Academic Program Description Form

University Name : Tikrit University

College / Institute : College of Education for Pure Sciences

Department : Department of Mathematics

Academic or Professional Program Name : Bachelor's

Final Degree Name : Bachelor of Mathematics

Study System : Annual

Date of Description Preparation

File Completion Date

Signature

Department Head Name : Prof. Dr. Fatima Mahmood Mohammed

Date :23 /12/2025

Signature

Assistant Dean Name : Prof. Dr. Mohammed Ahmed Jasim

Date : 23 /12/2025

: File Reviewed by

Quality Assurance and Performance Evaluation Division

Quality Assurance and Performance Evaluation Division : Dr.Safa Khaleel Ibrahim

Date :23 / 3 /2025

: Signature

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

Academic Program and Course Description Guide

2026 - 2025

Introduction:

In formulating the professional program, we team together a variety of courses, organize a certain number educational activities and practical work experiences into one system. The program was designed to improve and advance the students 'competencies so that they were well prepared for their future professional lives. Each year, this program is checked for quality and relevance. Internal reviews are the most important means of this, followed by External Examiner Programs which also rotate through inviting auditors from outside to come in and evaluate. It is a process guaranteed to stay in alignment with the developing standards of academic and labor markets.

The program description provides a nice overview of the structure of the program and each course. It definitively states the skills which students are required to develop corresponding with strategic educational objectives of the program. It serves as a key document for program accreditation, prepared through collaboration among faculty with guidance from departmental scientific committees.

This is the second iteration of this guide where we have revised it to describe the academic program in current terms. This update is a result of changes that have been made within Iraq's higher education system over time. The program structure (annual, quarterly) is conventional and follows the programming description pattern specified for Bologna Process schools (Department of Studies letter T 3/2906 dated 3/5/2023).

Concepts and terminology:

Academic Program Description: A brief description outlining the vision, mission and goals of the program including a comprehensive list of the proposed learning outcomes and the pedagogical methods that will be used to achieve them.

Course Description: This report will provide a brief overview of the key characteristics of a specific course and the learning outcomes that are expected of students attending classes, thus, explaining the effectiveness of the given learning experiences. The information is extrapolated on the detailed description of the overarching program.

Program Vision: An inspirational and visionary statement that outlines the course that the academic program is intended to take. It must be aggressive, inspiring, realistic and attainable.

Program Mission: A brief statement that would outline the core purpose of the program, the main activities required to achieve the objectives of the program, and the directions, which would help the program to achieve its future growth and development.

Program Objectives: Clear, empirically measurable, and empirically testable statements of the aims that the academic program is aimed at accomplishing within a given period of time.

Curriculum Structure: The lists of all the courses and disciplines that make up the academic curriculum are organized based on the instructional paradigm (quarterly, annual, Bologna Process). It includes all requirements by the ministry, university, college or scientific department and it represents the respective credit hours assigned to the same.

Learning Outcomes: The whole body of knowledge, skills, and values that learners should be able to attain at the end of the academic program successfully. Course learning outcomes should be clearly spelled out to add up to the overall aims of the program.

Teaching and learning strategies: How teachers will contribute to our learning and development. Such plans that include class matters as well as after-school tasks get the map towards what is desired by the program.

1. Program Vision
We would elevate standards in core math courses, algebra, analysis, geometry, and differential equations, so that they would be reflective of the new national college outcomes. This will be done through providing teachers with improved tools and continuous learning, as well as training technical and administrative employees. The program will also enable the students to become entrepreneurs because research, innovation, and initiative skills will be taught at the very beginning, so that they will be able to convert the knowledge into the real value.
2. Program Mission
We have a mission to produce students who have strong scientific reasoning as well as developed research skills. The department is committed in providing high-quality educational services and utilizes the modern science to achieve this goal. We produce individuals that are competent and capable of engaging well and precisely into all forms of professional arenas. Our mission includes the development of scientific research, the encouragement of intellectual dialogue in order to keep up with the world changes, and the proactive response to the changing needs of the society towards sustainable human development. Our vision is to develop the future generation of leaders in the education field by ensuring a

vibrant academic atmosphere and providing high quality programs that add national and regional competitiveness and strengthening the collaboration between academia and industry.

3. Program Objectives

1. To develop professional individuals that have specialized skills in meeting the staffing needs of learning and educational institutions.
2. To make students apply and use knowledge that they have gained in the course of studying efficiently.
3. To help the students with abilities to convert their academic knowledge into practical skills in their selected profession.
4. To build pedagogical and instructional skills of students in mathematics.
5. To develop the skills of synthesis of information, logical thinking and complex problem solving.
6. To train and eligibility students to higher postgraduate degrees (Master and PhD) in other specializations of mathematics.

4. Program Accreditation

Ministry of Higher Education and Scientific Research

5. Other external influences

6. Academic Program Structure				
Program Structure	**NO. of Courses**	**Sum of Units**	**Percentage**	**Notes**
Institutional Requirements	**5**	**12**	**7%**	

College Requirements	**12**	**50**	**29%**	
Department Requirements	**21**	**110**	**64%**	
Summer Training				
Other				

Notes can indicate if the course is required or elective. *

7. Program Description				
Year\Level	**Course code**	**Course Name**	**Credit Hours**	
			Theoretical	**Practical**
1st	101MTFM	Fundamental of Mathematics	4	
1st	102MTCA	Calculus	5	
1st	103MTLA	Linear Algebra	4	
1st	104MTGP	General Physics	2	
1st	105MTFE	Fundamental of Education	2	
1st	106MTCI	Computer I		2
1st	107MTDH	Democracy and Human Rights	2	
1st	108MTAL	Arabic Language	1	
1st	109MTEP	Educational Psychology	2	
1st	110MTEL	English Language	1	
2nd	111MTAC	Advance Calculus	3	2
2nd	112MTGT	Group Theory	3	
2nd	113MTCII	Computer II		2
2nd	110MTEL2	English Language	1	

2nd	215MTAG	Systems of Axioms and Geometry	3	
2nd	216MTRM	Curriculum and textbook	1	2
2nd	217MTOD	Ordinary Differential Equation	2	2
2nd	218MTDP	Development Psychology	2	
2nd	219MTEA	Educational Administration	1	
2nd	BCI100	Baath Regime Crimes in Iraq	1	
3rd	320MTMA	Mathematical Analysis	4	
3rd	321MTNA	Numerical Analysis	4	
33d	322MTPD	Partial Differential Equation	4	
3rd	323MTPS	Probability and Statistics	4	
3rd	324MTRT	Rings Theory	4	
3rd	325MTCP	Counseling and Psychological Health	2	
3rd	326MTTM	Teaching Methods	2	
4th	427 MTGT	Module	4	
4th	428MTMS	Mathematical Statistics	4	
4th	429MTCA	Complex Analysis	4	
4th	430MTPE	Practical Education	2	
4th	431MTME	Measurement and Evaluation	2	
4th	432MTMO	General Topology	4	
	433MTDT	Differential Topology	4	

8. Expected learning outcomes of the program	
Knowledge	
Cognitive objectives	1- The student should remember the information and laws given in the curriculum. 2- The student should understand the curriculum topics and the mathematical problems related to them.

	3- The student should be able to apply what he has learned in solving mathematical problems. 4- The student should be able to analyze the text of the question and arrange the information to benefit from it in the solution and obtain correct results. 5- The student should compose problems related to the curriculum topics and then reach a correct solution. 6- The student should have ideas about the curriculum material and know how to derive the appropriate laws to solve it.
Skills	
General and qualifying skill objectives	1-Learn about modern teaching methods and techniques 2-Know everything new in the field of physics to keep pace with the rapid development in this specialty 3-Hold scientific exhibitions, seminars and workshops
Program skill objectives	1- Teaching skill in mathematics 2- The student should have the ability to employ practical skill in analyzing information and logical inference 3- The student should have the ability to link causes to effects
Values	
	Innovation and continuous improvement. Competing in the education industry and adhering to standards of excellence.

9. Teaching and learning strategies

1 - The lecture method 2- The lecture method 3 -Practical application in laboratories 4 -Discussion and dialogue Flipped learning
10. Evaluation methods.
1- Weekly reports 2- Practical tests 3- Weekly, monthly and annual tests 4- Graduation research

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	**Lecturer**
Prof. Ali Abdul Majeed	Mathematics	Differential Topology			✓	
Dr. Prof. Fatimah Mahmood Mohammed	Mathematics	Topology			✓	
Prof. Dr. Raheam A Al-Saphory	Mathematics	Control Systems and Analysis			✓	
Prof.Dr. Sinan Omar Ibrahim	Mathematics	Rings Theory			✓	
Prof.Dr.Mahera Rabee Qasem	Mathematics	Algebra			✓	
Prof. Dr. Raad Awad Hameed	Mathematics	Partial Differential Equations			✓	
Prof. Nada Khalid Abdullah	Mathematics	Modules Theory			✓	
Assistant Professor Dr. Marwa Abdallah Salih	Mathematics	Algebra			✓	
Assistant professor Dr. Shadia majeed noori	Mathematics	Pure Mathematics			✓	
Assistant Professor Dr. Asmaa Ghasoob Raoof	mathematics	Topology			✓	
Assist. Prof. Dr. Anas Abbas Hijab	Mathematics	Functional analysis			✓	
Assistant Professor Muayyad Mahmood Khalil	Mathematics	Differential Equations			✓	
Asst.Prof. Samer Raad Yaseen	Mathematics	Intuitionistic Topology			✓	
Lecturer Dr.Ahmed M.Azeez	Mathematics	Functional Analysis			✓	
Lecturer Dr, Suha jumaa hammad	Mathematics	Complex analysis			✓	
Assistant. Lecturer Haidar Swadi Hamad	Mathematics	Deference Equations			✓	
Lecturer Dr.Nawras Nazar Sabry	Mathematics	Topology			✓	
Assistant Lecturer Ahlam Youssif Abdullah	Mathematics	Control systems			✓	

Lecturer Dr, Hanan Abdul Jabar Asaad	Mathmatical	Numerical Analysis			✓	
Lecturer.Samar watheq omar	Mathematical	Applied Mathematics			✓	
Assistant. Lecturer Alaa Mnawer Dedaa	Mathematical	Mathematical Statistics			✓	
Lecturer Dr. Maysuon Saleh Alawi	Psychological Sciences	General Teaching Methods			✓	
Lecturer Dr. Amaal Haseeb	Psychological Sciences	General Teaching Methods			✓	
Assistant lecturar : Azhar shareef islubee	Mathematics	Differential Equations			✓	
Lecturer Dr. Israa Refaat Hajim	Arabic Language	Language			✓	

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

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

Course Description Form

1. Course Name:
Fundamental Mathematics
2. Course Code:
101MTFM
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
10/9/2025
5. Available Attendance Forms:
Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours
7. Course administrator's name (mention all, if more than one name)
Name: Ahmed M. Azeez Email: Ahmedm.azeez@tu.edu.iq Name : Hanan Asad Jabbar Email: ass.lhananabdjabar@tu.edu.iq
8. Course Objectives

Course Objectives	• .The student acquires the concept of expressions and mathematical logic and ways to deal with them algebraically • Clarifying the concept of groups, relationships, applications, their types and theories related to them. • Giving the student experience in dealing with basic numbers • Knowing how to create natural numbers. • The student learns about the most important basics of mathematics such as mathematical systems and how to build them and the relationship between them. • The student learns how to create integers. • The student learns how to create fields of rational, real and complex numbers. • The student realizes the basis of the operations he performs on numbers, especially integers, through studying an introduction to number theory.

9. Teaching and Learning Strategies

Strategy	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the topic of the lesson without straying from the core of the subject so that the material is flexible and capable of being understood and analyzed. Assigning the student some group activities and assignments. Allocating a percentage of the grade for daily assignments and tests.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	The Sets	Inclusion concepts, Equal sets, Subsets	Lecture	General questions and discussion
Second	4	The Sets	Proper subset, Empty set, Universal set	Lecture	General questions and discussion
Third	4	The Sets	Union, Intersection, Disjoint set, Symmetric difference	Lecture	General questions and discussion
Forth	4	The Sets	Power set, Complement set, Algebra of sets	Lecture	General questions and discussion
Fifth	4	The Sets	Power set, Complement set, Algebra of sets	Lecture	General questions and discussion
Sixth	4	Statements	Tautology, Contradiction and Arguments	Lecture	General questions and discussion
Seventh	4	Statements	Open sentence, Quantified statements	Lecture	General questions and discussion
Eighth	4	Statements	Open sentence, Quantified statements	Lecture	General questions and discussion

Ninth	4	Statements	Open sentence, Quantified statements	Lecture	General questions and discussion
Tenth	4	Statements	Algebraic operations on statement	Lecture	General questions and discussion
Eleven	4	Statements	Prove the equivalent statements by algebraic operation	Lecture	General questions and discussion
Twelve	4	Concept of Ordered Pair	Cartesian product, Relations	Lecture	General questions and discussion
Thirteen	4	Relation	Definition for inverse relation with examples	Lecture	General questions and discussion
Fourteen	4	Relation	Definition for composition relation with examples	Lecture	General questions and discussion
Fifteen	4	Relation	Some theorems About inverse and composition relation	Lecture	General questions and discussion

Sixteen	4	Concept of Ordered Pair	Reflexive and Symmetric relation	Lecture	General questions and discussion
Seventeen	4	Concept of Ordered Pair	Transitive relation	Lecture	General questions and discussion
Eighteen	4	Concept of Ordered Pair	Equivalence relation Partition of the set	Lecture	General questions and discussion
Nineteen	4	Concept of Ordered Pair	Partially ordered set	Lecture	General questions and discussion
Twenty	4	Concept of Ordered Pair	Totally ordered set	Lecture	General questions and discussion
Twenty one	4	Functions	Definition of function with example	Lecture	General questions and discussion
Twenty two	4	Functions	Composition functions with theorems and examples	Lecture	General questions and discussion

Twenty three	4	Functions	Type of Functions	Lecture	General questions and discussion
Twenty four	4	Functions	Type of Functions	Lecture	General questions and discussion
Twenty five	4	Functions	Inverse function	Lecture	General questions and discussion
Twenty six	4	Sequence	Definition for Sequence and examples and theorems	Lecture	General questions and discussion
Twenty seven	4	Natural number	Piano axioms	Lecture	General questions and discussion
Twenty eight	4	Natural number	Relation on natural numbers and some theorems	Lecture	General questions and discussion
Twenty nine	4	Integer number	Structure for integer number	Lecture	General questions and discussion

Thirty	4	Rational number	Structure for rational number	Lecture	General questions and discussion
Thirty one	4	Group	Semi group Subgroup Homomorphism Isomorphism	Lecture	General questions and discussion
Thirty two	4	Real number	Structure for real number	Lecture	General questions and discussion

11. Course Evaluation

Daily exams score: 10, Homework and reports score: 10, Monthly exams score: 30

Final exam score: 50

12. 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

1. Course name
Calculus-First stage
2. Course code
102MTCA
3. Semester/Year
2026 – 2025
4. Date this description
1\11\2025
5. Available forms of attendance
Daily
6. Number of study hours (total) / Number of units (total)
150 hours
a. Name of the course administrator (if more than one name is mentioned)
Name : Anas Abbas Hijab Email : anas_abass@tu.edu.iq **Name : Haider Swaadi Email :** haydar.math@tu.edu.iq
7. Course objectives

Subject objectives:	culus is one of the main topics in mathematics and is based on the subject of differential and integral. Evaluate the limit of a function, including one-sided and two-sided, using numerical and algebraic techniques and the properties of limits. □ Determine whether a function is continuous or

	discontinuous at a point. □ Calculate the derivative of an algebraic function using the formal definition of the derivative. □ Explain the concept of derivative as an "instantaneous rate of change" and the slope of the tangent line; find derivatives of functions using the constant, power, sum, difference, product, quotient, and chain rules, and using implicit differentiation. □ Find the derivative of algebraic, exponential, and logarithmic functions. □ Determine maxima and minima in optimization problems using the derivative. □ Sketch the graph of functions using the first and second derivatives to determine intervals where the functions are decreasing and increasing, maximum and minimum values, intervals of concavity and points of inflection. □ Solve applied problems involving tangent lines, rates of change and related rates. □ Apply the concept of derivative to solve applied problems involving marginal cost, profit and revenue, and growth and decay problems. □ Find definite and indefinite integrals by using general

	integral formulas, integration by substitution, and integration tables. □ Use integration techniques to find the area under a curve and the area between two curves. □ Use calculus to analyze revenue, cost, and profit. □ Use integration in business and economic applications
8. Teaching and learning strategies	
The strategy:	Students completing this course will be able to find a limit of a function graphically. □ Students completing this course will be able to compute the derivative of an algebraic function. □ Students completing this course will be able to find a (linear) Marginal Cost function and Iinterpret it. □ Students completing this course will be able to find the area between two curves.
Course Structure	

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method
First	**5**	**Introduction to real number, absulute value open interval**	**preface**	**The lecture**	**General questions, discussion, explanations and solving examples**
Second	**5**	**Study inequality and real line of set solution**	**inequalities**	**The lecture**	**General questions,**

					discussion, explanations and solving examples
Third	**5**	**Limit point and properties**	**Limit point**	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourth	**5**	**Domian & range, graph and its properties**	**functions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Fifth	**5**	**Solutions of the exercises**	**Solutions of the applied exercises in this chapter**	**The lecture**	**General questions, discussion, explanations and solving examples**
Sixth	**5**	**Limits and continuous and dis-continuous fuction with inverse**	**continuous**	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventh	**5**	**Definition, some theorems and properties**	**Derivatives**	**The lecture**	**General questions, discussion, explanations and solving examples**
Eight	**5**	**Higher order**	**Derivatives**	**The lecture**	**General questions, discussion, explanations and solving examples**
Ninth	**5**	**Roll's theorem, L'hopital's and Tayler expansion**	**Derivatives**	**The lecture**	**General questions, discussion,**

					explanations and solving examples
Tenth	5	Implict derivatives	Derivatives	The lecture	General questions, discussion, explanations and solving examples
Eleventh	5	Solutions of exercises	Solutions to various and applied chapter exercises	The lecture	General questions, discussion, explanations and solving examples
Twelfth	5	Student Evaluation	Monthly exam	-	-
Thirteenth	5	Tangent lines, approximation, area, ..etc.	Application of derivatives	The lecture	General questions, discussion, explanations and solving examples
Fourteenth	5	Student Evaluation	Monthly exam	The lecture	-
Fifteenth	5	Voulumes	Application of derivatives	The lecture	General questions, discussion, explanations and solving examples
Sixteenth	5	Geometric plane	Application of derivatives	The lecture	General questions, discussion, explanations and solving examples
Seventeenth	5	Solutions of exercises	Solutions to various and applied chapter exercises	The lecture	General questions, discussion, explanations and solving examples
Eighteenth	5	Trigenometric functions	Special functions	The lecture	General questions,

					discussion, explanations and solving examples
Nineteenth	**5**	**Logarithem and exponentional functions**	**Special functions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty	**5**	**Hyper-trigenometric functions**	**Special functions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-one	**5**	**Inverse Trigenometric functions**	**Special functions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-two	**5**	**Inverse Hyper-Trigenometric functions**	**Special functions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-three	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**-**
Twenty-four	**5**	**Definition with some examples**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-five	**5**	**Indefined integral**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-six	**5**	**Some methods of integral 1**	**Integration**	**The lecture**	**General questions,**

					discussion, explanations and solving examples
Twenty-seven	**5**	**Some methods of integral 2**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-eight	**5**	**Some methods of integral 3, 4**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-nine	**5**	**Some methods of integral 6**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty	**5**	**Improper integral and applications**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-one	**5**	**Area, Vulumes, Center of moment and etc.**	**Integration**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-two	**5**	**Student Evaluation**	**Monthly exam**	**-**	**-**

9. Course Evaluation.

Daily exams score: 10,

Homework and reports score: 10, **Monthly exams score: 30;** **Final exam score: 50**

10. Learning and teaching references	
Required textbooks	1-Thomas' Calculus, 4th edition, Joel hass, christopher hell and maurice d. weir :8-chapter.
Main References	- Foundation of Analysis: The Arithmetic of Whole Rational, Irrational and Complex Numbers, by **Edmund Landau**. - Hass, J., Heil, C., & Weir, M. D. (2017). Thomas' calculus. - Thomas Jr, G. B. (2018). INSTRUCTOR'S SOLUTIONS MANUAL. - Hass, J. (2008). *Thomas' calculus*. Pearson Education India. Anton, H., Bivens, I. C., & Davis, S. (2021). *Calculus*. John Wiley & Sons. - Thomas, C. (1996). Introduction to differential calculus. *Sydney: University of Sydney*.
Recommended supporting books and references (scientific journals, reports...)	The most important books and references on Calculus available in the Central Library.
Electronic references, website.	1- Reliable websites. 2- Libraries websites in some international universities

1. Course name	
Linear Algebra I	
2. Course code	
103MTLA	
3. Semester/Year	
2025 -2026	
4. Date of preparation of this description	
3/9/2025	
5. Available Forms of Attendance	
Daily	
6. Number of hours (total) / Number of units (total)	
120 hours	
7. Name of the course administrator (if more than one)	
Name: Dr. Marwa Abdullah Saleh **Email: marwahabdullah747@gmail.com** **Name :** Sammar Wathiq Omer Email : medomath80@gmail.com	
.8Course objectives	
8. Course objectives	This description provides a branch of mathematics that deals with the study of vector spaces and linear transformations, as the subject of vector spaces is a central topic in modern mathematics and is frequently used in abstract algebra and functional

	analysis.
eaching and learning strategies	
Strategies	• **Manage the lecture in an applied manner related to the reality of daily life to attract the student to the subject of the lesson without moving away from the core of the subject to make the material flexible and able to be understood and analyzed.** • **-Assign the student some activities and group assignments.** • **Allocate a percentage of the grade for daily assignments and tests.**

10.Course Structure

Evaluation method	earning method	nit or topic name	Required Learning Outcomes	lours	Week
General questions, discussion and examples	Lecture	Matrices	ntroduction to Matrices	**4**	First
General questions, discussion and examples	Lecture	Matrices	rations on matrices	**4**	Second
General questions, discussion and examples	Lecture	Matrices	Some Special Matrices/Algebra ic Properties of Matrices	**4**	Third
General questions, discussion and	Lecture	Matrices	Matrices with an inverse /	**4**	Fourth

examples			Methods for finding the inverse of a matrix		
General questions, discussion and examples	Lecture	Matrices	Definition of the order of a matrix	**4**	Fifth
General questions, discussion and examples	Lecture	Matrices	Determinants	**4**	Sixth
General questions, discussion and examples	Lecture	Matrices	Properties of determinants	**4**	Seventh
General questions, discussion and examples	Lecture	Matrices	Basic proofs of determinants	**4**	Eighth
General questions, discussion and examples	Lecture	inear equations	Introduction to Linear Equations	**4**	Ninth
General questions, discussion and examples	Lecture	inear equations	Systems of linear equations	**4**	Tenth
General questions, discussion and examples	Lecture	inear equations	Methods for solving systems of linear equations/Kauss method	**4**	Eleventh
General questions, discussion and examples	Lecture	inear equations	Methods for solving systems of linear equations/Kauss-Gordon elimination method	**4**	XII
General questions, discussion and examples	Lecture	Vectors	Euclidean-nonlinear space	**4**	Thirteenth
General questions, discussion and examples	Lecture	Vectors	Scalar multiplication of vectors/non-vector multiplication	**4**	XIV
General questions, discussion and	Lecture	Vectors	Vector space	**4**	XV

examples					
General questions, discussion and examples	Lecture	Vectors	Vector subspace	**4**	XVI
General questions, discussion and examples	Lecture	Vectors	Linear combination	**4**	XVII
General questions, discussion and examples	Lecture	Vectors	Vectors that generate a vector space	**4**	XVIII
General questions, discussion and examples	Lecture	Vectors	Vector subspace	**4**	Nineteenth
General questions, discussion and examples	Lecture	Vectors	Linear combination	**4**	XX
General questions, discussion and examples	Lecture	Vectors	Vectors that generate vector space	**4**	twenty-first
General questions, discussion and examples	Lecture	Vectors	Vector Proofs	**4**	Twenty-second
General questions, discussion and examples	Lecture	ar correlation and linear independence	Linear correlation and linear independence	**4**	Twenty-third
General questions, discussion and examples	Lecture	se and dimension	Base and dimension	**4**	Twenty-fourth
General questions, discussion and examples	Lecture	space and column space	Line space and column space	**4**	Twenty-fifth
General questions, discussion and examples	Lecture	Linear transformations	Linear transformations	**4**	Twenty-sixth
General questions, discussion and examples	Lecture	Linear transformations	Some types of linear transformations	**4**	Twenty-seventh
General questions, discussion and examples	Lecture	Linear transformations	Kernel and span	**4**	Twenty-eighth

General questions, discussion and examples	Lecture	Linear transformations	Matrix as a linear transformation	**4**	twenty-ninth
General questions, discussion and examples	Lecture	Linear transformations	The kernel of a linear application	**4**	Thirtieth
eneral questions, discussion and examples	Lecture	ıear conversions	Eigenvalues and eigenvectors	**4**	thirty-first
-	-	Monthly exam	Student evaluation	**4**	thirty-second

11. Course evaluation
Daily exams grade: 10, Assignments and reports: 10, Monthly exams grade: 30

.12Learning and Teaching Resources

Elementary Linear Algebra with Applications by Bernard Kolman and David R. Hill	Required textbooks (syllabus if available)
- Elementary Linear Algebra with Applications by Bernard Kolman and David R. Hill (9th edition)by 2017 - 2010 مقدمة فى الجبر الخطى/تاليف بيرنارد كولمان	Main references (sources)
most important books and resources on ordinary differential equations found in the Central Library.	Recommended supporting books and references (scientific journals, reports...)
- -Online resources. - -Library websites of some international universities.	Electronic references, websites

Course Description Form

1. Course name
Computer Principles - First Stage
2. Course code
106MTCI
3. Semester/Year
2025 – 2026
4. Date of preparation of this description
3/9/2025
5. Available Forms of Attendance
Daily
6. Number of class hours (total) / Number of units (total)
96 hours
7. Name of the course administrator (if more than one)
Name: Khalid Khalis ibrahim **E-mail: Khalid. Kh. Ibrahim @tu.edu.iq**
urse objectives

• -The student acquires knowledge of computer principles and office applications. • -The student acquires sufficient knowledge of computer fundamentals .	se Objectives

• -The student acquires sufficient knowledge about computer components. • -The student acquires sufficient knowledge about software licenses and computer security . • -Acquire sufficient knowledge about the classification of operating systems . • -Gain sufficient knowledge about operating systems, including Windows 7, 8, and 10. • -Gain sufficient knowledge about the components of the desktop, the Start Menu, and the taskbar. • -Gain sufficient knowledge about Folders & Files • -Gain sufficient knowledge of primary and secondary Icons. • -Gain sufficient knowledge of the Control Panel .	
aching and Learning Strategies	
• -Manage the lecture in an applied manner related to the reality of daily life to attract the student to the subject of the lesson without moving away from the core of the subject to make the material flexible and able to be understood and analyzed. • -Assign the student some activities and group assignments.	tegy

• -Allocate a percentage of the grade for daily assignments and tests.	

Course structure

luation method	earning method	Module name or topic	Desired Learning Outcomes	الساعا	Week
General Questions & Discussion	Lecture	Computer Lifecycle, Operating Systems	Recognize computer basics	3	first
General Questions & Discussion	Lecture	First, second, third and fourth generation computers and Windows 7	Recognize the stages of computer generations	3	second
General Questions & Discussion	Lecture	What is an electronic computer and what is data and information and the Windows 7 operating system	Recognize the electronic computer	3	third
General Questions & Discussion	Lecture	Features in terms of characteristics as well as uses	Recognize the features of the computer and its areas of use as well as the components of the desktop	3	fourth
General Questions & Discussion	Lecture	Hardware, software and desktop components	Recognize computer components	3	Fifth
General Questions & Discussion	Lecture	Purpose of use by size and operating system	Recognize the types of computers as well as the components of the desktop	3	sixth
General Questions & Discussion	Lecture	Desktop, minicomputer, microcomputer, midrange and supercomputer	Recognize the classification of computers by size and performance, as	3	seventh

			well as recognizing the taskbar		
General Questions & Discussion	Lecture	Desktop, laptop and handheld computer	Recognize the types of microcomputers as well as the taskbar	**3**	eighth
General Questions & Discussion	Lecture	Analog, hybrid and digital computers	Recognize the classification of computers by data type as well as how to search for files and programs	**3**	ninth
General Questions & Discussion	Lecture	IOS, Windows and Android operating systems	Recognize the classification of computers based on the operating system	**3**	tenth
General Questions & Discussion	Lecture	Monthly exam	Student assessment	**3**	eleventh
General Questions & Discussion	Lecture	Keyboard and Mouse	Recognize the physical components of a computer as well as the arrangement of open windows	**3**	XII
General Questions & Discussion	Lecture	Trackball and touchpad as well as touch-sensitive display	Recognize the physical components of a computer as well as recognize how to turn on and restart a computer	**3**	thirteenth
General Questions & Discussion	Lecture	Scanner, digital camera and stylus	Recognize the physical components of a computer as well as recognizing the operation of the taskbar	**3**	XIV

General Questions & Discussion	Lecture	Joystick, microphone, and optical marker reader	Recognize physical computer components as well as recognize uninstalling the taskbar	**3**	XV
General Questions & Discussion	Lecture	Monitor, speakers, and video projector	Recognize physical computer components - output devices as well as recognize resizing icons	**3**	XVI
General Questions & Discussion	Lecture	Printers and their types	Recognize physical computer components - output devices as well as recognizing the creation of folders and files	**3**	XVII
General Questions & Discussion	Lecture	CPU, arithmetic, logic and control unit	Recognize the computer box	**3**	XVIII
General Questions & Discussion	Lecture	Power switch, reset, ports, temporary and permanent memory, slots, hard disk, and video cards	Recognize the internal and external parts of a system unit as well as file naming.	**3**	nineteenth
General Questions & Discussion	Lecture	Monthly exam	Student assessment	**3**	XX
General Questions & Discussion	Lecture	RAM, ROM, HARD DISK, FLASH MEMORY, CD, DVD	Recognize primary and secondary memory	**3**	twenty-first
General Questions & Discussion	Lecture	Converting memory units to kilobytes, megabytes and megabytes	Recognize bits and bytes	**3**	Twenty-second

General Questions & Discussion	Lecture	Basic input and output system	Recognize bytes as well as file deletion	3	Twenty-third
General Questions & Discussion	Lecture	Operating systems and application programs	Recognize a software entity	3	Twenty-fourth
General Questions & Discussion	Lecture	Machine language and intermediate and high level languages	Recognize programming languages to permanently delete files	3	Twenty-fifth
General Questions & Discussion	Lecture	Binary, decimal, octal and hexadecimal systems	Recognize setup systems	3	Twenty-sixth
General Questions & Discussion	Lecture	Introduction and ethics of the electronic world and its abuses	Recognize computer security and software licenses	3	wenty-seventh
General Questions & Discussion	Lecture	Computer security and software licenses	Recognize computer security and software licenses	3	Twenty-eighth
General Questions & Discussion	Lecture	User and collective licenses and the meaning of intellectual property	Recognize the types of slack	3	twenty-ninth
General Questions & Discussion	Lecture	Definition, types and sources of hacking	Recognize cyber hacking and its types	3	thirtieth
General Questions & Discussion	Lecture	Explain the types of viruses and malicious programs and steps to prevent viruses	Recognize computer viruses and malicious programs and the resulting damage and how to prevent them.	3	thirty-first
-	-	Monthly quiz	Student	3	thirty-second

			assessment		

ourse evaluation	
exams grade: 10, Assignments and reports: 10, Monthly exams grade: 30	
Learning and Teaching Resources	
Computer Basics and Office Applications First part Prof. Dr. Ziad Mohammed Abboud, Prof. Dr. Ghassan Hamid Abdulmajeed, Prof. Dr. Amir Hussein and M. Bilal Kamal 14	uired textbooks (methodology, if any)
most important books and resources on the basics of computers in the Central Library.	mmended supporting books and references (scientific journals, reports...)
• -Reputable websites. • -Library websites of some international universities.	tronic references, websites

Course Description Form

1. Course name	
Arabic language	
2. Course code	
108MTAL	
3. Semester/Year	
2025 – 2026	
4. Date of preparation of this description	
3/9/2025	
5. Available Forms of Attendance	
Weekly	
6. Number of class hours (total) / Number of units (total)	
60 hours	
7. Name of the course administrator (if more than one)	
Name: Esraa Refaat Hagem Email: esraa.r.hajim@tu.edu.iq	
8. Course objectives	
Course Objectives	• Strengthening students' language ability. • Gain full knowledge of the basics of the language. • Explain the importance of Arabic poetry while. • Explaining the grammatical rules of the language. • Knowing the basic rules and being able to use and apply them

9. Teaching and Learning Strategies	
Strategy	- In order for the student to obtain comp information covering the learning and teaching strategy in order to achieve the basic purpose of the curriculum, which is focused on the student's familiarity with the curriculum, which is characterized by the fact that the student must realize and understand the rules, and this requires a special approach that depends mainly on developing the student's grammatical and spelling abilities and how to apply them to Qur'anic texts and poetic texts and not fall into the melody

10 .Course structure

Evaluation Method	Learning method	Module name or topic	Desired Learning Outcomes	Hours	Week
ıeral Questions & Discussion	ıecture	ıh Al-Duha and the most important meanings contained in the verses	The student understands the topic	2	first
ıeral Questions & Discussion	ıecture	ıammad Mahdi al-Jawahiri	The student understands the topic	2	Second
ıeral Questions & Discussion	ıecture	nr ibn Kalthoum	The student understands the topic	2	Third
ıeral Questions & Discussion	ıecture	he story of Dhul Qarnain	The student understands the topic	2	Fourth
ıeral Questions & Discussion	ıecture	bu al-Tayyib al-Mutanabbi	The student understands the topic	2	Fifth

ıeral Questions & Discussion	,ecture	Punctuation	The student understands the topic	2	Sixth
ıeral Questions & Discussion	,ecture	Speech and its divisions	The student understands the topic	2	Seventh
ıeral Questions & Discussion	,ecture	'oun shortened, diminished, and elongated	The student understands the topic	2	Eighth
ıeral Questions & Discussion	,ecture	Z and Za	The student understands the topic	2	Ninth
ıeral Questions & Discussion	,ecture	Cutting and connecting symbols	The student understands the topic	2	Tenth
ıeral Questions & Discussion	,ecture	ddle and extreme accent	The student understands the topic	2	Eleventh
ıeral Questions & Discussion	,ecture	rect and defective verbs	The student understands the topic	2	XII
ıeral Questions & Discussion	,ecture		The student understands the topic	2	Thirteenth
ıeral Questions & Discussion	,ecture	ıbject and object nouns	The student understands the topic	2	XIV
ıeral Questions & Discussion	,ecture	as and its sisters	The student understands the topic	2	XV
ıeral Questions & Discussion	,ecture	n and its sisters	The student understands the topic	2	XVI
ıeral Questions & Discussion	,ecture	oken and open an	The student understands the topic	2	XVII
ıeral Questions & Discussion	,ecture	oject and adverbs	The student understands the	2	XVIII

			topic		
ıeral Questions & Discussion	,ecture	ːiator and subject	The student understands the topic	2	Nineteenth
ıeral Questions & Discussion	,ecture	Number and enumerated	The student understands the topic	2	XX
ıeral Questions & Discussion	,ecture	ıe story of Moses and the Green	The student understands the topic	2	twenty-first
ıeral Questions & Discussion	,ecture	Morphological balance	The student understands the topic	2	wenty-second
ıeral Questions & Discussion	,ecture		The student understands the topic	2	Twenty-third
ıeral Questions & Discussion	,ecture	ɔors of the triple verb	The student understands the topic	2	wenty-fourth
ıeral Questions & Discussion	,ecture	minal and verbal sentences	The student understands the topic	2	Twenty-fifth
ıeral Questions & Discussion	,ecture	Abstract and augmented verbs	The student understands the topic	2	Twenty-sixth
ıeral Questions & Discussion	,ecture	ɔen and bound ta	The student understands the topic	2	venty-seventh
ıeral Questions & Discussion	,ecture	Passive verb	The student understands the topic	2	wenty-eighth
ıeral Questions & Discussion	,ecture	Passive verb	The student understands the topic	2	wenty-ninth
ıeral Questions & Discussion	,ecture	Exception	The student understands the topic	2	Thirtieth
ıeral Questions	,ecture	gative and active	The student	2	thirty-first

& Discussion		participle	understands the topic		
-	-	Monthly quiz		2	hirty-second

Course evaluation	
y exams grade: 10, Assignments and reports: 10, Monthly exams grade: 30 , Final exam grade: 50	
Learning and Teaching Resources	
• Required textbooks (syllabus if available)	Vafi Grammar_ Ibn Aqeel Commentary_ Al-Kafi Exchange_ Arabic Literature
• Main references (sources)	veh's book
• Recommended supporting books and references (scientific journals, reports...)	ortant Books and Special Sources
• Electronic references, websites	na al-Hawamah_ Artashaf al-Darb

Course Description Form

course name.1	
Human Rights and Democracy / First Y	
Course Cod	
Bachelor's Deg	
Semester / Yea	
2026/2	
Date of Preparing this Descriptio	
2025	
Available Attendance Form	
D	
6. Total Study Hours / Total Units	
hour	
Course Coordinator (If more than one name is mentioned	
Email:omersahab911@gmail.com **Name:dr.omer sahab ayid**	
Course Objective	
• Introducing students to the concepts of human rights and democracy and their philosophical and legal foundations. • Identifying international and national sources of human rights (Constitution of the Republic of Iraq, international	**Course Object**

conventions).
- Developing skills of constructive dialogue and sound legal discussion.
- Preventing the recurrence of past violations through spreading legal awareness.

→ Promoting the concep of citizenship as the basis of national belonging.

- Enabling students to defend rights through legitimate legal means.
- Deepening the principle of rule of law and separation of powers.
- Rejecting violence and gross human rights violations.

Teaching and Learning Strategie

ıtegies

- Using educational discussion (interactive dialogue) based on exchanging ideas to reach facts.
- Utilizing modern teaching technologies (Data Show projector).
- Group note-taking to involve all students in classroom activities.
- Classroom exercises to participate in finding appropriate solutions for some evaluation aspects.

Course Structure

Assessment	Teaching Method	Topic	Learning Outcomes	Hours	Week
Oral	Discussion	Introduction to the course,	Introduction to the	١	Faire

		objectives, and outcomes	course, objectives, and outcomes		
Oral	Discussion	Introduction to the concept of human rights and its historical development	Introduction to the concept of human rights and its historical development	**1**	Second
Oral	Discussion	**Characteristics and importance of human rights**	Characteristics and importance of human rights	**1**	Third
Oral	Discussion	International sources of human rights (Universal Declaration & Covenants	International sources of human rights (Universal Declaration & Covenants	**1**	Fourth
Oral	Discussion	Gross human rights violations (genocide, crimes against humanity, torture)	Gross human rights violations (genocide, crimes against humanity, torture)	**1**	Five
Oral	Discussion	Rights of specific groups (women, children, minorities, displaced persons)	Rights of specific groups (women, children, minorities, displaced persons)	**1**	Sixth
Oral	Discussion	Human rights in Islamic legislation	Human rights in Islamic legislation	**1**	Savant

Oral	Discussion	Historical development of human rights	Historical development of human rights	**1**	Eighth
Oral	Discussion	National and procedural mechanisms for human rights	National and procedural mechanisms for human rights	**1**	Ninth
Written & Oral	Discussion	Concept of the International Bill of Human Rights	Concept of the International Bill of Human Rights	**1**	Tenth
Oral	Discussion	Gross human rights violations	Gross human rights violations	**1**	Eleventh
Oral	Discussion	International humanitarian law and protection of human rights in conflicts	International humanitarian law and protection of human rights in conflicts	**1**	Fourteenth
Oral	Discussion	Gross human rights violations in Iraq	Gross human rights violations in Iraq	**1**	Fifteenth
Oral	Discussion	Fields of human rights and	Fields of human	**1**	Sixteenth

		protection mechanisms	rights and protection mechanisms		
Oral	Discussion	International and regional protection mechanisms and accountability	International and regional protection mechanisms and accountability	**1**	Seventeenth
Oral	Discussion	National and procedural mechanisms for protecting human rights	National and procedural mechanisms for protecting human rights	**1**	Eighteenth
Written & Oral	Discussion	Contemporary challenges in human rights	Contemporary challenges in human rights	**1**	Nineteenth
Oral	Discussion	Democracy: historical origins and development	Democracy: historical origins and development	**1**	Twentieth
Oral	Discussion	Development of democracy in modern times	Development of democracy in modern times	**1**	Twenty-first
Oral	Discussion	Democracy in the 20th century (between totalitarianism and expansion)	Democracy in the 20th century (between totalitarianism and	**1**	Twenty-second

			expansion)		
Oral	Discussion	Types of democracy and contemporary developments	Types of democracy and contemporary developments		Twenty-third
Oral	Discussion	١ Islam and democ	Islam and democracy	**1**	١Twenty-fourth
Oral	Discussion	Democratic institutions and mechanisms	Democratic institutions and mechanisms	**1**	Twenty-fifth
Oral	Discussion	Elections as a mechanism of democracy	Elections as a mechanism of democracy	**1**	Twenty-sixth
Oral	Discussion	Democracy in practice	Democracy in practice	**1**	Twenty-sixth
Oral	Discussion	Parliamentary elections	Parliamentary elections	**1**	١Twenty-seventh
Oral	Discussion	Rule of law and separation of powers	Rule of law and separation of powers	١	Twenty-eighth
		Final Exam	Final Exam	**1**	Thirtieth

11. Course Evaluation

- Daily exams: 20 marks
- Monthly exams: 30 marks
- Final exam: 50 marks

12. Learning and Teaching Resources

None	Required Textbooks:
• Curriculum approved by the Ministry of Higher Education and Scientific Research	Main References:
-	Recommended References
	Electronic Resources • Internet websites

Course Description Form

11.Course name
General Physics-First Stage
12.Course code
104MTGP
13.Semester/Year
2025 – 2026
14. Date this description
1\11\2025
15.Available forms of attendance
Daily
16.Number of study hours (total) / Number of units (total)
64 hours
17.Name of the course administrator (if more than one name is mentioned)
ne: Professor Amir Shaker Mahmood **ail**: amiroshaker@yahoo.com
18.Course objectives

Subject objectives:	• The student acquires about topics in university physics. • The student acquires sufficient knowledge about directional physical quantities. • The student acquires sufficient knowledge about numerical physical quantities.

	• The student acquires sufficient knowledge about numerical multiplication and directional multiplication. ıe student acquires sufficient knowledge about motion and its types.
19.Teaching and learning strategies	
The strategy:	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson without straying from the core of the subject so that the material is flexible and can be understood and analyzed. • Assigning the student some group activities and assignments. locating a percentage of the grade for daily assignments
10 Course Structure	

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method
First	**2**	**Identify symbols and units of arithmetic**	**Definition of units and symbols and how to use them**	**lecture**	**General questions, discussion, explanations and solving examples**
Second	**2**	**Identify directional physical quantities**	**Definition of physical quantities and how to analyze them**	**lecture**	**General questions, discussion, explanations and solving examples**
Third	**2**	**Identify numerical physical quantities**	**Explain how numerical physical**	**The lecture**	**General questions, discussion,**

			quantities		explanations and solving examples
Fourth	2	Identify directional physical quantities	Explain how directional physical quantities	The lecture	General questions, discussion, explanations and solving examples
Fifth	2	Solve a set of examples and questions	How to solve a set of examples and questions	The lecture	General questions, discussion, explanations and solving examples
Sixth	2	Identify numerical and directional multiplication	How to compare numerical and directional multiplication	The lecture	General questions, discussion, explanations and solving examples
Seventh	2	Identify the concept of motion	Types of motion in physics and its applications	The lecture	General questions, discussion, explanations and solving examples
Eight	2	Identify types of differential equations and methods of solving them	Finding the integration factor for the equation Linear differential	The lecture	General questions, discussion, explanations and solving examples
Ninth	2	Identify the types of differential equations and methods of solving them	Bernoulli's equation as a special case of the linear differential equation	The lecture	General questions, discussion, explanations and solving examples
Tenth	2	Identify motion in a straight	line Identify motion and explain laws and issues	The lecture	General questions, discussion, explanations and

					solving examples
Eleventh	**2**	**Student evaluation**	**Monthly exam**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twelfth	**2**	**Identify uniform circular motion**	**Explain the concept of motion and its use**	**-**	**-**
Thirteenth	**2**	**Identify free fall**	**Identify freely falling bodies**	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourteenth	**2**	**Identify acceleration and ground acceleration**	**Explain acceleration and ground acceleration**	**The lecture**	**-**
Fifteenth	**2**	**Identify velocity and instantaneous velocity**	**Identify the concept of velocity and instantaneous velocity**	**The lecture**	**General questions, discussion, explanations and solving examples**
Sixteenth	**2**	**Examples and questions**	**Solve examples and questions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventeenth	**5**	**Projectile motions**	**Explaining the concept of the vertical vehicle**	**The lecture**	**General questions, discussion, explanations and solving examples**
Eighteenth	**2**	**Projectile analysis**	**How to analyze the initial**	**The lecture**	**General questions,**

			velocity and final velocity		discussion, explanations and solving examples
Nineteenth	2	Projectiles Solving	some examples and questions	The lecture	General questions, discussion, explanations and solving examples
Twenty	2	Circular and non-circular motion	Understanding the concept of circular and non-circular motion	The lecture	General questions, discussion, explanations and solving examples
Twenty-one	2	Angle displacement	Understanding the concept of angle displacement and explaining the laws	The lecture	General questions, discussion, explanations and solving examples
Twenty-two	2	Newton's laws of motion	Explaining Newton's laws of motion	The lecture	General questions, discussion, explanations and solving examples
Twenty-three	2	Student evaluation	Monthly exam	The lecture	-
Twenty-four	2	Resultant forces	Explaining the resultant forces and their groups	The lecture	General questions, discussion, explanations and solving examples
Twenty-five	2	Center of gravity	Determining the center of gravity of shapes	The lecture	General questions, discussion, explanations and solving examples
Twenty-six	2	Student evaluation	Monthly exam	The lecture	General

					questions, discussion, explanations and solving examples
Twenty-seven	2	Center of gravity	Explain examples and questions	The lecture	General questions, discussion, explanations and solving examples
Twenty-eight	2	Power and energy	Explain examples and questions	The lecture	General questions, discussion, explanations and solving examples
Twenty-nine	2	Impulse and momentum	Explain the concept of impulse and momentum	The lecture	General questions, discussion, explanations and solving examples
Thirty	2	Impulse and momentum and the difference between them	Explain the concept of impulse and momentum and the difference between them	The lecture	General questions, discussion, explanations and solving examples
Thirty-one	2	Weight and its types	Explain the concept of weight and its types	The lecture	General questions, discussion, explanations and solving examples
Thirty-two	2	Student evaluation	Monthly exam	-	-

20. Course Evaluation.

Daily exams score: 10, **Homework and reports score: 10,** **Monthly exams score: 30;** **Final exam score: 50**

21. Learning and teaching references	
quired textbooks	University Physics Volume 1 - Open Textbook Library
Main References	• Reliable websites. • Websites of libraries in some international universities.
Recommended supporting books and references (scientific journals, reports...)	most important books and references on Physics available in the Central Library.
Electronic references, website.	3- Reliable websites. 4- Libraries websites in some international universities

Course Description Form

1. Course Name:	
Psychology Growth and Education	
2. Course Code:	
109MTEP	
3. Semester / Year:	
2025 – 2026	
4. Description Preparation Date:	
1/11/2025	
5. Available Attendance Forms:	
Attendance Study	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 Hours weekly :(30 weeks- 60 Hours per year) / 4 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Mays Amer Hashim Email: mays.a.hashim@tu.edu.iq	
8. Course Objectives	
Course Objectives	● The student will learn about the concept of educational psychology and its areas of interest and study…. ● The student will understand the meaning of memory, its nature and its role in teaching. ● The student will learn about the importance of motivation in the field of educational psychology. ● The student will learn about the meaning of transfer of learning effect and its educational applications. ● The students will learn about the concept of classroom learning and its importance in education ● The students will learn about the difference between learning, education and teaching ● The students will learn about the factors affecting classroom learning ● The students will learn about the different learning methods (auditory, visual, kinetic) ● The students will learn about the appropriate teaching strategies to take into account individual differences

	● The students will learn about effective classroom management strategies.

9. Teaching and Learning Strategies

Strategy	• Lecture method. • Skill in creating mini research projects. • Giving examples and modern applications to enhance understanding.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understand the meaning of educational psychology	Educational Psychology and its Development	Presentation lecture and discussion	Asking and answering questions from the student
2-4	6	The student should be able to formulate behavioral objectives and formulate a question that achieves the objective.	Educational aims	Presentation lecture and discussion	Asking and answering questions from the student
5		-	First exam of the first semester	Presentation lecture and discussion	Asking and answering questions from the student
6	2	Learn about memory and its theories	Memory its theories and its role in teaching	Presentation lecture and discussion	Asking and answering questions from the student
7	2	Learn about memory and its theories	Memory its theories and its role in teaching	Presentation lecture and discussion	Asking and answering questions from the student

8-9	4	Learn about forgetting and its theories	forgetfulness	Presentation lecture and discussion	Asking and answering questions from the student
10-11	4	Recognizing the transfer of learning	Transfer of learning effect	Presentation lecture and discussion	Asking and answering questions from the student
12	-	-	Second exam of the first semester	-	-
13-15	6	Identify the role of motivation in the learning process	Motivation	Presentation lecture and discussion	Asking and answering questions from the student
16-18	6	Learn the meaning of the concept of creative and scientific thinking	Concepts and their relationship to creative and scientific thinking	Presentation lecture and discussion	Asking and answering questions from the student
19-20	4	Learn the meaning of feedback	Feedback	Presentation lecture and discussion	Asking and answering questions from the student
21	2	-	First exam of the second semester	-	-

22-24	6	Learn about educational theories	Education Theories	Presentation lecture and discussion	Asking and answering questions from the student
25-26	4	Identifying factors affecting learning	Factors affecting learning	Presentation lecture and discussion	Asking and answering questions from the student
27-28	4	Recognizing individual differences	Individual differences and their impact on learning	Presentation lecture and discussion	Asking and answering questions from the student
29	2	-	Second exam of the second semester	-	-
30-31	4	Identify skills and habits	Skills and Habits and How to Acquire Them	Presentation lecture and discussion	Asking and answering questions from the student
32	2	Understand the meaning of learning types	Types of learning	Presentation lecture and discussion	Asking and answering questions from the student

11.Course Evaluation

Daily exams, assignments and reports: 10 points, monthly exams: 40 points, final exam: 50 points

12.Learning and Teaching Resources

Fundamentals of Educational Psychology

13.Main references (sources)

- Educational Psychology
- Cognitive Psychology
- Thinking Without Limits.

The most important books and sources on educational psychology

- Reliable websites.
- Websites of libraries in some Iraqi and Arab universities.

Course Description Form

1. Course Name:	
First stage: English Language - First Stage	
2. Course Code:	
110MTEL	
3. Semester / Year:	
2025 – 2026	
4. Description Preparation Date:	
29/11/2025	
5. Available Attendance Forms:	
Class lectures	
6. Number of Credit Hours (Total) / Number of Units (Total):	
60 hours / 14 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Lect. Wassan Amer Taha Omer Email: wassan.a.taha@tu.edu.iq	
8. Course Objectives	
Course Objectives	1. Enabling the students to: ❖ Read and write in English ❖ Follow the basic rules of the English language. ❖ Understand the ways of life in English-speaking societies, especially the British and American, and some of the differences between them. ❖ Communicate linguistically. ❖ Understand the language of films and the internet. 2. Teaching the students English language in smooth and simple manner. 3. Urging the students to solve the exercises and apply the rules. 4. Encouraging them to continue learning English language lessons by following programs in English and listening to conversation. 5. Developing the Students' skills in expressing himself and his ability to speak orally. 6. Developing the students' conversational skills and reading skills through the exercises in the student book
9. Teaching and Learning Strategies	

Strategy	• The standard method (giving lectures). • The text method. • Brainstorming method. • Some modern strategies.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
November 1 Unit One & Two	1	Learning greetings and self-introduction	Introduction use auxiliary /am/is/are In speaking and reading. Unit two: use the subjects /he/she/they/we /I/you In practice grammar.	Lecture	Discussion and exam
November 2 Unit Three	1	Learning to use pronouns in the correct way	using negative and positive on short answers and Using possessives in adj. and plural nouns	Lecture	Discussion and exam
November 3 Unit Four and Five	1	Asking and answering personal information	Teaching present simple And Teaching past simple	Lecture	Discussion and exam
December 1 Unit Seven And eight	1	Learning to talk about favorites - Learning about Furniture	Teaching present continuous and Teaching past continuous	Lecture	Discussion and exam
December 2 Unit Nine	1	Learn to talk about the past	Teaching past simple – irregular verbs	Lecture	Discussion and exam

December 3 Unit Ten	1	Learning about sport and leisure	Teaching past simple in using questions and negatives	Lecture	Discussion and exam
December 4 Unit Eleven	1	Talking about everyday problem	Using can in positive and negatives	Lecture	Discussion and exam
January 1 Unit Thirteen	1	Talking about everyday problem	Teaching model verbs	Lecture	Discussion and exam
January 2 Unit Fourteen	1	Talking about food	Teaching adverbs	Lecture	Discussion and exam
January 3	1	Asking questions	using would like in questions	Lecture	Discussion and exam
January 4	1	Learning about countable and uncountable words	Teaching some/any and the differences	Lecture	Discussion and exam
February 1	1	talking about preferences	Teaching like and would like	Lecture	Discussion and exam
February 2	1	Learn to talk about daily activity	Teaching present simple	Lecture	Discussion and exam
February 3	1	Learn about the colors	Teaching present continuous	Lecture	Discussion and exam
February 4	1	Asking and answering questions	Teaching Yes/No questions	Lecture	Oral Test
March 1	1	Talking about the future	Teaching future plans	Lecture	Oral Test
March 2	1	Learning about nouns	Teaching countable and uncountable	Lecture	Discussion and exam
March 3	1	Learning when to use (the)	Teaching the determiner (the)	Lecture	Discussion and exam
April 1	1	Learning when to use (the)	Teach the determiners a/an	Lecture	Discussion and exam
April 2	1	Using possessive to talk about belongingness	Using possessives in adj. and plural	Lecture	Discussion and exam

			nouns		
April 3	1	Using prepositions in the right way	Teaching prepositions	Lecture	Discussion and exam
April 4	1	Using model verbs in sentences	Review model verbs	Lecture	Discussion and exam
May 1	1	Spelling numbers	Teaching numbers	Lecture	Discussion and exam
May 2		Learning about different colors	Teaching colors	Lecture	Discussion and exam
May 3		Learning different types of questions	Wh word questions and yes/no questions	Lecture	Discussion and exam
May 4					
June 1	1	Revision	Revision	Lecture	Discussion and exam
June 2	1	Revision	Revision	Lecture	Discussion and exam
June 3	-------		Final Exams	---------- -----	----------

11. Course Evaluation

First Course:
Monthly Exam: 20
Daily homework: 5
Total: 25
Second Course:
Monthly Exam: 20
Daily homework: 5
Total: 25
Total for the 1st and 2nd Courses: 50
Final Exam: 50
Final Grade: 100

12. Learning and Teaching Sources

Required textbooks (curricular books, if any)	The Ministry's prescribed book for all the stages
Main references (sources)	----------
Recommended books and references (scientific journal, reports	
Electronic References, Websites	https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en.

Course Description Template

Course Information

Module Title	Human Rights and Democracy
Module Type	Core
Teaching Mode	Theory / Lecture / Lab
Module Code	
ECTS Credits	4
SWL (hr/sem)	1
Module Level	UGX11 – Level 1
Semester of Delivery	
Module Leader	Dr. Omar Sahab Ayid
Email	Omar.ayid122@tu.edu.iq

Academic Title: Professor
Qualification: PhD in Private Law
Scientific Committee Approval Date: 11/11/2025
Version: 1.0

Relationship with Other Courses

Pre-requisite Module	None
Co-requisite Module	None

Course Aims

- Introduce students to the concepts of human rights and democracy and their philosophical and legal foundations.
- Identify international and national sources of human rights including the Constitution of the Republic of Iraq and international conventions.
- Develop students' legal discussion and dialogue skills.
- Promote citizenship as the basis of national belonging.
- Enable students to defend rights through legitimate legal means.
- Strengthen the principles of rule of law and separation of powers.
- Reject violence and serious human rights violations.

Learning Outcomes

1. Define the concept of human rights and democracy accurately.
2. Explain the relationship between human rights and democracy.
3. Identify the types of human rights (civil, political, economic and cultural).
4. Explain sources of human rights in the Iraqi Constitution and international conventions.
5. Clarify national and international protection mechanisms.
6. Analyze constitutional or legal texts related to human rights.
7. Discuss contemporary human rights issues objectively.

Course Assessment

Assessment	Number/Time	Weight	Week
Quizzes	2	10%	5 & 10
Assignments	2	10%	2 & 12
Project / Lab	1	10%	Continuous
Report	1	10%	13
Midterm Exam	2 hours	10%	7
Final Exam	3 hours	50%	30

Weekly Theoretical Syllabus

Week	Topics
1	Introduction to the course and development of human rights
2	Characteristics of human rights
3	International sources of human rights
4	Gross violations of human rights
5	Rights of specific groups
6	Human rights in Islamic law
7	Historical development of human rights
8	National mechanisms of human rights
9	International Bill of Human Rights
10	National procedures for group rights
11	Serious violations of human rights
12	International humanitarian law
13	Human rights violations in Iraq
14	Human rights councils and protection mechanisms
15	International and regional protection mechanisms
16	National protection mechanisms
17	Contemporary challenges in human rights
18	Democracy: historical origins
19	Development of democracy in modern times
20	Democracy in the twentieth century
21	Types of democracy
22	Islam and democracy
23	Democratic institutions
24	Elections as a democratic mechanism
25	Democracy in practice
26	Comparative democratic experiences
27	Democratic experience in Iraq after 2003
28	Constitution of the Republic of Iraq
29	Nature of the political system under the 2005 constitution
30	Political pluralism and free elections

Course Description For

1. Course Name:
The origins of upbringing and education
2. Course Code:
105MTFE
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
1/11/2025
5. Available Attendance Forms:
Attendance Study
6. Number of Credit Hours (Total) / Number of Units (Total)
2 Hours weekly :(30 weeks- 60 Hours per year) / 4 Units
7. Course administrator's name (mention all, if more than one name)
Name: **Asst. Lec. Daham Samer Maher Mustafa** Email: daham.s.maher @tu.edu.iq
8. Course Objectives

Course Objectives	Increase the student's understanding of the educational and social reality throughout the ages and realize the educational process in its most essential necessities and understand educational theories on various peoples, ancient and modern General Objectives Interpret the educational process from a historical and philosophical point of view0 and shed light on upbringing and education, and clarify the importance of the role of social educational upbringing institutions, and help students train and feel the importance of the educational process, and it is also a science that describes and explains the impact of educational systems on historical reality, ancient and modern, and the impact of educational processes and relationships on the individual's

	personality and upbringing. Among its most important objectives are to determine the educational reality revealed by philosophical schools in education, to determine the objectives of community education and to apply educational concepts, to study the relationships between the educational system based on social interaction and other educational systems, and to study the individual human being when he enters with another human being in educational institutions and in the relationships and dealings of humanity and his interaction with the systems approved by society.

9. Teaching and Learning Strategies

Strategy	• Lecture method. • Skill in creating mini research projects. • Giving examples and modern applications to enhance understanding.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**The Meaning and Objectives of Education and its Necessity**	Educational Psychology and its Development	Presentation lecture and discussion	Asking and answering questions from the student
2-4	6	**Historical Basis of Education**	Educational aims	Presentation lecture and discussion	Asking and answering questions from the student

5		**Ancient Education Historical Basis of Education**		Presentation lecture and discussion	Asking and answering questions from the student
6	2	**Chinese Education Historical Basis of Education**	Memory its theories and its role in teaching	Presentation lecture and discussion	Asking and answering questions from the student
7	2	**Greek Education Historical Basis of Education**	Memory its theories and its role in teaching	Presentation lecture and discussion	Asking and answering questions from the student
8-9	4	**Medieval Education**	forgetfulness	Presentation lecture and discussion	Asking and answering questions from the student
10-11	4	**Arab Education Before Islam and After Islam**	Transfer of learning effect	Presentation lecture and discussion	Asking and answering questions from the student
12	-	**Modern Education**	Second exam of the first semester	-	-
13-15	6	**The Relationship between Education and Society The Social Basis of Education**	Motivation	Presentation lecture and discussion	Asking and answering questions from the student

16-18	6	**The Relationship between the Individual and the Environment The Social Basis of Education**	Concepts and their relationship to creative and scientific thinking	Presentation lecture and discussion	Asking and answering questions from the student
19-20	4	**Moral Education The Social Basis of Education**	Feedback	Presentation lecture and discussion	Asking and answering questions from the student
21	2	**Family Education, The Social Basis of Education**	First exam of the second semester	-	-
22-24	6	**National Education,**	Education Theories	Presentation lecture and discussion	Asking and answering questions from the student
25-26	4	**Health Educatio**	Factors affecting learning	Presentation lecture and discussion	Asking and answering questions from the student
27-28	4	**Education and its Impact on Economic Development Economic Basis of Education**	Individual differences and their impact on learning	Presentation lecture and discussion	Asking and answering questions from the student
29	2	**Exploitation of Natural Resources Economic Basis of Education**	Second exam of the second semester	-	-

30-31	4	**Education and Research Methodology**	Skills and Habits and How to Acquire Them	Presentation lecture and discussion	Asking and answering questions from the student
32	2	**Education in the Islamic Perspective Comprehensive School Methodological Education Educational Renewal in Iraq** **Schools of Distinguished Acceleration Educational Renewal in Iraq**	Types of learning	Presentation lecture and discussion	Asking and answering questions from the student

11.Course Evaluation
Daily exams, assignments and reports: 10 points, monthly exams: 40 points, final exam: 50 points
12.Learning and Teaching Resources
Fundamentals of Educational Psychology
13.Main references (sources)
- Educational Psychology - Cognitive Psychology - Thinking Without Limits.
The most important books and sources on educational psychology
● Reliable websites. ● Websites of libraries in some Iraqi and Arab universities.

Course Description Form

22.Course name	
Advance Calculus-Second stage	
23. Course code	
111MTAC	
24. Semester/Year	
2025 – 2026	
25. Date this description	
15\9\2025	
26. Available forms of attendance	
Daily	
27. Number of study hours (total) / Number of units (total)	
150 hours	
28.Name of the course administrator (if more than one name is mentioned)	
Name: Ghassan ezz aldeen Arif Email: ghasanarif@tu.edu.iq **Name : Ahmed M. Azeez Email: Ahmedm.azeez@tu.edu.iq**	
29.Course objectives	
Subject objectives:	culus is one of the main topics in mathematics and is based on the subject of differential and integral. Evaluate the limit of a function, including one-sided and two-sided, using numerical and

	algebraic techniques and the properties of limits with multi-variable. □ Determine whether a function is sequence and series convergent or not via some tests. □ Determine whether functions are continuous or discontinuous at a point about two variable or most. □ Calculate and sketch the spectial polar coordenate using the formal definition of the parameteric equation. □ Calculate the partial derivative of an algebraic function using the formal definition of the derivative. □ Explain the concept of partial derivative as an "instantaneous rate of change" find high partial order derivatives of functions using the constant, power, sum, difference, product, quotient, and chain rules, and using implicit and total differentiation. □ Find the vector valued derivative of algebraic, exponential, and logarithmic functions. □ Determine maximal and minimal in lagrange multipler. □ Apply the concept of parial derivative to solve applied problems involving marginal cost, profit and revenue, and growth and decay problems.

	□ Find definite and indefinite seconed integrals by using general integral formulas. □ Use integration techniques to find the volume. □ Find definite and indefinite thired integrals by using general integral formulas. ration in poler and cylender coordenates with applications
30. Teaching and learning strategies	
The strategy:	Students completing this course will be able to find a limit of a function graphically. □ Students completing this course will be able to compute the partial derivative of an algebraic function. □ Students completing this course will be able to find a (linear) Marginal Cost function and interpret it. □ Students completing this course will be able to find the volume by multi-integral.
Course Structure	

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method

First	**5**	Infinite sequences, definitions and examples	*Infinite sequences and series*	**The lecture**	**General questions, discussion, explanations and solving examples**
Second	**5**	Bounded Monotonic sequences	*Infinite sequences and series*	**The lecture**	**General questions, discussion, explanations and solving examples**
Third	**5**	Geometric series, telescoping series, Combining series, Convergence and divergence tests.	*Infinite sequences and series*	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourth	**5**	Alternating series, absolute and conditional convergence	*Infinite sequences and series*	**The lecture**	**General questions, discussion, explanations and solving examples**
Fifth	**5**	**Solutions of the exercises**	**Solutions of the applied exercises in this chapter**	**The lecture**	**General questions, discussion, explanations and solving examples**
Sixth	**5**	The convergence for power series	Power series	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventh	**5**	Taylor and Maclaurin series	Power series	**The lecture**	**General questions, discussion,**

					explanations and solving examples
Eight	**5**	**Solutions of exercises**	**Solutions to various and applied chapter exercises**	**The lecture**	**General questions, discussion, explanations and solving examples**
Ninth	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**General questions, discussion, explanations and solving examples**
Tenth	**5**	**Cycloids Calculus with Parametric curves Length of a parametrically defined curve**	Parametric equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Eleventh	**5**	**Arc Length differential Area of Surfaces of revolution**	Parametric equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Twelfth	**5**	Graphing in polar coordinates	Polar coordinates	-	-
Thirteenth	**5**	**Areas and length in polar coordinates Arc length of a polar coordinates**	Polar coordinates	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourteenth	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**-**
Fifteenth	**5**	**Introduction of the vector space**	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**

Sixteenth	**5**	Distance formula in space	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventeenth	**5**	Vector in plane	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**
Eighteenth	**5**	Algebraic operations on vectors	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**
Nineteenth	**5**	Vector projection and scaler component	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty	**5**	Triple product	*Vector-valued function Spaces*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-one	**5**	**Equation of line in space**	**plane**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-two	**5**	Vector-valued functions with applications	**Vector spaces**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-three	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**-**

Twenty-four	**5**	**Domain and range Limits and continuity in higher dimensions**	*Partial Derivatives*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-five	**5**	Partial derivatives of functions of more than two variables	*Partial Derivatives*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-six	**5**	Second and higher Partial derivatives	*Partial Derivatives*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-seven	**5**	Total differential and Implicit differentiation revisited	*Partial Derivatives*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-eight	**5**	**Transformation Chain rule Correspondence to partial derivatives Homogeneous functions**	*Partial Derivatives*	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-nine	**5**	**Double integrals**	*Multiple Integrals*	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty	**5**	**Double integral in polar coordinates Improper integral**	*Multiple Integrals*	**The lecture**	**General questions, discussion, explanations and solving examples**

Thirty-one	**5**	**Triple integrals over general region Triple integrals over spetial coordinates**	*Multiple Integrals*	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-two	**5**	**Student Evaluation**	**Monthly exam**	**-**	**-**

31. Course Evaluation.

Daily exams score: 10,

nework and reports score: 10,

nthly exams score: 30;

al exam score: 50

32. Learning and teaching references

Required textbooks	1-Thomas' Calculus, 4th edition, Joel hass, christopher hell and maurice d. weir :8 to 12-chapter.
Main References	- Loomis, L. H., & Sternberg, S. (1968). *Advanced calculus.* - Buck, R. C. (2003). *Advanced calculus*. Waveland Press. - Fitzpatrick, P. (2009). *Advanced calculus* (Vol. 5). American Mathematical Soc.. - Widder, D. V. (2012). *Advanced calculus*. Courier Corporation. - Friedman, A. (2012). *Advanced calculus*. Courier Corporation.
mmended supporting books and references (scientific journals, reports...)	nost important books and references on Advance Calculus available in the Central Library.
Electronic references, website.	5- Reliable websites. 6- Libraries websites in some international universities

Course Description Form

1. Course Name:
Ordinary Differential Equations
2. Course Code:
217MTOD
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
1/10/2025
5. Available Attendance Forms:
Attendance Study
6. Number of Credit Hours (Total) / Number of Units (Total)
4 Hours weekly :(30 weeks-120 Hours per year) / 6 Units
7. Course administrator's name (mention all, if more than one name)
Name: Muayyad Mahmood Khalil Email: medomath80@tu.edu.iq
8. Course Objectives

Course Objectives	-Cognitive objectives: Which through it , the student is able to : 1. Understand the course topics and related mathematical problems. 2. Remember the information and laws given in the course 3. Analyze the question text and organize the information to utilize it in solving and obtaining correct results. 4. Forming ideas about the course material and how to devise appropriate laws to solve it. - Skill objectives: Which through it , the student is able to: 1. Apply what he has learned in solving mathematical problems. 2. Construct problems related to the course topics and then arrive at correct solutions. 3. Use the appropriate laws to solve each problem. 4. Be able to link between topics that can be connected within the course content. -Affective Objectives: Wherein the students possess: 1. An interest in the instructor's explanation of the course material. 2. Sufficient conviction of the importance of the material he receives. 3. Readiness to cooperate with others in solving mathematical

	problems. 4. The ability of interact and discuss with his peers or professor to solve a specific issue.

9. Teaching and Learning Strategies

Strategy	The following strategies are followed: 1. Teaching using the discussion method between the student and the instructor to support viewpoints. 2. Learning through brainstorming among students. 3. Collaborative learning by assigning students to prepare reports on course topics. 4. Teaching using the one-minute paper technique, like copetitions to foster enthusiasm among students. 5. Learning by making the student as a teacher to enhance his self-confidence. 6. Learning through daily and monthly attendance examinations. 7. Learning using problem-solving strategy.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	8	Distinguishing the degree and order of the differential equations and its types.	Important basics of ordinary differential equations	Presentation lecture and discussion	Attendance exams (daily and monthly)
3	4	Learn the types of solutions to differential equations and how to find them.	Solutions of the differential equation: the general solution, the particular solution, the singular solution	Presentation lecture and discussion	Attendance exams (daily and monthly)
4	4	Learn how to derive the differential equation from the general solution	Composition the differential equation from the general solution	Presentation lecture and discussion	Attendance exams (daily and monthly)

5-12	32	The student learned how to solve the first order and first order differential equations with their types and how to distinguish between their cases	The Ordinary Differential Equation of the first order and first degree: 1) Separable equation. 2) Homogenous equation. 3) Differential equation with linear coefficients. 4) Exact differential equation. 5) Integral factors. 6) Bernoulli's equation. 7) Ricatt's Eq. 8) The diff. eq. of the form $f'(y)\frac{dy}{dx} + P(x)f(y) = Q(x)$. 9) Equation that is solved using a suitable substitution.	Presentation lecture and discussion	Attendance exams (daily and monthly)
13	-	-	Monthly exam	Presentation lecture and discussion	Attendance exams (daily and monthly)
14-16	12	Applies the differential equations to solve real-life problems.	Applications of first order and first-degree differential equations 1- Geometrical applications (Orthogonal Trajectories 2- Growth and Decay of population 3- Cooling problem	Presentation lecture and discussion	Attendance exams (daily and monthly)

17-19	12	The student will learn to solve a differential equation of the first order and higher degrees with its three types and special cases, such as the Clairaut equation and the Lagrange equation.	Solution of The Differential Equations of The First Order and Higher Degree 1: equation solvable for p 2: equation solvable for y 3: equation solvable for x	Presentation lecture and discussion	Attendance exams (daily and monthly)
20	-	-	Monthly exam	Presentation lecture and discussion	Attendance exams (daily and monthly)
20-25	24	Learn to use the D operator to solve higher order equations with constant coefficients	Solving first-order and higher order ordinary differential equations using the operator D.	Presentation lecture and discussion	Attendance exams (daily and monthly)
26	4	Learn how to solve a differential equation by reducing its order	Reducing the order of a differential equation (for the second order differential equation)	Presentation lecture and discussion	Attendance exams (daily and monthly)
27	-	-	Monthly exam	Presentation lecture and discussion	Attendance exams (daily and monthly)

28-31	16	Knowledge of the laplace transform, its properties, and how to use it in solving differential equations.	The Laplace transform: Definition of Laplace transform, The inverse of Laplace transform, Using Laplace transform to solve the linear ordinary differential equations with constant coefficients	Presentation lecture and discussion	Attendance exams (daily and monthly)
32	-	-	Monthly exam	Presentation lecture and discussion	Attendance exams (daily and monthly)

11.Course Evaluation

A- The annual pursuit mark is (50) marks, divided as follows:
1- The monthly written exam is (40) marks
2- The daily written exams are (5) marks
3- Daily preparation, oral exams, and reports are (5) marks
B- The final exam score is (50) marks
Total (100) marks

12.Learning and Teaching Resources

Methods for solving ordinary differential equations, Dr. Khalid Al-Aamarrai and Dr. Yahya Saeed.

13.Main references (sources)

Advanced Differential Equations, M.D. Raisinghania, 2011.
A First Course in Differential Equations with Modeling Application, Dennis G. Zill, Tenth edition.

Electronic References, Websites
https://tutorial.math.lamar.edu/classes/de/de.aspx

Course Description Form

1. Course Name:	
Groups Theory / Second Stage	
2. Course Code:	
110MTEL	
3. Semester / Year:	
2025 – 2026	
4. Description Preparation Date:	
03/09/2025	
5. Available Attendance Forms:	
Daily	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours per week, total (90) hours 5 units per week, total (150) units	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Mahera Rabee Qasem Email: mahera_rabee@tu.edu.iq	
8. Course Objectives	
Course Objectives	•Providing students with sufficient knowledge about groups. •Providing students with sufficient knowledge about different types of groups. •Providing students with sufficient knowledge about group properties. •Understanding fundamental concepts such as subgroups, cyclic groups, normal subgroups, quotient groups. •Studying homomorphisms and isomorphisms. •Understanding fundamental theorems of homomorphisms and isomorphisms. •Learning Jordan-Hölder theorem and primitive groups.

Course Objectives	•Providing students with sufficient knowledge about groups. •Providing students with sufficient knowledge about different types of groups. •Providing students with sufficient knowledge about group properties. •Understanding fundamental concepts such as subgroups, cyclic groups, normal subgroups, quotient groups. •Studying homomorphisms and isomorphisms. •Understanding fundamental theorems of homomorphisms and isomorphisms. •Learning Jordan-Hölder theorem and primitive groups.

9. Teaching and Learning Strategies

Strategy	•Managing lectures in a way that connects theoretical concepts to real-life applications to engage students while maintaining the academic integrity of the subject. •Assigning students some group activities and homework. •Allocating a portion of the grade for daily assignments and quizzes.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding groups	Definition of algebraic system and semigroup	Lecture	General questions, discussions, and problem-solving
2	3	Understanding groups	Groups: Finite and infinite groups	Lecture	General questions, discussions, and problem-solving
3	3	Understanding group types	Permutation groups, Symmetric groups	Lecture	General questions, discussions, and problem-solving

4	3	Understanding group types	Symmetric group of a square	Lecture	General questions, discussions, and problem-solving
5	3	Understanding group types	Normal groups	Lecture	General questions, discussions, and problem-solving
6	3	Understanding subgroups	Subgroups	Lecture	General questions, discussions, and problem-solving
7	3	Understanding group center	Group center and subgroup product	Lecture	General questions, discussions, and problem-solving
8	3	Understanding cyclic groups	Cyclic groups	Lecture	General questions, discussions, and problem-solving
9	3	Understanding cosets	Cosets	Lecture	General questions, discussions, and problem-solving
10	3	Understanding Lagrange's theorem	Lagrange's theorem	Lecture	General questions, discussions, and problem-solving

11	3	Understanding group index	Group index	Lecture	General questions, discussions, and problem-solving
12	3	Understanding normal subgroups	Normal subgroups	Lecture	General questions, discussions, and problem-solving
13	3	Understanding quotient groups	Quotient groups	Lecture	General questions, discussions, and problem-solving
14	3	Understanding simple groups	Simple groups	Lecture	General questions, discussions, and problem-solving
15	3	Understanding commutator subgroup	Commutator subgroup	Lecture	General questions, discussions, and problem-solving
16	3	Understanding element centralizers and subgroup centralizers	Centralizers of elements and subgroups	Lecture	General questions, discussions, and problem-solving
17	3	Understanding theorems related to simple and quotient groups	Theorems on simple and quotient groups	Lecture	General questions, discussions, and problem-solving

18	3	Student assessment	Monthly exam	_	_
19	3	Understanding homomorphisms	Homomorphisms	Lecture	General questions, discussions, and problem-solving
20	3	Understanding homomorphisms with examples	Examples and theorems on homomorphisms	Lecture	General questions, discussions, and problem-solving
21	3	Understanding group isomorphism	Group isomorphism	Lecture	General questions, discussions, and problem-solving
22	3	Understanding group isomorphism and kernel	Isomorphism and kernel	Lecture	General questions, discussions, and problem-solving
23	3	Understanding the three fundamental theorems of homomorphisms	Three fundamental theorems of homomorphisms	Lecture	General questions, discussions, and problem-solving
24	3	Understanding series and composition series	Series and composition series	Lecture	General questions, discussions, and problem-solving

25	3	Understanding maximal normal subgroups	Maximal normal subgroups	Lecture	General questions, discussions, and problem-solving
26	3	Understanding Jordan-Hölder theorem	Jordan-Hölder theorem	Lecture	General questions, discussions, and problem-solving
27	3	Understanding primitive groups	Primitive groups and Sylow's theorems	Lecture	General questions, discussions, and problem-solving
28	3	Understanding internal and external direct products	Internal and external direct product of two groups	Lecture	General questions, discussions, and problem-solving
29	3	Student assessment	Monthly exam	_	_
30	3	Understanding the concept of rings	Definition of rings with examples	Lecture	General questions, discussions, and problem-solving
31	3	Understanding ideals	Ideals and subrings	Lecture	General questions, discussions, and problem-solving

32	3	Understanding quotient rings	Quotient rings	Lecture	General questions, discussions, and problem-solving

11. Course Evaluation

- Daily Exams Grade: 10
- Homework and Reports Grade: 10
- Monthly Exams Grade: 30
- Final Exam Grade: 50

12. Learning and Teaching Resources

Required textbooks(curricular books, if any)

- Introduction to Modern Abstract Algebra by David Burton, translated by Abdul-Al Jassim

Main References (Sources):

- Introduction to Group Theory by Walter Ledermann & Alan J. Weir
- Introduction to Modern Abstract Algebra by David M. Burton
- Group Theory by M. Suzuki

Supplementary Books and References (Scientific Journals, Reports, etc.):

Most important books and references on abstract algebra available in the central library.

Electronic References, Websites

Reputable online sources.

Library websites of major universities.

Course Description Form

1. Course Name: Geometry / Second Stage

2. Course Code: Bachelor's Degree Program

3. Semester / Year: 2025–2026

4. Description Preparation Date:27\9\2025

5. Available Attendance Forms: daily

6. Number of Credit Hours (Total)96 / Number of Units (Total)

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

Asst. Lecturer Haider Suwadi
Assist. Prof. Dr. Nawras Nazar Sabri
Email: nawrasnazar1993@tu.edu.iq

8. Course Objectives

Course Objectives	• Provide students with sufficient knowledge of geometric concepts. • Provide knowledge about projective and affine planes. • Provide knowledge about properties of axiomatic systems. • Introduce Euclidean geometry. • Introduce the concept of measurement. • Introduce non-Euclidean geometry.

9. Teaching and Learning Strategies

Strategy	Managing lectures in an applied way connected to daily life to make the subject clearer and easier to analyze. Assigning students group activities and tasks. Allocating part of the grade for daily assignments and quizzes.

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes			method
1	3	Introduction to axiomatic systems	Point, line, axiom, theorem	Lecture	Questions & discussion
2	3	Projective plane	Axioms, theorems, finite projective planes	Lecture	Questions & discussion
3	3	Affine plane	Axioms, Young and Fano systems	Lecture	Questions & discussion
4	3	Student evaluation	Monthly exam	Exam	-
5	3	Properties of axiomatic systems	Consistency and examples	Lecture	Questions & discussion
6	3	Independence of axioms	Testing method, independence of axioms	Lecture	Questions & discussion
7	3	Completeness	Complete and incomplete systems	Lecture	Questions & discussion

8	3	Student evaluation	Monthly exam	Exam	-
9	3	Foundations of geometry	Incidence and existence axioms	Lecture	Questions & discussion
10	3	Order axioms	Theorem proofs	Lecture	Questions & discussion
11	3	Segments	Related theorems	Lecture	Questions & discussion
12	3	Convex sets	Theorems of convex sets	Lecture	Questions & discussion
13	3	Rays	Inside and outside triangle	Lecture	Questions & discussion
14	3	Angles	Angle theorems	Lecture	Questions & discussion

15	4	Congruence	Congruence axioms	Lecture	Questions & discussion
16	3	Angle and triangle congruence	Axioms and theorems	Lecture	Questions & discussion
17	3	Angle addition and subtraction	Proofs	Lecture	Questions & discussion
18	3	Student evaluation	Monthly exam	Exam	-
19	3	Elementary geometry	Revisiting Euclid theorems	Lecture	Questions & discussion
20	3	Triangle theorems	SSS and ASA	Lecture	Questions & discussion
21	3	Exterior angle theorem	Statement and proof	Lecture	Questions & discussion

22	3	SAA theorem	Statement and proof	Lecture	Questions & discussion
23	3	Right and non-right angles	Definitions and theorems	Lecture	Questions & discussion
24	3	Student evaluation	Monthly exam	Exam	-
25	3	Measurement	Measuring line segments	Lecture	Questions & discussion
26	3	Angle addition	Definitions and theorems	Lecture	Questions & discussion
27	3	Non-Euclidean geometry	Hyperbolic and elliptic geometry	Lecture	Questions & discussion
28	3	Euclid's fifth postulate	Equivalent statements	Lecture	Questions & discussion

29	3	Attempts to prove fifth postulate	Ptolemy, Proclus and others	Lecture	Questions & discussion
30	3	Hyperbolic geometry	Hyperbolic parallel axiom	Lecture	Questions & discussion
31	3	Associated triangles	Definitions and theorems	Lecture	Questions & discussion
32	3	Student evaluation	Monthly exam	Exam	-

11. Course Evaluation

Daily quizzes: 10 marks
Assignments and reports: 10 marks
Monthly exams: 30 marks
Final exam: 50 marks

12. Teaching and Learning Resources

Required Textbook: Basic Concepts in Geometry – Amal Shihab Al-Mukhtar
Main References:
Modern Geometry – C.F. Adler (1967)
Basic Concepts of Geometry – W. Prenowitz & M. Jordan (2012)
Additional references: Geometry books available in the central library.
Electronic resources: Reliable academic websites and university libraries.

Course Description Form

1. Course Name:
Computer II
2. Course Code: Bachelor's
113M TC
3. Semester / Year:
2025 – 2026
4. Description Preparation Date: 3/09/2025
5. Available Attendance Forms: Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours
7. Course administrator's name (mention all, if more than one name)
Name: Khalid Khalis ibrahim **E-mail: Khalid. Kh. Ibrahim @tu.edu.iq**
8. Course Objectives

Course Objectives	It aims to teach the student how to build an algorithm and a flowchart and enable the student to learn the basic principles of the MATLAB programming language.
9. Teaching and Learning Strategies	
Strategy	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson without straying from the core of the subject so that the material is flexible and capable of being understood and analyzed. • Allocating a percentage of the grade for daily assignments and tests.

10. Course Structure					
WW	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1.	2	Cognitive	**MATLAB Programming Language Introduction**	Lecture	General questions and discussion
2.	2	Cognitive	**Data Types in MATLAB**	Lecture	General questions and discussion
3.	2	Cognitive	**Arrays in MATLAB**	Lecture	General questions and discussion
4.	2	Cognitive	**Symbolic Arrays in MATLAB**	Lecture	General questions and discussion
5.	2	Cognitive	**Types of Variables in MATLAB**	Lecture	General questions and discussion
6.	2	Cognitive	**Mathematical Operations in MATLAB**	Lecture	General questions and discussion
7.	2	Cognitive	**Exponential and Homeostatic Functions in MATLAB**	Lecture	General questions and discussion
8.	2	Cognitive	**Student Evaluation (Monthly Exam)**	Lecture	General questions and discussion
9.	2	Cognitive	**Rounding and Remainder Functions in MATLAB**	Lecture	General questions and discussion
10.	2	Cognitive	**Complex Numbers**	Lecture	General questions and discussion
11.	2	Cognitive	**Input and Output Commands in MATLAB**	-	-
12.	2	Cognitive	**Examples of Input and Output Commands**	Lecture	General questions and discussion

13.	2	Cognitive	**M Text Files in MATLAB**	Lecture	General questions and discussion
14.	2	Cognitive	**Conditional and Control Statements**	Lecture	General questions and discussion
15.	2	Cognitive	**Examples of Conditional and Control Statements**	Lecture	General questions and discussion
16.	2	Cognitive	**Student Evaluation (Monthly Exam)**	Lecture	General questions and discussion
17.	2	Cognitive	**Loop Statements**	Lecture	General questions and discussion
18.	2	Cognitive	**Types of Loop Statements**	Lecture	General questions and discussion
19.	2	Cognitive	**Some Examples of Loop Statements**	Lecture	General questions and discussion
20.	2	Cognitive	**Jumping Statements**	-	-
21.	2	Cognitive	**Try…Catch Boxes**	Lecture	General questions and discussion
22.	2	Cognitive	**Functions in MATLAB**	Lecture	General questions and discussion
23.	2	Cognitive	**Some Examples of Functions**	Lecture	General questions and discussion
24.	2	Cognitive	**Student Evaluation (Monthly Exam)**	Lecture	General questions and discussion
25.	2	Cognitive	**Arrays and Vectors**	-	-

26.	2	Cognitive	**Some Examples of Arrays and Vectors**	Lecture	General questions and discussion
27.	2	Cognitive	**Mathematical Operations on Matrices**	Lecture	General questions and discussion
28.	2	Cognitive	**Mathematical Operations on Matrices**	Lecture	General questions and discussion
29.	2	Cognitive	**Examples of Mathematical Operations on Matrices**	Lecture	General questions and discussion
30.	2	Cognitive	**Student Evaluation (Monthly Exam)**	-	-

11. Course Evaluation	
Daily exams score: 10 marks , homework and reports score: 10, monthly exams score: 30 marks, final exam score: 50 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Reference:

https://uomustansiriyah.edu.iq/media/lectures/6/6_2018_12_06!12_35_05_PM.pdf

https://drive.uqu.edu.sa/_/kahindi/files/matlab.pdf

Course Description Form

1. Course Name:	
English Language: Second Stage	
2. Course Code:	
110MTEL	
3. Semester / Year:	
2025 – 2026	
4. Description Preparation Date:	
29/11/2025	
5. Available Attendance Forms:	
Class lectures	
6. Number of Credit Hours (Total) / Number of Units (Total):	
60 hours / 14 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Lect. Wassan Amer Taha Omer Email: wassan.a.taha@tu.edu.iq	
8. Course Objectives	
Learning	7. Enabling the students to: ❖ Read and write in English ❖ Follow the basic rules of the English language. ❖ Understand the ways of life in English-speaking societies, especially the British and American, and some of the differences between them. ❖ Communicate linguistically. ❖ Understand the language of films and the internet. 8. Teaching the students English language in smooth and simple manner. 9. Urging the students to solve the exercises and apply the rules. 10. Encouraging them to continue learning English language lessons by following programs in English and listening to conversation. 11. Developing the Students' skills in expressing himself and his ability to speak orally. 12. Developing the students' conversational skills and reading skills through the exercises in the student book
9. Teaching and Learning Strategies	

Strategy	• The standard method (giving lectures). • The text method. • Brainstorming method. • Some modern strategies.

10. Course Structure

WW	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
November 1 Unit One & Two	1	Learning greetings and self-introduction	Introduction use auxiliary /am/is/are In speaking and reading. Unit two: use the subjects /he/she/they/we /I/you In practice grammar.	Lecture	Discussion and exam
November 2 Unit Three	1	Learning to use pronouns in the correct way	using negative and positive on short answers and Using possessives in adj. and plural nouns	Lecture	Discussion and exam
November 3 Unit Four and Five	1	Asking and answering personal information	Teaching present simple And Teaching past simple	Lecture	Discussion and exam
December 1 Unit Seven And eight	1	Learning to talk about favorites - Learning about Furniture	Teaching present continuous and Teaching past continuous	Lecture	Discussion and exam
December 2 Unit Nine	1	Learn to talk about the past	Teaching past simple – irregular verbs	Lecture	Discussion and exam

December 3 Unit Ten	1	Learning about sport and leisure	Teaching past simple in using questions and negatives	Lecture	Discussion and exam
December 4 Unit Eleven	1	Talking about everyday problem	Using can in positive and negatives	Lecture	Discussion and exam
January 1 Unit Thirteen	1	Talking about everyday problem	Teaching model verbs	Lecture	Discussion and exam
January 2 Unit Fourteen	1	Talking about food	Teaching adverbs	Lecture	Discussion and exam
January 3	1	Asking questions	using would like in questions	Lecture	Discussion and exam
January 4	1	Learning about countable and uncountable words	Teaching some/any and the differences	Lecture	Discussion and exam
February 1	1	talking about preferences	Teaching like and would like	Lecture	Discussion and exam
February 2	1	Learn to talk about daily activity	Teaching present simple	Lecture	Discussion and exam
February 3	1	Learn about the colors	Teaching present continuous	Lecture	Discussion and exam
February 4	1	Asking and answering questions	Teaching Yes/No questions	Lecture	Oral Test
March 1	1	Talking about the future	Teaching future plans	Lecture	Oral Test
March 2	1	Learning about nouns	Teaching countable and uncountable	Lecture	Discussion and exam
March 3	1	Learning when to use (the)	Teaching the determiner (the)	Lecture	Discussion and exam
April 1	1	Learning when to use (the)	Teach the determiners a/an	Lecture	Discussion and exam
April 2	1	Using possessive to talk about belongingness	Using possessives in adj. and plural	Lecture	Discussion and exam

			nouns		
April 3	1	Using prepositions in the right way	Teaching prepositions	Lecture	Discussion and exam
April 4	1	Using model verbs in sentences	Review model verbs	Lecture	Discussion and exam
May 1	1	Spelling numbers	Teaching numbers	Lecture	Discussion and exam
May 2		Learning about different colors	Teaching colors	Lecture	Discussion and exam
May 3		Learning different types of questions	Wh word questions and yes/no questions	Lecture	Discussion and exam
May 4					
June 1	1	Revision	Revision	Lecture	Discussion and exam
June 2	1	Revision	Revision	Lecture	Discussion and exam
June 3	-------		Final Exams	---------- -----	----------

11. Course Evaluation

First Course:
Monthly Exam: 20
Daily homework: 5
Total: 25
Second Course:
Monthly Exam: 20
Daily homework: 5
Total: 25
Total for the 1st and 2nd Courses: 50
Final Exam: 50
Final Grade: 100

12. Learning and Teaching Sources

Required textbooks (curricular books, if any)	The Ministry's prescribed book for all the stages
Main references (sources)	----------
Recommended books and references (scientific journal, reports	
Electronic References, Websites	https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en.

Course Description Form

.1 Course Name
Ba’ath Crimes
.2Course Code
)Leave blank(
.3Semester / Year
Semester-based .
.4Date of Preparation
2025/1/18
.5Available Attendance Forms
Weekly
.6Total Study Hours / Units
30
.7 Course Coordinator
Name:dr.omer sahab ayif omersahab911@gmail.com
.8Course Objectives

.1 To introduce crimes committed during the former regime. .2 To consolidate awareness of the	

genocide suffered by the populations of central and southern Iraq. **.3 To enable students to identify mass graves, their locations, and the years in which they occurred**	

9. Teaching and Learning Strategies

	Strategy

.10Course Structure

Assessment	Teaching Method	Topic	Learning Outcomes	Houers	Week
Exam	Lecture & Presentation	Introduction to crimes from different disciplinary perspectives	**3-2-1**	**1**	**First Week**
Exam	Lecture & Presentation	Major crimes reviewed by the Iraqi High Criminal Court	**3-2-1**	**1**	Second Week
Exam	Lecture & Presentation	Environmental crimes	**3-2-1**	**1**	Third Week
Exam	Lecture & Presentation	Mass graves	**3-2-1**	**1**	Fourth Week
Exam	Lecture & Presentation	Psychological crimes	**3-2-1**	**1**	Fifth Week
Exam	Lecture & Presentation	Types of international crimes	**3-2-1**	**1**	Sixth Week

Exam	Lecture & Presentation	Mass graves	**3-2-1**	**1**	Seventh Week
Exam	Lecture & Presentation	Mass graves	**3-2-1**	**1**	Eighth Week
Exam	Lecture & Presentation	Forms of human rights violations	**3-2-1**	**1**	Eighth Week
Exam	Lecture & Presentation	Psychological crimes and their effects	**3-2-1**	**1**	Ninth Week
Exam	Lecture & Presentation	The Ba'ath regime's position toward religion	**3-2-1**	**1**	Tenth Week
Exam	Lecture & Presentation	Human rights violations	**3-2-1**	**1**	Eleventh Week
Exam	Lecture & Presentation	Draining of the marshes	**3-2-1**	**1**	Twelfth Week
Exam	Lecture & Presentation	Events of the 1991 Uprisingشعبانية	**3-2-1**	**1**	Fourteenth Week
Exam	Lecture & Presentation	Mass graves related to the Iran–Iraq War	**3-2-1**	**1**	Fifteenth Week
Exam	Lecture & Presentation	Anfal Massacre (1978)	**3-2-1**	**1**	Sixteenth Week
Exam	Lecture & Presentation	Destruction of cities	**3-2-1**	**1**	Seventeenth Week

Exam	Lecture & Presentation	Effects of the chemical attack on Halabja	**3-2-1**	**1**	Eighteenth Week
Exam	Lecture & Presentation	Psychological pressure mechanisms	**3-2-1**	**1**	Nineteenth Week
Exam	Lecture & Presentation	Consequences of uprisings in Iraqi cities	**3-2-1**	**1**	Twentieth Week
Exam	Lecture & Presentation	Consequences of uprisings in Iraqi cities	**3-2-1**	**1**	Twentieth Week
Exam	Lecture & Presentation	Identification of mass grave locations	**3-2-1**	**1**	Twenty-First Week
Exam	Lecture & Presentation	Sayyid Dhiab Cemetery & Wadi Al-Salam Cemetery	**3-2-1**	**1**	Twenty-Second Week
Exam	Lecture & Presentation	Battle of Nahr Jassim	**3-2-1**	**1**	Twenty-Fourth Week
Exam	Lecture & Presentation	Classification of crimes	**3-2-1**	**1**	Twenty-Fifth Week
Exam	Lecture & Presentation	Militarization of society	**3-2-1**	**1**	Twenty-Sixth Week
Exam	Lecture & Presentation	Types of international crimes	**3-2-1**	**1**	Twenty-Seventh Week
Exam	Lecture & Presentation	Orchard destruction/distortion	**3-2-1**	**1**	Twenty-Eighth Week

Exam	Lecture & Presentation	Destruction of villages and cities	**3-2-1**	**1**	Twenty-Ninth Week
Exam	Lecture & Presentation	Final Exam	**3-2-1**	**1**	Thirtieth Week

.11Course Evaluation

Total: 100 Marks

- 20 marks: First monthly exam
- 20 marks: Second monthly exam
- 10 marks: Attendance and class participation

12. Learning and Teaching Resources

Curriculum published by the Ministry of Higher Education	Prescribed Books
	Scientific journals, reports
	Websites and online sources

COURSE DESCRIPTION

Teaching Thinking / Second Stage

1. COURSE INFORMATION	
1. Course Name	Teaching Thinking / Second Stage
2. Course Code	Bachelor's
3. Semester / Year	2025/2026
4. Date of Preparation	**3/9/2025**
5. Available Attendance Forms	Daily
6. Total Credit Hours / Units	30 Hours
7. Course Coordinator	**Name: Asst. Prof. Maison Saleh Alawi** Email: maswn.s.alawe@tu.edu.iq

8. COURSE OBJECTIVES	
Course Objectives	• Introducing students to the concept of thinking, its patterns, characteristics, and levels. • Understanding the importance of teaching thinking and its role in lifelong learning and sustainable development. • Distinguishing different thinking skills and their fields of application. • Analyzing the relationship between thinking and concepts of intelligence, learning, and curriculum. • Identifying prominent global programs for teaching thinking such as CoRT, Montessori, SCAMPER, and the Six Thinking Hats. • Applying thinking teaching strategies in real educational situations. • Developing critical, creative, and metacognitive thinking among students.
Expected Student Outcomes	**By the end of the course, the student is expected to:** • Define the concept of thinking and its basic characteristics. • Explain the concept of thinking, its levels and types. • Interpret the importance of teaching thinking and the role of thinking skills in learning. • Identify the levels and patterns of thinking. • Explain the relationship between thinking, intelligence, and types of thinking (logical, critical, creative, intuitive, metacognitive). • List factors affecting and obstacles to teaching thinking. • Recognize key thinking training programs such as Montessori, Pestalozzi, CoRT, and Six Thinking Hats. • Apply core thinking skills and information processing in educational and life contexts. • Apply problem-solving, critical and creative thinking strategies in case studies. • Design exercises and models for teaching thinking in various contexts.

	• Use well-known thinking training programs to develop learners' thinking skills. • Distinguish between patterns and skills of thinking. • Apply thinking teaching strategies in classroom settings. • Evaluate obstacles to teaching thinking and ways to overcome them. • Analyze educational situations using critical and creative thinking skills. • Design educational activities that enhance thinking. • Conduct practical applications of thinking teaching programs such as CoRT and the Six Thinking Hats. • Appreciate the importance of developing thinking in the educational process. • Adopt positive attitudes toward teaching thinking. • Commit to applying thinking skills in daily and educational life.

9. TEACHING & LEARNING STRATEGIES

Strategy	• **Educational discussion (dialogue-based teaching) — relying on exchange of ideas to reach factual understanding.** • **Use of modern scientific technology (Data Show presentation devices).** • **Group memos to engage all students in classroom activities.** • **Classroom exercises for participation in finding suitable solutions to assessment aspects.**

10. COURSE STRUCTURE

Week	Hrs	Required Learning Outcomes	Unit Name / Topic	Teaching Method	Assessment
1st	1	Meeting students, providing educational guidance, introducing course vocabulary; Concept of Thinking & its Characteristics	**Meeting Students & Educational Orientation / Concept & Characteristics of Thinking**	Discussion	Oral
2nd	1	Importance of teaching & learning thinking, nature and levels of thinking	**Importance of Teaching Thinking / Nature & Levels of Thinking**	Discussion	Oral
3rd	1	Factors affecting teaching thinking, obstacles, educational objectives and their importance	**Factors Affecting Teaching Thinking / Obstacles / Educational Objectives**	Discussion	Oral
4th	1	Thinking skills, difference between thinking and thinking skills	**Thinking Skills / Difference Between Thinking & Thinking Skills**	Discussion	Oral
5th	1	Teaching thinking skills with some applications	**Teaching Thinking Skills with Applications**	Discussion	Written & Oral
6th	1	Quality in teaching thinking	**Quality in Teaching Thinking**	Discussion	Oral
7th	1	Lifelong learning	**Lifelong Learning**	Discussion	Oral
8th	1	Education for sustainable development	**Education for Sustainable Development**	Discussion	Oral
9th	1	Patterns of thinking and	**Patterns of Thinking &**	Discussion	Oral

		examples	**Examples**		
10th	1	Relationship between thinking and intelligence	**Relationship Between Thinking & Intelligence**	Discussion	Written & Oral
11th	1	Types of thinking — Logical/Mathematical Thinking	**Types of Thinking — Logical/Mathematical Thinking**	Discussion	Oral
12th	1	Core thinking skills	**Core Thinking Skills**	Discussion	Oral
13th	1	Information processing skills	**Information Processing Skills**	Discussion	Oral
14th	1	Intuitive thinking	**Intuitive Thinking**	Discussion	Oral
15th	1	Inferential thinking	**Inferential Thinking**	Discussion	Written & Oral
16th	1	Critical thinking	**Critical Thinking**	Discussion	Oral
17th	1	Creative thinking	**Creative Thinking**	Discussion	Oral
18th	1	Metacognitive thinking	**Metacognitive Thinking**	Discussion	Written & Practical
19th	1	Problem solving	**Problem Solving**	Discussion	Practical
20th	1	Introduction to thinking training programs	**Introduction to Thinking Training Programs**	Discussion	Written & Oral
21st	1	Montessori program	**Montessori Program**	Discussion	Oral
22nd	1	Pestalozzi program	**Pestalozzi Program**	Discussion	Practical
23rd	1	SCAMPER model	**SCAMPER Model**	Discussion	Practical
24th	1	SCAMPER model (continued)	**SCAMPER Model (Continued)**	Discussion	Practical
25th	1	CoRT program	**CoRT Program**	Discussion	Oral
26th	1	First semester exam	**First Semester Exam**	Practical Application	Written & Practical
27th	1	Six Thinking Hats program	**Six Thinking Hats Program**	Discussion	Oral
28th	1	Key strategies for developing thinking	**Key Strategies for Developing Thinking**	Discussion	Oral
29th	1	Thinking and curriculum	**Thinking and Curriculum**	Discussion	Oral
30th	1	Exercises to apply thinking skills in various life situations	**Applying Thinking Skills in Various Life Situations**	Practical	Practical

11. COURSE ASSESSMENT

Grading Breakdown	Daily Exams: 20 marks Monthly Exams: 30 marks **Final Exam: 50 marks**

12. LEARNING & TEACHING RESOURCES

Required Textbooks	• **Teaching Thinking — Dr. Ibrahim bin Ahmad Muslim Al-Harthi, 4th ed., 2009, Dar Al-Maqasid for Publishing and Distribution.** • **Thinking: Its Teaching Programs and Measurement Methods — Prof. Hanaa Rajab Hassan, 1st ed., 2014, Dar Al-Kutub Al-Ilmiyya.** • **CoRT Thinking Program (translated) — Edward de Bono, 1st ed., 2007, DeBono for Printing, Publishing and Distribution.**

Electronic References	Internet websites and online academic resources.

GRADING SCHEME

Group	Grade	Arabic	Marks %	Definition
Success Group (50–100)	A – Excellent	امتياز	**90–100**	Outstanding Performance
	B – Very Good	جداً جيد	**80–89**	Above average with some errors
	C – Good	جيد	**70–79**	Sound work with notable errors
	D – Satisfactory	متوسط	**60–69**	Fair but with major shortcomings
	E – Sufficient	مقبول	**50–59**	Work meets minimum criteria
Fail Group (0–49)	FX – Fail	راسب (قيد المعالجة)	**45–49**	More work required but credit awarded
	F – Fail	راسب	**0–44**	Considerable amount of work required

— End of Course Description —

MODULE DESCRIPTION FORM

Module Information Course Information					
Module Title	Curriculum and textbook			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code					
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1 2		**Semester of Delivery**		
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Dr Amaal haseeb saber		**e-mail**	amhsaber@tu.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**		Ph.D. methods of teaching mathematics
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	11/11 /2025		**Version Number**	1.0	

Relation with other Modules			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	• To enable students to understand the fundamental concepts of curriculum and its importance in the educational process. • To familiarize students with the philosophical, psychological, social, and cognitive foundations of curriculum development. • To understand the different types and classifications of curricula. • To understand the components and main elements of a curriculum, such as objectives, content, teaching methods, educational activities, and teaching aids. • To understand the concept and composition of textbooks, and methods for evaluating and developing them. • To analyze textbook content according to various educational variables. • To acquire skills in evaluating and developing curricula. • To become familiar with different theories and trends in modern curriculum development. • To develop students' abilities to use technology within the curriculum.
Module Learning Outcomes	The student is expected to: 1. Define the concept of curriculum in its traditional and modern forms. 2. Distinguish between the old and modern concepts of curriculum. 3. Explain the characteristics of the modern curriculum and its importance in the educational process. 4. Analyze the foundations of curriculum development: philosophical, psychological, social, and cognitive. 5. Differentiate between the various types of curricula and the characteristics of each type. 6. Identify the elements of a curriculum (objectives, content, teaching methods, educational resources, activities, and assessment). 7. Explain the levels of educational objectives. 8. Distinguish between the levels of educational objectives. 9. Explain the concept of the textbook and the principles of its creation in print and electronic formats. 10. Explain the principles and techniques for analyzing textbook content.

	11. Understand the concept of curriculum evaluation, its objectives, steps, and criteria. 12. Summarize the basic principles and models for curriculum development. 13. Follow modern trends and theories in school curriculum development. 14. Explains the concept of the technological curriculum and its most important characteristics. 15. Compares different curriculum structures in terms of their components and educational philosophy. 16. Formulates precise educational and behavioral objectives according to specific criteria. 17. Analyzes a textbook in light of the principles of content and curriculum analysis. 18. Evaluates the content of a textbook using objective tools and criteria. 19. Designs a preliminary model for a learning unit that includes objectives, content, resources, and activities. 20. Determines appropriate teaching methods for the curriculum elements and the textbook content. 21. Proposes educational activities and technological resources that serve the curriculum objectives. 22. Applys curriculum evaluation steps to a sample learning unit. 23. Analyzes the extent to which current curricula align with modern trends in curriculum theories.
Indicative Contents	

Learning and Teaching Strategies	
Strategies	• Interactive lectures, brainstorming and classroom discussions, project-based learning, analysis of real-world case studies (textbooks, curriculum plans), student presentations, individual and group activities

Student Workload (SWL) **.The student's academic workload is calculated for 15 weeks**			
Structured SWL (h/sem)		**Structured SWL (h/w)**	

Regular academic workload for the student during the semester		**Student's regular weekly study load**	
Unstructured SWL (h/sem) **irregular academic workload for the student during the semester**		**Unstructured SWL (h/w)** **Irregular weekly study load for the student**	
Total SWL (h/sem) **The student's total academic workload during the semester**			

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	
	Assignments	2	10% (10)	2 and 12	
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	
	Final Exam	3hr	50% (50)	30	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	The concept of curriculum, both linguistically and technically; the traditional and modern understanding of curriculum; its characteristics; and its importance.
Week 2	Curriculum organization.
Week 3	Foundations of Curriculum Development (Philosophical)
Week 4	Foundations of Curriculum Development (Psychological)
Week 5	Foundations of Curriculum Development (Social-Cognitive)
Week 6	(Types of Curricula (Separate) Types of Curricula (Interconnected – Broad Fields) Types of Curricula (Activity – Units(

Week 7	Types of curricula (interconnected – broad fields)
Week 8	Types of curricula (activity – units)
Week 9	Types of curricula (core curriculum)
Week 10	Curriculum Elements - Objectives (Educational objectives and their importance, the concept of an educational objective, formulating educational objectives, criteria for formulating educational objectives, and their sources)
Week 11	Curriculum Elements - Objectives (Levels of educational objectives, behavioral objectives, formulating behavioral objectives, and domains of educational objectives)
Week 12	Curriculum elements – Content
Week 13	Textbook, Textbook authorship
Week 14	Print and electronic textbooks, Textbook evaluation and developmen
Week 15	The theoretical basis for textbook content analysis, definition of textbook analysis, definition of content analysis
Week 16	Content analysis in light of certain variables
Week 17	Curriculum components – Teaching methods
Week 18	Educational activities
Week 19	Teaching aids
Week 20	Technological innovations
Week 21	Assessment in teaching
Week 22	Types of classroom tests
Week 23	Curriculum Evaluation: The concept of curriculum evaluation, objectives of curriculum evaluation, evaluation criteria, evaluation methods, and evaluation steps.
Week 24	Curriculum Development and Models: The concept of curriculum development, motivations for curriculum development, and principles of curriculum development**.**
Week 25	Basic models for curriculum development
Week 26	Modern trends in curriculum (curriculum theories)
Week 27	Classifications of curriculum theories
Week 28	Curriculum theories (encyclopedic – essentialist)
Week 29	Curriculum theories (pragmatic – polytechnical)
Week 30	Technological curriculum

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	
Week 2	

Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	• The Contemporary School Curriculum, by Dr. Jawdat Ahmad Sa'ada and Dr. Abdullah Ahmad Ibrahim, 7th edition, 2014, Amman - Dar Al-Fikr • Introduction to Educational Curriculum Science, by Dr. Muhammad Abdullah Al-Hawari and Dr. Muhammad Sarhan Ali Qasim, 1st edition, 2016, Republic of Yemen - Sana'a, Dar Al-Kutub • • •Curricula: Between Theory and Practice, by Dr. Ahmad Hussein Al-Laqani, 4th edition, 2013, Cairo, Dar Alam Al-Kutub for Publishing, Printing and Distribution	
Recommended Texts	Method Theory (translated), Georges Beauchamp, 1st edition, 1987, Arab House for Publishing and Distribution	
Websites		

Grading Scheme

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C – Good	Good	70 - 79	Sound work with notable errors

	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	Precipitate (under processing)	(45-49)	More work required but credit awarded
	F – Fail	Precipitate	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information					
Module Title	Educational Administration and Supervision			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code					
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1 2		**Semester of Delivery**		
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Daham Samer Maher		**e-mail**	Daham.s.maher@tu.edu.iq	
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**		M.A. in Educational and Psychological Sciences (Educational Psychology)
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	30/7 /2023		**Version Number**	1.0	

Relation With Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	• Enabling students to understand the basic concepts of educational administration and its importance in the educational process. • Introducing the philosophical, psychological, social, and cognitive foundations for building administration. • Identifying the different types and classifications of administration. • Understanding the components and main elements of administration such as school administration, classroom administration, and educational activities. • Recognizing the concept and structure of administration, as well as methods of its evaluation and development. • Analyzing administrative content according to various educational variables. • Acquiring skills for evaluating school and classroom administration and methods for their improvement.

	• Introducing the different theories in the field of modern administration and their trends. .Developing students' abilities to use technology in administration •
Module Learning Outcomes	Students are expected to: 1. Define the concept of administration in its traditional and modern forms. 2. Distinguish between the traditional and modern concepts of administration. 3. Explain the characteristics of modern administration and its importance in the educational process. 4. Analyze the foundations for building administration. 5. Differentiate between the types of school and classroom administration and the characteristics of each type. 6. Identify the elements of administration (planning, organizing, directing, and evaluation). 7. Clarify the levels of educational objectives in administration. 8. Distinguish between the different levels of educational objectives in administration. 9. Explain the concept of educational administration and supervision. 10. Interpret the principles and techniques of educational administration. 11. Recognize the concept of educational administration, its objectives, steps, and standards. 12. Summarize the main principles and models for developing educational administration. 13. Trace modern trends and theories in school administration. 14. Explain the concept of school administration. 15. Compare between the elements of administration. 16. Formulate educational and behavioral objectives accurately according to specific standards. 17. Analyze school activities. 18. Evaluate classroom administration using objective tools and criteria. .Design a plan for educational supervision .19
Indicative Contents	

Learning and Teaching Strategies	
	Interactive lecture, brainstorming and classroom discussions, project-based learning, analysis of real case studies, student presentations, and individual and .group activities

Student Workload (SWL			
Student Workload (SWL)		**Structured SWL (h/w)**	

Structured SWL (h/sem)		**Unstructured SWL (h/w)**	
Total SWL (h/sem)			

		Time/Numbe r	**W**
Formative assessment	**Quizzes**	2	
	Assignments	2	
	Projects / Lab	1	
	Report	1	
Summative assessment	**Midterm Exam**	2hr	
	Final Exam	3hr	
Total assessment			100

(Delivery Plan (Weekly Syllabus

	Material Covered
Week 1	Concept of administration (linguistically and technically), the traditional and modern concepts of administration, its characteristics and importance
Week 2	Organization of educational administration and supervision
Week 3	.Foundations of building administration
Week 4	.Elements of the administrative process
Week 5	.Organizational structure
Week 6	Principles of administration
Week 7	Development of administrative thought
Week 8	.Functions of administration
Week 9	Leadership and its styles
Week 10	Administrative communication
Week 11	.Decision making
Week 12	Human resource managemen
Week 13	.Evaluation

Week 14	Educational supervision
Week 15	The role of the educational manager
Week 16	Administrative problems in educational institutions
Week 17	.School and community
Week 18	School activities
Week 19	Quality in education
Week 20	.nstitutional accreditation
Week 21	**Evaluation of school administration: concept of evaluation, objectives of evaluation, .evaluation standards, evaluation methods, and evaluation steps**
Week 22	**Development of school and classroom administration and its models: concept, .motivations, and principles of administrative development**
Week 23	**Basic models for developing administration**
Week 24	**.(Modern trends in administration (modern management theories**
Week 25	**.Classifications of management theories**
Week 26	**.Ethics of administration and professional responsibility**
Week 27	**Crisis management and decision-making in emergency situations**
Week 28	**.Strategic planning for educational institutions**
Week 29	**Crisis management and decision-making in emergency situations**
Week 30	**Strategic planning for educational institutions**

(Delivery Plan (Weekly Lab. Syllabus	
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	

Learning and Teaching Resources		
Required Texts	• Educational Institutions Management – Influential Theories and Trends (Mohamed Hassan Abu Qatta, 2025) • • Modern Educational and Instructional Administration (Asia Mohamed Issa) • Educational Administration in Light of • Contemporary Theories (Valentina Abdullah (Badr	
Recommended Texts	Contemporary Theories and Trends in Educational Administration and Leadership (Dr. Saleh Ahmed (Abbabneh, 2023	
Websites		

GRADING SCHEME				
Group	**Grade**		**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent		90 - 100	Outstanding Performance
	B - Very Good		80 - 89	Above average with some errors
	C – Good		70 - 79	Sound work with notable errors
	D - Satisfactory		60 - 69	Fair but with major shortcomings
	E - Sufficient		50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail		(45-49)	More work required but credit awarded
	F – Fail		(0-44)	Considerable amount of work required

ote: Decimal grades that are above or below 0.5 will be rounded to the nearest whole number (for example, a grade of 54.5 will be rounded to 55, while a grade of 54.4 will be rounded to 54). The university has a policy of not overlooking “grades close to passing or failing,” so the only adjustment to the grades given by the original grader will .be the automatic rounding described above

Course Description Form

1. Course Name:
General Arabic
2. Course Code:
3. Semester / Year:
Semester-based
4. Date of Preparation:
18/1/2026
5. Available Attendance Forms:
Weekly
6. Total Study Hours / Units:
60 hours
7. Course Coordinator:
Name: Assist. Prof. Israa Rifaat Hajim Email: israa.r.hajim@tu.edu.iq
8. Course Objectives:

- Enable students to use standard Arabic language styles proficiently. - Employ vocabulary and linguistic structures correctly according to grammar rules. - Enhance students' analytical and critical thinking skills in Arabic. - Develop effective communication skills and use modern learning technologies.	**Course Objectives**
9. Teaching and Learning Strategies:	
(Lecture, discussion, practical explanation)	**Strategies**

10. Course Structure:

Assessment Method	Teaching Method	Learning Outcomes	Unit / Topic		Week
Practical Test	**Lecture & Discussion**	**Understand meanings of verses Under**	**Quran: Surah Al-Isra (23–29)**	**2**	**First**
Practical Test	Lecture & Discussion	**Understand**	**Hadith:**	**2**	**Second**

		hadith meaning	**Allah loves perfection in work**		
Practical Test	Lecture & Discussion	**Memorize verses**	**Poem of Abu Al-Ala Al-Ma'arri**	**2**	**Third**
Practical Test	Lecture & Discussion	**Memorize verses**	**Poetry: Al-Jawahiri & Al-Sayyab**	**2**	**Fourth**
Applied Test	Lecture & Discussion	**Define and identify types**	**Prose Arts**	**2**	**Fifth**
Practical Test	Practical Explanation	**Understand rules**	**Rules of Taa (Open & Closed)**	**2**	**Sixth**
Practical Test	Practical Explanation	**Understand rules**	**Rules of Alif (Short & Long)**	**2**	**Seventh**
Practical Test	Practical Explanation	**Identify stages**	**Stages of Arabic Language Developmen t**	**2**	**Eight**
Practical Test	Practical Explanation	**Recognize errors**	**Common Linguistic Errors**	**2**	**Ninth**
Practical Test	Practical Explanation	**Recognize types**	**Noun: Masculine & Feminine**	**2**	**Tenth**
Practical Test	Lecture & Discussion	**Understand meanings**	**Quran: Surah Yusuf (1–9)**	**2**	**Eleventh**
Practical Test	Lecture & Discussion	**Recognize forms**	**Noun: Singular, Dual, Plural**	**2**	**Twelfth**
Practical Test	Lecture & Discussion	**Understand topic**	**Numbers**	**2**	**Thirteenth**

			and Their Rules		
Practical Test	Lecture & Discussion	**Understand hadith**	**Hadith: Do not envy…**	**2**	**Fourteenth**
Practical Test	Lecture & Discussion	**Understand concept**	**Rhetoric (Badi')**	**2**	**Fifteenth**
Practical Test	Lecture & Discussion	**Know biography**	**Poet Mustafa Jamal Al-Din**	**2**	**Sixteenth**
Practical Test	Lecture & Discussion	**Identify types**	**Arabic Dictionaries**	**2**	**Seventeenth**
Practical Test	Lecture & Discussion	**Recognize types**	**Dependents (Grammar)**	**2**	**Eighteenth**
Understanding Test	Lecture & Discussion	**Recognize types**	**Verbal Embellishments**	**2**	**Nineteenth**
Practical Test	Lecture & Discussion	**Differentiate**	Root & Augmented Nouns	**2**	**Twenty**
Practical Test	Lecture & Discussion	**Distinguish usage**	**Writing (Dhad & Dha)**	**2**	**Twenty-one**
Practical Test	Lecture & Discussion	**Understand rules**	**Present Verb: Subjunctive & Jussive**	**2**	**Twenty-two**
Practical Test	Lecture & Discussion	**Recognize variations**	**Arabic Lexical Usage**	**2**	**Twenty-three**
Practical Test	Lecture & Discussion	**Understand both**	**Subject & Predicate**	**2**	**Twenty-four**
Practical Test	Lecture & Discussion	**Know history**	**Origins of Arabic**	**2**	**Twenty-five**

			Grammar		
Practical Test	Lecture & Discussion	**Know poets**	**Pre-Islamic Poets**	**2**	**Twenty-six**
Practical Test	Lecture & Discussion	Understand meanings	**Quran: Surah Al-Fajr (1–10)**	**2**	**Twenty-seven**
Practical Test	Lecture & Discussion	**Understand types**	**Accusative Forms**	**2**	**Twenty-eight**
Practical Test	Lecture & Discussion	**Recognize types**	**Genitive Forms**	**2**	**Twenty-nine**
Practical Test	Lecture & Discussion	**Differentiate**	Sound & Weak Verbs	**2**	**Thirty**

11. Course Assessment:
Total: 100 marks - First monthly exam: 20 marks - Second monthly exam: 20 marks - Participation and attendance: 10 marks

12. Learning and Teaching Resources

- Official curriculum from Ministry of Education - Main references: Tafsir books, Hadith books, Ibn Aqil commentary, literature books - Supporting materials: research papers and scientific journals - Electronic resources: websites with linguistic, tafsir, and literature materials	Required Textbooks:

Course Description Form

33.Course name	
Mathematical Analysis-Third stage	
34.Course code	
320MTMA	
35. Semester/Year	
2025 – 2026	
36. Date this description	
23/ 11/ 2025	
37. Available forms of attendance	
Daily	
38. Number of study hours (total) / Number of units (total)	
120 hours	
Name of the course administrator (if more than one name is mentioned)	
Name: Prof. Dr. Rahim Ahmed Mansour **E-mile: saphory@tu.edu.iq**	
39.Course objectives	
Subject objectives:	hematical analysis is one of the main topics in mathematics and is based on the subject of differential and integral calculus. Although there is some similarity in the vocabulary of these two curricula, there is a difference in the study of these courses. While the

	emphasis is on learning skills in using some concepts such as derivation and integration in the subject of differential and integral calculus, the emphasis in the subject of analysis is on the concepts themselves, studying the relationship between them and how they developed and on the logical structure of the subject as a whole. In short, the emphasis in the subject of differential and integral calculus is on answering questions of the type How? while in mathematical analysis it is on questions of the type Why. In addition to the interest in linking the different concepts: o learn about the origin of real numbers and the relationship between the field of rational numbers and the field of real numbers. e student understands that the field of real numbers is complete and orderly. he student will be familiar with metric space and its properties. e student will be familiar with the concepts of sphere and disc and understand how the rest of the concepts (open and closed set, restricted and compact set...) were built based on these two concepts, the open and closed set. he student will be familiar with sequences, their convergence and their properties in metric spaces. he student will be familiar with numerical series and power series and understand the conditions for their

	convergence. ıe student will understand the meaning of continuity for functions defined in metric spaces. ıe student will understand some applications that depend on the role of continuity with compactness. The student will understand differentiation and its relationship to continuity. ıe student will know the meaning of integration and its origin. e student will know the meaning of measuring a set and measuring a function and its relationship to the development of integration.
40.Teaching and learning strategies	
The strategy:	anaging the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson and give importance to the course without straying from the core of the subject so that the material is flexible and interesting and can be understood and analyzed. ssigning the student some activities inside the class through oral questions interspersed with brainstorming questions with a reward for those who answer the questions and group homework. locating a percentage of the grade for daily homework and tests.

	viewing the previous material and linking it to the current lecture and using the exploratory and deductive method to link analytical concepts with real reality with the environment and society.

Course Structure

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method
First	4	Study of bounded sets and linear space	bounded sets and linear space	The lecture	General questions, discussion, explanations and solving examples
Second	4	Learn Archimedes' Theorem and Solve Equations	properties of real numbers and solution algebraic equations	The lecture	General questions, discussion, explanations and solving examples
Third	4	Learn about rational and irrational numbers	والغير النسبية الإعداد النسبية والعلاقة بينهم	The lecture	General questions, discussion, explanations and solving examples
Fourth	4	Recognizing absolute value	absolute value and the relation to metric function	The lecture	General questions, discussion, explanations and solving examples
Fifth	4	Solutions of the exercises	Solutions of the applied exercises in this chapter	The lecture	General questions, discussion, explanations and

					solving examples
Sixth	4	Understanding Sequences Definitions and Examples	Different sequences types definitions and examples	The lecture	General questions, discussion, explanations and solving examples
Seventh	4	Recognizing convergent sequences	convergent sequence and convergence types	The lecture	General questions, discussion, explanations and solving examples
Eight	4	Recognize the bounded and Cauchy sequences	bounded and Cauchy sequences and the relation between them	The lecture	General questions, discussion, explanations and solving examples
Ninth	4	Study of Density of Rational and irrational Numbers	Density of Rational and irrational Numbers	The lecture	General questions, discussion, explanations and solving examples
Tenth	4	Completeness of real numbers	Completeness of real numbers	The lecture	General questions, discussion, explanations and solving examples
Eleventh	4	Solutions of exercises	Solutions to various and applied chapter exercises	The lecture	General questions, discussion, explanations and solving examples
Twelfth	4	Student Evaluation	Monthly exam	-	-
Thirteenth	4	Recognizing sequences in metric space and their convergence	sequences in metric space and their fundamental	The lecture	General questions, discussion, explanations and

			theorems		solving examples
Fourteenth	4	Student Evaluation	Monthly exam	The lecture	-
Fifteenth	4	Knowledge of basic principles in topology	basic principles in topology	The lecture	General questions, discussion, explanations and solving examples
Sixteenth	4	Knowledge of compactness, contraction and basic theorems	compactness, contraction and basic theorems	The lecture	General questions, discussion, explanations and solving examples
Seventeenth	4	Solutions of exercises	Solutions to various and applied chapter exercises	The lecture	General questions, discussion, explanations and solving examples
Eighteenth	4	Knowledge of continuity and its types, with some examples	The continuity	The lecture	General questions, discussion, explanations and solving examples
Nineteenth	4	Knowledge of continuous and discontinuous mapping	continuous and discontinuous mapping	The lecture	General questions, discussion, explanations and solving examples
Twenty	4	Recognizing continuous functions on compact spaces	continuous functions on compact spaces	The lecture	General questions, discussion, explanations and solving examples
Twenty-one	4	Recognize the uniformly continuity	the uniformly continuity	The lecture	General questions, discussion, explanations and

					solving examples
Twenty-two	4	Learn about derivation, its theorems and applications	derivation, its theorems and applications	The lecture	General questions, discussion, explanations and solving examples
Twenty-three	4	Student Evaluation	Monthly exam	The lecture	-
Twenty-four	4	Learn about the mean value theorem, Rolle's and Lagrange's theorem, L'Hôpital's rule and solutions to exercises	the mean value theorem, Rolle's and Lagrange's, L'Hôpital's rule and solutions to exercises	The lecture	General questions, discussion, explanations and solving examples
Twenty-five	4	Recognizing series	Series and it is types	The lecture	General questions, discussion, explanations and solving examples
Twenty-six	4	Learn the properties of series	the properties of series	The lecture	General questions, discussion, explanations and solving examples
Twenty-seven	4	Learn Cauchy and Riemann integrals	Introduction of integral	The lecture	General questions, discussion, explanations and solving examples
Twenty-eight	4	Learn about linear mappings	linear mappings and integral Reimann	The lecture	General questions, discussion, explanations and solving examples
Twenty-nine	4	Learn about Riemannian integrals and Riemannian	Riemann integrals and their properties	The lecture	General questions, discussion,

		integrable bounded functions			**explanations and solving examples**
Thirty	**4**	**Learn about Lebesgue integral**	**Lebesgue integral**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-one	**4**	**Learn about Riemann-Stilges integrals with properties of integrals**	**Riemann-Stilges integrals with properties of integrals**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-two	**4**	**Student Evaluation**	**Monthly exam**	**-**	**-**

41. Course Evaluation.	
ly exams score: 10, **Homework and reports score: 10,** **Monthly exams score: 30;** **Final exam score: 50**	
42. Learning and teaching references	
uired textbooks	rinciple of Mathematical Analysis by **Walter Rodin**
Main References	- Foundation of Analysis: The Arithmetic of Whole Rational, Irrational and Complex Numbers, by **Edmund Landau**. - Introductory Real Analysis, by Andrey Kolmogorov, Sergei Fomin.

	- The Fundamentals of Mathematical Analysis (2 volumes), by **Grigorii Fichtenholz.** - A Course Of Mathematical Analysis (2 volumes), by **Sergey Nikolsky**. - Mathematical Analysis (2 volumes), by Vladimir Zorich. - A Course of Mathematical Analysis, by **Aleksandr Khinchin.** - Mathematical Analysis: A Special Course, by Georgiy Shilov.
ommended supporting books and references (scientific journals, reports...)	most important books and references on mathematical analysis available in the Central Library.
Electronic references, website.	7- Reliable websites. 8- Libraries websites in some international universities

Course Description Form

43.Course name	
partial differential equations -Third stage	
44.Course code	
322MTPD	
45.Semester/Year	
2025- 2026	
46. Date this description	
24/11/2025	
47.Available forms of attendance	
Daily	
48.Number of study hours (total) / Number of units (total)	
120 hours	
49.Name of the course administrator (if more than one name is mentioned)	
Raad Awad Hameed	
50.Course objectives	
Subject objectives:	s course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made the most of the available learning opportunities. It must be linked to the program description.) The Partial Differential Equations course provides a summary of the most important characteristics of mathematical equations containing the derivative sign and completes what was learned from the methods of integration and derivation in the Calculus course, in addition to engineering and physical

	applications and in various fields of science....
51.Teaching and learning strategies	
The strategy:	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson and give importance to the course without straying from the core of the subject so that the material is flexible and interesting and can be understood and analyzed. •Assigning the student some activities inside the class through oral questions interspersed with brainstorming questions with a reward for those who answer the questions and group homework. •Allocating a percentage of the grade for daily homework and tests. • Reviewing the previous material and linking it to the current lecture and using the exploratory and deductive method to link analytical concepts with real reality with the environment and society.

10. Course Structure

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method
First	**4**	**Introduction to Partial Differential Equations**	**Introduction to Partial Differential Equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Second	**4**	**Solution of some partial differential equations**	**Solution of some partial differential equations**	**The lecture**	**General questions, discussion,**

					explanations and solving examples
Third	**4**	**Lagrange method**	**Methods of solving homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourth	**4**	**How to solve the differential equation of the form** $\boldsymbol{f(p,q)=0}$	**absolute value Methods of solving homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Fifth	**4**	**How to solve the differential equation of the form** $\boldsymbol{z=px+qy+f(p,q)}$	**Methods of solving homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Sixth	**4**	**How to solve the differential equation of the form** $\boldsymbol{f(z,p,q)=0}$	**Methods of solving homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventh	**4**	**How to solve the differential equation of the form** $\boldsymbol{f(x,y,p,q)=0}$	Methods of solving homogeneous partial differential equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Eight	**4**	**How to solve the differential equation of the form**	Methods of solving homogeneous partial differential equations	**The lecture**	**General questions, discussion,**

		$F(x, y, z, p, q) = 0$			**explanations and solving examples**
Ninth	**4**	**Homogeneous linear partial differential equations with constant coefficients and orders**	**Homogeneous linear partial differential equations with constant coefficients and orders**	**The lecture**	**General questions, discussion, explanations and solving examples**
Tenth	**4**	**Different real roots**	**Different real roots**	**The lecture**	**General questions, discussion, explanations and solving examples**
Eleventh	**4**	**Repeated real roots**	**Repeated real roots**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twelfth	**4**	**Imaginary roots**	**Imaginary roots**	**-**	**-**
Thirteenth	**4**	$f(x+y) = e^{ax+by}$	Methods of solving homogeneous partial differential equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourteenth	**4**	$f(x, y) = \cos(ax + by)$ او $f(x, y) = sin(ax + by)$	Methods of solving homogeneous partial differential equations	**The lecture**	**-**
Fifteenth	**4**	$f(x, y) = x^a y^b$	Methods of solving homogeneous partial	**The lecture**	**General questions,**

			differential equations		**discussion, explanations and solving examples**
Sixteenth	**4**	$f(x,y) = e^{ax+by}\ v$	Methods of solving homogeneous partial differential equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventeenth	**4**	$f(x,y) = g(ax + by)\ with\ F(a,b) \neq 0$	Methods of solving homogeneous partial differential equations	**The lecture**	**General questions, discussion, explanations and solving examples**
Eighteenth	**4**	$f(x,y) = g(ax + by)$ **With** $F(a,b) = 0$	Methods of solving homogeneous partial differential equations	**The lecture**	**Methods of solving homogeneous partial differential equations**
Nineteenth	**4**	**Methods of solving non-homogeneous partial differential equations**	**Methods of solving non-homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty	**4**	**Equations with constant coefficients**	**Methods of solving non-homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-one	**4**	**Equations with variable coefficients**	**Methods of solving non-homogeneous partial**	**The lecture**	**General questions,**

			differential equations		**discussion, explanations and solving examples**
Twenty-two	**4**	**Second order equations with variable coefficients**	**Methods of solving non-homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-three	**4**	**Equations that can be transformed into homogeneous**	**Methods of solving non-homogeneous partial differential equations**	**The lecture**	**-**
Twenty-four	**4**	**Lagrange multipliers method**	**Methods of solving non-homogeneous partial differential equations**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-five	**4**	**Fourier series**	Fourier series	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-six	**4**	**Conditions that a function must meet to have an immediate series**	Fourier series	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-seven	**4**	**Conditions that a function must meet to have an immediate series**	Fourier series	**The lecture**	**General questions, discussion, explanations and solving**

					examples
Twenty-eight	**4**	**Expanding the function defined over a part of the interval**	Fourier series	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-nine	**4**	**Heat conduction equation integrable bounded functions**	**Heat conduction equation**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty	**4**	**Wave equation in one dimension**	**Wave equation in one dimension**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-one	**4**	**Laplace's equation in two dimensions**	**Laplace's equation in two dimensions**	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-two	**4**	**Laplace transform**	**Laplace transform**	**-**	**-**

52. Course Evaluation.

Daily exams score: 10, Homework and reports score: 10,

Monthly exams score: 30; Final exam score: 50

53. Learning and teaching references

Required textbooks	Introduction to Nonlinear Partial Differential Equations

Main References	- *Evans, Lawrence C. (1998). Partial differential equations (PDF). Providence (R. I.): American mathematical society. ISBN 0-8218-0772-2.* -
Recommended supporting books and references (scientific journals, reports...)	The most important books and references on partial Differential Equation available in the Central Library.
Electronic references, website.	- Reliable websites. - Libraries websites in some international universities

Course Description Form

1. Course Name:
Statistics and Probability / Third Stage
2. Course Code:
323MTPS
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
24/11/2025
5. Available Attendance Forms:
Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours
7. Course administrator's name (mention all, if more than one name)
Name: Assistant. Professor Moayed Mahmood Kalil Email: Mosayad@tu.edu.iq Name: Alaa Mnawer Dedaa Email : Alaa.m.dedaa@st.tu.edu.iq
8. Course Objectives

Course Objectives	• Understanding basic concepts: The probability course aims to introduce students to basic concepts in the field of probability such as events, sample area, and probability • Developing analytical abilities: The probability course aims to develop students' analytical thinking skills so that they can analyze problems and scenarios using probability concepts • Identifying probability applications: The course aims to introduce students to the practical applications of probability concepts in fields such as statistics, medical sciences, engineering and finance, and to enhance their understanding of the practical importance of the subject. • Developing calculation skills: The probability course aims to develop students' mathematical calculation skills, including calculating probabilities and various statistical indicators such as the mean, standard deviation and conditional probabilities. • Practical learning: The course aims to provide

	opportunities for students to apply probability concepts to real-world problems, whether through mathematical models, practical experiments or the use of computer software specialized in the field of probability. • Developing practical skills: The course aims to develop teamwork, communication and problem-solving skills

9. Teaching and Learning Strategies

Strategy	Strategy • Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson without straying from the core of the subject so that the subject is flexible and capable of being understood and analyzed. • Assigning the student some group activities and assignments. • Allocating a percentage of the grade for daily assignments and reports.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	General Concepts	Initial Review of Set Theory	Lecture	General Questions, Discussion and Solution Examples
Second	4	General Concepts	Calculating the Total Number of Methods	Lecture	General Questions, Discussion and Solution Examples
Third	4	General Concepts	Identify Order and Disorder Permutations	Lecture	General Questions, Discussion and Solution Examples
Fourth	4	General Concepts	Identify Order and Disorder Combinations	Lecture	General Questions, Discussion and Solution Examples
Fifth	4	Identify the Basics of Probability	Introduction to Probability and its Basic Concepts	Lecture	General Questions, Discussion and Solution Examples
Sixth	4	Identify Sample Space, Events and Their Types	Events and Sample Space	Lecture	General Questions, Discussion and Solution Examples
Seventh	4	Identify the Laws of Probability	Definition of Probability and its Basic Laws	Lecture	General Questions, Discussion and Solution Examples
Eighth	4		Conditional Probability and the Multiplication Rule	Lecture	General Questions,

		Identify Conditional Events	Identifying independent events, inverse probability and addition rule	Lecture	Discussion and Solution Examples
Ninth	4	Identify Conditional Events			General Questions, Discussion and Solution Examples
Tenth	4	Identifying Bayes' theorem and how to use it	Bayes' theorem	Lecture	General questions, discussion and solving examples
Eleventh	4	Identifying Bayes' theorem and how to use it	Completing Bayes' theorem	Lecture	General questions, discussion and solving examples
Twelfth	4	Identifying the concept of a probability function	Probability function	Lecture	General questions, discussion and solving examples
Thirteenth		Student evaluation	Monthly exam	Exam	
Fourteenth	- -	Students' knowledge of the concept of a random variable and how to use it	Random variable	Exam Lecture	General questions, discussion and solving examples
Fifteenth	4	Students' knowledge of the types of a random variable and how to use them.	Types of random variables Lecture General questions, discussion and solving examples	Lecture	General questions, discussion and solving examples
Sixteenth	4	Students' knowledge of the concept of a discrete random variable and how to use it	Discrete random variable	Lecture	General questions, discussion and solving examples
Seventeenth	4	Students' knowledge of the concept of a continuous random variable and how to use it	Continuous random variable	Lecture	General questions, discussion and solving examples
Eighteenth	4	Students' knowledge of the concept of Mathematical expectation and its most prominent characteristics	Mathematical expectation	Lecture	General questions, discussion and solving examples

Nineteenth	4	Students' knowledge of the concept of variance and standard deviation and their most prominent characteristics	Variance and standard deviation	Lecture	General questions, discussion and solving examples
Twenty	4	Students' knowledge of the concept of covariance and its most prominent characteristics	Covariance	Lecture	General questions, discussion and solving examples
Twenty-first	4	Students' knowledge of the concept of the correlation coefficient and its most prominent characteristics	Correlation coefficient	Lecture	General questions, discussion and solving examples
Twenty-second	- -	Students' evaluation	Monthly exam	- -	
Twenty-third	4	Students' knowledge of the types of probability distributions	Types of probability distributions	Lecture	General questions, discussion and solving examples
Twenty-fourth	4	Students' knowledge of the concept of a discrete variable and its uses	Discrete probability distribution	Lecture	General questions, discussion and solving examples
Twenty-fifth	4	Students' knowledge of the concept of a continuous variable and its uses	Continuous probability distribution	Lecture	General questions, discussion and solving examples
Twenty-sixth	4	Students' knowledge of the concept of the Bernoulli distribution and its uses	Bernoulli distribution	Lecture	General questions Discussion and solving examples
Twenty-seventh	4	Students' knowledge of the types of distribution and its uses	Uniform	Lecture	General questions, discussion and solving examples
Twenty-eighth	4	Students' knowledge of the types of distribution and its uses, discussion and solving examples	Gamma distribution	Lecture	General questions on distribution and solving examples

Twenty-ninth Thirty-four ID	4	Students' knowledge of the concept of beta distribution and its uses	Beta distribution	Lecture	General questions, discussion and solving examples

54.Course Evaluation.	
Daily exams score: 10, **Homework and reports score: 10,** **Monthly exams score: 30;** **Final exam score: 50**	
55. Learning and teaching references	
Required textbooks	- Mathematical Statistics by Amir Hanna Hermes, 8 Chapters
Main References	- Introduction to Mathematical Statistics by Hogg, 8 chapters
Recommended supporting books and references (scientific journals, reports...)	- The most important books and references on mathematical statistics available in the internet.
Electronic references, website.	- Reliable websites. - Libraries websites in some international universities

Course Description Form

1. Course Name:
Rings Theory
2. Course Code:
324MTRT
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
18/9/2025
5. Available Attendance Forms:
Classroom and Google classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
120 / 6 units
7. Course administrator's name (mention all, if more than one name)
Name: Nada Jasim Mohammed **Email: naya11415@tu.edu.iq** Name: Suha jumaa Hammad Email:**suhajumaa1987@tu.edu.iq**
8. Course Objectives

Course Objectives	• On completion of this course; the student will be abl understand fundamentals • concepts of Sequences series then study the convergence. • Also, study the Rim and Lubuge Integral • •Identify the concept of Ring,Modulo,Representation, its types applications

9. Teaching and Learning Strategies

Strategy	-We use examples and explain writing on board and so use discuses for more understand. So we give homeworks and discuses it. - Brainstorming -Feedback at lecture time -Collaboration and feedback series

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	4	-Student's ability to distinguish and understand cognitively to diagnose special theories and principles. - Practice different styles of mathematics proofs. - Prossessing thinking skills	Definitions of Ring, commutative ring and ring with identity.		Discussion, exercises and exam
2.	4	=	Divisors of zero,Integraldomain		Discussion, exercises and exam
3.	4	=	Subring,Field,Field of divisors		Discussion, exercises and exam
4.	4	=	Ideals,Trivial and proper,Intersection		Discussion, exercises and exam
5.	4	=	The center and characteristic of ring		Discussion, exercises and exam

1.	4	=	The principal ideal		Discussion, exercises and exam
2.	4	=	The smallest ideal, The principal ideal ring		Discussion, exercises and exam
3.	4	=	The maximal ideal - Zorn's lemma		Discussion, exercises and exam
4.	4	=	Cosets, Quotient ring		Discussion, exercises and exam
5.	4	=	The prime ideal and example		Discussion, exercises and exam
6.	4	=	The principal ideal domain		Discussion, exercises and exam
7.	4	=	The idempotent element, Boolean ring		Discussion, exercises and exam
8.	4	=	Nilpotent element, Primary ideal		Discussion, exercises and exam
9.	4	=	Ring homomorphism		Discussion, exercises and exam
10.	4	=	Theorems of the ring homomorphism, Kernel of homomorphism		Discussion, exercises and exam
11.	4	=	Theorems of kernel of homomorphism, Image and types of homomorphism		Discussion, exercises and exam
12.	4	=	The Natural mapping, Isomorphism and the 1st fundamental theorem		Discussion, exercises and exam
13.	4	=	The 2nd and 3rd fundamental theorem of Isomorphism		Discussion, exercises and exam
14.	4	=	The division ring (Skew field)		Discussion, exercises and exam
15.	4	=	Radical ideal		Discussion, exercises and exam
16.	4	=	Nil -radical ring		Discussion, exercises and exam
17.	4	=	Polynomials, Sum, Product, types of Polynomials		Discussion, exercises and exam
18.	4	=	Polynomials ring		Discussion, exercises and exam
19.	4	=	Polynomials field, Division algorithm		Discussion, exercises and exam
20.	4	=	Remainder and Factorization theorems, roots of polynomails		Discussion, exercises and exam
21.	4	=	Reducible& irreducible Polynomials		Discussion, exercises and exam
22.	4	=	Modules and submodules		Discussion, exercises and exam

23.	4	=	Modules homomorphism		Discussion, exercises and exam
24.	4	=	Representation, some types		Discussion, exercises and exam
25.	4	=	Examples		Discussion, exercises and 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 50 + 50 final

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Scientific articles and research available online in the field of statistics and probability •
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Introduction to modern abstract Algebra by :Dvaid M. Burton -
Electronic References, Websites	

Course Description Form

1. Course Name:
Curricula and Teaching Methods
2. Course Code:
326MTTM
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
1-9-2025
5. Available Attendance Forms:
Attendance during the second semester (my attendance) + (electronic)
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week/(44)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Maesoon Salih Allawe Email: maswn.s.alawe@tu.edu.iq
8. Course Objectives

	Course Objectives 1. Introduce students to some basic concepts 2. Introducing Students Planning for Teaching 3. Introduce students to educational and teaching objectives 4. Introducing students to theories and teaching methods 5. Introducing students to the classifications of teaching methods 6. Introduce students to effective teaching 7. Introduce students to common teaching methods 8. Introducing Students to E-Learning Strategy 9. Introduce students to technology-based teaching methods and self-activity 10. Identification and classification of students with special needs 11. Introducing students to recent trends in special needs education 12. Introduce students to the education of people with visual disabilities (teaching methods and support methods) 13. Introduce students to the education of people with hearing disabilities (language, communication,

	teaching techniques) 14. Educating students with mental disabilities and learning disabilities 16. Curriculum definition and planning 17. Curriculum types (traditional curriculum, modern curriculum, hidden curriculum) 18. The concept of the textbook and its importance in the educational process 19. Analysis of textbooks according to educational standards

9. Teaching and Learning Strategies

Strategy	1. Cooperative Education Strategy 2. Discussion and dialogue strategy 3. Brainstorming Strategy 4. Self Learning Strategy 5. Interactive Lecture Strategy

10. Course Structure

Wname	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	2	Introduce students to some general entrance tests	2. Teaching Concept 3. The concept of teaching and its relationship to learning and education 4. Nature of teaching 5. Teaching elements 6. Teaching method concept 7. Teaching style Teaching Strategy	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Second week	2	2. Introducing Students Planning for Teaching	8. The concept of planning for teaching 9. Importance of lesson planning 10. Types of planning 11. Characteristics of effective planning	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Third week	2	Introduce students to educational and teaching objectives	3. Teaching Objectives 4. Sources of derivation of educational objectives 5. Target levels 6. Goal Types 7. Importance of goals 8. Educational Objectives 9. Teaching Objectives Standards	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions

Fourth week	2	Introducing students to theories and teaching methods	10. Teaching methods associated with cognitive theory 11. Teaching methods associated with behavioral theory 12. Teaching methods associated with social theory	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Fifth week	2	Introducing students to the classifications of teaching methods	13. Teaching methods classifications 14. Selection of teaching methods 15. Importance of teaching methods	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Week 6	2	----------	6. First exam	----------	Essay Tests Objectivity
Week 7	2	Introduce students to effective teaching	16. Definition of effective teaching 17. Effective teaching functions 18. Principles of effective teaching 19. Effective teaching conditions	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Eighth week	2	Introducing Students to E-Learning Strategy	21. E-learning Concept 22. Nature of E-Learning E-Learning Obstacles Project Method	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Week Nine	2	ntroduce students to - E-learning Concept	23. E-learning Concept 24. Nature of E-Learning E-Learning Barriers	Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Week 10	2	----------	Exam	----------	Essay Tests Objectivity
Week 11	2	Introduce students to technology-based teaching methods and self-activity	25. Education technology concept 26. Importance of technology-based teaching methods 27. Distance learning	. Discussion and dialogue strategy Brainstorming Strategy Cooperative Education Strategy	Discussion and exchange Opinions
Week 12	2	. Identification and classification of students with special needs	What is meant by people with special needs and their classifications	Discussion and dialogue strategy	Discussion and exchange

Week 13	2	Introducing students to recent trends in special needs education	29. Identifying recent trends in special needs education 30. Employing recent trends in special needs education	Discussion and dialogue strategy	Opinions
Week 14	2	Introducing students to recent trends in special needs education	31. Concept of visual impairments (teaching methods and support methods)	Discussion and dialogue strategy	Discussion and exchange
Week 15	2	Introduce students to the education of people with visual disabilities (teaching methods and support methods)	Concept of hearing disabilities (language, communication, teaching techniques)	Discussion and dialogue strategy	Opinions
Week 16	2	Introduce students to the education of people with hearing disabilities (language, communication, teaching techniques)	The Concept of Persons with Mental Disabilities and Learning Disorders	Discussion and dialogue strategy	Discussion and exchange Opinions
Week 17	2	Educating students with mental disabilities and learning disabilities	34.The concept of autism spectrum disorder and difficulties with social interaction	Discussion and dialogue strategy	Discussion and exchange Opinions
Week 18	2	Curriculum definition and planning	Concept and Planning of Curricula	Discussion and dialogue strategy	Discussion and exchange Opinions
Week 19	2	Curriculum types (traditional curriculum, modern	Curriculum types (traditional curriculum, modern curriculum, hidden curriculum)	Discussion and dialogue strategy	Discussion and exchange Opinions
Week 20	2	. The concept of the textbook and its importance in the educational process	Curriculum types (traditional curriculum, modern curriculum, hidden curriculum)	Discussion and dialogue strategy	Discussion and exchange Opinions
Week 21	2	Analysis of textbooks according to educational standards	Analysis of textbooks according to educational standards	Discussion and dialogue strategy	Discussion and exchange Opinions

11 Course evaluation

Distribution as follows: 25 degrees monthly exams - daily 5 degrees daily, final grade monthly 30
Degree for the final exams of the second course (70)

12. . Learning and Teaching Resources

Main references (sources)	There are no sources.

Recommended supporting books and references (scientific journals, reports...)	- Zaitoun, Kamal Abdel Hamid, (2003), Teaching Models and Skills, Ola Books, Abdel Khaliq Street, Cairo. -Jaber, Walid Ahmed (2005), General Teaching Methods, Planning and Educational Applications, Dar al-Fiqh, Amman
Recommended supporting books and references (scientific journals, reports...)	- Al-Tanawi, Effat Mustafa, (2009), Effective Teaching Planning His Skill Strategies His Calendar, Dar Al-Masirah Publishing and Distribution, Amman
E-references, websites	https://sites.google.com/view/zamayl/course/5204- https://almo3allem.com/

Course Description Form

1. Course Name:	
Developmental Psychology	
2. Course Code:	
3. Semester / Year:	
2025-2026	
4. Description Preparation Date:	
1/11/2025	
5. Available Attendance Forms:	
Attendance Study	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 Hours weekly :(30 weeks- 60 Hours per year) / 4 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Mays Amer Hashim Email: mays.a.hashim@tu.edu.iq	
8. Course Objectives	
Course Objectives	• Enabling students to learn about human growth development. • Enabling students to learn about growth stages. • Enabling students to learn about growth requirements. • Enabling students to learn about growth problems. • Enabling students to deal with secondary school students. • Enabling students to communicate properly with school students. • Enabling students to understand student psychology.
9. Teaching and Learning Strategies	
Strategy	• Explaining the subject matter in the classroom using lecture and discussion methods.

	• Skill in creating mini research projects. • Giving examples and modern applications to enhance understanding.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Vocabulary Basics	Research Methods in Developmental Psychology	Lecture and discussion method	Asking and answering questions from the student
2	2	Vocabulary Basics	Experimental method	Lecture and discussion method	Asking and answering questions from the student
3	2	Vocabulary Basics	Descriptive method	Lecture and discussion method	Asking and answering questions from the student
4	2	Vocabulary Basics	Longitudinal and transverse method	Lecture and discussion method	Asking and answering questions from the student
5	2	Vocabulary Basics	Sources of information in psychology	Lecture and discussion method	Asking and answering questions from the student

6	2	Vocabulary Basics	General factors and principles of growth	Lecture and discussion method	Asking and answering questions from the student
7	2	Vocabulary Basics	Factors affecting growth	Lecture and discussion method	Asking and answering questions from the student
8	2	Vocabulary Basics	The difference between education and learning	Lecture and discussion method	Asking and answering questions from the student
9	2	Vocabulary Basics	Life stages	Lecture and discussion method	Asking and answering questions from the student
10	2	Vocabulary Basics	The effect of heredity and environment on growth	Lecture and discussion method	Asking and answering questions from the student
11	2	Vocabulary Basics	Maturity and learning	Lecture and discussion method	Asking and answering questions from the student
12	2	Vocabulary Basics	Cradle stage	Lecture and discussion method	Asking and answering questions from the student

13	2	Vocabulary Basics	Early childhood stages	Lecture and discussion method	Asking and answering questions from the student
14	2	Vocabulary Basics	Physical growth	Lecture and discussion method	Asking and answering questions from the student
15	2	-	Monthly exam	-	-
16	2	Vocabulary Basics	Emotional growth	Lecture and discussion method	Asking and answering questions from the student
17	2	Vocabulary Basics	Middle childhood	Lecture and discussion method	Asking and answering questions from the student
18	2	Vocabulary Basics	Physical growth	Lecture and discussion method	Asking and answering questions from the student
19	2	Vocabulary Basics	mental development	Lecture and discussion method	Asking and answering questions from the student

20	2	Vocabulary Basics	Emotional growth	Lecture and discussion method	Asking and answering questions from the student
21	2	Vocabulary Basics	late childhood	Lecture and discussion method	Asking and answering questions from the student
22	2	Vocabulary Basics	Puberty	Lecture and discussion method	Asking and answering questions from the student
23	2	Vocabulary Basics	Physical growth	Lecture and discussion method	Asking and answering questions from the student
24	2	Vocabulary Basics	mental development	Lecture and discussion method	Asking and answering questions from the student
25	2	Vocabulary Basics	Emotional growth	Lecture and discussion method	Asking and answering questions from the student
26	2	Vocabulary Basics	Adolescent mental health	Lecture and discussion method	Asking and answering questions from the student

27	2	Vocabulary Basics	Developmental problems in adolescence	Lecture and discussion method	Asking and answering questions from the student
28	2	Vocabulary Basics	adulthood	Lecture and discussion method	Asking and answering questions from the student
29	2	Vocabulary Basics	Old age	Lecture and discussion method	Asking and answering questions from the student
30	2	-	Monthly exam	-	-

11.Course Evaluation
Daily exams, assignments and reports: 10 points, monthly exams: 40 points, final exam: 50 points
12.Learning and Teaching Resources
Nothing
13.Main references (sources)
Developmental Psychology / Kamel Mohamed Mohamed Awida
Developmental Psychology Binder
● Reliable websites. ● Websites of libraries in some Iraqi and Arab universities.

Course Description Form

1. Course Name: :
Numerical Analysis-Third stage
2. Course Code:
321MTNA
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
2025/9/3
5. Available Attendance Forms:
Daily + electronic attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week / 60 hours during the semester / 120 per year
7. Course administrator's name (mention all, if more than one name)
Name: **Hanan Abduljabar Asaad AL-Ukaily** Email: ass.lhananabdjabar@tu.edu.iq
8. Course Objectives

Subject objectives:	Numerical analysis is a branch of mathematics that aims to develop and implement algorithms to solve complex computational problems. The numerical analysis includes several main objectives, including: 1- **Finding approximate solutions to mathematical problems**: Many complex mathematical problems cannot be solved by precise traditional methods. Here comes the role of numerical analysis in providing approximate solutions. 2- **Reduce arithmetic errors**: When performing arithmetic operations, errors may occur due to rounding or number fluctuations. Numerical analysis aims to reduce these errors as much as possible. 3- **Stability Analysis of Computational Methods**: Some computational methods may be unstable, meaning they may produce inaccurate or erroneous results when applied. Numerical analysis is concerned with studying and analyzing the stability of these methods.

	4- **Accelerating calculations**: Providing methods and algorithms that contribute to speeding up calculations, making them more time efficient. Numerical analysis has wide applications in many scientific fields. Here are some examples of how it is used in these areas: 1- **Physics**: Numerical analysis is used to solve differential equations that describe physical phenomena such as planetary motion, fluid dynamics, and wave propagation. 2- **Chemistry:** Numerical analysis can be used to model chemical reactions and predict the properties of materials, which helps in developing new materials and understanding their behavior. 3- **Biology**: Numerical analysis helps model biological processes such as population growth, disease spread, and evolutionary ecology. 4- **Engineering:** Numerical analysis is used to analyze stress and strain in engineering structures, design complex systems, and simulate engineering processes. 5- **Data Science:** Numerical analysis is an essential part of analyzing data and extracting knowledge from it, through developing and applying algorithms to analyze large amounts of data. 6- **Meteorology:** Numerical analysis is used to predict weather and model weather patterns by solving complex equations that describe the movement of the atmosphere.
9. Teaching and Learning Strategies	
Strategy	• Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson and give importance to the course without straying from the core of the subject so that the material is flexible and interesting and can be understood and analyzed. • Assigning the student some activities inside the class through oral questions interspersed with brainstorming questions with a reward for those who answer the questions and group homework.

	•Assigning the student some activities inside the class through oral questions interspersed with brainstorming questions with a reward for those who answer the questions and group homework. • Allocating a percentage of the grade for daily homework and tests. • Reviewing the previous material and linking it to the current lecture and using the exploratory and deductive method to link analytical concepts with real reality with the environment and society.

10. Course Structure

Weeks	Hours	Outcomes Unit or Topic	Required Learning	Learning Method	Evaluation Method
First	4	Mathematical preliminaries	Limits and continuity, sequence, definition of differentiable Rolls theorem, Mean value theorem, Taylor's Polynomial and series	Theoretical lecture	General questions, discussion, explanations and solving examples
Second	4	Error Analysis	Error source Rounding errors, Computational errors, Solid errors, Numerical Approximations errors Programming errors Entered data errors Estimating errors Estimation of function	Theoretical lecture	General questions, discussion, explanations and solving examples
Third	4	Error Analysis	error classification, Representation of numbers, absolute error And relative	Theoretical lecture	General questions, discussion, explanations and solving

					examples
Fourth	**4**	**Solution of Nonlinear Equations**	**Definitions of converge sequence, rate convergence, *Nonlinear equation:* Bisection Method *Finding the root using* Bisection Method**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Fifth	**4**	**Solution of Nonlinear Equations**	**Newton's Method, Algorithm of Newton's Method Convergence using Newton's Method**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Sixth	**4**	**Solution of Nonlinear Equations**	**Secant Method, Algorithm of Secant Method Convergence using Secant Method**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Seventh	**4**	**Solution of Nonlinear Equations**	**Fixed- Point Iteration Method, Algorithm of Fixed-Point Iteration Method Convergence using Fixed-Point Iteration Method and some theorems**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Eight	**4**	**Numerical Solution of linear Systems Equation**	**Direct Technique, Gaussian Elimination**	**Theoretical lecture**	**General questions, discussion, explanations and solving examples**
Ninth	**4**	**Numerical Solution of linear Systems Equation**	**Partial pivoting & Decomposition Matrix method**	**Theoretical lecture + Application the program of**	**General questions, discussion, explanations**

				this method	and solving examples
Tenth	4	Numerical Solution of linear Systems Equation	Doolittle's method & Crout's method Cholet's method	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Eleventh	4	Student Evaluation	Monthly exam	-	-
Twelfth	4	Numerical Solution of linear Systems Equation	Iterative techniques 1- Jacobi Iterative method	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Thirteenth	4	Numerical Solution of linear Systems Equation	2-Gauss- Seidel Method	Theoretical lecture	General questions, discussion, explanations and solving examples
Fourteenth	4	Numerical Solution of linear Systems Equation	Convergence of Gauss- Seidel Iterative Method	Theoretical lecture + Application the program of this method	-
Fifteenth	4	Numerical Solution of linear Systems Equation	Successive Over – Relaxation (SOR)	Theoretical lecture	General questions, discussion, explanations and solving examples
Sixteenth	4	Numerical Solution of linear Systems	Convergence of (SOR) Iterative Method	Theoretical lecture + Application	General questions, discussion,

		Equation		the program of this method	explanations and solving examples
Seventeenth	4	Interpolation and polynomial Approximation	(Lagrange polynomial)	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Eighteenth	4	Interpolation and polynomial Approximation	Newton interpolator divided differences formula (first & second divided differences)	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Nineteenth	4	Interpolation and polynomial Approximation	Gauss formula :1- Gauss forward formula	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty	4	Interpolation and polynomial Approximation	2- Gauss Backward formula	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-one	4	Numerical differentiation	Newton forward formula Examples of Newton forward formula	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-two	4	Numerical differentiation	Newton Backward formula Examples of Newton Backward formula	Theoretical lecture + Application	General questions, discussion,

				the program of this method	explanations and solving examples
Twenty-three	4	Numerical differentiation	and Newton Backward formula	Theoretical lecture + Application the program of this method	-
Twenty-four	4	Student Evaluation	Monthly exam	-	-
Twenty-five	4	Numerical Integration	Newton – cost formula	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-six	4	Numerical Integration	Trapezoidal formula & Simpsons formula	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-seven	4	Numerical Integration	Romberg Integration	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-eight	4	Numerical solutions of Ordinary differential equation (ODE)	Solution of initial – Value problems Euler's method	Theoretical lecture + Application the program of this method	General questions, discussion, explanations and solving examples
Twenty-nine	4	Numerical solutions of	Higher – order Taylors method	Theoretical lecture	General questions,

		Ordinary differential equation (ODE)		**+ Application the program of this method**	**discussion, explanations and solving examples**
Thirty	**4**	**Numerical solutions of Ordinary differential equation (ODE)**	**Range – kutta method of order four**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Thirty-one	**4**	**Numerical solutions of Partial differential equation (PDE)**	**Solution of Boundary value problems**	**Theoretical lecture + Application the program of this method**	**General questions, discussion, explanations and solving examples**
Thirty-two	**4**	**Student Evaluation**	**Monthly exam**	**-**	**-**

56.Course Evaluation.

- Daily exams score: 10,

- Homework and reports score: 10,

- Monthly exams score: 30;

- Final exam score: 50

57. Learning and teaching references

Required textbooks	1-**"Numerical analysis" By Richard L. Burden** **"Introduction to Numerical Analysis" By. F. B. Hildebrand.** **"Applied Numerical Analysis" By C. F. Gerald.**
Main References	Introduction to numerical analysis written by Dr. Kazem Muhammad Hussein Al-Lami

	Principles of numerical analysis written by Dr. Ali Al-Seifi and Dr. Ibtisam Kamal Al-Din
ecommended supporting books and references (scientific journals, reports...)	The most important books and references on Numerical Analysis and integration available in the central library.
Electronic references, website.	9- Reliable websites. 10- Libraries websites in some international universities

Course Description Form

1. Course Name:
General Topology
2. Course Code:
427MTGT
3. Semester / Year:
2025-2026
4. Description Preparation Date:
2025-9-18
5. Available Attendance Forms:
Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
4 Hours
7. Course administrator's name (mention all, if more than one name) Name : Fatimah Mahmood Mahammed Email : dr.fatimahmahmood@tu.edu.iq Name : Nawras Nazar Sabry Email : nawrasnazae1993@tu.edu.iq
8. Course Objectives

Course Objectives - Study and knowledge of topological spaces. - Study types of continuous functions. - Study the concept of connoted and compact .	.
9. Teaching and Learning Strategies	

Strategy	Applying various teaching methods ,including - Giving lectures Discussion method and electronic method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject Unit or subject	Learning method	Evaluation method
4-1	**12**	Topological spaces	Open set ,closed set, Bases and subbases	Electronic lectures, smart board ,pen	Written and daily exams with assignments
8-5	12	Topological spaces	Interior , exterior ,boundary, closure of a set	Electronic lectures, smart board ,pen	Written and daily exams with assignments
9-12	12	Connectedness	Separated sets , connected sets, locally connected	Electronic lectures, smart board ,pen	Written and daily exams with assignments
13-16	12	Continuity and topological equivalence	Continuous functions , open and closed and homeomorphism	Electronic lectures, smart board ,pen	Written and daily exams with assignments
17-20	12	Compactness	Covers ,compact sets , locally compact	Electronic lectures, smart board ,pen	Written and daily exams with assignments
21-25	15	Separation axioms	T1 –space , T2-space, regular space and normal space	Electronic lectures, smart board ,pen	Written and daily exams with assignments

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)	General Topolgy Seymour lipschutz
1 2 -	Topology and maps by T. Husain 1977
1 2 - references Learning and Teaching Resources	Introduced of Topology
curricular books	Shawm series

Course Description Form

1. Course Name: modules theory
2. Course Code:
3. Semester / Year: 2025-2026
4. Description Preparation Date:11-11-2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
120 h \ 6 units
7. Course administrator's name (mention all, if more than one name)
Name: Pro.Dr Sinan O. Al-Salihi Email:somar@tu.edu.iq
8. Course Objectives

Course Objectives	• • ..... • .....
9. Teaching and Learning Strategies	
Strategy	Course Outcomes, Teaching and Learning Methods, and Assessment A. Cognitive Objectives A1. To identify the basic characteristics of the subject matter. A2. To be able to connect and deduce between different subjects. A3. To create and organize numerical tables. A4. To develop analytical skills in measurement theory to arrive at logical solutions to various problems. A5. To be able to evaluate the academic program. B. Subject-Specific Skills Objectives B1. To be able to gather information from various sources. B2. To be able to make decisions and take responsibility. B3. To be able to be self-disciplined and motivated. B4. To be able to listen effectively and contribute constructively to discussions. Teaching and Learning Methods Deductive Method, Inductive Method, Spiral Method Assessment Methods

	Electronic exams to measure the achievement of the required learning outcomes. Diagnostic assessment to determine the student's current level of knowledge and skills in order to develop a suitable curriculum. Formative assessment to provide information about the student's performance and progress to support continued learning without calculating the grade. A grade is required for graduation. - Comprehensive assessment to determine the student's final level of achievement in the program or at the end of a course that contributes to the academic program's credit hours. C- Affective and Value-Based Objectives C1- Ability to analyze and deduce C2- Ability to apply C3- Ability to demonstrate and persuade practically Teaching and Learning Methods - Lectures - Discussions Assigning students group activities and assignments - Allocating a percentage of the grade to daily assignments and tests Assessment Methods - Online tests - Adherence to the deadline for submitting assignments - Asking questions during class - Midterm exams - Final exams D- General and Transferable Skills (Other skills related to employability and personal development) 1b. The student should apply everything learned in paragraph (a) above to deduce numerous facts and properties that are fundamental to problems in various fields of mathematics. b2. The student should apply what they have learned to solve numerous problems and issues on the same topic.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Chapter 1	Basic concepts of groupsr	Theoretical lectures, smart board and pen	Exams and discussions

2	4	Chapter 2	Basic concepts of rings	Theoretical lectures, smart board and pen	Exams and discussions
3	4	Chapter 3	Basic concepts of modules	Theoretical lectures, smart board and pen	Exams and discussions
4	4	Chapter 4	Homomorphism modules	Theoretical lectures, smart board and pen	Exams and discussions
5	4	Chapter 5	split sequence	Theoretical lectures, smart board and pen	Exams and discussions
6	4	Chapter 6	Exact sequence	Theoretical lectures, smart board and pen	Exams and discussions
7	4	Chapter 7	split sequence	Theoretical lectures, smart board and pen	Exams and discussions
8	4	Chapter 8	Noetherian modules	Theoretical lectures, smart board and pen	Exams and discussions
9	4	Chapter 9	Artenian modules	Theoretical lectures, smart board and pen	Exams and discussions
10	4	Chapter 10	Free modules	Theoretical lectures, smart board and pen	Exams and discussions
11	4	Chapter 11	faithfull modules	Theoretical lectures, smart board and pen	Exams and discussions
12	4	Chapter 12	Injective modules	Theoretical lectures, smart board and pen	Exams and discussions
13	4	Chapter 13	Projective modules	Theoretical lectures, smart board and pen	Exams and discussions
14	4	Chapter 14	direct product of modules	Theoretical lectures, smart board and pen	Exams and discussions
15	4	Chapter 15	direct sum of modules	Theoretical lectures, smart	Exams and discussion

				board and pen	s
16	4	Chapter 16	Simple rings	Theoretical lectures, smart board and pen	Exams and discussions
17	4	Chapter 17	Simple Modules	Theoretical lectures, smart board and pen	Exams and discussions
18	4	Chapter 18	Semisimple Rings	Theoretical lectures, smart board and pen	Exams and discussions
19	4	Chapter 19	Semisimple modules	Theoretical lectures, smart board and pen	Exams and discussions
20	4	Chapter 20	Injective hull	Theoretical lectures, smart board and pen	Exams and discussions
21	4	Chapter 21	Projective cover	Theoretical lectures, smart board and pen	Exams and discussions
22	4	Chapter 22	Local rings	Theoretical lectures, smart board and pen	Exams and discussions
23	4	Chapter 23	Radical of rings	Theoretical lectures, smart board and pen	Exams and discussions
24	4	Chapter 24	Radical of modules	Theoretical lectures, smart board and pen	Exams and discussions
25	4	Chapter 25	Socle	Theoretical lectures, smart board and pen	Exams and discussions
26	4	Chapter 26	Tensor product	Theoretical lectures, smart board and pen	Exams and discussions
27	4	Chapter 27	Semi-perfaect modules	Theoretical lectures, smart board and pen	Exams and discussions
28	4	Chapter 28	Direct indecomposable	Theoretical lectures, smart board and pen	Exams and discussions
29	4	Chapter 29	Cogenerator	Theoretical	Exams

				lectures, smart board and pen	and discussions
30	4	Chapter 30	Quasi Frobenius	Theoretical lectures, smart board and pen	Exams and discussions

1-P.E. Bland, "Rings and Their modules", New York, 2011.
2. T.W. Hungerford, "Algebra", New York, 2000.
3- D.M. Burton, "Abstract and linear algebra", London, 1972.
4. M.F. Atiyah, "Introduction to Commutative Algebra",
University of O

Course Description Form

1. Course Name:
Mathematical Statistics
2. Course Code:
430MTMS
3. Semester / Year:
2025 – 2026
4. Description Preparation Date:
27-11-2025
5. Available Attendance Forms:
Daily
6. Number of Credit Hours (Total) / Number of Units (Total)
120 Hours ....
7. Course administrator's name (mention all, if more than one name)
Name: : Assistant. Professor. Qasim Nasser Husain Email: qasim11@tu.edu.iq Name: Alaa Mnawer Dedaa Email : Alaa.m.dedaa@st.tu.edu.iq
8. Course Objectives

Course Objectives	• Acquiring sufficient knowledge about random variables. • Acquiring sufficient knowledge about continuous and discrete probability distributions. • Acquiring sufficient knowledge about the probability function and distribution function. • Calculating the mean and median. • Calculating variance and deviations. • Deriving moment-generating functions. • Applications of statistics in various scientific fields. • Finding statistical functions using

	integration.

9. Teaching and Learning Strategies

Strategy	• Managing the lecture in an applied manner related to real-life situations to engage the student with the lesson topic without straying from the core subject, ensuring the material is flexible and easy to understand and analyze. • Assigning students some group activities and assignments. • Allocating a percentage of the grade to daily assignments and tests.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject Unit or subject	Learning method	Evaluation method
1	4	Introduction to Mathematical Statistics	Definition of Random Variables and Their Classification	**The Lecture**	General questions, discussion, and solving examples.
2	4	Introduction to Mathematical Statistics	Theorems and Propositions about Random Variable Functions	**The Lecture**	General questions, discussion, and solving examples.
3	4	Introduction to Mathematical Statistics	Deriving Probability Mass Functions and Distribution Functions	**The Lecture**	General questions, discussion, and solving examples.
4	4	Introduction to Mathematical Statistics	Deriving Probability Mass Functions and Discrete Distribution Functions	**The Lecture**	General questions, discussion, and solving examples.

5	4	Introduction to Mathematical Statistics	Deriving Probability Mass Functions and Continuous Distribution Functions	**The Lecture**	General questions, discussion, and solving examples.
6	4	Introduction to Mathematical Statistics	Mathematical Expectation and Its Properties	**The Lecture**	General questions, discussion, and solving examples.
7	4	Introduction to Mathematical Statistics	Moment-Generating Functions	**The Lecture**	General questions, discussion, and solving examples.
8	4	Introduction to Mathematical Statistics	The Moment Function and Its Properties	**The Lecture**	General questions, discussion, and solving examples.
9	4	Introduction to Mathematical Statistics	Statistical Measures	**The Lecture**	General questions, discussion, and solving examples.
10	4	Introduction to Mathematical Statistics	Mode and Median	**The Lecture**	General questions, discussion, and solving examples.
11	4	Introduction to Mathematical Statistics	Quartiles and Percentiles Coefficient of Variation	**The Lecture**	General questions, discussion, and solving examples.

12	4	Introduction to Mathematical Statistics	Skewness, Kurtosis, and Truncation	**The Lecture**	General questions, discussion, and solving examples.
13	4	Evaluation students	Exam 1		
14	4	Probability distribution	Joint Distributions	**The Lecture**	General questions, discussion, and solving examples.
15	4	Probability distribution	Marginal Distributions	**The Lecture**	General questions, discussion, and solving examples.
16	4	Probability distribution	Random Independence	**The Lecture**	General questions, discussion, and solving examples.
17	4	Probability distribution	Cauchy-Schwarz Inequality	**The Lecture**	General questions, discussion, and solving examples.
18	4	Probability distribution	Theoretical Discrete Distributions	**The Lecture**	General questions, discussion, and solving examples.

19	4	Probability distribution	Discrete Uniform Distribution	**The Lecture**	General questions, discussion, and solving examples.
20	4	Probability distribution	Examples and Exercises	**The Lecture**	General questions, discussion, and solving examples.
21	4	Probability distribution	Bernoulli Distribution and Binomial Distribution	**The Lecture**	General questions, discussion, and solving examples.
22	4	Probability distribution	Examples and Exercises	**The Lecture**	General questions, discussion, and solving examples.
23	4	Evaluation students	Exam 2		
24	4	Probability distribution	Poisson Distribution	**The Lecture**	General questions, discussion, and solving examples.
25	4	Probability distribution	Regression Formula and Additive Property	**The Lecture**	General questions, discussion, and solving examples.

26	4	Probability distribution	Examples and Exercises	**The Lecture**	General questions, discussion, and solving examples.
27	4	Probability distribution	Theoretical Continuous Distributions	**The Lecture**	General questions, discussion, and solving examples.
28	4	Probability distribution	Continuous Uniform Distribution	**The Lecture**	General questions, discussion, and solving examples.
29	4	Probability distribution	Normal Distribution	**The Lecture**	General questions, discussion, and solving examples.
30	4	Probability distribution	Exponential Distribution	**The Lecture**	General questions, discussion, and solving examples.
31	4	Probability distribution	Beta Distribution and Gamma Distribution	**The Lecture**	General questions, discussion, and solving examples.
32	4	Evaluation students	Exam 3		

31	4	Probability distribution	Beta Distribution and Gamma Distribution	Lecture	General questions, discussion, and solving examples.
32	4	Evaluation students	Exam 4		

Course Description Form

1. Course Name:
Complex Analysis
2. Course Code: Bachelor's
429MTCA
3. Semester / Year: 4
2025 – 2026
4. Description Preparation Date:10\9\2025
5. Available Attendance Forms: daily
6. Number of Credit Hours (Total)120 / Number of Units (Total)
7. Course administrator's name (mention all, if more than one name)
Name: Suha jumaa Hammad Email:suhajumaa1987@tu.edu.iq
8. Course Objectives

Course Objectives	• Finding solutions to some equations that have no solution in real numbers • The student's knowledge of differentiation and integration methods for complex functions • The student's knowledge of the largest set of numbers •

9. Teaching and Learning Strategies	
Strategy	Linking the lecture to reality as much as possible so that the student learns to benefit from his studies in reality. Give importance to the applied aspect

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subj Unit or subject	Learning method	Evaluation method
1	4	Identify sets of numbers in addition to complex ones Complex number in Cartesian form Complex number in polar form	Complex number	lecture	Examples and questions
2	4	Representing a number geometrically			
3	4	Converting a number from the Cartesian form to the polar form			
4	4	Converting a number from the polar form to the Cartesian form			
5	4	Square roots of complex numbers Cube roots of complex numbers Complex equations			
6	4	Methods for solving complex equations			
7	4	Complex functions The limit of a complex function			
8	4	Limit theories Continuity			
9	4	Analytical functions			
10	4	Cauchy-Riemann Cartesian formula			
11	4	Cauchy-Riemann polar formula			
12	4	Harmonic functions			
13	4	Methods for finding harmonic conjugates			
14	4	Laplace Cartesian equation Laplace's polar equation			

15	4	Derivative Complex integration theories			
16	4	Complex integration theories			
17	4	Cauchy-Corsa integral theorem Cauchy-Riemann theorem Integration in both forms			
18	4	sequences			
19	4	series			
20	4	singular point and residues			
21	4				
22	4				
23	4				
24	4				

Course Description Form

58.Course name	
Differential Topology-Four stage	
59.Course code	
102MTDT	
60.Semester/Year	
2025 – 2026	
61. Date this description	
15\9\2025	
62.Available forms of attendance	
Daily	
63.Number of study hours (total) / Number of units (total)	
120 hours	
64.Name of the course administrator (if more than one name is mentioned)	
Name: Ali Abdul Al Majeed Shihab **Email: draliabd@tu.edu.iq**	
65.Course objectives	
Subject objectives:	Differential topology is one of the main topics in mathematics and is based on the subject of differential and integral. At the heart of differential topology are **smooth manifolds**, which are manifolds capable of supporting calculus operations. These structures are pivotal for physicists and

	engineers alike, offering a mathematically rigorous way to model the continuum of space-time or the shape of objects in 3D space. A smooth manifold is defined by its ability to have smooth transitions between local neighbourhoods, which essentially means that one can define differentiable functions on the manifold that behave nicely under transformation. This smoothness criterion allows for the use of differential calculus to explore the manifold's properties. Key concepts studied on smooth manifolds include *differential equations*, *vector fields*, and *tensor fields*, which are essential for understanding physical phenomena in a curved space-time context.
ching and learning strategies	
The strategy:	completion of the course, the student should be able to: : an account of central concepts and definitions in differential topology; e Sard's theorem and some of its applications; ne and compute mapping degree and intersection number of two submanifolds; ne index of a vector field and state the Poincaré-Hopf theorem; ne Morse function and outline a proof of existence; e the classification of one- and two-dimensional manifolds.
Course Structure	

Weeks	Hours	Required Learning	Outcomes Unit or Topic	Learning Method	Evaluation Method
First	**5**	**Smooth structure and smooth manifold**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Second	**5**	Algebra of smooth functions on smooth manifold	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Third	**5**	**Vector fields on smooth manifold**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourth	**5**	**Tangent vectors and tangent space**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Fifth	**5**	**Solutions of the exercises**	**Solutions of the applied exercises in this chapter**	**The lecture**	**General questions, discussion, explanations and solving examples**
Sixth	**5**	**Lie Algebra of vector fields of smooth manifolds**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventh	**5**	**Tensor algebra of**	Smooth Manifold	**The lecture**	**General**

		smooth manifold.			**questions, discussion, explanations and solving examples**
Eight	**5**	**Solutions of exercises**	**Solutions to various and applied chapter exercises**	**The lecture**	**General questions, discussion, explanations and solving examples**
Ninth	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**General questions, discussion, explanations and solving examples**
Tenth	**5**	**Lie Algebra of vector fields of smooth manifolds**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Eleventh	**5**	**Tensor algebra of smooth manifold.**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Twelfth	**5**	**Grassmann algebra of smooth manifold operator exterior differentiation**	Smooth Manifold	**-**	**-**
Thirteenth	**5**	**Smooth map. Differential of smooth map**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Fourteenth	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**-**
Fifteenth	**5**	**Connection of vector**	Smooth Manifold	**The lecture**	**General**

		fields. Dragging and anti-dragging of tensors			**questions, discussion, explanations and solving examples**
Sixteenth	**5**	**Distribution and integrability**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Seventeenth	**5**	**Submanifold of smooth manifold**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Eighteenth	**5**	**Generalized Submanifold of smooth manifold**	Smooth Manifold	**The lecture**	**General questions, discussion, explanations and solving examples**
Nineteenth	**5**	Introduction of Lie group and lie algebra	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty	**5**	**Lie group**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-one	**5**	**Lie algebra**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-two	**5**	Lie algebra in	Lie group and lie	**The lecture**	**General**

		weak and strong	algebra		**questions, discussion, explanations and solving examples**
Twenty-three	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**-**
Twenty-four	**5**	**Lie algebra of lie group**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-five	**5**	**Homomorphism of lie groups and lie algebras**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-six	**5**	**The action of lie group on smooth manifold**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-seven	**5**	**The product of lie group on smooth manifold**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-eight	**5**	**Solutions of exercises**	**Solutions to various and applied chapter exercises**	**The lecture**	**General questions, discussion, explanations and solving examples**
Twenty-nine	**5**	**Student Evaluation**	**Monthly exam**	**The lecture**	**General questions, discussion, explanations and solving examples**

Thirty	**5**	**Weak lie group on smooth manifold**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-one	**5**	**Surface of lie group on smooth manifold**	Lie group and lie algebra	**The lecture**	**General questions, discussion, explanations and solving examples**
Thirty-two	**5**	**Student Evaluation**	**Monthly exam**	**-**	**-**

66. Course Evaluation.	
y exams score: 10, **ıework and reports score: 10,** **ıthly exams score: 30;** **l exam score: 50**	
67. Learning and teaching references	
uired textbooks	irsch, M. W. (2012). *Differential topology* (Vol. 33). Springer Science & Business Media.
Main References	- Guillemin, V., & Pollack, A. (2010). *Differential topology* (Vol. 370). American Mathematical Soc.. - Mukherjee, A. (2015). *Differential topology*. Berlin: Springer International Publishing. - Bröcker, T., & Jänich, K. (1982). *Introduction to differential topology*. Cambridge University Press. - Munkres, J. R. (2016). *Elementary Differential*

	Topology.(AM-54), Volume 54 (Vol. 54). Princeton University Press. - Dieudonné, J., & Dieudonne, J. A. (1989). *A history of algebraic and differential topology, 1900-1960* (pp. 598-600). Boston: Birkhäuser.
ɔmmended supporting books and references (scientific journals, reports...)	most important books and references on differential topology available in the Central Library.
Electronic references, website.	11- Reliable websites. 12- Libraries websites in some international universities

COURSE DESCRIPTION

Measurement and Evaluation / Fourth Stage

1. COURSE INFORMATION	
1. Course Name	Measurement and Evaluation / Fourth Stage
2. Course Code	Bachelor's
3. Semester / Year	2025–2026
4. Date of Preparation	**3/9/2025**
5. Attendance Form	Daily
6. Total Credit Hours / Units	60 Hours
7. Course Coordinator	**Name: Asst. Prof. Maison Saleh Alawi** Email: maswn.s.alawe@tu.edu.iq

8. COURSE OBJECTIVES	
Course Objectives	• Understanding the basic concepts: test, measurement, and evaluation. • Distinguishing between different types of tests. • Understanding the characteristics of educational measurement. • Distinguishing between educational and physical measurement. • Understanding types of evaluation by timing of implementation. • Understanding the relationship between educational objectives and the evaluation process. • Understanding types of achievement tests. • Identifying the characteristics of a good test (validity, reliability, ease of application and scoring, comprehensiveness, objectivity, standards). • Understanding behavioral objectives and their classifications. • Understanding the test piloting process and its implementation steps. • Calculating the difficulty, easiness, and wrong alternatives indices and making judgments on test items. • Understanding tests based on answer selection (true/false,

	matching tests).

9. TEACHING & LEARNING STRATEGIES

Strategy	• Educational discussion (dialogue-based teaching) — relying on exchange of ideas to reach factual understanding. • Use of modern scientific technology (Data Show presentation devices). • Group memos to engage all students in classroom activities. • Classroom exercises for participation in finding appropriate solutions to assessment aspects.

10. COURSE STRUCTURE

Week	Hrs	Required Learning Outcomes	Unit / Topic	Teaching Method	Assessment
1st	2	Meeting students, providing orientation, introducing course vocabulary	**Meeting Students & Orientation / Course Introduction**	Discussion	Oral
2nd	2	Overview of measurement and evaluation; historical background; concepts of test, measurement, and evaluation	**Overview of Measurement & Evaluation / Historical Background / Key Concepts**	Discussion	Oral
3rd	2	Types of evaluation by criterion/standard and by timing; educational objectives and their importance	**Types of Evaluation / Educational Objectives & Their Importance**	Discussion	Oral
4th	2	Formulating behavioral objectives and their importance in evaluation; Bloom's taxonomy of educational objectives	**Behavioral Objectives / Bloom's Taxonomy**	Discussion	Oral
5th	2	Test blueprint and its importance in preparing achievement tests	**Test Blueprint / Importance in Test Preparation**	Assignments & Applications	Written & Oral
6th	2	Achievement tests: concept and types	**Achievement Tests — Concept and Types**	Assignments & Applications	Oral
7th	2	Tests based on providing answers (supply/constructed response)	**Supply-Type Tests**	Assignments & Applications	Oral
8th	2	Tests requiring extended answers (essay tests)	**Essay Tests**	Assignments & Applications	Oral
9th	2	Tests requiring short answers	**Short-Answer Tests**	Assignments & Applications	Oral
10th	2	Tests based on answer	**Selection-Type Tests**	Assignments	Written & Oral

		selection		& Applications	
11th	2	True/False test: advantages, disadvantages, and construction rules	**True/False Test**	Assignments & Applications	Oral
12th	2	Matching/Pairing test: advantages, disadvantages, and construction rules	**Matching Test**	Assignments & Applications	Oral
13th	2	Multiple-choice test: advantages, disadvantages, and construction rules	**Multiple-Choice Test**	Assignments & Applications	Oral
14th	2	Assembling test items and preparing test instructions	**Test Assembly & Instructions**	Discussion with Students	Oral
15th	2	Test piloting, item analysis and improvement	**Test Piloting / Item Analysis & Improvement**	Assignments & Applications	Written & Oral
16th	2	Quantifying answers (test scoring)	**Scoring the Test (Answer Quantification)**	Discussion — Paper Test	Practical
17th	2	Types of scoring keys	**Types of Scoring Keys**	Discussion — Paper Test	Oral
18th	2	First semester exam	**First Semester Exam**	—	Written & Practical
19th	2	Statistical analysis of test items	**Statistical Analysis of Test Items**	Discussion — Paper Test	Practical
20th	2	Extracting the difficulty index for objective test items	**Difficulty Index — Objective Tests**	Paper Test / Open-Book Test / Take-Home Test	Written & Oral
21st	2	Extracting the difficulty index for essay test items	**Difficulty Index — Essay Tests**	Paper Test / Open-Book / Take-Home	Practical
22nd	2	Extracting the discrimination index for objective test items; comprehensive theoretical exam	**Discrimination Index + Comprehensive Theoretical Exam**	Practical Applications	Practical
23rd	2	Extracting the effectiveness coefficient of wrong alternatives	**Effectiveness of Wrong Alternatives**	Practical Applications	Practical
24th	2	Improving test items based on analysis indicators	**Improving Test Items per Analysis Indicators**	Practical Applications	Practical
25th	2	Specifications of a good test	**Good Test Specifications**	Practical Applications	Oral
26th	2	Validity: concept and affecting factors	**Validity — Concept & Affecting Factors**	Practical Applications	Written & Oral
27th	2	Content validity, face validity; construct validity	**Content Validity, Face Validity, Construct Validity, Criterion-**	Practical Applications	Practical

		and criterion-related validity	**Related Validity**		
28th	2	Second semester exam	**Second Semester Exam**	—	Written
29th	2	Reliability: concept and affecting factors	**Reliability — Concept & Affecting Factors**	Practical Applications	Practical
30th	2	Methods of calculating reliability: test-retest method	**Reliability Calculation Methods / Test-Retest Method**	Practical Applications	Practical

11. COURSE ASSESSMENT

Grading	Daily Exams: 20 marks Monthly Exams: 30 marks **Final Exam: 50 marks**

12. LEARNING RESOURCES

Required Textbooks	None specified.
Main References	• Psychological Measurement and Educational Evaluation — Prof. Safa Tariq Habib. • Psychological Measurement — Safwat Faraj. • Psychological Measurement — Saad Abd al-Rahman. • Measurement and Evaluation — Dr. Sabah Hussein Al-Ujeili et al.
Supplementary Resources	• Journal of Psychological Measurement and Educational Evaluation. • Statistical software for data analysis: SPSS, Rascall.
Electronic References	Internet websites and online academic resources.

COURSE DESCRIPTION

Observation and Practice / Fourth Stage

1. COURSE INFORMATION	
1. Course Name	Observation and Practice / Fourth Stage
2. Course Code	Bachelor's
3. Semester / Year	2025–2026
4. Date of Preparation	**3/9/2025**
5. Attendance Form	Daily
6. Total Credit Hours / Units	60 Hours
7. Course Coordinator	**Name: Asst. Prof. Amal Husaib Saber** Email: amhsaber@tu.edu.iq

8. COURSE OBJECTIVES	
Course Objectives	• Exposing students to teaching methods and strategies, enabling them to follow up on theoretical knowledge and apply it practically. • Building a prior understanding of teaching before students begin their practical placement. • Developing the ability to evaluate observed activities of several teachers with different specializations and experience levels. • Enabling students to practice the teaching profession in middle and preparatory schools through subjects studied during the preparation period. • Translating theoretical educational and scientific principles into practical skills in dealing with students and managing the classroom. • Enabling students to acquire professional experiences and skills and refine them.

9. TEACHING & LEARNING STRATEGIES	
Strategy	• Lecture method. • Discussion method. • Observation-based learning. • Presentation. • Modeling. • Hands-on (experiential) learning. • E-learning. • Use of electronic platforms — WhatsApp — Telegram.

10. COURSE STRUCTURE

Week	Hrs	Required Learning Outcomes	Unit / Topic	Teaching Method	Assessment
1st	2	Introduction to practical education; introducing students to practical education	**Introduction to Practical Education**	Lecture & Discussion	Exams
2nd	2	Observation; introducing students to observation	**Observation**	Lecture & Discussion	—
3rd	2	Delivery (Al-Ilqaa); introducing students to delivery	**Delivery**	Lecture & Discussion	—
4th	2	Micro-teaching; introducing students to micro-teaching	**Micro-Teaching**	Lecture & Discussion	—
5th	2	Types of teaching methods; introducing students to types of teaching methods	**Types of Teaching Methods**	Lecture & Discussion	—
6th	2	Lesson planning; enabling students to apply examples of lesson plan types	**Lesson Planning**	Lecture & Discussion	—
7th	2	Evaluation form; enabling students to know the items of the evaluation form	**Evaluation Form**	Lecture & Discussion	—
8th	2	Topic selection; linking topic to the lesson objective	**Topic Selection / Linking to Lesson Objective**	Lecture & Discussion	—
9th	2	Training on the lesson plan; how to write the daily theoretical lesson plan	**Training on the Lesson Plan (Theoretical)**	Lecture & Discussion	—
10th	2	Topic selection; linking topic to the student's environment	**Topic Selection / Student Environment**	Lecture & Discussion	—
11th	2	Training on the lesson plan; how to write the theoretical lesson plan	**Training on the Lesson Plan (Theoretical)**	Lecture & Discussion	—
12th	2	Topic selection; linking topic to student interests	**Topic Selection / Student Interests**	Lecture & Discussion	—
13th	2	Training on the lesson plan; writing the practical lesson plan	**Training on the Lesson Plan (Practical)**	Lecture & Discussion	—
14th	2	Selecting the execution medium or material; linking material to lesson objective	**Selecting Execution Medium / Material**	Lecture & Discussion	—
15th	2	Selecting the execution medium or material; matching material to student abilities	**Selecting Medium / Matching Student Abilities**	Lecture & Discussion	—
16th	2	Training on the lesson plan; writing the practical lesson plan	**Training on the Lesson Plan (Practical Application)**	Lecture & Discussion	—

17th	2	Motivation and guidance; linking motivation to the lesson objective	**Motivation & Guidance / Linking to Objective**	Lecture & Discussion	—
18th	2	Motivation and guidance; linking motivation to students' cognitive level	**Motivation & Guidance / Students' Cognitive Level**	Lecture & Discussion	—
19th	2	Training on lesson delivery; student presents lesson to the class	**Training on Lesson Delivery (Student Presentation)**	Lecture & Discussion	—
20th	2	Motivation and guidance; how to motivate	**Motivation & Guidance Techniques**	Lecture & Discussion	—
21st–30th	20	Students directed to practical placement in schools	**School-Based Practical Teaching (Weeks 21–30)**	School Placement	—

11. COURSE ASSESSMENT

Grading	Subject Teacher's Grade: 30 marks Academic Supervisor's Grade: 30 marks Educational Supervisor's Grade: 30 marks **School Principal's Grade: 10 marks**

12. LEARNING RESOURCES

Required Textbooks	Observation and Practice Workbook.
Main References	• Art and Education. • Modern Trends and Applications in Curricula and Teaching Methods. • Instructional Design.
Supplementary Journals	• Al-Akademi Journal. • Al-Bahith Journal. • Al-Muallim Al-Jadid Journal. • Al-Ustadh Journal.
Electronic References	• Books available in electronic libraries. • Theses and dissertations from Colleges of Education (Departments of Educational & Psychological Sciences and Teaching Methods).

— End of Course Descriptions —