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

Academic Program and Course Description Guide

2024

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: ...Mosul.............

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

Scientific Department: .. Mathematic...Department..........

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

Final Certificate Name: ... Bachelor of Mathematic...........

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

Description Preparation Date: 1/9/2023

File Completion Date: 1/9/2023

Signature:

Head of Department Name:

Dr. Younus Hazim Ismael

Date: ١ / ٤ / ٤٢ -ح

Signature:

Scientific Associate Name:

أ.م.د. ياسر يحيى قاسم
معاون العميد للشؤون العلمية
١ / ٤ / ٢٠٢٤

Date:

The file is checked by: Assist. Prof . Dr. Yassir Shakeeb Mohamed

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

أم.د. ياسر شكيب محمد
شعبة ضمـان الجـودة
٢٠٢٤/٤/٠

Approval of the Dean

ا . م . د . قيس اسماعيل ابراهيم
و . عميد كلية التربية للعلوم الصرفة

1. Program Vision

1- The department seeks to provide an appropriate scientific environment and develop the level of education at the undergraduate and postgraduate levels.

2- 2- Achieving the pioneering role of the department by contributing to scientific progress and keeping up to date with all new.

2. Program Mission

The department's mission is to graduate high-level educational cadres capable of working in the country institutions and be supportive of the development of society.

3. Program Objectives

1- Preparation of graduates who are scientifically and educationally qualified to work in the field of teaching and providing students with appropriate experiences related to teaching methods.
2- Paying attention to higher studies and carrying out scientific research in order to protect the national wealth (plant, animal and natural environment).
3- Providing scientific expertise in the field of life sciences to all institutions and the private sector.

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? Ministry of Higher Education / University of Mosul

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	20	10.75	Basic

College Requirements	11	40	21.5	Basic
Department Requirements	24	128	68.8	Basic
Summer Training	1	4	2.15	Application in Schools
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First	EDMA24F101	Calculus	3	2
First	EDMA24F102	Foundation of Mathematics	2	2
First	EDMA24F103	Linear Algebra	2	2
First	EDMA24F104	Physics	2	--
First	EDMA24F105	Computers	1	--
First	EDMA24F106	Educational Psychology	2	--
First	EDMA24F107	Principles Education	2	--
First	EDMA24F108	Human Right	1	--
First	EDMA24M109	Arabic Language	2	--
First	EDMA24M110	English Language	1	--
Second	EDMA24F201	Advanced Calculus	3	2
Second	EDMA24F202	Ordinary Differential Equations	2	2
Second	EDMA24F203	Group Algebra	3	--
Second	EDMA24F204	Axioms and Geometry	3	--
Second	EDMA24F205	Programming	1	0
Second	EDMA24F206	Research Approach	2	--
Second	EDMA24F207	Growth Psychology	2	--
Second	EDMA24F208	Administration and Secondary Education	2	--
Second	EDMA24F209	English Language	1	--
Second	EDMA24F210	Crimes of Baath Regime	1	--
Third	EDMA24F301	Real Analysis	2	2
Third	EDMA24F302	Partial Differential Equations	2	2
Third	EDMA24F303	Ring Algebra	2	2
Third	EDMA24F304	Probability and Statistics	2	2
Third	EDMA24F305	Numerical Analysis	2	2
Third	EDMA24F306	Mythology and Teaching Methods	2	--
Third	EDMA24F307	Psychological Heath and Guidance	2	--
Third	EDMA24F308	English language	1	--
Fourth	EDMA24F401	Topology	2	2
Fourth	EDMA24F402	Mathematical Statistics	2	2
Fourth	EDMA24F403	Selective (1)	2	2

Fourth	EDMA24F404	Selective (2)	2	2
Fourth	EDMA24F405	Complex Analysis	2	2
Fourth	EDMA24F406	Graduated Project	--	2
Fourth	EDMA24F407	School Practice	1	2
Fourth	EDMA24F408	Measurement and Evaluations	2	--
Fourth	EDMA24F409	English language	1	--

8. Expected learning outcomes of the program

Knowledge	
Recruiting teachers	Scientific, professional and technical recruiting with a high standard of cultural and proficiency
Recruiting Scientific researchers	Achieving the basic principles of scientific research and treaching
Reinforcement of Scientific co-operation	Via training courses, workshops and symposia
Post-graduate studies opportunities	Through accomplishing scientific material and scientific teaching methods
Skills	
Teaching skills	Acquiring basic skills of teaching fields of Mathematic
Scientific research skills	Developing scientific research in Mathematic and teaching methods fields
Sustainable development skills	Preservation of state resources from delpletion in all fields
Practical skills	Developing student skills in the laboratory
Ethics	
Developing ethics and useful attitudes	In accordance with religion and habits and costumes
Developing attitudes towards teaching job	To face current challenges and developing overall education system
Establishing the principles of teaching	To limit toe abuse of their responsibilities in scientific and education fields
Disclosing the importance of science in human life	The great role of Mathematic in people life.

9. Teaching and Learning Strategies

Theoretical and practical lecture, conversation and discussion, problem solving,

performing practical experiment, project and application in school

10. Evaluation methods

Quizzes, practical semester exam, mid and final exam in first and second turn,
preparing reports and homework.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Mathematic	Algebra Functional Analysis Differential Equations Algebraic Geometry Teaching Math. Applied Mathematics			6	
Assistant professor	Mathematic	Applied Mathematics Numerical Optimization Differential Equations Math.Teaching Methods Statistics andProbability Algebra Numerical Analysis			14	

8

		Optimization				
		Applied Mathematics				
		Topology				
Lecturer	Mathematic	Applied Mathematics			16	
		Topology				
		Algebra				
		Numerical Analysis				
		Algebra and Graph Th.				
		Statistics andProbability				
		Topology				
		Function Analysis				
		Statistics				
		Applied Statistics				
		Differential Equation				
		Spatial Statistics				
Assistant lecturer	Mathematic	Applied Mathematics			6	
		Intelligent technologies				
		Differential Equation				
		Pure Mathematics				
		Mathematics				

Professional Development
Mentoring new faculty members
Using recent scientific references , teaching films , training ciurses and workshops
Professional development of faculty members
Proving new references for the library , participating in specialized training courses

12.	**Acceptance Criterion**
Central admission through the ministry of higher education	

13.	**The most important sources of information about the program**
Central admission guide, electronic site of the department and internet	

14.	Program Development Plan
Updating the content of the program according to new references	

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First	EDMA24F101	Calculus	major	*	*	*									
	EDMA24F102	Foundation of Mathematics	major	*	*	*									
	EDMA24F103	Linear Algebra	major	*	*	*									
	EDMA24F104	Physics	major					*			*				
	EDMA24F105	Computers	major					*							
	EDMA24F106	Educational Psychology	major		*						*				
	EDMA24F107	Principles Education	major		*						*				
	EDMA24F108	Human Right	major		*			*			*				
	EDMA24F109	Arabic Language	major												
	EDMA24F110	English Language	Major												
Second	EDMA24F201	Advanced Calculus	Major	*	*	*	*								
	EDMA24F202	Ordinary Differential Equations	Major	*	*	*									

Code	Name	Type	1	2	3	4	5	6	7	8	9	10	11	12	13
EDMA24F203	Group Algebra	Major	*	*	*										
EDMA24F204	Axioms and Geometry	Major	*	*	*			*							
EDMA24F205	Programming	Major				*									
EDMA24F206	Research Approach	Major		*				*		*	*				
EDMA24F207	Growth Psychology	Major		*				*							
EDMA24F208	Administration and Secondary Education	Major		*				*							
EDMA24F209	English Language	major													
EDMA24F210	Crimes of Baath Regime	major													
EDMA24F301	Real Analysis	major	*	*											
EDMA24F302	Partial Differential Equations	major	*	*	*										
EDMA24F303	Ring Algebra	major	*					*							
EDMA24F304	Probability and Statistics	major	*	*											
EDMA24F305	Numerical Analysis	major	*		*			*							
EDMA24F306	Mythology and Teaching Methods	major	*	*				*							
EDMA24F307	Psychological Heath and Guidance	major	*			*									

	Code	Course	Type															
	EDMA24F308	English language	major	*			*											
Fourth	EDMA24F401	Topology	major	*														
	EDMA24F402	Mathematical Statistics	major	*		*												
	EDMA24F403	Selective (1)	major	*		*												
	EDMA24F404	Selective (2)	major	*		*												
	EDMA24F405	Complex Analysis	major	*		*												
	EDMA24F406	Graduated Project	major	*														
	EDMA24F407	School Practice	major															
	EDMA24F408	Measurement and Evaluations	major															
	EDMA24F409	English language	major	*						*								

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

Course Description Form

1. Course Name: Mathematical Foundations

2. Course Code: **EDFA24M102**

3. Semester / Year: 2023−2024

4. Description Preparation Date: 1/9/2023

5. Available Attendance Forms: Classroom and E- Classroom

6. Number of Credit Hours (Total) / Number of Units (Total): 120 hours / 4units

7. Course administrator's name (mention all, if more than one name)
Name: Dr. Marwan Aziz Jardo   Email: marwanjardo@uomosul.edu.iq

8. Course Objectives

Course Objectives	● **This course, Foundations of Mathematics, will te** **students the fundamentals of mathematics.**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Unit or subject name	Learning method	Evaluation method
first	4	Logic + Statement + Logical Tools	Lecture	quizzes and discussions
Second	4	Open Statement + Existential Quantifier + Universal Quantifier	Lecture	Quizzes
Third	4	Nested Quantifier + Mathematical Proof	Lecture	Quizzes

Fourth	4	The Sets + Notion of Sets + Equal of Sets	Lecture	quizzes and homework's
Fifth	4	Subsets + Intersection and Union of Sets	Lecture	Quizzes
Sixth	4	Complement of the Sets + Difference + Symmetric Difference	Lecture	Quizzes
Seventh	4	Relation + Notion of Relation	Lecture	Quizzes
Eighth	4	Ordered Pair + The Cartesian Product	Lecture	quizzes and homework's
Ninth	4	Domain and Range of Relation	Lecture	homework's
Tenth	4	Inverse Relation	Lecture	quizzes and homework's
Eleventh	4	Reflexive, Symmetric and Transitive Relation	Lecture	quizzes and homework's
Twelfth	4	Equivalence Relation	Lecture	homework's
Thirteen	4	Equivalence Class	Lecture	quizzes and homework's
Fourteenth	4	Partially and Totally Ordered Relation	Lecture	homework's
Fifteenth	4	Mapping + Conception of Mapping	Lecture	Quizzes
Sixteenth	4	Domain and Range of Mapping	Lecture	quizzes and homework's
Seventeenth	4	Inverse Image of Mapping	Lecture	Quizzes
Eighteenth	4	Type of Mappings (Injection, Surjection and Bijective)	Lecture	quizzes and homework's
Nineteenth	4	Composition of Mappings	Lecture	Quizzes
Twentieth	4	Constant Mapping + Identity Mapping + Restriction Mapping	Lecture	quizzes and homework's
Twenty first	4	The Inverse Mapping and Theorem on Inverse Mappings	Lecture	quizzes and discussions
Twenty second	4	Cardinality of Sets and its Conception	Lecture	quizzes and discussions
Twenty third	4	The Equality Cardinality Sets	Lecture	quizzes and discussions
Twenty fourth	4	Finite and Infinite Sets	Lecture	quizzes and discussions
Twenty fifth	4	Binary Operations and its Conception	Lecture	quizzes and discussions
Twenty sixth	4	Type of Binary Operations	Lecture	quizzes and discussions
Twenty seventh	4	Semi Group and Group	Lecture	quizzes and discussions
Twenty eighth	4	The Conception of Ring + Ordered Ring	Lecture	Quizzes

Twenty ninth	4	The Conception of Field + Ordered Field	Lecture	Quizzes
Thirtieth	4	Homomorphisms	Lecture	quizzes and discussions

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	اسس الرياضيات / د. هادي جابر مصطفى/ د. رياض شاكر نعوم/د. نادر جورج منصور
Recommended books and references	Kenneth Kunen, The Foundation of Mathematics, 2007.

Course Description Form

13.Course Name: Calculus
14.Course Code: EDMA24F101
15.Semester / Year: 2023-2024
16.Description Preparation Date:1/9/2023
17.Available Attendance Forms: Laboratory , Classroom
18.Number of Credit Hours (Total) / Number of Units (Total)
5/10

19.Course administrator's name (mention all, if more than one name)
Name: Assistant Prof. Dr. Amal Jasim Mohammed Email: a.j.moha7@uomosul.edu.iq

20.Course Objectives

Course Objectives	The course aims to identify the following concepts: • Defining the function and the types of functions: drawing, finding the domain and range for each type. • Limit and Continuity. • Derivative laws. And its theorems. • Applications of the derivative, slope, and tangent equation. • Integration and Integration methods and solutions

21.Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	Functions, Domain and Range, Drawing	Introduction to the course, defining the set of numbers and establishing the international symbols used during this course. Different examples	Lecture	Discussion
Second	5	Functions, Domain and Range,	Examples	Lecture	Quiz

		Drawing			
Third	5	Domain and Range, Drawing	Fractional functions, Examples	Lecture	Quiz
Fourth	5	Domain and Range, Drawing	Examples	Problem solving	Quiz, report, homework
Fifth	5	Domain and Range, Drawing	Sign, Heaviside, Greatest integer, Polynomial: Linear Quadratic Quartic, Functions	Lecture	Report, homework
Sixth	5	Domain and Range, Drawing	Trigonometric and invers trigonometric Functions	Lecture, Problem solving	Quiz
Seventh	5	Domain and Range, Drawing	Logarithm and exponential Functions with examples	Lecture, Problem solving	Quiz
Eighth	5	Domain and Range, Drawing	Greatest integer Add, subtract multiply and combined Functions with examples	Lecture, Experiment	Quiz, report, homework
Nineth	5	Domain and Range, Drawing	Solve assignments and exam questions. Additional examples include focused questions about students' weaknesses	Problem solving	Homework
Tenth	5	Derivations	Derivation using Definition, Examples	Problem solving	Quiz
Eleventh	5	Derivations	Examples	Problem solvi	Quiz
Twelfth	5	Derivations	Law of derivations Theorem and applications	Lecture, Problem solving	Quiz, report, homework
Thirteen	5	Limits and Continuity	Definitions of limit and methods to find it	Lecture	Quiz
Fourteenth	5	Limits and Continuity	Definitions of Continuity and methods to find	Lecture, Problem solving	Quiz
Fifteenth	5	Limits and Continuity	Examples	Problem solving	Quiz
Sixteenth	5	Infinite Integral	Constant, power functions Examples	Lecture	Quiz, report, homework
Seventeenth	5	Infinite Integral	Fractional functions, Examples	Lecture	Homework
Eighteenth	5	Infinite Integral	Linear, Quadratic , Quartic, Functions , examples	Problem solving	Quiz

Nineteenth	5	Infinite Integral	Logarithms and exponential functions, examples	Lecture	Quiz
Twentieth	5	Infinite Integral	Examples	Problem solving	Quiz, report, homework
Twenty first	5	Infinite Integral	Examples	Lecture	Homework
Twenty second	5	Finite Integral	Solve assignments and exam questions. Additional examples include focused questions about students' weaknesses	Problem solving	Quiz
Twenty third	5	Finite Integral, Area	Trigonometric functions Examples	Lecture	Quiz
Twenty fourth	5	Infinite Integral	Examples	Problem solving	Quiz, report, homework
Twenty fifth	5	Infinite Integral	Inverse Trigonometric functions Examples	lecture	Homework
Twenty sixth	5	Infinite Integral	Examples	Problem solving	Quiz
Twenty seventh	5	Infinite Integral	Integration by parts, substitutions Examples	Lecture	Quiz
Twenty eighth	5	Infinite Integral	Examples	Lecture	Quiz, report, homework
Twenty nineth	5	Infinite Integral	Integrating Rational Functions by Partial Fraction	Lecture	Homework
Thirtieth	5	Integral and Derivate of Hypothesis functions	Examples	Lecture, Problem solvi	Quiz

23. 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

24. Learning and Teaching Resources

Required textbooks (curricular boo if any)	حسبان التفاضل والتكامل مع الهندسة التحليلية: ج1.تاليف اي .جي. برسل ، 1983. النادر في التفاضل والتكامل: نادر ابو مغلي، محمد موسى، ناجي ابراهيم. 2001-2002 الكتاب
Main references (sources)	• Thomas, George Brinton, et al. *Thomas' calculus*. Reading: Addison-Wesley, 2003. • Anton, Bivens, Davis. *Calculus.* Seventh Edition, New York, 2002.
Recommended books and references (scientific journals, reports...)	Hintikka, Jaakko. *The principles of mathematics revisited*. Cambridge University Press, 1998.
Electronic References, Websites	**https://ocw.mit.edu/resources/res-18-001-calculus-online-textbook-spring-2005/textbook/** **https://www.freebookcentre.net/maths-books-download/Calculus-**

	Lecture-Notes.html
	https://www.freebookcentre.net/maths-books-download/Advanced-Calculus-Lecture-Notes-for-Mathematics.html
	https://ocw.mit.edu/courses/mathematics/18-01-single-variable-calculus-fall-2006/lecture-notes/
	https://www.math.upenn.edu/~rimmer/math103/notes.html

Course Description Form

25. Course Name:
Linear Algebra

26. Course Code:
EDMA24M103

27. Semester / Year:
2023-2024

28. Description Preparation Date:
1/09/2023

29. Available Attendance Forms:
In-person - Online class

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

31. Course administrator's name (mention all, if more than one name)
1) Name: Dr. Naseer Sabah Abdullah ,   **Email: naseer.s.abdullah@uomosul.edu.iq**   **2) Name: Prof. Dr. Ammar seddiq Mahmood,**   **Email: asmahmood65@uomosul.edu.iq**

32. Course Objectives	
Course **Objectives**	**The course aims to enable the student to know** **• Matrices, algebraic operations on them, determinants, and the use of these** **concepts in solving systems of linear equations.** **• Vector space and inner product space.** **• Linear transformations and their properties.** **• The characteristic values and vectors of the square matrix, their properties,** **how to calculate them, and applications to them.**

33. Teaching and Learning Strategies	
Strategy	Theoretical and online lectures, dialogue and discussion, problem-solving, and daily assignments

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	4 hours	Operations on arrays	Algebraic properties of matrices	Theoretica	Questions and discussi

2	4 hours	Types of arrays	Special arrays	Theoretica	Questions and discusion
3	4 hours	Find the inverse of the matrix	Inverse matrices	Theoretica	Questions and discusion
4	4 hours	Find the rank of the matrix	Rank of matrices	Theoretica	Daily Test
5	4 hours	Using theorems to solve questions	Some theorems for matrix rank	Theoretica	Questions and discusion
6	4 hours	Identify the system of homogeneous linear equation and its properties	System of linear equations/some properties of the syste of linear equations, system of homogeneo linear equations.	Theoretica	Home-work
7	4 hours	Finding solutions to a system of linear equations	Solutions to systems c linear equations	Theoretica	Questions and discusion
8	4 hours	How to use the Chaos method find solutions to systems of linear equation	Using the Gauss meth to solve a system of linear equations	Online	Questions and discusion
9	4 hours	How to use the Chaos-Jordan method to find solutions to systems of linear equations	Using the Chaos-Jorda method to solve a system of linear equations	Theoretica	Daily test
10	4 hours	Find the determinant	Determinants, Introduction to Determinants	Theoretica	Home-work
11	4 hours	Using properties to solve questions	Some properties of determinants	Theoretica	Questions and discui
12	4 hours	Use theorems	Some theorems for determinants	Theoretica	Questions and discui
13	4 hours	Find the Cofactor	Cofactor	Theoretica	Questions and discui
14	4 hours	Cofactors	Cofactor's application	Theoretica	Questions and discui
15	4 hours	Applying Cramer's rule to solve a system of linear equations	Cramer's rule	Theoretica	Semester test
16	4 hours	Definition of vector space, finding numerical multiplication and modulus	Vector space/ introduction to vector space, vector properti numerical multiplication, criteri distance	Theoretica	Questions and discui
17	4 hours	Finding cross product and defining subspace	Cross multiplication, subspaces	Theoretica	Questions and discus

18	4 hours	Definition of composition, correlation, and linear independence	Linear combination, linear correlation, and linear independence	Theoretica	Daily test
19	4 hours	Prove some theorems	Some theorems	Online	Questions and discus
20	4 hours	Find the base and the dimensi	Base and dimension	Theoretica	Home-Work
21	4 hours	Find the space dimension of lines and columns	Space of lines and columns	Theoretica	Quick exar
22	4 hours	Definitions and examples	Introduction to Linear transformatio	Theoretica	Questions and discusion
23	4 hours	Find the kernel and Range	Kernel and range for linear transformation	Theoretica	Questions and discusion
24	4 hours	Prove some theorems	Some theorems	Theoretica	Daily test
25	4 hours	Find the linear transformation matrix	Matrix linear transformatios	Theoretica	Questions and discui
26	4 hours	Solution examples and applications	Examples and applications	Theoretica	Semester test
27	4 hours	Definitions and examples	Eigenvalues and eigenvectors	Theoretica	Questions and discui
28	4 hours	Proofs of some theorems	Some theorems	Theoretica	Questions and discui
29	4 hours	How to calculate eigenvalues and eigenvectors of a square matrix	Calculate values and eigenvectors	Theoretica	Questions and discui
30	4 hours	Solution examples and applications	Examples and applications	Theoretica	Questions and discui

35. 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, etc

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Linear Algebra, written by Yahya Abdel Saeed, Dr. Nizar Hamdoun Shukr
Main references (sources)	Linear algebra, by K Hoffman and R Kunze,2ndEd.Prentice Hall ,IND.
Recommended books and references (scientific journals, reports…)	Introduction to linear algebra with applications ,by Kolman.
Electronic References, Websites	https://betterexplained.com/articles/linear-algebra-guide/

Course Description Form

37.	Course Name: Computer driving skills (First class)

38.	Course Code: **EDMA24M104**

39.	Semester / Year: 2023−2024

40.	Description Preparation Date:1/09/2023

41.Available Attendance Forms: Classroom

42.Number of Credit Hours (Total) / Number of Units (Total)
Number of study hours (90) (30 mental ,60 practical) Number of unit (2)

43.	Course administrator's name (mention all, if more than one name)
	Name: Ahmed Hussien Mohammad Email: ahmedshexo@uomosul.edu.iq

44.	Course Objectives
Course Objectives	- Introduction to computer. - Numbering system - Conversion between different numbering systems. - Arithmetic operations in the binary system. - Algorithms. - Flow Charts. - Desktop. - Microsoft Word 2010. - Icons of the program - Microsoft Excel 2010.

45.	Teaching and Learning Strategies
Strategy	Theoretical lecture and Practical (discussions) examples, problem solving , performing practical experiments, homework.

46. Course Structure

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

1	9	Introduction to computer.	**Principles definitions of** Computer.	**Theoretical Lecture**	**Homework**
2	9	Numbering syste	**the basics of** Numbering system	**Theoretical Lecture**	**Homework**
3	9	Conversion betwe different numberi systems	Conversion between different numbering systems	**Theoretical Lecture**	**Homework**
4	9	Arithmetic operatio in the binary system	Arithmetic operations in the binar system	**Discussion**	**Homework**
5	9	Algorithms.	Algorithms.	**Theoretical Lecture**	**Homework**
6	9	Flow Charts	Flow Charts	**Theoretical Lecture**	**Quizzes**
7	9	Desktop	Desktop	**Discussion**	**Homework**
8	9	Microsoft Word 201	Microsoft Word 2010	**Discussion**	**Homework**
9	9	Microsoft word window elements	Microsoft word window element	**Theoretical Lecture**	**Quizzes**
10	9	Icons of program	Icons of program	**Theoretical Lecture**	**Homework**
11	9	How to print in program	How to print in program	**Theoretical Lecture**	**Homework**

12	9	Microsoft Excel 2010	Microsoft Excel 2010	**Discussion**	**Homework**
13	9	Microsoft Excel wind Elements	Microsoft Excel window Element	**Discussion**	**Homework**
14	9	Icons of program	Icons of program	**Theoretical Lecture**	**Homework**

47. 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

48. Learning and Teaching Resources

Required textbooks (curric books, if any)	…….
Introduction to programming	1) XP Windows Omar Basil Muhammad Saleh Moatasem Mahmoud Youssef College of Education for Pure Sciences, Department of Physics 2) Microsoft office word 2007 binding Omar Basil Muhammad Saleh Moatasem Mahmoud Youssef College of Education for Pure Sciences, Department of Physics. 3) 4. Microsoft office Excel 2007 binding Omar Basil Muhammad Saleh Moatasem Mahmoud Youssef College of Education for Pure Sciences, Department of Physics.
Recommended books and references (scientific journals, reports…)	Ni Multisim software ww.watad.me//1.http:

Course Description Form

49.	Course Name:
Foundations of education	

50.	Course Code: : **EDFA24M106**

51.	Semester / Year:
The first and second semesters of the 2023−2024 academic year	

52.	Description Preparation Date:
2023/9/1	

53.Available Attendance Forms:
In-person and electronic

54.Number of Credit Hours (Total) / Number of Units (Total)
60/4

55.	Course administrator's name (mention all, if more than one name)
Name: hnd zyad mohammad Email: hnd.zyad@uomosul.edu.iq	

56.	Course Objectives
Course Objectives	• It aims to make students know the general foundations and principles on which education is based by reviewing a group of foundations such as the historical, social and economic foundations. And scientific. • Developing values in Arab and Islamic education. • Teach students research skills about education throughout history.

57.	Teaching and Learning Strategies
Strategy	58. Managing lectures in a way that shows the importance of time. 59. Group activities for which 10% of the grade is allocated. 60. Individual and group assignments that require the use of the library and the Internet. 61. Increasing the spirit of positive competition. 62. Reciprocal teaching.

63. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge and skill	Foundations of education	Electronic integrated i the lecture	a test

2	2	Knowledge and skill	The meaning of education the goals of education	Electronic integrated the lecture	a test
3	2	Knowledge and skill	Necessities and importance education	Electronic integrated the lecture	a test
4	2	Knowledge and skill	Educational theories	Electronic integrated the lecture	a test
5	2	Knowledge and skill	Educational theories	Electronic integrated the lecture	a test
6	2	Knowledge and skill	Fields of education	Electronic integrated the lecture	a test
7	2	Knowledge and skill	Historical basis	Electronic integrated the lecture	a test
8	2	Knowledge and skill	Development of the foundations of education	Electronic integrated the lecture	a test
9	2	Knowledge and skill	Education in primitive societies	Electronic integrated the lecture	a test
10	2	Knowledge and skill	Chinese education	Electronic integrated the lecture	a test
11	2	Knowledge and skill	Greek education	Electronic integrated the lecture	a test
12	2	Knowledge and skill	Arab Islamic education	Electronic integrated the lecture	a test
13	2	Knowledge and skill	Education in the pre-Islamic era	Electronic integrated the lecture	a test
14	2	Knowledge and skill	Al-Ghazali	Electronic integrated the lecture	a test
15	2	Knowledge and skill	Modern education	Electronic integrated the lecture	a test
16	2	Knowledge and skill	Media of Arab educational thought/ Ibn Khaldoun	Electronic integrated the lecture	a test
17	2	Knowledge and skill	Ibn Sina	Electronic integrated the lecture	a test
18	2	Knowledge and skill	Jean-Jacques Rousseau	Electronic integrated the lecture	a test
19	2	Knowledge and skill	John Dewey	Electronic integrated the lecture	a test
20	2	Knowledge and skill	Social basis	Electronic integrated the lecture	a test
21	2	Knowledge and skill	The relationship of education with society	Electronic integrated the lecture	a test
22	2	Knowledge and skill	The relationship of education to the environment	Electronic integrated the lecture	a test
23	2	Knowledge and skill	Congenital education	Electronic integrated the lecture	a test
24	2	Knowledge and skill	Health education	Electronic integrated the lecture	a test
25	2	Knowledge and skill	Development concept	Electronic integrated the lecture	a test
26	2	Knowledge and skill	Education and development	Electronic integrated the lecture	a test
27	2	Knowledge and skill	Family education	Electronic integrated the lecture	a test
28	2	Knowledge and skill	Economic basis	Electronic integrated the lecture	a test
29	2	Knowledge and skill	Economic return to education	Electronic integrated the lecture	a test
30	2	Knowledge and skill	Development and planning	Electronic integrated the lecture	a test

64. Course Evaluation

25% half the year
5% daily exams
5% activity (report or lecture)
5% semester exam
60% end-of-year exam

65. Learning and Teaching Resources

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

Course Description Form

66.	Course Name: English Language

67.	Course Code: **EDMA24M110**

68.	Semester / Year: 2023–2024

69.	Description Preparation Date: 3/9/2023

70.Available Attendance Forms: Laboratory , Classroom

71.Number of Credit Hours (Total) / Number of Units (Total)
1/2

72.	Course administrator's name (mention all, if more than one name)
Name: Assist lecturer / Noor Laith Housen Email: emanhashem1986@uomosul.edu.iq	

73.	Course Objectives
Course Objectives	• The student learns the basics of t English Language. • The student is able to solve all t various problems related to the subject • Developing the student's knowled about the subject by adding some mode topics

74.	Teaching and Learning Strategies
Strategy	Theoretical lecture, dialogue and discussions, daily assignments, Quiz

75. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	Simple past	Affirmative and Negative	Lecture	Quiz

Second	1	Simple past	Questions and answers	Lecture	Quiz
Third	1	Simple present	Affirmative and Negative	Lecture	Quiz
Fourth	1	Simple present	Questions and answers	Lecture	Quiz
Fifth	1	The future is simple	Affirmative and Negative	Lecture	Quiz
Sixth	1	Future simple	Questions and answers	Lecture	Quiz
Seventh	1	Past continuous	Affirmative and Negative	Lecture	Quiz
Eighth	1	Past continuous	Questions and answers	Lecture	Quiz
Ninth	1	present continuous	Affirmative and Negative	Lecture	Quiz
Tenth	1	present continuous	Questions and answers	Lecture	Quiz
Eleventh	1	Continuous future	Affirmative and Negative	Lecture	Quiz
Twelfth	1	Continuous future	Questions and answers	Lecture	Quiz
Thirteen	1	Absorption	Read a piece about a major in mathematics	Lecture	Quiz
Fourteenth	1	Absorption	Read a piece about a major in mathematics	Lecture	Quiz
Fifteenth	1	Absorption	Read a piece abou major in mathematics	Lecture	Quiz
Sixteenth	1	present perfect	Questions and answers	Lecture	Quiz
Seventeenth	1	present perfect	Affirmative and Negative	Lecture	Quiz
Eighteenth	1	Past perfect	Questions and answers	Lecture	Quiz
Nineteenth	1	Past perfect	Affirmative and Negative	Lecture	Quiz
Twentieth	1	Question composition	Questions and answers	Lecture	Quiz
Twenty first	1	Absorption	Reading Passage	Lecture	Quiz

Twenty second	1	Absorption	Reading Passage	Lecture	Quiz
Twenty thi	1	Absorption	Reading Passage	Lecture	Quiz
Twenty fourth	1	The passive voice in the past continuous	Questions and answers	Lecture	Quiz
Twenty fifth	1	The passive voice in the future continuous	Questions and answers	Lecture	Quiz
Twenty sixth	1	The student should distinguish weather conditions	Questions and answers	Lecture	Quiz
Twenty seventh	1	Absorption	Read a piece about a major in mathematics	Lecture	Quiz
Twenty eighth	1	Absorption	Read a piece about a major in mathematics	Lecture	Quiz
Twenty ninth	1	Absorption	Read a piece about a major in mathematics	Lecture	Quiz
Thirtieth		Final Exam			

76. 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

77. Learning and Teaching Resources

Required textbooks (curricular books any)	Grammar Two
Main references (sources)	Grammar Two
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Z AMERICAN ENGILISH

Course Description Form

78.	Course Name: Arabic Language
79.	Course Code: EDMA24M108
80.	Semester / Year:2023 − 2024
81.	Description Preparation Date: 1 / 9 / 2023
82.	Available Attendance Forms: Lecture .
83.	Number of Credit Hours (Total) / Number of Units (Total)

<div align="center">2 hour each class / 2 units</div>

84.	Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer. Enas Talal Ahmed Email:	

85.	Course Objectives

Course Objectives	The course aims to empower students with Arabic language skills and issues • ….. • …..

86.	Teaching and Learning Strategies

Strategy	Lecture and discussions

87. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Basic concepts	Arabic Language And its sciences	Lecture	Homework
Second	2	Basic	Parts of Speech/ n Noun	Lecture	Homework

Third	2	Basic	Parts of speech/ Verb	Lecture	Homework
Fourth	2	Basic	Parts of speech/ Letter	Lecture	Homework
Fifth	2	Basic concepts	Solar lama and Lunar lama	Lecture	Homework
Sixth	2	Basic concepts	Writing the Hamza in Arabic	Lecture	Homework
Seventh	2	Basic concepts	The difference Between dha And dha	Lecture	Homework
Eighth	2	Basic concepts	Common mistakes In use	Lecture	Homework
Nineth	2	Basic	Ka'b bin Zuhair Poem	Lecture	Homework
Tenth	2	Basic concepts	Noun sentence	Lecture	Homework
Eleventh	2	Basic concepts	Verb sentence	Lecture	Homework
Twelfth	2	Basic concepts	Kaan and her Sisters	Lecture	Homework
Thirteen	2	Basic concepts	In and her Sisters	Lecture	Homework
Fourteenth	2	Basic concepts	Punctuation marks	Lecture	Homework
Fifteenth	2	Basic concepts	Writing short and Extended alifs	Lecture	Homework
Sixteenth	2	Basic concepts	Number rules	Lecture	Homework
Seventeenth	2	Basic concepts	Parsing signs	Lecture	Homework
Eighteenth	2	Basic concepts	The inheritance Verse from Surat An-Nisa	Lecture	Homework

88. 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

89. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Facilitator in general Arabic for non-Specialist departments, Ziad Shuli General Grammer of Arabic language
Main references (sources)	

Recommended books and references (scientific journals, reports…)	Methods of teaching Arabic , Saleh Nuseirat
Electronic References, Websites	

Course Description Form

90.	Course Name: Crimes of Baath Regime
91.	Course Code: **EDBI24F211**
92.	Semester / Year: 2023–2024
93.	Description Preparation Date: 1/9/2023

94. Available Attendance Forms: Lecture , Classroom

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

2 hrs/ 2 units

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

Name: Assist. Lec. Omar Othman ibrahim
Email omar.othman@uomosul.edu.iq

97. Course Objectives

Course Objectives	● **The curriculum aims that the student will be familiar with conce of crimes and human rights violations that occurred in Iraq** ● **Presenting a balanced scientific comprehension for law basics in simple understandable way for most of subjects and syllables the are important for the student that are in undergraduate specialties in all colleges**

98. Teaching and Learning Strategies

Strategy	theoretical lecture , talk and discussions, reports and quizzes and homework

99. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Weekly assessment of student	Chapter 1: Concept of crime and types	Lecture	Quizzes and homework

			/discussions			
Second	2	Weekly assessment of student /discussions	Section 1: definition of crime	Lecture	Quizzes and homework
Third	2	Weekly assessment of student /discussions	Linguistic definition of crime	Lecture	Quizzes and homework
Fourth	2	Weekly assessment of student /discussions	Idiomatic definition of crime	Lecture	Quizzes and homework
Fifth	2	Weekly assessment of student /discussions	Divisions of crimes	Lecture	Quizzes and homework
Sixth	2	Weekly assessment of student /discussions	Crimes according to Iraq Supreme Criminal Tribunal 2005	Lecture	Quizzes and homework
Seventh	2	Weekly assessment of student /discussions	Section 2: International laws	Lecture	Quizzes and homework
Eighth	2	Weekly assessment of student /discussions	Types of international laws	Lecture	Quizzes and homework
Nineth	2	Weekly assessment of student /discussions	Decisions issued from Iraq Supreme Criminal Tribunal	Lecture	Quizzes and homework
Tenth	2	Weekly assessment of student /discussions	Crimes and issues seen by Iraq Supreme Criminal Tribunal	Lecture	Quizzes and homework
Eleventh	2	Weekly assessment of student /discussions	Chapter 2: Psychological and social crimes and their effect on Iraq	Lecture	Quizzes and homework
Twelfth	2	Weekly assessment of student /discussions	First: Psychological crimes	Lecture	Quizzes and homework
Thirteen	2	Weekly assessment of student /discussions	Mechanisms and methods of Psychological crimes	Lecture	Quizzes and homework
Fourteenth	2	Weekly assessment of student /discussions	Effects of Psychological crimes	Lecture	Quizzes and homework
Fifteenth	2	Weekly assessment of student /discussions	Second: social crimes	Lecture	Quizzes and homework

Sixteenth	2	Weekly assessment of student /discussions	Militarization of society	Lecture	Quizzes and homework
Seventeenth	2	Weekly assessment of student /discussions	Monopoly of religion	Lecture	Quizzes and homework
Eighteenth	2	Weekly assessment of student /discussions	Iraqi laws violations	Lecture	Quizzes and homework
Nineteenth	2	Weekly assessment of student /discussions	Pictures of human rights violations and regime	Lecture	Quizzes and homework
Twentieth	2	Weekly assessment of student /discussions	Military and political Executions decisions	Lecture	Quizzes and homework
Twenty first	2	Weekly assessment of student /discussions	Places of prisons, arresting and detentions	Lecture	Quizzes and homework
Twenty second	2	Weekly assessment of student /discussions	Chapter 3: Ecological crimes and effects on Iraq	Lecture	Quizzes and homework
Twenty third	2	Weekly assessment of student /discussions	War pollution , radiation and mine explosions	Lecture	Quizzes and homework
Twenty fourth	2	Weekly assessment of student /discussions	Burned land policy	Lecture	Quizzes and homework
Twenty fifth	2	Weekly assessment of student /discussions	Dredging orchards, trees and cultivars	Lecture	Quizzes and homework
Twenty sixth	2	Weekly assessment of student /discussions	Chapter 4: Mass craves crimes	Lecture	Quizzes and homework
Twenty seventh	2	Weekly assessment of student /discussions	Events of 1963 and relationships with mass craves	Lecture	Quizzes and homework
Twenty eighth	2	Weekly assessment of student /discussions	Events and wars in Iraq from 1979 to 2003 and relationships with	Lecture	Quizzes and homework

			mass craves		
Twenty nineth	2	Weekly assessment of student /discussions	Mass craves sites due to events and coups from 1963-1979	Lecture	Quizzes and homework
Thirtieth	2	Weekly assessment student /discussions	Mass craves sites due to events and coups from 1980-2003	Lecture	Quizzes and homework

100. 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

101. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbook (Baath regime crimes) by ministry committee 2023
Main references (sources)	Al-Shuhaddaa Foundation archives Poltical prisoners foundation archive
Recommended books and references (scientific journals, reports…)	Al-Fadhel M. Crimes on state security. 1978 Abdul Malak J. Criminal encyclopedia .1990
Electronic References, Websites	New references, Articles and books from Web

Course Description Form

1. Course Name: General physics

2. Course Code: EDMA24M105

3. Semester / Year: 2023−2024

4. Description Preparation Date: 1/9/2023

5. Available Attendance Forms: Laboratory , Classroom

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

7. Course administrator's name (mention all, if more than one name)
Name: Hala Nizar Muhammad Fadel Emil : hala.n.m@uomosul.edu.iq

8. Course Objectives

Course Objectives	
	1. To study basic and derived physical quantities. 2. To learn about dimensional theory. 3. To understand the process of vector multiplication. 4. To study linear motion, free fall, and projectile motion. 5. To understand rotational motion and its variables. 6. To learn about the mechanical properties of the material.

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions problem solving , performing practical experiments reports and homework

10. Course Structure

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

First	2	Physics and measurement	Physical quantities	Lecture	quizzes
Second	2	Fundamental physical quantities	Derived physical quantities	Lecture	quizzes
Third	2	Physical quantities and dimensions	Dimensional theory	Lecture	quizzes
Fourth	2	Vectors	Vector compounds	experiment	Quiz, report , homework
Fifth	2	Fundamental unit vectors	Add and subtract vectors	Problem solving	Homework
Sixth	2	Drawing in a parallelogram method	Analytical method	experiment	Quiz, report , homework
Seventh	2	Vector multiplication	Numerical multiplication of vectors	Problem solving	Homework
Eighth	2	Cross multiplication of vectors	Cross multiplication of vectors	experiment	Quiz, report , homework
Nineth	2	the movement	Displacement, velocity and acceleration	Problem solving	Homework
Tenth	2	Types of special movement	Motion with uniform speed in a straight line	experiment	Quiz, report , homework
Eleventh	2	Motion with uniform acceleration in a straight line	free fall	experiment	Quiz, report , homework
Twelfth	2	Projectile movement	Projectile movement	Problem solving	Homework
Thirteen	2	Rotational motion variables	Angular displacement	Lecture	Quiz, and homework
Fourteenth	2	Angular velocity	Angular acceleration	Problem solving	Homework
Fifteenth	2	Exam	Exam		
Sixteenth	2	Special types of rotational movement	Special types of rotational movement	lecture	Quiz, report , homework
Seventeenth	2	Rotary motion with constant angular velocity	Rotary motion with constant angular velocity	lecture	Quizzes
Eighteenth	2	Rotational motion with constant angular acceleration	Rotational motion with constant angular acceleration	Problem solving	Quiz, and homework
Nineteenth	2	The relationship between rotational and linear motion variables	The relationship between rotational and linear motion variables	Lecture	Quizzes

Twentieth	2	Flexibility	Flexibility	Problem solving	homework
Twenty first	2	Stress	Stress	Lecture	Quiz
Twenty second	2	Irritability or compliance	Irritability or compliance	Problem solving	homework
Twenty third	2	Types of emotion	Types of emotion	Lecture	Quiz
Twenty fourth	2	Elastic strain	Elastic strain	Problem solving	homework
Twenty fifth	2	Plastic strain	Plastic strain	lecture	Quiz
Twenty sixth	2	Elasticity coefficients	Elasticity coefficients	Problem solving	homework
Twenty seventh	2	Young's modulus	Young's modulus	Lecture	Quiz
Twenty eighth	2	Shear modulus of elasticity	Shear modulus of elasticity	lecture	Quiz, report , homework
Twenty nineth	2	Volumetric modulus of elasticity	Volumetric modulus of elasticity	Lecture	Quiz
Thirtieth	2	Exam	Exam		

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	1) General physics. 2) Basics of physics. 3) Physics principles and applications.
Main references (sources)	1) General physics.
Recommended books and references (scientific journals, reports…)	Reports - periodicals and scientific journals
Electronic References, Websites	International Information Network (Internet)

Course Description Form

102.	Course Name: Educational Psychology
103.	Course Code: EDMA24M107
104.	Semester / Year: 2023−2024
105.	Description Preparation Date: 1/9/2023
106.	Available Attendance Forms: In-person / Blended Learning
107.	Number of Credit Hours (Total) / Number of Units (Total)
Three hours a week six (units)	
108.	Course administrator's name (mention all, if more than one name)
Name:Mustafa fahmi hamid Email:mustafa.hamid @uomosul.edu.iq	

109.	Course Objectives
Course Objectives	• **The general goal: The course aims to understand h psychological factors affect the educational process and h to improve the learning and teaching experience for stude and teachers alike.** • **The specific goal: The course aims in particular to underst: how psychological factors affect the learning and teach process and to develop effective educational strategies methods to improve students' performance and enhance t educational experience.**

110.	Teaching and Learning Strategies
Strategy	The lecture, solving problems, reports, Active cooperative learning, Brainstorming.

111. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	6	Introduction Psychology	Introduction to Psychology	Lecture	Quiz
2.	6	Historical evolution of psychology	Historical evolution of psychology	Discussion	Ask questions and discuss
3.	6	The nature psychology	The nature psychology	Lecture	
4.	6	The objectives of psychology	The objectives of psychology	Lecture	Oral test
5.	6	schools of Psychology	schools of Psychology	Lecture & Discussion	
6.	6	Branches of psychology	Branches psychology	Lecture	Classroom interaction
7.	6	Factors influencing behavior	Factors influencing behaviour	Lecture & Discussion	Classroom interaction
8.	6	Educational process & educational psychology	Educational process & educational psychology	Lecture & cooperative learning	Individual assignments
9.	6	Factors that affect the effectiveness of the process	Factors that affect the effectiveness of the process	Lecture and brainstorming	
10.	6	The attention	The attention	Lecture	Individual assignments
11.	6	The nature of the attention process	The nature of the attention process	Lecture & cooperative learning	Reports
12.	6	Interference in the attention process	Interference in the attention process	Lecture & mutual learning	Quiz
13.	6	Attention theories	Attention theories	Lecture and brainstorming	Quick questions at the end of the lesson

14.	6	Factors that affect attention	Factors that affect attention	Lecture and prepared reports	Reports
15.	6	sense perception	sense perception	Lecture	Oral test
16.	6	perception	perception	Test	Classroom interaction
17.	6	Motivation in learning	Motivation in learning	Lecture & mutual learning	Oral test
18.	6	The importance of studying motivation	The importance of studying motivation		
19.	6	The nature of motivation	The nature of motivation	Lecture and prepared reports	
20.	6	Motivation theories in learning	Motivation theories in learning	Lecture	Classroom interaction
21.	6	Educational functions of motivation	Educational functions of motivation	Lecture	Electronic test
22.	6	Stimulate students' motivation to learn	Stimulate students' motivation to learn	Lecture	
23.	6	Remembering and forgetting	Remembering and forgetting	Lecture	Classroom interaction
24.	6	Types of memory	Types of memory	Lecture & mutual learning	individual performance
25.	6	Forgetfulness	Forgetfulness	Lecture and brainstorming	Discussion
26.	6	**Theories of forgetting**	Theories of forgetting	Lecture and prepared reports	Discussion
27.	6	Factors affecting forgetfulness	Factors affecting forgetfulness	Lecture & mutual learning	Reports & Discussion

112. 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

(Annual pursuit 40 + Final 60).

113. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lectures on Educational Psychology by Dr. Ali Suleiman Hussein.
Main references (sources)	Foundations of Educational Psychology Professor Fadhel Mohsen Al-Azergawi.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name: Group Theory

2. Course Code: **EDMA24F103**

3. Semester / Year: 2023−2024

4. Description Preparation Date: 1/9/2023

5. Available Attendance Forms: Laboratory , Classroom

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

   90 hours/ 4 units

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

Name: Assis. Prof. Dr. Ali A. Alabdali   Email: ali.alabdali@uomosul.edu.iq
Name: Assis. Lec. Hanan S. Mohammed   Email: hanansalim73@uomosul.edu.iq

8. Course Objectives

Course Objectives	• Identify binary operations and the basic properties of group theory. • The ability to employ different theorems to study the types and properties of groups.

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lectures , talks and discussions, solving problems, reports and homeworks.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	3	Identify the properties of operations	Definition and Examples of Groups	Lecture	quizzes
Second	3	Learn about group conditions	Definition and Examples of Grou	Lecture	quizzes
Third	3	Understanding the group	Definition and amples of Groups	Lecture	quizzes
Fourth	3	Understanding the	Definition and Examples of Grou	experiment	Quiz, report ,

		group			homework
Fifth	3	Apply group	Definition and Examples of Groups	Problem solving	Homework
Sixth	3	Identify the basic theorems	Certain Elementary Theorems on Groups	experiment	Quiz, report , homework
Seventh	3	Identify the basic theorems	Certain Elementary Theorems on Groups	Problem solving	Homework
Eighth	3	Identify the basic theorems	Certain Elementary Theorems on Groups	experiment	Quiz, homework
Nineth	3	Understand basic theorems with examples	Certain Elementary Theorems on Groups	Problem solving	Homework
Tenth	3	Apply the basic theorems	Certain Elementary Theorems on Groups	experiment	Quiz, homework
Eleventh	3	Identify the symmetr group of a square	Two Important Groups	experiment	Quiz, report , homework
Twelfth	3	Understanding the symmetry group of a square	Two Important Groups	Problem solving	Homework
Thirteen	3	Identify the symmetry group of a triangle	Two Important Groups	Lecture	Quiz, and homework
Fourteenth	3	Understanding the symmetry group of a triangle	Two Important Groups	Problem solving	Homework
Fifteenth	3	Apply the special grou	Two Important Groups	Solving problem	Quiz, homework
Sixteenth	3	Identify subgroups	Subgroups	lecture	Quiz, homework
Seventeenth	3	Understanding subgroups	Subgroups	lecture	Quizzes
Eighteenth	3	Distinguish between subgroups	Subgroups	Problem solving	Quiz, and homework
Nineteenth	3	Apply the subgroups	Subgroups	Lecture	Quizzes
Twentieth	3	Identify normal subgroups	Normal Subgroups and Quotient Groups	Problem solving	homework
Twenty first	3	Understanding normal subgroups	Normal Subgroups and Quotient Groups	Lecture	Quiz
Twenty second	3	Apply the normal subgroups	Normal Subgroups and Quotient Groups	Problem solving	homework
Twenty third	3	Identify the quotient group	Normal Subgroups and Quotient Groups	Lecture	homework

Twenty fourth	3	Understand and apply quotient group	Normal Subgroups and Quotient Groups	Problem solving	homework
Twenty fifth	3	Identify homomorphism	Homomorphisms	lecture	Quiz
Twenty sixth	3	Understanding homomorphism	Homomorphisms	Problem solving	homework
Twenty seventh	3	Apply the homomorphism	Homomorphisms	Lecture	Quiz
Twenty eighth	3	Identify isomorphism	Isomorphisms	lecture	homework
Twenty nineth	3	Understanding homomorphism	Isomorphisms	Lecture	Quiz
Thirtieth	3	Apply the isomorphism	Isomorphisms	Lecture	Quiz, report

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Abstract Algebra, David M. Buton, 1988, wm. c. Brown Publishers.
Main references (sources)	The Theory of Groups, Rotman J.J. 2nd, 1973, Boston.
Recommended books and references (scientific journals, reports…)	The Theory of Groups Macdonald, 1968, oxford.
Electronic References, Websites	[Wolfram MathWorld: The Web's Most Extensive Mathematics Resource](#)

Course Description Form

114.	Course Name: Ordinary differential equations

115.	Course Code: **(EDMA24F202)**

116.	Semester / Year: 2023−2024

117.	Description Preparation Date: 1/9/2023

118.	Available Attendance Forms: Laboratory , Classroom

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

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

1- Name: Dr. Azzam S. Y. Aladool

   Email: Azzam.aladool@uomosul.edu.iq
2- Name: Noora Laith Housen
   Email: nooralaith1984@uomosul.edu.iq

121.	Course Objectives

Course Objectives	1– **It aims to enable the student to recognize the types of differential equations Knowing the practical applications of Genetics.** 2– **How to choose the appropriate method to solve the ordinary differenti equation.**

122.	Teaching and Learning Strategies

Strategy Theoretical lecture, dialogue and discussions, solving exercises, daily assignments, daily exams

123.	Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	Enabling students to understand the	Types of ordinary	Lecture	quize

		subject of differential equations	differential equations		
Second	4	Enabling students to understand the subject of differential equations	Fruit flyTypes of ordinary differential equations	Lecture	quize
Third	4	Enabling students to understand the subject of differential equations	Types ordinary differentia equations	Lecture	quize
Fourth	4	Enabling students to understand the subject of differential equations	Types of ordinar differential equations	experiment	quize
Fifth	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	Problem solving	Homework
Sixth	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	experiment	Homework
Seventh	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	Problem solving	Homework
Eighth	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	experiment	homework
Nineth	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	Problem solving	Homework
Tenth	4	Student acquires skills of solving differential equations	Complementary genes Solving first-order and first-order differential equations	experiment	, homework
Eleventh	4	Student acquires sk of solving differen equations	Complementary genes Solving fir order and fir	experiment	homework

			order differen equations		
Twelfth	4	Student acquires skills of solving differential equations	Solving first-order and first-order differential equations	Problem solving	Homework
Thirteen	4	Student acquires skills of distinguishing between differential equations types	Linear equations with constant coefficients	Lecture	Quiz, and homework
Fourteenth	4	Student acquires skills of distinguishing between differential equations types	Linear equations with constant coefficients	Problem solving	Quiz, and homework
Fifteenth	4	Student acquires skills of distinguishing between differential equations types	Linear equations with constant coefficients	lecture	Quiz, and homework
Sixteenth	4	Student acquires skills of distinguishing between differential equations types	Linear equations with constant coefficients	lecture	Quiz, report , homework
Seventeenth	4	Enabling students to solve differential equations	Operator D	lecture	Quize
Eighteenth	4	Enabling students to solve differential equations	Operator D	lecture	Quiz
Nineteenth	4	Enabling students to solve differential equations	Operator D	Lecture	Quize
Twentieth	4	Enabling students to solve differential equations	Operator D	lecture	Quize
Twenty first	4	Discussion and dialogue between the student and the professor	Solve the non-homogeneous linear equation with fixed coefficients	Lecture	Quiz

Twenty second	4	Discussion and dialogue between the student and the professor	Solve the non-homogeneous linear equation with fixed coefficients	lecture	Quize
Twenty third	4	Discussion and dialogue between the student and the professor	Solve the non-homogeneous linear equation with fixed coefficients	Lecture	Quiz
Twenty fourth	4	Practical application Discussion and dialogue between the student and the professor	Solve the non-homogeneous linear equation with fixed coefficients	lecture	homework
Twenty fifth	4	Student acquires skills of solving differential equations	Solve differential equations using the Laplace transform - the inverse Laplace transform	lecture	homework
Twenty sixth	4	Student acquires skills of solving differential equations	Solve differential equations using the Laplace transform - the inverse Laplace transform	lecture	homework
Twenty seventh	4	Student acquires skills of solving differential equations	Solve differential equations using the Laplace transform - the inverse Laplace transform	Lecture	homework
Twenty eighth	4	Student acquires skills of solving differential equations	Solve differential equations using the Laplace transform - the inverse Laplace transform	lecture	Quiz, and homework
Twenty nineth	4	Student acquires skills of solving differential equations	Solving differential equations with series	Lecture	Quiz, and homework
Thirtieth	4	Student acquires skills of solving differential equations	Solving differential equations	lecture	Quiz, and homework

			with series		

124. Course Evaluation					

Distribution of the grade out of 15 according to the tasks assigned to the student, such as daily preparation and daily and monthly exams

125. Learning and Teaching Resources					

Required textbooks (curricular books, if any)	Methods of solving ordinary differential equations. Dr. Khaled Al-Samarrai Dr. Yahya Abdel Saeed

Course Description Form

1. Course Title:
Advanced Calculus

2. Course Code:
EDMA24F201

3. Semester / Year:
2024-2023

4. Description Preparation Date:
2023/9/1

5. Available Attendance Forms:
Physical and virtual attendance

6. Number of Credit Hours (Total) / Number of Units (Total)
Lectures (3h), Tutorials (2h)

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

Name: **Dr. Sohaib Al-Ramadhani & Esraa Adnan**

Email: sabihqaqos@uomosul.edu.iq

Name: **Esraa Adnan Najm**

Email: .alniemi@uomosul.edu.iq

8. Course Objectives

Course Objectives	**Knowing multivariable calculus Learning concepts related to analytical geometry and infinite sequences and series**

9. Teaching and Learning Strategies

Strategy	Lecture, discussions, problem solving, and homework.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	**5**	**Knowing the concept of infinite sequence**	**Sequences**	**Lecture and discussion**	**Quizzes and homework**
Second	**5**	**Knowing the sequence convergence**	**Sequences**	**Lecture and discussion**	**Quizzes and homework**

		tests			
Third	*5*	**Knowing the concept of infinite series**	**Series**	**Lecture and discussion**	**Quizzes and homework**
Fourth	*5*	**Knowing the series convergence tests**	**Series**	**Lecture and discussion**	**Quizzes and homework**
Fifth	*5*	**Knowing the concept of power series**	**Series**	**Lecture and discussion**	**Quizzes and homework**
Sixth	*5*	**Knowing the concept of vector in space**	**Vector algebra**	**Lecture and discussion**	**Quizzes and homework**
Seventh	*5*	**Knowing the equation of line and plane in space**	**Line and plane equations**	**Lecture and discussion**	**Quizzes and homework**
Eighth	*5*	**Knowing the concept of polar coordinates**	**Polar coordinates**	**Lecture and discussion**	**Quizzes and homework**
Nineth	*5*	**Sketching graphs in polar coordinates**	**Polar coordinates**	**Lecture and discussion**	**Quizzes and homework**
Tenth	*5*	**Finding length and area inside curves in polar coordinates**	**Polar coordinates**	**Lecture and discussion**	**Quizzes and homework**
Eleventh	*5*	**Knowing the concept of partial and total differentiation**	**Advanced differentiation**	**Lecture and discussion**	**Quizzes and homework**
Twelfth	*5*	**Knowing differential operators**	**Advanced differentiation**	**Lecture and discussion**	**Quizzes and homework**

Thirteen	5	Finding and classifying extrema	Advanced differentiation	Lecture and discussion	Quizzes and homework
Fourteenth	5	Solving optimization problems using Lagrange method	Advanced differentiation	Lecture and discussion	Quizzes and homework
Fifteenth	2	Exam	Advanced differentiation	Lecture and discussion	Quizzes and homework
Sixteenth	5	Sketching graphs in plane	Analytic geometry	Lecture and discussion	Quizzes and homework
Seventeenth	5	Evaluating line integral	Advanced integral	Lecture and discussion	Quizzes and homework
Eighteenth	5	Evaluating double integral	Advanced integral	Lecture and discussion	Quizzes and homework
Nineteenth	5	Knowing application of line and double integral	Advanced integral	Lecture and discussion	Quizzes and homework
Twentieth	5	Knowing Green's Theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty first	5	Knowing application of Green's theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty second	5	Sketching surfaces in space	Analytic geometry	Lecture and discussion	Quizzes and homework
Twenty third	5	Evaluating triple integral	Advanced integral	Lecture and discussion	Quizzes and homework

Twenty fourth	5	Evaluating surface integral	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty fifth	5	Knowing application of triple and surface integral	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty sixth	5	Knowing the divergence theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty seventh	5	Knowing application of divergence theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty eighth	5	Knowing Stoke's theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Twenty nineth	5	Knowing application of Stoke's theorem	Advanced integral	Lecture and discussion	Quizzes and homework
Thirtieth	2	Exam	Advanced integral	Lecture and discussion	Quizzes and homework

11. Course Evaluation

15 marks for quizzes, 25 marks for the mid-term exam, 60 marks for the final exam. The total is 100 marks.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	حسبان التفاضل والتكامل تأليف جي بيرسل (الجزء الثاني)
Main references (sources)	**Calculus, Anton. Bivens. Davis**
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

13.	Course Name: Advanced computer science
14.	Course Code: EDMA24F205
15.	Semester / Year: 2023-2024
16.	Description Preparation Date: 1/9/2023
17.	Available Attendance Forms: In-person , E-Classroom
18.	Number of Credit Hours (Total) / Number of Units (Total): 2-2
19.	Course administrator's name (mention all, if more than one name)
Name: Omar Alniemi Email: omaralniemi@uomosul.edu.iq	

20.	Course Objectives
Course Objectives	• The student gets to know the Matlab environment • The student gets to know the basic principles of programming in Matlab • Enable the student to read and write code in Matlab • Giving the student the skill of performing operations programmatically on vectors and matrices • Enable the student to build recursive loops and conditional statements • The student gets to know drawing tools in Matlab • Providing the student with the skill of drawing in Matlab

21.	Teaching and Learning Strategies
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , reports and homework

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Matlab environment	−Matlab environment and windows −Variables −Constants −Operators −Functions −mathematical and logical operations	Lecture and laboratory	Experimental activities
Second	2	Matlab environment	−mathematical and logical operations − M−File	Lecture and laboratory	Quiz,activities and assignment
Third	2	Vectors	−Types of vectors −Create vectors	Lecture and laboratory	Experimental activities
Fourth	2	Vectors	−Element adding −Element deleting −Element replacin −maximum and minimum −vector length	Lecture and laboratory	Experimental activities
Fifth	2	Vectors	−Call one element −Calling sequential elements −Calling non−sequential elements −Adding sequential elements −Adding non−sequential elements −Delete sequential elements − Delete non−sequential elements − Replace sequential elements −Replace non−sequential elements	Lecture and laboratory	Experimental activities
Sixth	2	Vectors	− Mathematical operations and vectors	Lecture and laboratory	Quiz,activities and assignment

Seventh	2	Matrices	Matrices –Special Matrices	Lecture and laboratory	Experimental activities
Eighth	2	Matrices	–Transpose – Symmetric –Skew symmetric –Determinant –Trace –Adjoint –Inverse	Lecture and laboratory	Experimental activities
Nineth	2	Matrices	–diag –sum –triu –tril	Lecture and laboratory	Experimental activities
Tenth	2	Matrices	–fliplr –flipud – Select a row or column –max & min	Lecture and laboratory	Experimental activities
Eleventh	2	Matrices	– Addition and subtraction – multiplication – ^	Lecture and laboratory	Experimental activities
Twelfth	2	Matrices	– Multidimensional Arrays	Lecture and laboratory	Quiz,activities and assignment
Thirteen	2	Input and output	–Input –disp – num2str	Lecture and laboratory	Quiz,activities and assignment
Fourteenth	2	Loops	For Loop	Lecture and laboratory	Experimental activities
Fifteenth	2	Loops	For Loop	Lecture and laboratory	Experimental activities
Sixteenth	2	Loops	For Loop	Lecture and laboratory	Quiz,activities and assignment
Seventeenth	2	Loops	While Loop	Lecture and laboratory	Experimental activities
Eighteenth	2	Loops	While Loop	Lecture and laboratory	Experimental activities
Nineteenth	2	Loops	While Loop	Lecture and laboratory	Quiz,activities and assignment

Twentieth	2	Conditional Statements	If Conditional	Lecture and laboratory	Experimental activities
Twenty first	2	Conditional Statements	If Conditional	Lecture and laboratory	Experimental activities
Twenty second	2	Interruptive Statements	Continue and Break Statements	Lecture and laboratory	Quiz,activities and assignment
Twenty third	2	Plot	−Figure window −plot	Lecture and laboratory	Experimental activities
Twenty fourth	2	Plot	−color, symbols and line types −linspace −fplot	Lecture and laboratory	Experimental activities
Twenty fifth	2	Plot	−hold on −hold off −subplot	Lecture and laboratory	Experimental activities
Twenty sixth	2	Plot	−stem −stairs −bar	Lecture and laboratory	Experimental activities
Twenty seventh	2	Plot	−grid −xlabel −ylabel −title −legend −text −axis	Lecture and laboratory	Quiz,activities and assignment
Twenty eighth	2	Plot	−plot3 −meshgrid	Lecture and laboratory	Experimental activities
Twenty nineth	2	Plot	−pie3 −surf −ezplot	Lecture and laboratory	Experimental activities
Thirtieth	2	Plot	−polar −contour	Lecture and laboratory	Quiz,activities and assignment

23. 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

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	Matlab help
Recommended books and references (scientific journals, reports…)	Matlab for beginners: a gentle approach
Electronic References, Websites	mathworks.com

Course Description Form

1. Course Name: Scientific research method

2. Course Code: EDMA24M206

3. Semester / Year: 2023−2024

4. Description Preparation Date: 1/9/2023

5. Available Attendance Forms: Laboratory , Classroom

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

7. Course administrator's name (mention all, if more than one name)
Name: Assistant Zainab abdulateef rasheed Emil : zainab.abdulateef@uomosul.edu.iq

8. Course Objectives

Course Objectives	Training the student on how to write a graduation project research. • Preparing the student to prepare his thesis if he has a desire to complete his graduate studies • Introducing the student to how to conduct statistical analyzes to achieve accurate results

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions problem solving , performing practical experiments reports and homework

10. Course Structure

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

First	2	Basics of scientific research	The nature of scientific research / choosing the research problem / research plan / research methodology	Lecture	quizzes
Second	2	Scientific thinking and research	History of thought and common factors in forming thinking/definition of thought/patterns of thinking/manifestations of thinking	Lecture	quizzes
Third	2	the quote	Considerations that should be taken into account when quoting with an illustrative example	Lecture	quizzes
Fourth	2	Collect and classify data	Historical, library and field sources/data collection method	experiment	Quiz, report , homework
Fifth	2	How to document personal interview data	How to deal with people involved in the research, explaining this with an example	Problem solving	Homework
Sixth	2	Email information	How to cite information from email	experiment	Quiz, report , homework
Seventh	2	the society	Its definition and areas of use in research	Problem solving	Homework
Eighth	2	the sample	Definition of the sample / its types / method of drawing it and its mathematical methods / illustrative example	experiment	Quiz, report homework
Nineth	2	The relationship between the population and the sample	Determine the cases in which the sample is used and what is its relationship to the population from which it is drawn.	Problem solving	Homework
Tenth	2	Writing scientific research	Preparing the research draft/preparing the original research/sending the original research for publication	experiment	Quiz, report homework
Eleventh	2	Descriptive statistics	Definition of descriptive and quantitative data/graphical representation of them	experiment	Quiz, report homework
Twelfth	2	Charts	Types of graphs/histogram/histogram/histogram/histogram/histogram	Problem solving	Homework
Thirteen	2	Frequency distribution tables	Organizing data into two types of frequency distribution tables/how to calculate the frequency for each of them	Lecture	Quiz, and homework
Fourteenth	2	Clustered repetition	Extracting the ascending and descending clustered frequencies and their graphical	Problem solving	Homework

			representation		
Fifteenth	1	Measur of cent tenden	Calculating the arithmetic mean/median/mode/ uartile mean/geometr mean		
Sixteenth	2	Types of statistical data	Definition of classified and unclassified data	lecture	Quiz, report , homework
Seventeenth	2	Frequency distribution tables	Types of frequency tables and how to distribute the data within them	lecture	Quizzes
Eighteenth	2	Statistical samples	Method of statistical sampling, its types and field of application	Problem solving	Quiz, and homework
Nineteenth	2	Introduction to probability	Definition of probability/sample space/event/independent and independent events	Lecture	Quizzes
Twentieth	2	Probability calculation	Determine methods for calculating the value of probabilities, whether for independent or independent events	Problem solving	homework
Twenty first	2	Probability distributions	Definition of continuous and discontinuous distributions and their probability functions	Lecture	Quiz
Twenty second	2	Cumulative distributions	Definition of the cumulative distribution function and its mathematical formula	Problem solving	homework
Twenty third	2	Poisson distribution	Definition of its probability function/arithmetic mean/variance, standard deviation, mathematical expectation, moment-generating function, and its graphical form.	Lecture	Quiz
Twenty fourth	2	Bernoulli distribution	Give the formula for its probability function and calculate the arithmetic mean and variance/standard deviation/mathematical expectation/moment generating function	Problem solving	homework
Twenty fifth	2	Normal distribution	Its definition/shape of the curve/properties/arithmetic mean/variance/standard deviation/mathematical expectation	lecture	Quiz

Twenty sixth	2	Uses of normal distribution	Calculating areas under the curve using normal distribution tables instead of integrating them	Problem solving	homework
Twenty seventh	2	Chi-square distribution	Use to know the difference between real and expected views	Lecture	Quiz
Twenty eighth	2	Do a search	A group of students prepared an experimental research	lecture	Quiz
Twenty nineth	2	Discussing the research	Training students on how to discuss their research project before the discussion committee.	Lecture	Quiz
Thirtieth	1	Exam			

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	Scientific/quantitative and qualitative research Professor Dr. Amer Kandilji and Dr Iman Al-Samarrai • Statistical methods/ Dr. Sabry Radif Al-Ani and Dr. Salim Al-Gharabi. • Probabilities and random variables / Dr. Basil Younis. • Statistics/Dr. Mahmoud Hassan Al-Mashhadani and Mr. Amir Hanna Hormuz
Main references (sources)	Basic texts prepared by the subject teacher
Recommended books and references (scientific journals, reports…)	Reports - periodicals and scientific journals
Electronic References, Websites	International Information Network (Internet)

Course Description Form

126.	Course Name: English Language
127.	Course Code: **EDMA24M209**
128.	Semester / Year: 2023−2024
129.	Description Preparation Date: 1/9/2023
130.	Available Attendance Forms: Laboratory , Classroom
131.	Number of Credit Hours (Total) / Number of Units (Total)
	1/2

132.	Course administrator's name (mention all, if more than one name)
Name: Assist lecturer / Noor Laith Housen Email: nooralaith1984@uomosul.edu.iq	

133.	Course Objectives
Course Objectives	• The student learns the basics of t English Language. • The student is able to solve all t various problems related to the subject • Developing the student's knowled about the subject by adding some mod topics

134.	Teaching and Learning Strategies
Strategy	Theoretical lecture, dialogue and discussions, daily assignments, quiz

135. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	Type of adjectives	adjectives	Lecture	Quiz

Second	1	Type of adjectives	adjectives	Lecture	Quiz
Third	1	Type of adjectives	adjectives	Lecture	Quiz
Fourth	1	The student learns about the types of jobs	Jobs	Lecture	Quiz
Fifth	1	The student learns about the types of jobs	Jobs	Lecture	Quiz
Sixth	1	Future simple	Questions and answers	Lecture	Quiz
Seventh	1	The student learns the names of family members	Combining family names with some fruits	Lecture	Quiz
Eighth	1	The student learns the names of family members	Combining family names with some fruits	Lecture	Quiz
Ninth	1	The student learns the names of family members	Combining family names with some fruits	Lecture	Quiz
Tenth	1	Comprehension	Reading Passage	Lecture	Quiz
Eleventh	1	Comprehension	Reading Passage	Lecture	Quiz
Twelfth	1	Distinguish between attributes	Questions and answers	Lecture	Quiz
Thirteen	1	The student learns how to write numbers	Numbers	Lecture	Quiz
Fourteenth	1	The student learns how to write numbers	Numbers	Lecture	Quiz
Fifteenth	1	Definite and Indefinite Article	a/an and the	Lecture	Quiz
Sixteenth	1	Present simple of "be"	Affirmative and Negative forms	Lecture	Quiz
Seventeenth	1	Present simple of "be"	Questions and Short answers	Lecture	Quiz
Eighteenth	1	Past perfect	Affirmative and negative	Lecture	Quiz
Nineteenth	1	Past perfect	Questions and answers	Lecture	Quiz
Twentieth	1	If-Conditional 3rd type	If had - would have	Lecture	Quiz
Twenty first	1	The student learns how to write time	the time	Lecture	Quiz
Twenty second	1	The student learns how to write time	the time	Lecture	Quiz
Twenty thi	1	The student learns to write history	the date	Lecture	Quiz

Twenty fourth	1	The student should distinguish weather conditions	the weather	Lecture	Quiz
Twenty fifth	1	For the student to know how to write a question	How to compose the question	Lecture	Quiz
Twenty sixth	1	Past continuous	Question and answer	Lecture	Quiz
Twenty seventh	1	Prepositions of time	In, at, on	Lecture	Quiz
Twenty eighth	1	Comprehensio n	Reading passage	Lecture	Quiz
Twenty ninth	1	Comprehension	construction	Lecture	Quiz
Thirtieth		Final Exam			

136. 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

137. Learning and Teaching Resources

Required textbooks (curricular books any)	Grammar Two
Main references (sources)	Grammar Two
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Z AMERICAN ENGILISH

Course Description Form

1. Course Name:	Axioms and geometry systems

2.	Course Code: EDMA24F203

3.	Semester / Year: 2024 – 2023

4.	Description Preparation Date: 1/9/2023

5.	Available Attendance Forms: Classroom

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

7.	Course administrator's name (mention all, if more than one name)
Name: : Assistant lecturer. Tariq Hamad Abdullah	
Email: t.a.abdullah@uomosul.edu.iq	

8.	Course Objectives

Course Objectives	. **Explain to the student the basics** **engineering, engineering systems a** **axioms.** . **Enable the student to prove theorems logica** **and properly, starting from the d** **and what is required to be prov** **drawing and then proof.** . **Explain to the student the direct and indir** **methods of proof.** . **Knowledge and good understanding of** **correct integrated engineer** **material** . **Understand and understand the basic theor** **of engineering types**

9.	Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussio problem solving, reports and da assignments

10.	Course Structure				
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning**	**Evaluation method**
5- 8	12	Properties of axiomc syst	Consistency I e r n	Lecture	Written exa with home rk
9-12	12	Hilbertian syste	Definition p c a c v s s	Lecture	Written exa with home rk

13- 16	12	Elementary enginring	Re-prove s r t d n	Lecture	Written exa with home rk	
17- 20	12	Euclidean geom y/elli cal geom y	Definitions a b i t d n	Lecture	Written exa with home rk	
21- 25	15	Study Comp tional Proje ve Geom y	Study (r d i a p j i (n t	Lecture	Written exa with home rk	
26- 30	15	Analytical proje ve pl / Analy	The analyt p j i l	Lecture	Written exa with home rk	

			al harmo c plan	e t a l o o r i t a l e	

11.	Course Evaluation

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

12.	Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basic concepts of engineering, a book written Prof. Dr. Amal Shahab Al-Mukhtar
Main references (sources)	• Knowledge of the correct and integra understanding of the engineer subject • Axioms and geometry systems
Recommended books and references (scientific journals, reports…)	• Knowledge of the correct and integra understanding of the engineer subject • Axioms and geometry systems • Scientific journals and reports related to subject of engineering
Electronic References, Websites	https://learn.geometry.utah.edu/

Course Description Form

13.	Course Name:se: Secondary education, administration and supervision

14.	Course Code: EDMA24M207

15.	Semester / Year: 2024

16.	Description Preparation Date:2023 /10/12

17.Available Attendance Forms: My presence / Built-in

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

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

Name: Ali Abdul Muttalib Mahmoud

Email: ali _abdulmuttleeb @uomosul.edu.iq

20.	Course Objectives

Course Objectives	• **General goal: Students learn about the importance of secondary education, management, and supervision to raise their level of how to manage the classroom and strengthen their skills, develop a lesson plan, how to divide the curriculum, follow up on students' level, set a time for the exam, activate daily participation, as well as raise the students' administrative level and prepare them for the future in management and supervision tasks. .** • **• Special goal: Preparing students on how to deal with classroom management, controlling the classroom, raising the level of students, solving problems and obstacles that the student experiences, and producing results to raise the educational level of the student, as well as practicing management and supervision by visiting schools, following up on students' requirements, and activating courses for the teaching staff to raise the level of education. And solving obstacles among the teaching staff…..** • …..

		•	.....		

21. Teaching and Learning Strategies

Strategy	Lecture, problem solving, reports, active learning, brainstorming cooperative

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The concept and goals education	Education	lecture	Daily exam
2	2	Objectives of second education in Iraq	General and specific goals	Discussion	Ask questions
3	2	Educational innovations	E-Learning	a lecture	discuss
4	2	secondary education	Management concept	lecture	
5	2	Administration	Patterns of educatic administration	Lecture and discuss lecture	Oral test
6	2	Contemporary trends educational administratic	Types of planning	Lecture	Class interaction
7	2	Planning	Organization characteristics	discussion	Class interactior
8	2	Organization	Basic functions of guidance	lecture	Daily exam
9	2	Guidance	Types of calendar	lecture	Class interactior
10	2	Supervision and evaluation	The importance of classrc interaction	lecture	Quick questions
11	2	Classroom management ask questions	Objectives of the questions	Lecture	the end of lesson
12	2	The school administration	The concept of sch administration	discussion	discussion
13	2	School principal duties	Skills that a school princ must have	Lecture brainstormin	Daily testi
14	2	Teacher qualities	Teacher skills in evalua students	lecture	Quick questions
15	2	Classroom problems	Causes of classroom problen	lecture	the end of lesson
16	2	Training news	midyear	a test	
17	2	Simple problems that have a direct impact on the educational process	Causes of distraction	lecture	Daily exan
18	2	Frequent absence from school	Treating absence problems	lecture	Oral test
19	2	Core behavioral problems	Cheating and the reasons cheating	lecture	Oral test
20	2	Educational Supervision	The principles on wl supervision is based	lecture	Class interactior
21	2	Advantages of modern educational supervision	Methods of educatic supervision in general	Lecture brainstormin	Daily exan
22	2	Basis for choosing the supervisory method	A brief presentation of the n important and promir supervisory methods	lecture	Class interactior
23	2	Basis for choos the supervis method	Exchange of visits betw teachers	Lecture interactive learning	Quick questions
24	2	Supervisory deliberations	Steps to conduct the pract lesson	lecture	the end of lesson
25	2	Practical lessons	Its goals	a lecture	Class interactior
26	2	Educational workshop	Its concept and conditions	a lecture	Class interactior
27	2		Objectives of action research		Class interactior
28	2		Its advantages		discussion
29	2		E-learning objectives		discussion
30	2		Comparison of electrc education		Daily exan Reports

		Supervisory meetings sessions Action research Microlearning E-Learning Characteristics electronic educat	and traditional education		discussion Class interaction Lecture teaching Built-in Lecture teaching Built-in

23. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. (40 endeavors + 60 final)

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Bound. .Dr . Ahmed Saeed Rashid Taie, entitled Secondary Education Administration and Supervision, summary from a group of books.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name: Developmental psychology

2. Course Code: EDMA24M208

3. Semester / Year: 2024

4. Description Preparation Date: 1/9/2023

5. Available Attendance Forms: presence / buit-in

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

   2 hours / week

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

   Name: Assist lecturer: Ansam Naser Abed
   Email: ansamnaser999@gmail.com

8. Course Objectives

Course Objectives	**General aim:**
	1- **Provinding students with the main concepts of developmental psychology.**
	2- **Providing student with bsic knowledge about the nature of the hun** **developmental both in childhood and adolesence.**
	3- **Developing students' attitudes, values and positive bheaviors.**
	4- **Introducing students to the various causes of childhood and adolesce** **problems.**
	Specific aim:
	1- **Introducing students to the cocept of developmental psychology and differ** **human developmental stages.**
	2- **Introducing students to physical, mental, cognitive, emotional and so** **charcteristics of childhood and adolescence.**
	3- **Determining the role of social institutions in influencing the upbringing** **children and adolescents.**

9. Teaching and Learning Strategies

Strategy	Lecture, discussion , active cooperative learing, writing down notes, modeling learning and brainstorming.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identify to the concept of developmental psychology, the importance of studying developmental psychology therortically and in practice.	Developmental psychology, its definition and importance	Lecture	Asking questions
2	2	Enumrates the general principles developmental , drwas a diagram human developmental stages.	General principles growth, stages of human developme	Lecture and discussion	Class interactiob
3	2	Identify the genetic factos and comparing between the ductal glands and endocrine glands.	Genetic factors affecting growth	Lecture and brainstorming	discussion
4	2	Identify environmental factors Mention the types of environmen	Environmental factors affecting growth	Lecture and brainstorming	Daily exam
5	2	Get to know all the methods the information	Research methods developmental psychology	Discussion and writing down notes	Quick questions at the end of the lesson
6	2	Distinguish between experimenta and descriptive types of research	Research methods developmental psychology	Lecture and discussion	Discussion
7	2	Identify the stages of physical and motor development In the child	Childhood stage definition - stages development \Aljasmi	Lecture and discussion	Class interactiob
8	2	Determine the stages of language development	Linguistic development in childhood	Lecture	Discussion
9	2	Determine the stages of mental development	Mental developme in childhood	Lecture	Asking questions
10	2	Identify the stages of emotional development Distinguish between fear and anxiety	Emotional development in the child	Discussion	Class interactiob
11	2	Identify the concept of congenital behavior Determine the stages of congenita development	Congenital development in the child	Discussion and brainstorming	Quick questions at the end of the lesson
12	2	Distinguishing between styles of family upbringing Identify the role of school in upbringing	The role of social institutions in the socialization of the child: family and school	lecture	Oral exam
13	2	Identify the role of the peer group Identify the impact of the media	Peer group and the media	Lecture and cooperative learning	Daily exam
14	2	Learn about the concept of adolescence Comparison between puberty and adolescence	And its impact on t child's upbringing	lecture	Quick questions at the end of the lesson
15	2	Learn about physical developmen Identify the psychological effects	The concept of adolescence	Lecture and writing down	Quick questions at the end of the lesson

				notes	
16	2	Formative test	Physical growth in adolescence midyear	Test	Quick questions at the end of the lesson
17	2	Learn about the concept of intelligence and memory Drifting between remembering and imagining Distinguish between abilities and aptitudes	Mental and cogniti development in adolescents Teen trends	Discussion and brainstorming	
18	2	Compare slope and direction	And their inclinati	Lecture and cooperative learning	Asking questions
19	2	Learn about the concept of emoti and values Define values	Emotions and valu	Lecture and moeling learnin	Quick questions at the end of the lesson
20	2	Identify the role of the family and school	Adolescent and society (family and school	Discussion	Asking questions
21	2	Identify the role of peers and the media	The influence of peers and media o teenager	Lecture and cooperative learning	
22	2	Recognizing the importance of wo in a teenager's life	Adolescent and career	discussion	discussion
23	2	Identify the factors influencing th choice of profession	Adolescent and career compatibili	Lecture	Oral exam
24	2	Learn about the concept of acade delay	Some problems of adolescent delay Academic	lecture	Class interaction
25	2	Recognizing aggressive behavior	The concept of aggressive behavic	lecture	Class interaction
26	2	Identify the concept of adolescent delinquency	Adolescent delinquency	discussion	reports

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Assist Prof. Dr. Yaser Mahfoud Hamid
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

138.	Course Name: Human Rights and Democracy

139.	Course Code: EDMA24F210

140.	Semester / Year: 2023−2024

141.	Description Preparation Date: 1/9/2023

142.	Available Attendance Forms: Lecture , Classroom

143.	Number of Credit Hours (Total) / Number of Units (Total)
	2 hrs/ 2 units

144.	Course administrator's name (mention all, if more than one name)
Name: Assist. Lec. Omar Othman ibrahim Email: omar.othman@uomosul.edu.iq	

145.	Course Objectives
Course Objectives	● **The curriculum aims that the student will be familiar with concepts of human rights and principles of human rights** ● **Presenting a balanced scientific comprehension for Human rights in simple understandable way for most of subjects and syllables the are important for the student that are in undergraduate specialties in all colleges**

146.	Teaching and Learning Strategies
Strategy	theoretical lecture , talk and discussions, reports and quizzes and homework

147. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Weekly assessment of student	Chapter 1: Human rights : history ,	Lecture	Quizzes and homework

		/discussions	definition and similarities		
Second	2	Weekly assessment of student /discussions	Section 1: Definition of human right , what is human and what are human rights	Lecture	Quizzes and homework
Third	2	Weekly assessment of student /discussions	History of human rights in ancient Iraqi civilizations	Lecture	Quizzes and homework
Fourth	2	Weekly assessment of student /discussions	Human rights in in eastern and western ancient civilizations	Lecture	Quizzes and homework
Fifth	2	Weekly assessment of student /discussions	Human rights in Christian and Jewish religions	Lecture	Quizzes and homework
Sixth	2	Weekly assessment of student /discussions	Human rights in Islam and characteristics	Lecture	Quizzes and homework
Seventh	2	Weekly assessment of student /discussions	Section 2: human rights in meddle ages: Church control and feudalism	Lecture	Quizzes and homework
Eighth	2	Weekly assessment of student /discussions	Human rights within church control and feudalism and royal foundation	Lecture	Quizzes and homework
Nineth	2	Weekly assessment of student /discussions	Protestant doctrine and natural rights theory	Lecture	Quizzes and homework
Tenth	2	Weekly assessment of student /discussions	Human rights from social contract theory point of view	Lecture	Quizzes and homework
Eleventh	2	Weekly assessment of student /discussions	Human rights in civilizations and revolutions and their constitutions	Lecture	Quizzes and homework
Twelfth	2	Weekly assessment of student /discussions	First: Western revolutions and human rights	Lecture	Quizzes and homework
Thirteen	2	Weekly assessment of student /discussions	Second: Human rights and French citizen	Lecture	Quizzes and homework
Fourteenth	2	Weekly assessment of student /discussions	Third: Oriental revolutions and human rights	Lecture	Quizzes and homework
Fifteenth	2	Weekly assessment of student	Chapter 2: Human rights , determination	Lecture	Quizzes and homework

		/discussions	definition and types		
Sixteenth	2	Weekly assessment of student /discussions	Section 1: Types of human rights and linkage	Lecture	Quizzes and homework
Seventeenth	2	Weekly assessment of student /discussions	Individual human rights	Lecture	Quizzes and homework
Eighteenth	2	Weekly assessment of student /discussions	Population human rights	Lecture	Quizzes and homework
Nineteenth	2	Weekly assessment of student /discussions	Economic , social and cultural human rights, and civilian and political human rights	Lecture	Quizzes and homework
Twentieth	2	Weekly assessment of student /discussions	Modern human rights, rights in development , rights in clean environment , rights in solidarity , rights in peace	Lecture	Quizzes and homework
Twenty first	2	Weekly assessment of student /discussions	Linkage between human rights, all undividable	Lecture	Quizzes and homework
Twenty second	2	Weekly assessment of student /discussions	Section 2: The relationship between human rights and general freedom in international and Arabic constitutions	Lecture	Quizzes and homework
Twenty third	2	Weekly assessment of student /discussions	Human rights in international announcement of human rights and international conventions	Lecture	Quizzes and homework
Twenty fourth	2	Weekly assessment of student /discussions	human rights in Arabic constitutions	Lecture	Quizzes and homework
Twenty fifth	2	Weekly assessment of student /discussions	Chapter 3: International, regional and national confession in human rights in current and modern history	Lecture	Quizzes and homework
Twenty sixth	2	Weekly assessment of	Section 1: International	Lecture	Quizzes and homework

		student /discussions	confession of human rights since first world war		
Twenty seventh	2	Weekly assessment of student /discussions	United nations and human rights issue	Lecture	Quizzes and homework
Twenty eighth	2	Weekly assessment of student /discussions	United nations and human rights system development	Lecture	Quizzes and homework
Twenty nineth	2	Weekly assessment of student /discussions	Section 2: The regional confession of human rights	Lecture	Quizzes and homework
Thirtieth	2	Weekly assessment of student /discussions	European convention of human rights 1950 American convention of human rights 1969 African convention of human rights 1981 Arabic convention of human rights	Lecture	Quizzes a homework

148. 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

149. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Human rights .2004. Hafez A. Aldelemy
Main references (sources)	Democracy and human rights . Al-Jabry M.A. Human rights and democracy and public freedom. Kadim M.S.
Recommended books and references (scientific journals, reports…)	Human rights , development , contents and protection. Hadi R.A. Democracy and human rights . Dr. Wtot A.
Electronic References, Websites	New references, Articles and books from Web

Course Description Form

25.Course Name: **Ring Theory**	

26.Course Code**: EDMA24F303**	

27.Semester / Year: 2023-2024	

28.Description Preparation Date: 1/9/2023	

29.Available Attendance Forms: Laboratory , Classroom	

30.Number of Credit Hours (Total) / Number of Units (Total)	
120 hour, 4 hours of the week *30 weeks / 6 units	

31.Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Nada Yassen Kasm Yahya/ Dr. Luma Ahmed Khaleel /   Mrs. Shaymaa mohammed   Email: drnadaqasim3@uomosul.edu.iq / l.a.khaleel81@uomosul.edu.iq   ShaymmaMohammed@uomosul.edu.iq

32.Course Objectives	
Course Objectives	• **Knowing the the algebra of rings, methods of diagnosing them,** • **Knowing the solving examples, and studying theorems.** • **The help them understand the basic concepts in ring.** **he The student should know the considerations on** • **which the algebra of rings is classified.**

33.Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	Knowing the meaning of the ring, its properties, and its operation are general concepts	Defining the ring giving examples theorems, and solving	Lecture	Homework

Second	4	Knowing Subrings and examples and theorems	Defining the Subrings ,examples ,theorems and solving problems	Lecture	Homework
Third	4	Knowing the meaning of ideals Its properties and importance	Defining the ideals, example, theorems and solving problems	Lecture	Homework And Quiz.
Fourth	4	Knowing the meaning of Quotient Rings and Characteristic	Quotient Rings and Characteristic of a until Ring ,example theorems and solving problem	Lecture	Homework And Quiz.
Fifth	4	Knowing the meaning Rings Homomorphism	Rings Homomorphism	Lecture	Homework
Sixth	4	Knowing the meaning of fields Its properties and importance	Defining the fields, example, theorems and solving problems	experiment	Quiz, homework
Seventh	4	Knowing the meaning of subfields Its properties and importance	Defining the subfields, example, theorems and solving problems	Lecture	Homework
Eighth	4	How to obtain special types of ideals.	Some Special ideals and Operations on Ideals.	Lecture	Quiz, homework
Ninth	4	Knowing the meaning of Maximal ideals and their properties	Defining the Maximal ideals example, theorems and solving problems	Lecture	Homework
Tenth	4	Knowing the meaning of Prime ideals and their properties and comparing them	Defining the Prime Ideals example, theorems and solving problems	experimen	Quiz , homework
Eleventh	4	Knowing the meaning of PRIMARY ideals, their properties and comparing them	Defining the Primary Ideals example, theorems and solving problems	experimen	Quiz, homework
Twelfth	4	Knowing the meaning of Pure ideals and their properties	Defining the Pure Ideals example, theorems and solving problems	Lecture	Homework
Thirteen	4	Knowing the meaning of idempotent ideal , multiplicative ideal and their properties	Defining the idempoten ideal , multiplicative Ideals example, theorems and solving problems	Lecture	Quiz, and homework
Fourteenth	4	Knowing the meaning of the Radical of the ring	Defining the Radical of the ring, give exampl theorems and solving problems	Lecture	Homework

Fifteenth	4	Knowing the meaning of the nil- Radical ideal theorems and its properties	Defining the nil- Radical ideal, give example, theorems and solving problems	Lecture	Homework
Sixteenth	4	Know the meaning of another type of the Boolean rings	Defining the Boolean Ring, give example, theorems	Lecture	Quiz, homework
Seventeenth	4	Know the meaning Polynomial ring	Defining Polynomial ring give example, theorems and solving problems	Lecture	Quiz, homework
Eighteenth	4	Know how to sum Polynomial ring	Defining sum Polynomial ring give example, Theorem and solving problems	Lecture	Quiz, and homework
Nineteenth	4	Know how to degree ring polynomials and how to multiply them	Defining degree , multiply ring polynomials and how to find them	Lecture	Quiz, homework
Twentieth	4	Knowing the meaning of the Division Algorithm	State Theorem Division Algorithm and solving	Lecture	Quiz, homework
Twenty first	4	Understanding REMAINDER THOREM	State Theorem REMAINDER THOREM ,give example.	Lecture	Quiz, homework
Twenty second	4	Knowing the meaning of the Module give Some theorems	Defining the Module give example and Properties of them	Lecture	Quiz, homework
Twenty third	4	Solving problem of the Module	Solving problem	Lecture	Quiz, homework
Twenty fourth	4	Knowing the meaning of the Sub Module give Some theorems	Defining the SubModule give example and Properties of them	Lecture	Homework
Twenty fifth	4	Study the types of sub modules	Study the types of sub modules give example and Properties of them	lecture	Homework
Twenty sixth	4	Knowing the meaning Pure sub module	Defining the Pure sub module give example and Properties of them	Lecture	Homework
Twenty seventh	4	Knowing the meaning Prime sub module	Defining the Prime Sub module give example and Properties of them	Lecture	Quiz, homework
Twenty eighth	4	Knowing the meaning Primary sub module	Defining the Primary Sub module give example and Properties of them	lecture	Quiz, homework
Twenty ninth	4	Knowing the meaning Simple ,cyclic module	Defining the Simple module ,cyclic module	Lecture	Quiz, homework

Thirtieth	4	Knowing the meaning F-regular module	Defining the F-regular module		

35. 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

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Modern Abstract Algebra by DAVID M.BURTON(1967)
Main references (sources)	- A First Course in Abstract Algebra: Rings, Groups, and Fields, Third Edition 3rd Edition by Marlow Anderson(2020) - A First Course in Non commutative Rings Buchvers and kostenfrei - Weltbild.de February (2020)
Recommended books and references (scientific journals, reports...)	A First Course in Rings and Ideals ‹Addison Wesley publishing company.(1979) DAVID M. BURTON
Electronic References, Websites	https://math.berkeley.edu/

Course Description Form

37.	Course Name: Statistics and Probability

38.	Course Code: EDMA24M304

39.	Semester / Year: 2023−2024

40.	Description Preparation Date: 10/9/2023

41.Available Attendance Forms: Attendance, Classroom

42.Number of Credit Hours (Total) / Number of Units (Total)
120/4

43. Course administrator's name (mention all, if more than one name)
Name: Assistant Prof. Dr. Younus Hazim Ismael Al-Taweel Email: younus.altaweel@uomosul.edu.iq Name:Lecturer Najlaa Sadeek Email: najla .sedek @uomosul.edu.iq

44. Course Objectives	
Course Objectives	● **Knowing the basic principles of Statistics** ● **Knowing the principles of probability theory** **probability distributions.**

45. Teaching and Learning Strategies	
Strategy	Practical and theoretical lectures, talks and discussions, problem solving, reports, and homework

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	Knowing the Random experiments	Random experiments	Lecture, Problem solving	Quiz, homework
Second	4	Knowing the Sample space, events	Samples space, events	Lecture, Problem	Quiz, homework

				solving	
Third	4	understanding the theorems of probability	theorems of probability and examples,	Lecture, Problem solving	Quiz, homework
Fourth	4	Understanding the Rules of Probability Computations	Rules of Probability Computations	Lecture, Problem solving	Quiz, homework
Fifth	4	Apply Probability Computations	Examples	Lecture, Problem solving	Quiz, homework
Sixth	4	Knowing the probability space	probability space	Lecture, Problem solving	Quiz, homework
Seventh	4	Understanding the Conditional probability	Conditional probability	Lecture, Problem solving	Quiz, homework
Eighth	4	Understanding Bayes theorem and its applications	Bayes theorem, examples	Lecture, Problem solving	Quiz, homework
Nineth	4	Understanding the Random variables	Random variables, examples	Lecture, Problem solving	Quiz, homework
Tenth	4	Knowing and understanding the basic principles of Probability functions	Probability functions, examples	Lecture, Problem solving	Quiz, homework
Eleventh	4	Knowing and Understanding the Cumulative distribution functions	Cumulative distribution functions	Lecture, Problem solving	Quiz, homework
Twelfth	4	Practical applications	Construct probability functions.	Lecture, Problem solving	Quiz, homework
Thirteen	4	Understanding Basic Principles of Expectations	Expectations of Random Variables	Lecture, Problem solving	Quiz, homework
Fourteenth	4	Understanding basic principles of variance	variance of Random Variables	Lecture, Problem solving	Quiz, homework
Fifteenth	4	Understandi the ba principles Moments	Moments	Lecture, Problem solving	Quiz, homework
Sixteenth	4	Understanding the basic principles	Theorems and examples	Lecture, Problem	Quiz, homework

					solving
Seventeenth	4	Knowing and understanding the distributions and their properties	Bernoulli distribution, binomial distribution	Lecture, Problem solving	Quiz, homework
Eighteenth	4	Knowing and understanding the distribution and its properties	Geometric distribution,	Lecture, Problem solving	Quiz, homework
Nineteenth	4	Knowing and understanding the distribution and its properties	Poisson distribution	Lecture, Problem solving	Quiz, homework
Twentieth	4	Knowing and understanding the distribution and its properties	uniform distribution,	Lecture, Problem solving	Quiz, homework
Twenty first	4	Knowing and understanding the distribution and its properties	Gamma distribution	Lecture, Problem solving	Quiz, homework
Twenty second	4	Knowing and understanding the distribution and its properties	Normal distribution	Lecture, Problem solving	Quiz, homework
Twenty third	4	Knowing and understanding the distribution and its properties	standard Normal distribution,	Lecture, Problem solving	Quiz, homework
Twenty fourth	4	Knowing and understanding the distributions and their properties	Exponential distribution, uniform(continuous)	Lecture, Problem solving	Quiz, homework
Twenty fifth	4	Knowing the idea of Estimation	Introduction to Estimation Theory	Lecture, Problem solving	Quiz, homework
Twenty sixth	4	Knowing the Estimation methods	Estimation methods, MLE	Lecture, Problem solving	Quiz, homework
Twenty seventh	4	Knowing the Estimation methods	Moment method	Lecture, Problem solving	Quiz, homework
Twenty eighth	4	Knowing the properties of estimators	Some properties of estimators, unbiased	Lecture, Problem solving	Quiz, homework
Twenty nineth	4	Knowing the properties of	Consistent	Lecture, Problem	Quiz, homework

		estimators			solving	
Thirtieth	4	Knowing properties estimators	Mean square error		Lecture, Problem solving	Quiz, homework

47. 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

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Schaum's Outline of Theory and Problems of Probability**
Main references (sources)	Hana, A. 1990. Mathematical statistics, Mosul University Press. Alsayad, J.M (1993) Statistical Inference, Al-Mareek Press, Saudia Arabia.
Electronic References, Websites	https://www.math-exercises.com/probability-and-statistics https://www.grasple.com/statistics

Course Description Form

49.	Course Name: Partial Differential Equations (PDEs)

50.	Course Code: **EDMA24F302**

51.	Semester / Year: 2023–2024

52.	Description Preparation Date: 1–9–2023

53. Available Attendance Forms: Laboratory , Classroom

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

4\4

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

Name: Lecture Dr. JUNAID IDREES MUSTAFA
Email: j.i.mustafa20@uomosul.edu.iq
Name: **Lecturer Iman H. Al -Obaidi**
Email: emanhashem1986@uomosul.edu.iq

56.	Course Objectives

Course Objectives	• **Knowing the concept of PDEs** • **Knowing the points on which PDEs classified.** • **Knowing the origin of PDEs and how can we get it.** • **Knowing the methods of solution of PDEs.**

57.	Teaching and Learning Strategies

Strategy	Theoretical lecture, discussions, solution of problems, repo and daily assignments.

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	Knowing the general concepts	The Definitions and classification	Lecture	Quizzes

			of PDEs		
Second	4	**Knowing the Derivation of Partial Differential Equation**	the elimination of arbitrary constants and functions	Lecture	Quizzes
Third	4	**Knowing the Derivation of Partial Differential Equation**	the elimination of arbitrary constants and functions	Lecture	Quizzes
Fourth	4	**Knowing the Lagrange's method**	First order PDEs	Lecture	Quiz, and homework
Fifth	4	**Knowing the Lagrange's method for solving linear PDEs of order one.**	First order PDEs	Lecture	Homework
Sixth	4	**Knowing the Lagrange's method for solving linear PDEs of order one.**	First order PDEs	Lecture	Quiz, and homework
Seventh	4	**Knowing the Charpit's Method (General Method of Solving p.d.es of Order One but of any Degree)**	Nonlinear first order PDEs	Lecture	Homework
Eighth	4	**Knowing some of the** particular **forms of the nonlinear PDEs of order one.**	Nonlinear first order PDEs	Lecture	Quiz, and discussions
Nineth	4	**Using Some Hypotheses in the Solution**	Nonlinear first order PDEs	Lecture	Homework
Tenth	4	Methods of solutions	Second and higher order reducible PDEs	Lecture	Quiz, and homework
Eleventh	4	Methods of solutions	Second and higher order reducible PDEs	Lecture	Quiz, and homework
Twelfth	4	Methods of solutions	Second and higher order	Lecture	Discussions

			irreducible PDEs		
Thirteen	4	Knowing the finding of the particular and general solution	Non-homogeneous PDEs with constant coefficients	Lecture	Quiz, and homework
Fourteenth	4	Knowing the finding of the particular and general solution	Non-homogeneous PDEs with constant coefficients	Lecture	Homework
Fifteenth	4	Knowing the finding of the particular and general solution	PDEs of Euler type	Lecture	Quiz, and discussions
Sixteenth	4	Knowing the finding of the solution of the particular cases of non-homogene PDEs	PDEs with variable coefficients	Lecture	Quiz, and homework
Seventeenth	4	Knowing the finding of the solution of the particular cases of non-homogene PDEs	PDEs with variable coefficients	Lecture	Quizzes
Eighteenth	4	Knowing the Classification of PDEs for the Conic sections	Second order PDEs and the Conic sections	Lecture	Quiz, and homework
Nineteenth	4	Knowing the Classification of PDEs for the Conic sections	Second order PDEs and the Conic sections	Lecture	Quizzes
Twenty	4	Knowing the main concepts.	Fourier series of periodic functions in interval [0,2pi]	Lecture	Discussions
Twenty First	4	evaluate Fourier series	Fourier series of periodic functions and even and odd functions	Lecture	Quiz
Twenty second	4	evaluate Fourier series	The Half Range Fourier Series	Lecture	Homework

Twenty Third	4	evaluate Fourier series	Fourier series of periodic functions in general interval [-L, L]	Lecture	Quiz
Twenty fourth	4	Knowing the **separation of variables method**	Second order PDEs	Lecture	Homework
Twenty Fifth	4	Knowing the **separation of variables method**	Second order PDEs	Lecture	Quiz
Twenty Sixth	4	Knowing the **heat equation**	Derivation of the heat equation	Lecture	Discussions
Twenty Seven	4	Knowing the **heat equation**	Solving the heat equation	Lecture	Quiz
Twenty eighth	4	Knowing the **wave equation**	Derivation of the wave equation	Lecture	Quiz
Twenty Nine	4	Knowing the **wave equation**	Derivation of the wave equation	Lecture	Quiz
Thirtieth	4	Knowing the **Laplace equation**	Solving of the Laplace equation by using the **separation of variables method**	Lecture	Quiz

59. 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

60. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-1 مقدمة الى المعادلات التفاضلية الجزئية-

	تاليف: عطا الله ثامر العاني
Recommended books and references (scientific journals, reports…)	2- Elementary differential equations, Kells 3- Elements of partial differential equations, IAN N SEDDON 4- نظريات ومسائل في المعادلات التفاضلية (سلسلة سشوم)، فرانك ايزر Partial Differential Equations Scientists and Engineers - Stanley Farlow
Electronic References, Websites	

Course Description Form

61.	Course Name: Real Analysis
62.	Course Code: **EDMA24M301**
63.	Semester / Year: 2023−2024
64.	Description Preparation Date: 1/9/2023
65.Available Attendance Forms: University and electronic classroom	
66.Number of Credit Hours (Total) / Number of Units (Total)	
	4/8
67. Course administrator's name (mention all, if more than one name)	
Name: Nadia Adnan Abdulrazzaq Abdulrazzaq Talal Abed	Email: Nadiaadnan@uomosul.edu.iq abdulrazzaq.1990@umosul.edu.iq
68. Course Objectives	

Course Objectives	● Identify the properties of open, closed, and bou[...] sets. ● Identify the relationship between rational numb[...] and real numbers ● Identify sequences and their types ● Knowledge of metric space and its conditions ● Recognize and reward continuity ● Learn about the Riemann integral and the Lebesgue integral and the relationship between them ● Identify the derivation and its properties ● Learn about measurement theory and measura[...] functions ● Identify series and Cauchy's converge[...]

	theorem

69.	Teaching and Learning Strategies
Strategy	Theoretical lecture, dialogue and discussions, problem solving, reports and daily assignments

70. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	Open , Closed and Bounded Sets	Open , Closed and Bounded Sets	Lecture	Quizzes
Second	4	The relation between the Rational numbers field and Real numbers field	The relation betwee the Rational number field and Real numbe field	Lecture	Quizzes
Third	4	The Irrational numbers and real numbers	The Irrational numbers and real numbers	Lecture	report , homework quizzes
Fourth	4	Archimedes Pinciple	Archimedes Pinciple	Lecture	Quiz,
Fifth	4	Density of Rational and irrational numbers	Density of Rational and irrational numbers	Lecture	Homework
Sixth	4	Density of Irrational numbers	Density of Irrational numbers	Lecture	Quiz, report , homework
Seventh	4	The Absolute value	The Absolute value	Lecture	Homework
Eighth	4	متتابعات الاعداد الحقيقية/ المتتابعة المتقاربة	متتابعات الاعداد الحقيقية/ المتتابعة المتقاربة	Lecture	Quiz, report , homework
Nineth	4	التوريث Bounded Sequences,Monotonic Sequences and Cauchy sequences	التوريث Bounded Sequences,Monotonic Sequences and Cauchy sequences	Lecture	Homework
Tenth	4	Operations on Sequences	Operations on Sequences	Lecture	Quiz, report homework
Eleventh	4	الفضاء المعياري	الفضاء المعياري	Lecture	Quiz, report homework
Twelfth	4	Series, Defn.,Ex.,and Brzano theorem	Series, Defn.,Ex.,and Brzano theorem	Lecture	Homework
Thirteen	4	Completeness of Real numbers space theorem	Completeness of Real numbers space theorem	Lecture	Quiz, and homework
Fourteenth	4	The Sequences of Metric space	The Sequences of Metric space	Lecture	Homework
Fifteenth	4	Compact space	Compact space	Lecture	

Sixteenth	4	Continuity	Continuity	Lecture	Quiz, report , homework
Seventeenth	4	Continuity in the Metric Space	Continuity in the Metric Space	Lecture	Quizzes
Eighteenth	4	Continuity of equivalences theorem	Continuity of equivalences theorem	Lecture	Quiz, and homework
Nineteenth	4	Continuity of equivalences theorem	Continuity of equivalences theorem	Lecture	Quizzes
Twentieth	4	Real Valued mappings	Real Valued mappings	Lecture	Homework
Twenty first	4	Uniform Continuity	Uniform Continuity	Lecture	Quiz
Twenty second	4	Sequences and Series of functions	Sequences and Series of functions	Lecture	Homework
Twenty third	4	The Derivative	The Derivative	Lecture	Quiz
Twenty fourth	4	Rule's theorem and Mean value theorem	Rule's theorem and Mean value theorem	Lecture	Homework
Twenty fifth	4	Riemann integral	Riemann integral	Lecture	Quiz
Twenty sixth	4	Measure theory	Measure theory	Lecture	Homework
Twenty seventh	4	Outer measurement of Bounded set	Outer measurement of Bounded set	Lecture	Quiz
Twenty eighth	4	Properties of outer measurement	Properties of outer measurement	Lecture	Quiz
Twenty nineth	4	Lebesgue Integral	Lebesgue Integral	Lecture	Quiz
Thirtieth	4	Open , Closed , Bounded Sets	Open , Closed , Bounded Sets	Lectu	

71. Course Evaluation

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

72. Learning and Teaching Resources

Required textbooks (curricular books, if any)	● مقدمة في التحليل الرياضي للدكتور عادل غسان
Main references (sources)	● Axler, Sheldon. Measure, integration & real analysis. Springer Nature, 2020. ● Simon B. Real analysis. American Mathematical Soc.; 2015 Nov 2.
Recommended books and references (scientific journals, reports…)	● Heil C. Introduction to real analysis. Springer; 2019 Jul 20.

Electronic References, Websites	

Course Description Form

73.	Course Name: Numerical Analysis
74.	Course Code: EDMA24M305
75.	Semester / Year: 2023-2024
76.	Description Preparation Date: 1\9\2023
77.	Available Attendance Forms: Laboratory , Classroom
78.	Number of Credit Hours (Total) / Number of Units (Total)
	12\12
79.	Course administrator's name (mention all, if more than one name)

Name: Dr. Ghanim Mohameed Salih
Email: g.m.abdullah@uomosul.edu.iq

Name: **Zainab A.Rasheed**
Email: zainab.abdulateef@uomosul.edu.iq

80.	Course Objectives
Course Objectives	**Knowing the basic of error source.** **Knowing and learning the how to solve the non−linear differential equations.** **show the general of numerical methods for soling the system of differen equations.** **Knowing the concept of the interpolation \extrapolation methods.** **Knowing the numerical integration.** **Knowing the numerical algorithm and applying the matlap programing.**

81.	Teaching and Learning Strategies
Strategy	**Practical and theoretical lecture, talk and discussions, problem solving , performing pract experiments , and homework.**

82. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	12	Error sources	Type of error sources	lecture	Quiz, report, homework
2	12	Error sources	error sources with examples	lecture	Homework
3	12	Error sources	Formulation, truncation, erro	lecture	Quizzes
4	12	Error sources	Examples for Formulation, truncation, errors	lecture	Quiz, report, homework
5	12	Solution of nonlinear methods	Graphical methods	lecture	Homework
6	12	Solution of nonlinear methods	Bisection methods	lecture	Quizzes
7	12	Solution of nonlinear methods	Methods of false position	lecture	Quiz, report, homework
8	12	Solution of nonlinear methods	Secant methods	lecture	Homework
9	12	Solution of nonlinear methods	Newton-Raphson's methods	lecture	Quizzes
10	12	Solution of nonlinear methods	Improvement Newton-Raphson's methods	lecture	Quiz, report, homework
11	12	Solution of nonlinear methods	Convergence of Newton-Raphson's methods	lecture	Homework
12	12	Solution of nonlinear methods	Quadratic factors	lecture	Quizzes
13	12	Solution of nonlinear methods	Solution for system of nonline equations	lecture	Quiz, report, homework
14	12	Solution of nonlinear methods	Modify formula	lecture	Homework
15	12	Numerical solution for system linear equation	Direct methods\Gaussian elimination methods	lecture	Quizzes
16	12	Numerical solution for system linear equation	Direct methods\Gaussian-Jordan methods	lecture	Quiz, report, homework
17	12	Numerical solution for system linear equation	Direct methods\LU decomposition	lecture	Homework
18	12	Numerical solution for system linear equation	Iterative methods\ Jacobi method	lecture	Quizzes
19	12	Numerical solution for system linear equation	Iterative methods\Gauss-Seid method	lecture	Quiz, report, homework
20	12	Interpolating polynomials	Lagrange methods	lecture	Homework
21	12	Interpolating polynomials	Calculus of finite differences	lecture	Quizzes
22	12	Interpolating polynomials	Newton backward differences	lecture	Quiz, report, homework
23	12	Interpolating polynomials	Divide finite differences	lecture	Homework
24	12	Numerical integration	Trapezium methods	lecture	Quizzes

25	12	Numerical integration	Simpson methods	lecture	Quiz, report, homework
26	12	Numerical integration	Bool methods	lecture	Homework
27	12	Numerical integration	Weddle methods	lecture	Quizzes
28	12	Numerical integration	Romberg integration methods	lecture	Quiz, report, homework
29	12	Differential equations	Euler's method	lecture	Homework
30	12	Differential equations	Runge-kutta methods	lecture	Quizzes

83. 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

84. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamental of Numerical Analysis
Main references (sources)	- Applied engineering and numerical analysis - Applied numerical analysis
Recommended books and references (scientific journals, reports…)	- Introduction numerical analysis - Applied numerical analysis - Elementary Numerical Analysis
Electronic References, Websites	

Course Description Form

1. Course Name	
Counseling and mental health	
2. Course Code	
EDMA24M307	
3. Semester / Year	
2023-2024	
4. The history of preparation of this description	
1/9/2023	
5. Available Attendance Forms	
My presence\ Madam C	
6. Number of credit hours (total) / Number of units (total)	
2 hours per week	
7. The name of the course administrator (if more than one name is mentioned)	
Email: naha.eh30@student.uomosul.edu.iq Name: Noha Najm Abdullah	

8. Course Objectives

	Course Objectives
General Objective: Introducing students to the importance of counseling and mental health and how to benefit from this material in scientific life in the future, as it aims to help the individual to understand himself, study his personality, know his experience, identify his problems, develop his potential, and solve his problems in the light of his knowledge, desire and education. **Special Objective: Introducing students to the concept of counseling and mental health, the relationship of counseling with other sciences, what is the difference between counseling, psychotherapy, counseling theories, how to employ these theories in treating the problems suffered by students, types of counseling, what are the areas of counseling, the importance of counseling, who are the beneficiaries of counseling, what are the means of counseling, how to prepare the teacher counselor, identifying mental health and its importance for the teacher, mental health curricula, and what are the defense mechanisms?**	

9. Teaching and Learning Strategies

	Strategy
Lecture, Reports, Problem Solving, Active Cooperative Learning, Brainstorming	

10. Headquarters structure t

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	The week
Exam Day J	Lecture	Al , Arsha D	Identify the concept of Arsha D and its relationship to other sciences	2	1

Ask questions and discuss	Lecture	Al , Arsha D	Identify the relationship between counseling and career orientation	2	2
	Lecture	Al , Arsha D	Identify the objectives of counseling	2	3
Discuss and ask questions	Lecture	Chapter Two Guiding Methods	Identify the guiding methods Individual and group counseling	2	4
Classroom interaction	Lecture and discussion	Fields of educational and psychological counseling	Areas of psychological and educational counseling	2	5
Classroom interaction	Lecture	Career Guidance	Vocational and psychological counseling	2	6
Individual duties	and Collaborative learn Lecture	Counseling services for senior citizens	Identify the types of counseling services provided to prisoners	2	7
Ask questions and discuss	Lecture	Special Needs Services	Identify the fields of psychological and educational counseling	2	8
Individual duties	Lecture	Furry theory D	Learn about heuristic theories What is the concept of theory	2	9
	Lecture	Basic concepts in behavioral theory	The concept of behavioral theory	2	

		Discussion	The concept of observation	Information needed for guidance	2		
Quick questions at the end of the role	and learn	Exchange Lecture	Advantages of the interview	Recognize the concept of the interview	2		
Classroom interaction		Lecture	The concept of case studies	Learn about the case study	2		
Classroom interaction		Lecture	Importance and types	Learn about tests and metrics	2		
		Discussion	Who is the mentor	Getting to know the guidance and guidance at school	2		
Classroom interaction		Lecture	Tasks of the Director	Learn how to prepare Dr. Murshid	2		
Oral test		Test	Half Year	Formative test	2		
	and learn	Exchange Lecture	The concept of mental health	Recognize the concept of mental health	2		
Classroom interaction		Discussion	Normal and abnormal standards	Recognize the concept of a normal and abnormal person	2		
		Lecturer	Mental Health Curricula	Learn about mental health curricula	2		
Classroom interaction		Discussion	Psychological crises	Identify the concept of psychological crises	2		
Individual performance		Lecture	Defense Mechanisms	Recognize Defense Mechanisms	2		
	and learn	Exchange Lecture	The concept of compatibility	Learn about mental health and compatibility	2		

Discussion	Discussion	The concept of a deceased personality	Recognize the characteristics of Compatible Personality	2	
	and Mental lecture storm	Mental Health	The role of a mentor in the field of mental health	2	
	Discussion of reports	Who is a bully?	The concept of excellence	2	
	Discussion of reports	The concept of spiritual intelligence	Spiritual intelligence	2	

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc (40 quest + 60 final)

12. Learning and Teaching Resources

Binding Dr. Tamar Mohamed and external sources	(Required textbooks) Methodology, if any
	(Key References) Resources
	(Recommended books and references) scientific journals, reports…
	Electronic References, Websites

Course Description Form

25.	Course Name: English Language
26.	Course Code: **EDMA24M308**
27.	Semester / Year: 2023−2024
28.	Description Preparation Date: 1/9/2023
29.Available Attendance Forms: Laboratory , Classroom	
30.Number of Credit Hours (Total) / Number of Units (Total)	
	1/2
31.	Course administrator's name (mention all, if more than one name)

Name: Assist lecturer Dilshad Qasim Hamza HASO
Email: dilshad.hamza@uomosul.edu.iq

32.	Course Objectives
Course Objectives	• The student learns the basics of the Engl Language. • The student is able to solve all the vari problems related to the subject. • Developing the student's knowledge about t subject by adding some modern topics

33.	Teaching and Learning Strategies
Strategy	Theoretical lecture, dialogue and discussions, daily assignments, Quiz

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	Subject pronoun	Subjects and their pronouns	Lecture	Quiz
Second	1	Suggestion	I suggest, Let's, how about, why not,	Lecture	Quiz

Third	1	Present simple	Affirmative and negative	Lecture	Quiz
Fourth	1	Present simple	Questions and answers	Lecture	Quiz
Fifth	1	Future simple	Affirmative and negative	Lecture	Quiz
Sixth	1	Future simple	Questions and answers	Lecture	Quiz
Seventh	1	If-Conditional, 1st type	If – will	Lecture	Quiz
Eighth	1	If-Conditional, 1st type	Unless – As long as	Lecture	Quiz
Ninth	1	Comprehension	Reading Passage	Lecture	Quiz
Tenth	1	Comprehension	Reading Passage	Lecture	Quiz
Eleventh	1	Past simple	Affirmative and negative	Lecture	Quiz
Twelfth	1	Past simple	Questions and answers	Lecture	Quiz
Thirteen	1	If-Conditional 2nd type.	If – would	Lecture	Quiz
Fourteenth	1	If-Conditional 2nd type.	As long as	Lecture	Quiz
Fifteenth	1	Definite and Indefinite Articles	a/an and the	Lecture	Quiz
Sixteenth	1	Present simple of "be"	Affirmative and Negative forms	Lecture	Quiz
Seventeenth	1	Present simple of "be"	Questions and Short answers	Lecture	Quiz
Eighteenth	1	Past perfect	Affirmative and negative	Lecture	Quiz
Nineteenth	1	Past perfect	Questions and answers	Lecture	Quiz
Twentieth	1	If-Conditional 3rd type	If had - would have	Lecture	Quiz
Twenty first	1	Comprehension	Reading passage	Lecture	Quiz
Twenty second	1	Comprehension	Reading passage	Lecture	Quiz
Twenty thi	1	Present continuous (ing)	Affirmative and negative	Lecture	Quiz
Twenty fourth	1	Present continuous (ing)	Question and answer	Lecture	Quiz
Twenty fifth	1	Past continuous	Affirmative and negative	Lecture	Quiz
Twenty sixth	1	Past continuous	Question and answer	Lecture	Quiz
Twenty	1	Prepositions of	In, at, on	Lecture	Quiz

seventh		time			
Twenty eighth	1	Comprehension	Reading passage	Lecture	Quiz
Twenty ninth	1	Comprehension	Reading passage	Lecture	Quiz
Thirtieth		Final Exam			

35. 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

36. Learning and Teaching Resources

Required textbooks (curricular books. any)	Grammar Two
Main references (sources)	Grammar Two
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.eltbooks.com/item_spec.php?item=307003 &cat

Course Description Form

37.	Course Name:
Teaching curricula and methods	

38.	Course Code:
EDMA23F306	

39.	Semester / Year:
2023–2024	

40.	Description Preparation Date:
2023\9\1	

41.Available Attendance Forms:
In-person/integrated

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

43. Course administrator's name (mention all, if more than one name)
Name: dr.Enas ALaazw Email: dr.enasalazwo@uomosul.edu.iq

44. Course Objectives

Course Objectives	• General goal: Students learn about the importance of curricula and teaching methods, and how to write an annual and daily lesson plan mathematics lessons in different ways, while employing educational methods, preparing tests, and formulating daily questions. • Specific objective: Familiarize students with the concept of the ancient and modern curriculum, learn about objectives and how to formulate them according to Bloom's levels and fields, scientific–mathematical content, methods for teaching variety, evaluation methods, how to ask questions, and educational methods…… • ..... • .....

45. Teaching and Learning Strategies

Strategy	Lecture, problem solving, reports, active cooperative learni brainstorming

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Learn about the concept of science an its relationship to technology	Science and its skills	Lecture	Daily exam
2	2		Science and technolo	Discussion	Ask questions and discuss
3	1		The concept of the curriculum and its importance	a lecture lecture	
4	2	Learn about applications of science	Curriculum philosop	Lecture and discussion	Oral test
5	1		Preparing types of curriculum	lecture	
6	2	Learn about the concept of curriculum	Components of th modern curriculum	Lecture and discussion	Class interactic
7	1	Determine the philosophy of the curriculum		Lecture and discussion	Class interactic
8	2		Educational goals and their types	Lecture and cooperative learning	Individual duti
9	1	Mention the types of curricula	Formulating cognitiv goals according to Bloom's six levels	The lecture and the mental half lecture	Individual duti
10	1	Comparison betweer the ancient and mode curriculum	Formulating cognitiv and skill goals	Lecture and cooperative learning	Reports
11	2		Academic content, it types and characteristics	Lecture and interactive learning	Daily testing
12	1	Identify educational goals	Types of curricula	Lecture and brainstorming	Quick question at the end of th lesson
13	2	Identify the types of goals and their classifications	The concept of methods, style and strategy	Lecture and prepared repor lecture	Reports
14	1	Distinguishing betwe cognitive, skillful, and affective goals	Teaching methods based on cognitive theories	a test	Oral test
15	2		Methods based on behavioral theories	Lecture and interactive learning	Class interactic
16	1	Learn about the academic content	Teaching methods based on social theories		Oral test
17	2	Distinguishing betwe types of curricula	midyear	Lecture and prepared repor lecture	
18	1	Recognizing the concept of methods a distinguishing betwe method and method	Method and method of cooperative learni	lecture	Class interactic
19	2	Identify cognitive methods	Method of field visits	lecture	Electronic test
20	1	Identify behavioral methods	Individual electronic education	lecture	
21	2	Learn about social methods	Trainings on using teaching methods in teaching mathemati	Lecture and interactive learning	Class interactic
22	1	Training news	Teaching aids	Lecture and brainstorming	Individual performance
23	2	Identify the methods assigned to cooperati	Class questions	Lecture and prepared repor	discussion
24	1	Identifying environmentally base methods	Calendar and its typ		discussion
25	2	Identify electronic methods			Reports
26	1	Acquiring skills			discussion
27	2	Identify educational			
	1				

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		methods And the skill of asking questions Learn about the class calendar Identify the types of teaching plans Daily plan themes Daily plan exercises school book	Types of teaching pla Daily plan Discussing daily teaching plans in mathematics Its concept and evaluation criteria	Lecture and interactive learning	

47.	Course Evaluation(40 quest + 60 final)

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

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	A book by Dr. Osama Hamid and external source of the material • Teaching methods books, mathematics teachir methods, and curriculum books - A workshop on using the educational platform Google Classroom Electronic testing training workshop.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.arageek.com/edu/teaching methods

Course Description Form

85.	Course Name: Complex analysis
86.	Course Code: EDMA24F405
87.	Semester / Year: 2023−2024
88.	Description Preparation Date: 1/9/2023
89. Available Attendance Forms: Attendance , Classroom	
90. Number of Credit Hours (Total) / Number of Units (Total)	
2/2 96(48/48)(24 weeks)	
91. Course administrator's name (mention all, if more than one name)	

1. Name: Asst. Prof. Dr. Lamiaa Hazim Saadoon AL-Taee

Email: **lumiaa.h.s@uomosul.edu.iq**
2. Name: Asst. Prof. Taghread Hamdoon Shuker

Email: **taghread@uomosul.edu.iq**

92.	Course Objectives
Course Objectives	1. The student knows complex numbers
	2. The student knows their properties and converts complex numbers to polar ones
	3. The student knows about analytical functions
	4. The student knows about derivatives and the theorems related to them
	5. The student knows about analytical functions and their theorems
	6. The student knows about prime, exponential, logarithmic, trigonometric, hyperbolic, and inverse complex functions.
	7. Path−constrained integration 11. The student must demonstrate the relations between spaces, shapes, and various applications.
93.	Teaching and Learning Strategies
Strategy	

		Theoretical lecture, dialogue and discussions, problem solvi reports and daily assignments			

94. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Complex analysis	Review,various definitionsand examples	Lecture	Daily exams, homework, and student discussion
2	4	Conjugates of complex number	Properties of absolu value and converti complex numbers polar form	Lecture	Dailyexams, homework,a student discussion
3	4	Angle of complex number	solving exercises	Lecture	Dailyexa homework,a student discussion
4	4	Polar coordinate	solving exercises	Lecture	Dailyexams, homework,a student discussion
5	4	Daily exam	Chapter one	Lecture	Dailyexams, homework,a student discussion
6	4	Analytical functions	Examples of inequal functions and inver functions	Lecture	Dailyexams homework d stud discussion
7	4	limits and ends	Properties of limits with examples	Lecture	Dailyexams, homework,a student discussion
8	4	derivatives	Theorems with examples	Lecture	Dailyexams, homework d stud discussion
9	4	Anomalous functions	Its properties	Lecture	Dailyexams, homework,a

					student discussion
10	4	Cauchy-Riemann equation	Its definition a properties	Lecture	Dailyexams, homework,a student discussion
11	4	Analytical equati	solving exercises	Lecture	Dailyexams, homework,a student discussion
12	4	Daily exam	Chapter two	Lecture	Dailyexams, homework,a student discussion
13	4	Inverse functions	Its properties and Functions	Lecture	Dailyexams, homework,a student discussion
14	4	Complex functions	solving exercises	Lecture	Dailyexams, homework,a student discussion
15	4	Harmonic functions	The harmonic conjuga andsolvingthe questions of the seco chapter	Lecture	Dailyexams homework d stud discussion
16	4	Logarithmic functions, trigonometric functions,	Theirdefinitionand derivativeswith examples, trigonometric functions	Lecture	Dailyexams, homework,a student discussion
17	4	Daily exam	Chapter three	Lecture	Dailyexams, homework,a student discussion
18	4	Complex integration, integration	Definitions of path a closed path, solvi examples and solvi exercises	Lecture	Dailyexams, homework,a student discussion
19	4	Cauchy-Corsa theorem	Generalization Cauchy-Corsa theorem	Lecture	Dailyexams, homework, and stud discussion
20	4	Properties Cauchy-Corsa theorem	solving exercises	Lecture	Dailyexams, homework,a student discussion

21	4	Daily exam	Chapter four	Lecture	Dailyexams, homework,a student discussion
22	4	Sequences, solvi examples	Introduction chains	Lecture	Dailyexams, homework,a student discussion
23	4	Tests, strings	Convergence tests, seri forces, a Laurent series	Lecture	Daily exams,home ork, andstudent discussion
24	4	Chains,forces, Laurent series,types anomalous point	Anomalouspoints, calculating sedimen anomalies and th classification, sedime theorem and resul and solving exercises	Lecture	Dailyexams, homework,a student discussion

95. 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

96. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Complex analysis \Samer Had \university of Mosul\1980. 2-V.Ahlfors, Complex analysis,2nd edition , Graw-Hill Book Comp.,Inc.1966
Main references (sources)	.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

97.	Course Name: Mathematical Statistics, (Fourth class)
98.	Course Code: **EDMA24F402**
99.	Semester / Year: 2023−2024
100.	Description Preparation Date:1/9/2023
101.	Available Attendance Forms: Classroom
102.	Number of Credit Hours (Total) / Number of Units (Total)
	8/8
103.	Course administrator's name (mention all, if more than one name)
	Name: Dr. Ghanim Mahmood Dhaher Email: ghanim-hassod@uomosul.edu.iq Name: **Lecturer Azhar A. Alhasoo** Email: .alhasoo@uomosul.edu.iq

104.	Course Objectives
Course Objectives	• **Identify about the basic principles of mathematical statistics and the basics of probabilit** • **Probability distribution function for variables.** • **Univariate distribution, discrete and continuous random variables.** • **Review of distributions (normal distribution, Poisson distribution, exponential distribution, geometric distribution, Binomial, …etc.)** • **Transformations of random variables with all types of variables.** • **The moments generating function for distributions and how to deal with them to find the probability density function.** • **Point estimation and its properties.** • **Multivariate analysis with the main concepts of vectors and a description of their summ statistics.** • **Multivariate normal distribution and its properties vs Normal with univariate.**

105.	Teaching and Learning Strategies
Strategy	Theoretical lecture and Practical (discussions) examples, problem solving , performing practical experiments, homework.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			106. Course Structure		
1	4	A review of the principles of mathematical statistics	Principles definitions of Probability Distribution	Theoretical Lecture	Homework
2	4	Probability Distribution function	the basics of probability theory with examples and mathematical formulas for probability	Theoretical Lecture	Homework
3	4	Probability distribution function	Probability Distribution of function of random variables Discrete and continuous random variables	Theoretical Lecture	Homework
4	4	Types of distributions	Univariate distribution Discrete and continuous-type random variables normal, Poisson, exponential , geometric distribution	Discussion	Homework
5	4	Types of distributions	Bernoulli, binomial, negative binomial, uniform, Cauchy distribution, gamma distribution, beta distribution	Theoretical Lecture	Homework
6	4	Mathematical expectation	Probability Distribution of functi of random variables, Mathematical expectation and moment , mean ,median, mode, variance , standard deviation.	Theoretical Lecture	Quizzes
7	4	Definition of of Transformation random variable	Transformation of random variables: And more than discrete variables	Discussion	Homework
8	4	Definition of of Transformation random variables	Transformation of random variables: and more than continuous variables	Discussion	Homework
9	4	Moment generat function	Moment generating function of random variables Theorems an examples	Theoretical Lecture	Quizzes

10	4	Moment generati function	Moment generating function of random variables and with properties Theorems and exampl	Theoretical Lecture	Homework
11	4	definition of estimation theory	Point estimation : definition of the best estimator ,	Theoretical Lecture	Homework
12	4	Properties of point estimation	Properties of point estimation Unbiasedness	Discussion	Homework
13	4	Properties of point estimation	Properties of point estimation Consistency,	Discussion	Homework
14	4	Properties of poi estimation	Properties of point estimation Minimum variance	Theoretical Lecture	Homework
15	4	Properties of poi estimation	Minimum variance Black –well theorem	Theoretical Lecture	Homework
16	4	Properties of poi estimation	Black –well theorem Rao- inequality	Theoretical Lecture	Homework
17	4	Definition of Multivariate distribution	Definition of Multivariate distribution : Definition of rando variables, Discrete and continuo type random variables	Theoretical Lecture	Homework
18	4	Multivariate Distribution basi properties	Multivariate analysis and basic properties of vectors and matrices for statistical description	Discussion	Homework
19	4	Multivariate Analysis basic properties	Multivariate Distribution, , joint p.d.f Conditional of p.d.f., Marginal p.m.f	Discussion	Homework
20		Multivariate Analysis basic properties	Joint moment generating function and its properties Properties of distribution using m.g.f	Theoretical Lecture	Homework

21	4	**Multivariate distribution**	**Distribution, , joint p.d.f Conditional of p.d.f., Marginal p.m.f**	**Theoretical Lecture**	**Homework**
22	4	**Multivariate Analysis**	**Normal Distribution for univariate VS Normal Distribution for bivariate**	**Discussion**	**Homework**
23	4	**Multivariate Analysis**	**Multivariate analysis with examples and solutions for variance and covariance**	**Theoretical Lecture**	**Homework**
24	4	**Multivariate Analysis**	**Multivariate analysis with examples and solutions for variance and covariance**	**Theoretical Lecture**	**Quizzes**

107. 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

108. Learning and Teaching Resources

Required textbooks (curricul books, if any)	....
Main references (sources)	4) Introduction to Mathematical Statistics, by R. V. Hogg and A. T. Craig. 5) An introduction to multivariate statistical analysis, by Anderson, T.W. 1984
Recommended books and references (scientific journals, reports…)	• مقدمة في الاحصاء الرياضي د. صباح داود سليم • الاحصاء الرياضي امير حنا هرمز ، جامعة الموصل **1990** • الطرق الاحصائية د. صبري رديف العاني • **الاحتمالات والمتغيرات العشوائية** د. باسل يونس

Course Description Form

1. Course Name: Fluid Mechanics/ fourth Class	

2. Course Code: **EDMA24M404**	

3. Semester / Year:2023−2024	

4. Description Preparation Date:1/9/2023	

5. Available Attendance Forms: Laboratory , Classroom	

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

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

Name: Prof.Dr. Alaa Abdul-raheem Ahmed
Email: alaahammodat@uomosul.edu.iq
Name: Hamsa D. Saleem
Email: hamsa_dawood@uomosul.edu.iq

8. Course Objectives

Course Objectives	*Knowing the basic principles of Fluid Mechanics
	*Know the basic equations that control fluid flow
	*Classification of fluid with respect to flow
	*Applications

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Introduction to fluid mechanics	Learn about the basic concepts of fluid mechanics	lecture	quizzes
Second	2	Types of fluid	Learn about The types of fluid	lecture	quizzes
Third	2	Classification of fluid flow	Classification of of f flow	lecture	quizzes
Fourth	2	Classification of Fluid Mechanics with respect to flow and physical properties	Classification of Flui Mechanics with respec flow and physical properties	lecture	Quiz, report , homework
Fifth	2	Types of flow	Learn about The types of flow	lecture	Homework
Sixth	2	Units and Dimensions	Units and Dimensions	lecture	Quiz, report , homework
Seventh	2	Discharge	Discharge	lecture	Homework

Eighth	2	Pressure and application	Concept of pressure	lecture	Quiz, report , homework
Nineth	2	Stream function and potential velocity end equipotential line	Concept of Stream function and potential velocity	lecture	Homework
Tenth	2	Relation between stream function and potential velocity	Relation between stream function and potential velocity	lecture	Quiz, report homework
Eleventh	2	Stream line and stream tube	Stream line and stre tube	lecture	Quiz, report homework
Twelfth	2	Derivative of continuity equation in one , two, three dimensions	Concepts of continuity equation in one,two,three dimension	lecture	Homework
Thirteen	2	Method of dimensional Analyses	Method of dimensional Analyses	lecture	Quiz, and homework
Fourteenth	2	Wave equation in one dimension	Wave equation in one dimension	lecture	Homework
Fifteenth	2	Wave equation with homogeneous boundary	Wave equation v homogeneous bound	lecture	Quiz
Sixteenth	2	Derivative of Navier – Stocks Equation	Navier – Stocks Equation	lecture	Quiz, report , homework
Seventeenth	2	Application of Navier-stocks equation	Application of Navier-stocks equation	lecture	Quizzes
Eighteenth	2	Derivative of energy Equation	Concept of energy equation	lecture	Quiz, and homework
Nineteenth	2	Application of heat equation	Applications	lecture	Quizzes
Twentieth	2	Definition of Physical Parameters	Definition of Physical Parameters	lecture	homework
Twenty first	2	Laplace equation in two dimension	Laplace equation in two dimension	lecture	Quiz
Twenty second	2	Derivative of continuity equation in polar coordinates	Concepts of continuity equation in polar coordinates	lecture	homework
Twenty third	2	Derivative of motion equation in polar coordinates	Concepts of motion equation in polar coordinates	lecture	Quiz
Twenty fourth	2	Derivative of heat equation in polar coordinates	Concepts of heat equation in polar coordinates	lecture	homework

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	.....
Main references (sources)	ميكانيك الموائع 1990 تأليف: هاشم الطحان، دار ابن الاثير للطباعة والنشر
Recommended books and references (scientific journals, reports…)	ميكانيك الموائع 1992 تأليف: كامل الصباغ، جامعة البصرة
Electronic References, Websites	**Fluid Mechanics**

Course Description Form

109.	Course Name: Topology
110.	Course Code: EDMA24F401
111.	Semester / Year: 2023−2024
112.	Description Preparation Date:1/9/2023
113.	Available Attendance Forms:

Attendance , Classroom

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

2/2
96(48/48)(24 weeks)

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

3. Name: Asst. Prof. Dr. Sabih Wadie Askandar

Email: **sabihqaqos@uomosul.edu.iq**

4. Name: Prof. Dr. Amir Abdul-illah Mohammed

Email: **amirabdulillah@uomosul.edu.iq**

5. Name: Asst. Prof. Dr. **Beyda S. Abdullah**

Email: baedaa419@uomosul.edu.iq

116.	Course Objectives
Course Objectives	1. The student should define the metric space. 2. That the student defines the topological space 3. The student gives examples of topological spaces 4. The student should define the closed set, the closure, the interior and the exterior the group 5. The student defines compact spaces 6. The student should link the types of compact spaces and the relationship between th 7. The student should know differentiation and connection. 8. The student should know the topological homeomorphisms and continuity

topological spaces.

9. The student should defines the spaces of the separation axioms.

10. The student should define the genetic and topological characteristics of the separat[...]
axiom spaces.

11. The student must demonstrate the relationship between spaces, shapes, and vari[...]
applications.

117.	Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussions, problem solvi[...] reports and daily assignments

118. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Metric spaces	Review, vario definitions a examples	Lectu	Daily exar homewor and stude discussio
2	4	Topolog al space	Definition topological spa various exampl limit points, clos set, exampl theorems,.	Lectu	Daily exar homewor and stud discussio
3	4	Topolog al space	Closure, closu axioms, exampl theorems, inter the set, inter axioms, exampl theorems.	Lectu	Daily exar homewor and stud discussio
4	4	Topolog al space	exterior the s exterior axior examples, theorems,	Lectu	Daily exar homewor and stud discussio

			boundary axior examples, smoother topolo and rough topolo			
5	4	Bases a relative topolog	Definition of t topological ba examples, definition relative topolo examples, theorems.	Lectu	Daily exar homewor and stud discussio
6	4	Connect dness	Definition connectness examples, definition connected gro examples, theorems.	Lectu	Daily exar homewor and stud discussio
7	4	Connect dn	Definition of lo connectected spa ,the relationsl between connect space and lo connected spa theorems	Lectu	Daily exar homewor and stud discussio
8	4	Compac spaces	Definition of op cover, definition compact cov definition of gro and compact spa various examples	Lectu	Daily exar homewor and stud discussio
9	4	Compac spaces	Heine-Borrell's theorem, varic examples, theorems, definition compounds, examples, theorems	Lectu	Daily exar homewor and stud discussio
10	4	Compac spaces	Definition sequentially compact spa definition	Lectu	Daily exar homewor and stud discussio

				linearly compa space, definition locally comp space		
11	4	Compac spaces		Theorems of t relationship between types compact spac with vario examples	Lectu	Daily exa homewor and stud discussio
12	4	Continu y topolog al space		Definition of t continuous function, vario examples, t theorem continuity equivalents.	Lectu	Daily exa homewor and stud discussio
13	4	Continu y topolog al space		Attributes a conveyed continuity, interconnectedne is conveyed continuity, compactness conveyed continuity, theorems	Lectu	Daily exa homewor and stud discussio
14	4	Continu y topolog al space		Definition of t path, definition path connecti theorems, pa connection conveyed continuity	Lectu	Daily exa homewor and stud discussio
15	4	Continu y topolog al spa Topologica and topological properties S		Attributes that a transferred adding ot conditions continuity, definition of t dense set by its theorem, kernel the set, dissipat	Lectu	Daily exa homewor and stud discussio

			set,　　　theore Definition topological homeomorphism various examples		
16	4	Topologica and　　r topological properties	Definition topological character, examples topological characteristics, Definition　of complete　set,　t attribute completeness is topological attribute, theorem	Lectu	Daily exar homewor and stud discussior
17	4	Topologica and　　r topological properties	The characteris of　　　lo compactness　is topological characteristic, theorem, Definiti of　isolated　s examples, theore examples　of　no topological properties	Lectu	Daily exar homewor and stud discussior
18	4	Genetic and　no genetic propert s	Definition genetic　　　tra definition of der group,　exampl Definition separable　spa theorem, exampl	Lectu	Daily exar homewor and stud discussior
19	4	Genetic and　no genetic propert s, Separat n axiom	Definition of no genetic　　tra theorems, examples, Definition　of space,　vario examples,　gene	Lectu	Daily exar homewor and stud discussior

				characteristic T0, topologi characteristic T0, theorem.		
20	4	Separat n axiom	Definition of space, vari examples, gene characteristic T1, topologi characteristic T1, theore Definition of space, vari examples, gene characteristic T2, topologi characteristic T2, theorem.		Lectu	Daily exar homewor and stud discussior
21	4	Separat n axiom	The relationsl between T0, and T2 spac theorems a examples		Lectu	Daily exar homewor and stud discussior
22	4	Separat n axiom	Normal spa definition, examples, theorems, regu space, definiti examples, relationships		Lectu	Daily exar homewor and stud discussior
23	4	Separat n axiom	T4 spa definition, examples, theorems, space, definiti examples, theorems,		Lectu	Daily exar homewor and stud discussior
24	4	review	Solve vari questions a examples about t subject		Lectu	Daily exar homewor and stud discussior
119. 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	

120. Learning and Teaching Resources

Required textbooks (curricular books, if any)	INTRODUCTION TO GENER TOPOLOGY, Samir Bashir Hadid, 198
Main references (sources)	FOUNDATIONS OF GENERAL • TOPOLOGY, Pervin, W.J.,1985.
Recommended books and references (scientific journals, reports…)	Topology without tears, Sidney Morris, October 14, 2007.
Electronic References, Websites	

Course Description Form

121.	Course Name: Optimization

122.	Course Code: **EDMA24M403**

123.	Semester / Year: 2023−2024

124.	Description Preparation Date: 1/9/2023

125.	Available Attendance Forms: Laboratory , Classroom

126.	Number of Credit Hours (Total) / Number of Units (Total)
360 hour / 16 hour	

127.	Course administrator's name (mention all, if more than one name)
Name: Assistant Prof. Dr. Maha Salah Younis Email: mahasalah2019@uomosul.edu.iq Name: **Hiba Sh. Mahmood** Email: hiba.sh@uomosul.edu.iq Name: Dilshad Qasim Hamza	

128.	Course Objectives
Course Objectives	● **Knowing the basic principles of Optimization**

129.	Teaching and Learning Strategies
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

130. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	16	Basic Principles	Introduction To Optimization	Lecture	Quizzes
Second	16	Definitions	Local Minima and Maxima	Lecture	Quizzes

Week		Topic	Subtopic	Teaching Method	Evaluation Method
Third	16	Definitions	Necessary Condition	Lecture	Quizzes
Fourth	16	Definitions	Sufficient Conditi	experiment	Quiz, report , homework
Fifth	16	One Dimensional Search Methods	Problem solving	Problem solving	Homework
Sixth	16	One Dimensional Search Methods	Newton Method	experiment	Quiz, report , homework
Seventh	16	One Dimensional Search Methods	Problem solving	Problem solving	Homework
Eighth	16	One Dimensional Search Methods	Bisection Method	experiment	Quiz, report , homework
Ninth	16	One Dimensional Search Methods	Secant Method	Problem solving	Homework
Tenth	16	One Dimensional Search Methods	Fibonacci Search	experiment	Quiz, report homework
Eleventh	16	One Dimensio Search Methods	Golden Section	experiment	Quiz, report homework
Twelfth	16	One Dimensional Search Methods	Problem solving	Problem solving	Homework
Thirteen	16	One Dimensional Search Methods	Quadratic Interpolation	Lecture	Quiz, and homework
Fourteenth	16	One Dimensional Search Methods	Problem solving	Problem solving	Homework
Fifteenth	16	Exam			
Sixteenth	16	One Dimensional Search Methods	Cubic Interpolation	lecture	Quiz, report , homework
Seventeenth	16	One Dimensional Search Methods	Algorithms	lecture	Quizzes
Eighteenth	16	One Dimensional Search Methods	Problem solving	Problem solving	Quiz, and homework
Nineteenth	16	One Dimensional Search Methods	Line Search	Lecture	Quizzes
Twentieth	16	One Dimensional Search Methods	Problem solving	Problem solving	Homework
Twenty first	16	Exam		Lecture	Quiz
Twenty second	16	Multidimensional Optimization	**F/R** method	Problem solving	Homework
Twenty third	16	Multidimensional Optimization	**H/S** method	Lecture	Quiz
Twenty fourth	16	Multidimensional Optimization	Problem solving	Problem solving	Homework

131. 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

132. Learning and Teaching Resources

Required textbooks (curricular books, if any)	An Introduction to Optimization
Main references (sources)	Optimization Theory And Methods
Recommended books and references (scientific journals, reports…)	Practical Optimization
Electronic References, Websites	Research gate

Course Description Form

150.	Course Name:
Measurement and evaluation	

151.	Course Code:
EDMA24F406	

152.	Semester / Year:
2023–2024	

153.	Description Preparation Date:
1/9/2023	

154.	Available Attendance Forms:
In person + PDF lectures	

155.	Number of Credit Hours (Total) / Number of Units (Total)
Two hours a week	

156.	Course administrator's name (mention all, if more than one name)
Name: Dr. Sulaiman Ahmed Yonis Email: saymola@uomosul.edu.iq	

157.	Course Objectives
Course Objectives	• Students learn about the importance of measurement and evaluation distinguishing between concepts (testing – measurement – evaluation evaluation) – learning about the types of measurement and its fields learning about evaluation – evaluation – the fields and types of evaluatio the relationship between these concepts. • Identifying the types of tests – steps for constructing tests – table specifications – types of items – types of oral – written – performa tests. • Characteristics of a good test (validity – reliability – difficulty – eas discrimination).

158.	Teaching and Learning Strategies
Strategy	Lecture - questioning - discussion - problem solving - report cooperative learning - active learning - brainstorming - pe learning.

159. Course Structure

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

			Recognizing the importance measureme and evaluation	Introduction to measurement and evaluation	lecture	Class questions
			Definition measureme its fields a types	Measurement the test	Lecture - interrogati	Discussion - Homework
			Testing evaluation	Calendar	Lecture – peer learn	Class questions
			Definition calendar –	The relationship between the term measurement and evaluation	Lecture-cooperativ learning	Reports
			fields – typ	Steps to build the te	Lecture - brainstorming	Daily exam
			The relationship between	Steps to build the te	Lecture – cooperati learning	Oral questions
			testing measureme	Steps to build the te	Lecture – cooperati learning	Oral questions
			– evaluat	Steps to build the te	Lecture – cooperati learning	Oral questions
			– evaluatio	Types of tests	Lecture – cooperati learning	Oral questions
			Levels behavioral goals	Types of tests	Lecture – cooperati learning	Class assignmen
			Specificatio table	Types of tests	Lecture - discussio	Class assignmen
			Examples specificatio table	Characteristics of tests	Lecture - discussio	Class assignmen
				Characteristics of tests	Lecture - discussio	Reports and homework
					Lecture - interrogati	Exercises and problems
				Practical applicatio in formulating exai questions	Lecture - problem solving	
				Practical applicatio in formulating exai questions		Class assignmen
				Practical applicatio in formulating exai questions	Lecture - discussio	Class assignmen
				Mental ability test	Lecture - discussio	Class assignmen
				Mental ability test	Lecture - discussio	Class assignmen
					Lecture - discussio	Class assignmen
					Lecture - discussio	

			Test instructions conditions
			Oral exams
			Written test
			Performanc tests
			honesty a persestence
			Difficulty a discriminati
			Semester te
			Practical applications
			Practical applications
			Practical applications
			General reasoning tests
			General reasoning tests

160.   Course Evaluation(40 quest + 60 final)

Distribution of grades out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. (15 grades for daily exams and assignments + 25 mid-year exams + 60 final exams)

161. Learning and Teaching Resources

Required textbooks (curricular books any)	Educational measurement and evaluation book
Main references (sources)	Educational measurement and evaluation in the teach

	process
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.noor-book.com/tag/%D8%A7%D9%84%D9%82%D9%8A%D8%A7%D8%B3-%D9%88%D8%A7%D9%84%D8%AA%D9%82%D9%88%D9%8A%D9%D8%A7%D9%84%D8%AA%D8%B1%D8%A8%D9%88%D9%8A

Course Description Form

49.	Course Name: English Language
50.	Course Code: **EDMA24M407**
51.	Semester / Year: 2023−2024
52.	Description Preparation Date: 1/9/2023
53.Available Attendance Forms: Laboratory , Classroom	
54.Number of Credit Hours (Total) / Number of Units (Total)	
	1/2
55.	Course administrator's name (mention all, if more than one name)

Name: Assist lecturer **Shaymaa M .Younus**
Email: shaymaa.mohammed@uomosul.edu.iq

56.	Course Objectives
Course Objectives	• The student learns the basics of the English Language. • The student is able to solve all the various problems rela to the subject. • Developing the student's knowledge about the subject adding some modern topics
57.	Teaching and Learning Strategies
Strategy	Theoretical lecture, dialogue and discussions, daily assignments, Quiz

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Getting to know you	Getting to know you	Lecture	Daily exams and discussions with students
2	1	Parts of speech	Parts of speech	Lecture	Quiz
3	1	Parts of English sentence	Parts of English sentence	Lecture	Quiz

4	1	Affirmative to negative sentence and equation	Affirmative to negative sentence and equation	Lecture	Daily exams and homework
5	1	The simple past tens	The simple past tens	Lecture	Homework
6	1	Questions	Questions	Lecture	Quiz
7	1	Exam-1	Exam-1	Lecture	Quiz
8	1	The present continuous tense	The present continuous tense	Lecture	Daily exams and homework
9	1	The past continuous tense	The past continuous tense	Lecture	Daily exams and homework
10	1	Articles	Articles	Lecture	Daily exams and homework
11	1	Verb patterns	Verb patterns	Lecture	Daily exams and homework
12	1	Past simple	Questions and answers	Lecture	Quiz
13	1	Sentence and phrases common in the English language in our daily life	Sentence and phrases common in the English language in our daily life	Lecture	Daily exams and homework
14	1	English conversation	English conversation	Lecture	Homework
15	1	What do you want do?	What do you want to do	Lecture	Quiz
16	1	Do's and don'ts	Do's and don'ts	Lecture	Daily exams and homework
17	1	Question and short answer	Question and short answer	Lecture	Quiz
18	1	Present perfect time	Present perfect time	Lecture	Daily exams and homework
19	1	Past perfect	Past perfect	Lecture	Quiz
20	1	Exam-3	Exam-3	Lecture	Quiz
21	1	The future simple tense	The future simple tense	Lecture	Daily exams and discussions with students
22	1	Present Simple and Present continuous	Present Simple and Present continuous	Lecture	Daily exams and discussions with students
23	1	Much/many some/any and a few/little	Much/many some/any and a few/little	Lecture	Daily exams and discussions with students
24	1	Exam 4	Exam 4	Lecture	Daily exams and

					homework

59. 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

60. Learning and Teaching Resources

Required textbooks (curricular books, any)	Headway Pre-Intermediate , students book Sources from the Internet
Main references (sources)	Headway Pre-Intermediate
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.eltbooks.com/item_spec.php?item=307003&cat