protocols.	
				3.	Demonstrat	e knowledge of	the prin	nciples of	
250		T	1	op	peration of ne	etworking applic	cations.		
359		Te	aching and	Learning Strategie	es				
Strategy	7		-Active lec	ctures					
			- presenta	tion Exercises					
			- Laborato	bry based session					
			- Team wo	ork					
360 C	ourse	Str		sorving					
Week	Hom	rs	Required	Unit or subject nan	ne	Learning		Evaluation	
week	liou		Learning	Chief of Subject hun	iic	method		method	
			Outcomes						
1	2Hr		A.B.C.D	Distributed System Ar	rchitectures	Lecturing ,	exerci	Exam	
_				complements, Networks	Classification	experiments		F	
2	2Hr		A,B,C,D	Network Topology, Netwo	rk Componen	experiments	exerci	Exam	
3	2Hr		ABCD	Private Computer Network	s,	Lecturing ,	exerci	Exam	
5	2111		1,0,0,0	Public switched data netwo	ork	experiments			
4	2Hr		A,B,C,D	Local Area Networks (LAN Wide Area Network (W	N), AND	Lecturing ,	exerci	Exam	
5	2Hr		ABCD	Transmission Media, Signa	als type,	Lecturing ,	exerci	Exam	
5	2111		A,D,C,D	Data transmission		experiments			
6	2Hr		A,B,C,D	Error detection and correct	ion	Lecturing ,	exerci	Exam	
7	211	\rightarrow		Computer Network Lave	ers	Lecturing	exerci	Exam	
/	ZHr		Α,Δ,Ϲ,Ͷ	compared retwork Lay		experiments,	enerer	Exum	
8	2Hr		A,B,C,D	TCP-IP layers		Lecturing ,	exerci	Exam	
	211	-+		Internet Networks		experiments Lecturing	everoi	From	
9	ZHr		А,Ь,С,Л	Internet Detworks		experiments	CACICI	Exam	
10	2Hr		A,B,C,D	Layers of interface		Lecturing ,	exerci	Exam	
	0.11			Addrossing Natting of 1	h notting	experiments	ovoro	Evon	
11	2Hr		A,B,C,D	Addressing, Neuing and su	io netung	experiments	exerci	Exam	
10				I		L			
12	2Hr		A.B.C.D	IP Protocol,		Lecturing ,	exerci	Exam	

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13	2Hr	ARCD	Switches, Hubs and	1 Routers	Lecturing ,	exerci	Exam
15	2111	Λ, D, C, D	,		experiments		
14	2Hr	A,B,C,D	IOS reference mo	odel	Lecturing , experiments	exerci	Exam
15	2Hr	A,B,C,D	Designing a smal	l network,	Lecturing ,	exerci	Exam
361.	Course	Evaluation	rippiying uddresses		experiments		
?	Exams						
?	Ouizzes						
[?]	Homewo	ork					
?	Laborato	orv reports					
362. Learning and Teaching Resources							
Require	ed textboo	oks (curricular	books, if any)	- Data N	Networking, by	y Behro	ouz A.
			-	Forouz	zan, 5th Editio	on 201	3.
				- Comp	uter Networ	·k bv	Andrew
				Tanenhaum 5th Edition 2011			
					D Drotocol	Cuito	hy A Dohrouz
						$\frac{5010}{201}$	o beniouz
				Forouz	zan, 4th Editio	on 201	0.
				- Data	and Compute	er Co	ommunications,
				William	n Stallings, 10th	Edition	n 2014.
Main re	eferences	(sources)		Digital D	esign. By M.	Mano	
Recom	mended	books an	d references	-Paper1: Wu,	C., et al.: WIL	L: Wi	reless indoor
(scienti	fic journa	lls, reports)		Localization without site survey. IEEE Trans.			
	•	-		Parallel Distri	b. Syst. 24(4),	, 839-8	48(2013).
				- Paper2: Vuc	ic, J. and Lang	ger, K.I	D., "High-speed
				visible light co	ommunication	s: Stat	e-of-theart," in
				[Optical Fiber	Communicat	ion Co	nference
				and Exposition	n (OFC/NFOE	EC), 20)12 and the
				National Fiber	r		
				Optic Enginee	ers Conference	e],	
				1-3 (2012.			
Electro	nic Refer	ences, Website	es	https://gaia.cs.un	nass.edu/kurose		

363.	Course Name: Software Engineering	
364.	Course Code: COM15	
365.	Semester / Year: First Semester / 2023-2024	
366.	Description Preparation Date: 2024	
367.	Available Attendance Forms: Mandatory attendance	
368.	Number of Credit Hours (Total) / 2 hours theoretical per week / 3 Units	
369.	Course administrator's name (mention all, if more than one name)	
Nam	e: Assist. Prof. Dr. Dheyab Salman Ibrahim Al-nedawy	
Ema	il: dr.dheyab@uodiyala.edu.iq	
370.	Course Objectives	
Teaching the	e student software engineering principles, fundamental models, important tools and ci	iti
systems.	deducating students on all the necessary process models such as Waterfall spiral prototyp	
component-h	ased models in order to build new software.	
Teaching and	I educating students on all the necessary requirements related to build new software.	
Teaching and	l educating students on all the necessary software implementation methods for a new software	re
Teaching and	l educating students on all the necessary software test approaches for a new software.	
Teaching and	I educating students on all the necessary evolution ways for new software.	
reaching and	reducating students on an the necessary maintenance methods for new soπware.	
	127	

371.	Teaching and Learning Strategies
Strategy	 To introduce software engineering and to explain its importance. To set out the answers to key questions about software engineering. Study the life cycle of software products. Study the range of models practiced by software developers. Create professional-quality software systems with professional techniques and tools. Learn to balance large-scale product development, with safety, reliability, cost and scheduling.

Evaluation method	Education method	Unit name and/or topic	Required learning outcomes	hours	Week
Oral or written test	Electronic lecture using Microsoft Editor	Introduction to Software Engineering		2	1
Oral or written test	Electronic lecture using Microsoft Editor	Software Development Life Cycle, SDLC		2	2
Oral or written test	Electronic lecture using Microsoft Editor	Critical Systems		2	3
Oral or written test	Electronic lecture using Microsoft Editor	Software Process Models Waterfall Model		2	4
Oral or written test	Electronic lecture using Microsoft Editor	Prototype Model		2	5
Oral or written test	Electronic lecture using Microsoft Editor	Spiral Model		2	6
Oral or written test	Electronic lecture using Microsoft Editor	Component-Based Model		2	7
Oral or written test	Electronic lecture using Microsoft Editor	Software Requirements		2	9
Oral or written test	Electronic lecture using Microsoft Editor	Software Design		2	10
Oral or written test	Electronic lecture using Microsoft Editor	Software Implementation		2	11
Dral or written est	Electronic lecture using Microsoft Editor	Software Testing		2	12
Dral or written est	Electronic lecture using Microsoft	Software Evolution & Maintenance		2	13

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 textbo (curricular book any)	Roger S. Pressman, "Software Engineering - A Parctitioner's Approa Seventh Edition, Mc Graw-Hill International Edition, 2010.
Main referen (sources)	Sommerville, "Software Engineering", 9th Edition, Pearson .Education Asia, 2011
Recommended books and references (scientific journals, reports)	Rajib Mall, "Fundamentals of Software Engineering", Third Edition, Learning Private Limited, 2009.
Recommended books and references (scientific journals, reports)	System Design Interview – An Insider's Guide: Volume 2 by Alex Xu and Sahn Lam https://www.amazon.com/Software-Design-Engineering- Books/b?ie=UTF8&node=491316
Recommended books and references (scientific journals, reports)	Clean Architecture: A Craftsman's Guide to Software Structure and Design (Robert C. Martin Series) https://www.amazon.com/Software-Design-Engineering- Books/b?ie=UTF8&node=491316
Recommended books and references (scientific journals, reports)	SOFTWARE ENGINEERING Ninth Edition, by Ian Sommerville https://engineering.futureuniversity.com/BOOKS%20FOR%20IT/Software-Engineering-9th-Edition-by Ian-Sommerville.pdf
Recommended books and references (scientific journals, reports)	Fundamentals of Software Engineering by <u>Nathaniel Schutta</u> , <u>Jakub Pilimon</u> https://www.oreilly.com/library/view/fundamentals-of-software/9781098143220/

372.	Course Name: Computer Architecture
373	Course Code: COM4
575.	
374.	Semester / Year: Semester
375.	Description Preparation Date:2023-2024
0,00	
	131

370	6. Av	ailable Atte	ndance Forms: presence						
37′	7. Nu	mber of Cre	edit Hours (Total) / Number of Un	nits (Total): 30 class				
	hours, 2 h	ours per we	eek, 15 weeks						
27		uraa admii	aistratoria nome (mention all i	fmore the	<u></u>				
37	name)	urse aumi	nistrator s name (mention all, i	i more tha	anone				
	Name: As	sst. Prof. Dr	. Khalid Mohammed Saffer						
	Email: dr	.khaledmo	h@uodiyala.edu.iq						
379	9. Co	urse Object	ives	-					
Course	Objectives	Study of its	ing the basic concepts of computer arch development, in addition to the mechani	itecture and ism of opera	l the stages tion and				
380	0 Тес	interc	onnection of the various units that make	e up the con	iputer.				
Strateg	y ICC								
8		- lecture	ב د						
		- Condu	cting discussion papels within t	the lectur	۵				
		Civing	woold who mover here is within the		C				
		- Giving	weekiy nonework	- Giving weekly homework					
- Asking questions during the lecture									
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
		- Asking	g questions during the lecture						
291 0	lourse Stra	- Asking	g questions during the lecture						
381.C	Course Stru	- Asking	g questions during the lecture	Learning	Fyaluation				
381.C Week	Course Stru Hours	- Asking Icture Required Learning	g questions during the lecture Unit or subject name	Learning method	Evaluation method				
381.C Week	Course Stru Hours	- Asking acture Required Learning Outcomes	g questions during the lecture Unit or subject name	Learning method	Evaluation method				
381.C Week 1	Course Stru Hours 2	- Asking Incture Required Learning Outcomes	g questions during the lecture Unit or subject name Introduction to computer architectur	Learning method lecture	Evaluation method Short exam				
381.C Week	Course Stru Hours	- Asking Icture Required Learning Outcomes	y questions during the lecture Unit or subject name Introduction to computer architectur Basic organization of computer	Learning method lecture lecture	Evaluation method Short exam Short exam				
381.C Week	Course Stru Hours	- Asking acture Required Learning Outcomes	y questions during the lecture Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept	Learning method	Evaluation method Short exam Short exam Short exam				
381.C Week 1 2 3 4	Lourse Stru Hours	- Asking Incture Required Learning Outcomes	Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures	Learning method lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam				
381.C Week 1 2 3 4 5	Course Stru Hours	- Asking Icture Required Learning Outcomes	y questions during the lecture Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures Requirements of I/O system	Learning method lecture lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam Short exam				
381.C Week 1 2 3 4 5 6	Hourse Stru Hours 2 2 2 2 2 2 2 2 2 2 2 2 2	- Asking Incture Required Learning Outcomes	g questions during the lecture Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures Requirements of I/O system I/O interfacing techniques	Learning method lecture lecture lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam Short exam Short exam				
381.C Week 1 2 3 4 5 6 7	Lourse Stru Hours	- Asking Incture Required Learning Outcomes	Unit or subject name Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures Requirements of I/O system I/O interfacing techniques Memory system organization	Learning method lecture lecture lecture lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam Short exam Short exam				
381.C Week 1 2 3 4 5 6 7 8	Course Stru Hours	- Asking Incture Required Learning Outcomes	y questions during the lecture Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures Requirements of I/O system I/O interfacing techniques Memory system organization Midterm exam	Learning method lecture lecture lecture lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam Short exam Short exam Short exam				
381.C Week 1 2 3 4 5 6 7 8 9	Fourse Strue Hours 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	- Asking Incture Required Learning Outcomes	Unit or subject name Unit or subject name Introduction to computer architectur Basic organization of computer Basic operational concept Bus structures Requirements of I/O system I/O interfacing techniques Memory system organization Midterm exam Memory hierarchy	Learning method lecture lecture lecture lecture lecture lecture lecture	Evaluation method Short exam Short exam Short exam Short exam Short exam Short exam Short exam Short exam				

2		Associative memory	lecture	Short exam
2		Cache memory	lecture	Short exam
2		8085 Microprocessor	lecture	Short exam
2		Intel core family	lecture	Short exam
2		Intel core family	lecture	Short exam
	2 2 2 2 2 2	2 2 2 2 2 2 2	2Associative memory2Cache memory28085 Microprocessor2Intel core family2Intel core family	2Associative memorylecture2Cache memorylecture28085 Microprocessorlecture2Intel core familylecture2Intel core familylecture

382. 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

- Short weekly exams
- Monthly exams
- Degrees of participation in answering the questions asked during the lecture
- Degrees of homework

383. Learning and Teaching Resources			
Required textbooks (curricular books, any)	 Mano, M. Morris, Computer System Architecture, 3rd Edit Prentice-Hall, Inc., 1993. 		
Main references (sources)	 Mostafa Abd-El-Barr, Hesham El-Rewini, "Fundamentals of Computer Organization and Architecture", A John Wiley & Sons, Inc Publication, 2005. M. Morris Mano, Computer Engineering Hardware Design, 1st Edit Prentice-Hall, Inc., 1988. 		
Recommended books and references (scientific journals, reports)			
Electronic References, Websites			

384.	Course Name:
Computer Skills	s 2
385.	Course Code:
COM2	
386.	Semester / Year:
First Semes	ster 2023-2024
387.	Description Preparation Date:
2024	
388.	Available Attendance Forms:
Presence	
389.	Number of Credit Hours (Total) / Number of Units (Total)
60	

000			international and a second of the		
390		Irse admin	istrator's name (m	ention all, if m	ore than
	Name Juli	;) ot Kadum	Dawood		
ر ا	Fmail: juli	et Kauum	Dawoou		
1	Linan. jun	cinauume	uburyala.cuu.iq		
391	. Cou	rse Object	ives		
Course	Objectives		This academic for learning s from the academ 1- The student programmed de Microsoft Off Power Point) essential part of 2- Developing Office) in vario 3- By trying of success and est market, which and skills from	lesson is the bas software applicat mic subject to: learns how to use evices (Microsoft fice Excel, Micr and networks, f computer skills. the student's skil ous fields to deal v out students' skil xcellence in the requires comput them.	ic foundation ions, starting computer and Office Word, rosoft Office which is an ls using (MS- vith its tools. ls to achieve current labor er knowledge
392	. Teac	ching and L	earning Strategies		
 the (practical) attendance. 2- Discussion/forming discussion groups during lectures to discuss modern systems that require thinking and analysis 3- Using educational technologies (educational video). 4- Giving students homework that requires self-explanation 5- Providing students with many different skills a knowledge related to their mental level. 					
<u>393.Co</u>	ourse Struc	ture	T T •/ T • /		
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
18.	2 theoretica 2 practical		Introduction to MS- office (Basic components and Window)	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
19.	2 theoretica		Microsoft Office	In-person lecture using computer,	Oral or written test
	2 practical		Word	display screen, pen and blackboard	

		b)menus		
		c) General		
21.	2 theoretica 2 practical	d)Editing e)formatting f)Navigation Pane and layout	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
22.	2 theoretica 2 practical	g) Text selection h) Tables I)Drawing and graphics	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
23.	2 theoretica 2 practical	Microsoft Office PowerPoint	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
24.	2 theoretica 2 practical	a)Fundamentals and Application b)menus c)General	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
25.	2 theoretica 2 practical	d)Editing e)formatting f)Navigation g) Text selection	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
26.	2 theoretica 2 practical	h) slides show delivery I)Drawing and graphics j)View buttons	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
27.	2 theoretica 2 practical	Microsoft Office Excel	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
28.	2 theoretica 2 practical	a)Fundamentals and Application b)menus c)General	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
29.	2 theoretica 2 practical	d)Editing e)formatting f) Navigation g)formulas and functions	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
30.	2 theoretica 2 practical	h)charts i)workbook management	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
31.	2 theoretica 2 practical	Introduction of Network	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
32.	2 theoretica 2 practical	Types of networking	In-person lecture using computer, display screen, pen and blackboard	Oral or written test
		.•	and shonoouru	ı

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

34.Learning and Teaching Resources					
Required textbooks (curricular books, if any					
Main references (sources)	1-	Computer Skill(2)			
	2-	Basic Computer Skills			
Recommended books and references					
(scientific journals, reports)					
Electronic References, Websites					

394.	Course Name:				
Computer	Graphics				
395.	Course Code:				
210C0CG					
396.	Semester / Year:				
Second Sen	nester 2023-2024				
397.	Description Preparation Date:				
2024)24				
398.	Available Attendance Forms:				
Presence					
399.	Number of Credit Hours (Total) / Number of Units (Total)				
60					
400.	Course administrator's name (mention all, if more than one				
nam	e)				
Name: Juliet Kadum Dawood					
Email: julietkadum@uodiyala.edu.iq					
401. Course Objectives					
Course Objectives 1- Preparing graduates qualified to work					
		representing data in the form of computer			
		graphics.			
107					
	130				

				2-Introducing the computer graphic geometric infor technologies. It for and computation generation and pro-	e student to s and processi mation usin ocuses on the al foundation ocessing.	the field of ng visual and g computer mathematica ns of image		
402	· ·	Геа	ching and I	earning Strategies				
Strategy	r	1-	The lecture	e is given in the form of (prese	ntations) el	ectronical		
		an att 2-	d the intera endance. Discussion	Active whiteboard is used duri	ng the (pra- uring lectur	ctical) es to discu		
		me	nodern systems that require thinking and analysis.					
		3-	Using educ	ational technologies (education	onal video).			
		4-	Giving stud	lents homework that requires	self-explan	ation.		
		5-	Providing	students with many differe	nt chille a	nd knowle		
403 C	ourse S	rel	ated to the	ir mental level.				
HUJ.CO		, uu		TI:4	T	T		
vv eek	Hours	5	Learning Outcomes	Unit of subject name	method	method		
18	2 theore	tica	outcomes	Introduction Computer graphics	In-person	Oral or written		
	+ 2 prac	tical		Introduction Computer graphics	lecture using computer, display screen, pen and blackboard	test		
19	2 theore	etica		Elementary Figures	In-person	Oral or written		
	+ 2 prac	tical		Plotting Points	lecture using computer, display screen, pen and blackboard	test		
20	2 theore	etica		Line Drawing	In-person	Oral or written		
	+ 2 prac	tical		Horizontal and Vertical Lines	lecture using computer,	test		
					display screen, pen and blackboard			
21	2 theore	etica		Arbitrary Lines	display screen, pen and blackboard In-person	Oral or written		
21	2 theore + 2 prac	etica tical		Arbitrary Lines	display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard	Oral or written test		
21	2 theore + 2 prac 2 theore + 2 prac	etica tical etica tical		Arbitrary Lines Circle Drawing	display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard	Oral or written test Oral or written test		
21	2 theore + 2 prac 2 theore + 2 prac 2 theore	etica tical etica tical		Arbitrary Lines Circle Drawing	display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard	Oral or written test Oral or written test		
21 22 23	2 theore + 2 prac 2 theore + 2 prac 2 theore + 2 prac	etica tical etica tical etica tical		Arbitrary Lines Circle Drawing Different Circle Drawing	display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard In-person lecture using computer, display screen, pen and blackboard	Oral or written test Oral or written test Oral or written test		

					pen and	
					blackboard	
25.	2 theoretica]	Introduction	In-person	Oral or written
	+ 2 practical		Geometri	ic Transformations	computer,	
					display screen,	
					blackboard	
26.	2 theoretica		Two	o-Dimensional	In-person	Oral or written
	+ 2 practical		Tra	nsformations	computer,	lest
					display screen,	
					blackboard	
27.	2 theoretica		Some Draw	rings related to Circle	In-person	Oral or written
	+ 2 practical				computer,	lest
					display screen,	
					pen and blackboard	
28.	2 theoretica		Some Drav	wings related to Line	In-person	Oral or written
	+ 2 practical			0	lecture using computer.	test
					display screen,	
					pen and blackboard	
29.	2 theoretica			Clipping	In-person	Oral or written
	+ 2 practical				lecture using	test
			and	d Windowing	display screen,	
					pen and	
30.	2 theoretica		1	Introduction	In-person	Oral or written
	+ 2 practical		Three I	Dimonsional (3 D)	lecture using	test
	_		1 111 66-1	Jiiielisioliai (J-D)	display screen,	
					pen and	
31.	2 theoretica		(3 -D) T	hree Dimensional	In-person	Oral or written
	+ 2 practical		(J-D) Three Dimensional		lecture using	test
	•		110		computer, display screen.	
					pen and	
32	2 theoretica		Caalina ID	afala ati any Datata	blackboard In-person	Oral or written
02.	+ 2 practical		Scaling+R	efelection+Rotate	lecture using	test
	- p				computer,	
					pen and	
22.0	I				blackboard	
33.Co	ourse Eval	uation				
Distribu	iting the sc	ore out of 10	0 according	to the tasks assigned to	the student	such as daily
prepara	ition, daily	oral, monthl	y, or written	exams, reports etc		
34.Le	arning and	d Teaching	Resources			
Required	d textbooks	(curricular b	ooks, if any)			
Main ref	ferences (so	urces)		1- "Principles of	f Interactiv	<i>'e</i>
				Computer Graphics	" William	М
				Nowman and Doho	rt E Sproo	
						ull,
				McGraw-Hill Intern	ational Bo	OK
				Company, 1984.		
				2- "Computer G	raphics wi	th Pascal",
				Marc Berger, the Be	eniamin / (Cummings
				Publishing Company	v 1986	0-
L					y, 1700.	

	 3- "Computer Graphics", Zhigang Xiang and Roy A. Plastock, Schaum's outline Series, McGraw-Hill Company, 1992. 4- "Computer Graphics C Version", Donald Hearn and M. Pauline Baker, Prentice-Hall Company, 1997.
Recommended books and reference (scientific journals, reports)	3
Electronic References, Websites	







