Academic Program and Course Description Guide
2025

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

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Tikrit

Faculty/Institute: College of Education for woman

Scientific Department: Mathematic

Academic or Professional Program Name: B.Edu. Mathematic

Final Certificate Name: B.Edu. Mathematic

Academic System: Yearly

Description Preparation Date: 18/9/2024

File Completion Date   : 18/9/2024

Signature:

Signature:

Name: Prof. Dr.Rana
B.Yaseen

Name: Prof.Dr .Ashraf J.Mahmood

Head of Department Name:

Scientific Associate Name:

Date:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Signature:

lecturer, Shahad Khaled Hamid

Date
Approval of the Dean

Prof.Dr.Naglaa Abdel Hussein Aliwi

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1. Program Vision

The Department of Mathematics aspires to gain global recognition in the fields of scientific research and teaching by achieving academic quality, as well as local recognition in the field of supplying the labor market with highly qualified scientific personnel.

2. Program Mission

Raising the efficiency of mathematicians and mathematical sciences in society and supporting various science specializations with high-level graduates to effectively contribute to the scientific renaissance and developing ways that would build qualified athletes at the highest level in teaching and training to contribute to raising the level of mathematical thought among trainees

3. Program Objectives

1. Providing students with the knowledge and learning of modern principles and methods in the study of mathematics.
2. Introducing students to the importance of mathematics.
3. Graduating an elite group of students who have the ability to continue graduate studies to support higher education in the future

4. Program Accreditation

Does the program have program accreditation? And from which agency? Yes, the program has program accreditation from the National Council for Accreditation of Programs of Colleges of the Educational Group

5. Other external influences

Is there a sponsor for the program? Ministry of Higher Education and Scientific Research, Scientific Supervision and Scientific Evaluation Apparatus, Directorate of Quality Assurance and Academic Accreditation, Accreditation Department.

6 Program Structure

Institution Requirements	Number of Courses	Credit hours	Percentage	Reviews•
College Requirements	36	162	%100	
College Requirements				
Department Requirements				
Summer Training	-	-	-	
Other	There is field training in high schools			

7. Program Description

<table>
<tr><td colspan="5" align="center">First Year</td></tr>
<tr>
<td rowspan="2" align="center">Course Name</td>
<td rowspan="2" align="center">Course Code</td>
<td colspan="2" align="center">Credit Hours</td>
<td rowspan="2" align="center">Units</td>
</tr>
<tr>
<td align="center">Theoretical</td>
<td align="center">practical</td>
</tr>
<tr><td align="center">Calculus</td><td align="center">-</td><td align="center">3</td><td align="center">2</td><td align="center">8</td></tr>
<tr><td align="center">Foundations of Mathematics</td><td align="center">-</td><td align="center">2</td><td align="center">2</td><td align="center">6</td></tr>
<tr><td align="center">Linear Algebra</td><td align="center">-</td><td align="center">2</td><td align="center">2</td><td align="center">6</td></tr>
<tr><td align="center">General Physics</td><td align="center">-</td><td align="center">2</td><td align="center">-</td><td align="center">4</td></tr>
<tr><td align="center">Computer Science</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">Foundations of Education</td><td align="center">-</td><td align="center">2</td><td align="center">-</td><td align="center">4</td></tr>
<tr><td align="center">Educational Psychology</td><td align="center">-</td><td align="center">2</td><td align="center">-</td><td align="center">4</td></tr>
<tr><td align="center">Arabic Language</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">English Language</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">Human rights and democracy</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">Total</td><td align="center">17</td><td align="center">6</td><td align="center">40</td></tr>
</table>

<table>
<tr><td colspan="5" align="center">Second Year</td></tr>
<tr>
<td rowspan="2" align="center">Course Name</td>
<td rowspan="2" align="center">Course Code</td>
<td colspan="2" align="center">Credit Hours</td>
<td rowspan="2" align="center">Units</td>
</tr>
<tr>
<td align="center">Theoretical</td>
<td align="center">practical</td>
</tr>
<tr><td align="center">Advanced Calculus</td><td align="center">-</td><td align="center">3</td><td align="center">2</td><td align="center">8</td></tr>
<tr><td align="center">Group Theory</td><td align="center">-</td><td align="center">2</td><td align="center">1</td><td align="center">5</td></tr>
<tr><td align="center">Ordinary Differential Equation</td><td align="center">-</td><td align="center">2</td><td align="center">2</td><td align="center">6</td></tr>
<tr><td align="center">Geometry and Axiomatic Systems</td><td align="center">-</td><td align="center">2</td><td align="center">1</td><td align="center">5</td></tr>
<tr><td align="center">Computer Science</td><td align="center">-</td><td align="center">-</td><td align="center">2</td><td align="center">2</td></tr>
<tr><td align="center">Administration and Supervision</td><td align="center">-</td><td align="center">2</td><td align="center">-</td><td align="center">4</td></tr>
<tr><td align="center">Developmental Psychology</td><td align="center">-</td><td align="center">2</td><td align="center">-</td><td align="center">4</td></tr>
<tr><td align="center">English Language</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">Baath Party Crimes</td><td align="center">-</td><td align="center">1</td><td align="center">-</td><td align="center">2</td></tr>
<tr><td align="center">Total</td><td align="center">15</td><td align="center">8</td><td align="center">38</td></tr>
</table>

Third year				
Course Name	Course Code	Credit Hours		Units
		Theoretical	practical	
Mathematical Analysis	-	2	2	6
Numerical Analysis	-	2	2	6
Probability	-	2	2	6
Rings	-	2	2	6
Partial Differential Equations	-	2	1	5
Philosophy of Scientific Research	-	2	-	4
Curricula and Teaching Method	-	1	2	4
Educational Guidance	-	2	-	4
English Language	-	1	-	2
Total		16	11	43

Forth year				
Course Name	Course Code	Credit Hours		Units
		Theoretical	practical	
Topology	-	2	2	6
Mathematical Statistics	-	2	2	6
Complex Analysis	-	2	2	6
Operations Research	-	2	2	6
Graph Theory	-	2	2	6
Graduation Research Work	-	-	2	2
Measuring and Amendment	-	-	2	4
English Language	-	1	-	2
Professional ethics	-	1	-	2
Practical Teaching		1	2	4
Total		15	14	44

8. Expected learning outcomes of the program	
Knowledge	
A1- Enabling the student to gain an understanding of mathematics. A2- Preparing qualified teachers to teach in educational institutions. A3- Preparing a high-quality mathematics teacher.	
Skills	
B1 - That the student acquires the skill of mathematical operations. B2 - That the student acquires skills in methods of proof and thinking. B3 - The student should be able to link the information.	1. The correct scientific thinking method. 2. Discussion method. 3. Daily, monthly and annual tests.
C1- The method of discussion and dialogue between the student and the professor. C2- Conclusion. C3- Mathematical logic	1. Through daily and monthly tests. 2. Discussions. 3. Practical and applied tests. 4. By reviewing the experiences of different universities.
Ethics	
D1- Utilizing the acquired information. D2- Personal development through reading and updating knowledge. D3- Engaging in the teaching profession. D4- Participation in seminars, conferences and workshops Specialized.	

9. Teaching and Learning Strategies
Theoretical and practical teaching of mathematics sciences, as well as graduation research and others.

10. Evaluation methods
1. Theoretical and practical tests.   2. Discussions.   3. Final exams.

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof. Dr Rana bahjat yaseen	Mathematics	Topology			√	
Assist. Prof. Dr Israa Munir Tawfik	Mathematics	Topology			√	
Assist. Prof. Dr Mohammad Abd moheemmeed	Mathematics	Numerical Analysis			√	
Assist. Prof. Dr. Amer fadhel nassar	Mathematics	Applied mathematics			√	
Prof. Nihad Shareef Khalaf	Mathematics	Time series			√	
Assist. Prof. Elaf Sabah Abdulwahid	Mathematics	Functional analysis			√	
Assist. Prof. Dr.Sarwa Abd-Alqader	Physics	solid physics			√	
Assist. Prof. Hiba omer mousa	Mathematics	Topology			√	
Assist. Prof. Dr Sondos Nouri Shukr	Mathematics	Methods of Teaching			√	
Ass.Lecturer Dr Heba Hani Abdullah	Mathematics	Time series			√	
Lecturer. Zeina Taha Abdel Qader	Mathematics	Topology			√	
Lecturer Nada Jassim Mohammed	Mathematics	Algebra			√	
Lecturer. Kholoud Gamal Mouloud	Computer	Computer			√	
Lecturer Asmaa Saleh Qaddouri	Mathematics	Statistics			√	
Lecturer Fadia Abdel Fattah Habib	Computer	Computer			√	
Assist. Lect. Muhammad Muayyad Sultan	Computer	Computer			√	
Assist. Lect. Raghad Wameed Fares	Mathematics	Statistics			√	
Assist. Lect. Farah Amer Abdulaziz	Computer	Computer			√	
Assist. Lect. Faten Haitham Mouloud	Physics	Physics			√	

Professional Development

Mentoring new faculty members

New faculty members were directed to complete a teaching suitability test and entered training courses and workshops to develop their skills in teaching and scientific research.

Professional development of faculty members

Introducing faculty members into training courses and workshops to develop their skills in teaching and scientific research. .

12.	Acceptance Criterion

(1- Central admission.
2- Scientific interview.
3- The graduate of the preparatory stage is accepted exclusively in the scientific stream (biology - applied).
4- Medical examination.

13.	The most important sources of information about the program

1- Sources approved by the university (sectoral committee). 2- External sources and various books.
3- The Internet.

14. Program Development Plan

1- Many duties that require external information. 2- Many practical applications.

				Required program Learning outcomes											
Year/ Level	**Course Code**	**Course Name**	**Basic or optional**	**Knowledge**				**Skills**				**Ethics**			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**
First Year		Calculus	Basic	√	√	√		√	√	√		√	√	√	√
		Foundations of Mathematics	Basic	√	√	√		√	√	√		√	√	√	√
		Linear Algebra	Basic	√	√	√		√	√	√		√	√	√	√
		General Physics	Basic	√	√	√		√	√	√		√	√	√	√
		Computer Science	Basic	√	√	√		√	√	√		√	√	√	√
		Foundations of Education	Basic	√	√	√		√	√	√		√	√	√	√
		Educational Psychology	Basic	√	√	√		√	√	√		√	√	√	√
		Arabic Language	Basic	√	√	√		√	√	√		√	√	√	√
		English Language	Basic	√	√	√		√	√	√		√	√	√	√
		Human rights and democracy	Basic	√	√	√		√	√	√		√	√	√	√
Second Year		Advanced Calculus	Basic	√	√	√		√	√	√		√	√	√	√
		Group Theory	Basic	√	√	√		√	√	√		√	√	√	√
		Ordinary Differential Equation	Basic	√	√	√		√	√	√		√	√	√	√
		Geometry and Axiomatic Systems	Basic	√	√	√		√	√	√		√	√	√	√
		Computer Science	Basic	√	√	√		√	√	√		√	√	√	√
		Administration and Supervision	Basic	√	√	√		√	√	√		√	√	√	√
		Developmental Psychology	Basic	√	√	√		√	√	√		√	√	√	√
		English Language	Basic	√	√	√		√	√	√		√	√	√	√
		Baath Party Crimes	Basic	√	√	√		√	√	√		√	√	√	√

Program Skills Outline

		Subject	Type													
year.		Mathematical Analysis	Basic	√	√	√		√	√	√		√	√	√	√
		Numerical Analysis	Basic	√	√	√		√	√	√		√	√	√	√
		Probability	Basic	√	√	√		√	√	√		√	√	√	√
		Rings	Basic	√	√	√		√	√	√		√	√	√	√
		Partial Differential Equations	Basic	√	√	√		√	√	√		√	√	√	√
		Philosophy of Scientific Research	Basic	√	√	√		√	√	√		√	√	√	√
		Curricula and Teaching Method	Basic	√	√	√		√	√	√		√	√	√	√
		Educational Guidance	Basic	√	√	√		√	√	√		√	√	√	√
		English Language	Basic	√	√	√		√	√	√		√	√	√	√
Forth year		Topology	Basic	√	√	√		√	√	√		√	√	√	√
		Mathematical Statistics	Basic	√	√	√		√	√	√		√	√	√	√
		Complex Analysis	Basic	√	√	√		√	√	√		√	√	√	√
		fuzzy	optional	√	√	√		√	√	√		√	√	√	√
		Functional analysis	optional	√	√	√		√	√	√		√	√	√	√
		Graduation Research Work	Basic	√	√	√		√	√	√		√	√	√	√
		Measuring and Amendment	Basic	√	√	√		√	√	√		√	√	√	√
		English Language	Basic	√	√	√		√	√	√		√	√	√	√
		Professional ethics	Basic	√	√	√		√	√	√		√	√	√	√
		Practical Teaching	Basic	√	√	√		√	√	√		√	√	√	√

Course Description Form

1. Course Name:
Topology
2. Course Code:
3. Semester / Year:
2024-2025
4. Description Preparation Date:
2024-9-18
5. Available Attendance Forms:
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 : Rana Bahjat Yaseen Email : zain2016@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 name**	**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
Main references (sources)	Topology and maps by T. Husain 1977
Recommended books and references (scientific journals, reports…)	Introduced of Topology
Electronic References, Websites	Shawm series

1. Course Name:
Time series

2. Course Code:

3. Semester / Year: 2025/2024
2024-2025

4. Description Preparation Date: 18/9/2024
2024-9-18

5. Available Attendance Forms:

6. Number of Credit Hours (Total) 30 / Number of Units (Total) 8
4 Hours

7. Course administrator's name (mention all, if more than one name)
Name: Nihad Shareef Khalaf Email: **nihad.shreef16@tu.edu.iq**

8. Course Objectives

Course Objectives	
- Study and knowledge of time series and types of models in linear time series - Study concept of stationary and what is dependent Study spectral density function and perdiction	

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 name	Learning method	Evaluation method
1-4	16	Random variable ,stochastic processes ,time series with examples ,first and second order and complete stationary process ,autocovariance and autocorrelation function	Stationary stochastic processes	Electronic lectures, smart board ,pen	Written and daily exams with assignments
			12		

5-6	8	White noise process and autoregressive models of orders 1&2	Standard discrete random models	Electronic lectures, smart board ,pen	Written and daily exams with assignments
7-11	16	autoregressive models of orders p AR(P),moving average models MA(q), mixed ARMA(P,q) models	Standard discrete random models	Electronic lectures, smart board ,pen	Written and daily exams with assignments
12-17	24	The general linear model and Harmonic process	Standard discrete random models	Electronic lectures, smart board ,pen	Written and daily exams with assignments
18-20	8	White noise process and autoregressive models of orders 1&2	Standard continuity random models	Electronic lectures, smart board ,pen	Written and daily exams with assignments
20-23	12	autoregressive models of orders p AR(P) and moving average models MA(q)	Standard continuity random models	Electronic lectures, smart board ,pen	Written and daily exams with assignments
24-30	24	Fourier function and spectral analysis of periodic function and non -periodic function , spectral analysis of stationary process, relationship between spectral analysis and autocovariance and	spectral analysis of time series	Electronic lectures, smart board ,pen	Written and daily exams with assignments

		autocorrelation function				
		Find prediction by Kolomogrov approach in linear prediction and how find the value in future	Prediction	Electronic lectures, smart board ,pen	Written an daily exam with assignmer

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

	Applications
Required textbooks (curricular books, if any)	
Main references (sources)	Complex functions for the third grade of physics
(scientific journals, reports...)	
Elec A First Course in Complex Analysis with Applications (2003), Dennis G. Zill and Patrick D.	

Course
Description Form

1. Course Name: Complex analysis

2. Course Code:

3. Semester / Year: 2024/2025

4. Description Preparation Date: 18/9/2024

5. Available Attendance Forms:

6. Number of Credit Hours (Total) 30 / Number of Units (Total) 8

7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof. Dr. Mohammad Sabawi Email: **mohammad.sabawi@tu.edu.iq**

8. Course Objectives

Course Objectives	•For many of our students, complex analysis is their first rigorous analysis (if not mathematics) class they take, and these topics reflect this very much. We tried to rely on as few concepts from real analysis as possible. The complex numbers have many nice properties which make us think a lot how to show that the complex numbers are set up in order to explore the properties of the complex numbers, since these properties will be both algebraic properties (such as commutative and distributive properties) for example, that multiplication can be described geometrically that is why the complex numbers will be built on the properties that we mentioned above. These tools will make us be able to take limits and do calculus. And, there will be a root of any complex equation. Also we tried to introduce some principle concept on the behavior of complex functions, such as holomorphic functions which are related with main theorem in complex analysis Riemann mapping theorem, Cauchy Riemann equations in order to prepare ourself to study harmonic

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functions and its conjugate. In particular, series and sequences are treated " from scratch." This also has advantageous to see how would be easy to evaluate the integral of complex function through series, residues, Cauch theorem, First Cauchy integral formula and Second Cauchy integral formula (for derivative). consequence that power series, and the integration subject with (poles, removable singularity, essential singularity and residues theorem) are introduced in this course as well.

9. Teaching and Learning Strategies

Strategy	Use explanation and clarification to present concepts. • Interact with students through discussions and practical exercises. • Use real-life examples and applications to illustrate mathematical ideas.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	16	**Field of complex numbers**	8		
5-6	8	**Paths**	8		
7-11	16	**Functions of complex**	8		
12-17	24	**Some special functions and harmonic conjugate functions**	8		

18-20	8	Harmonic functions, their conjugates, and applications			
20-23	12	Exponential, trigonometric, and compound hyperbolic functions			
24-30	24	Logarithmic functions, properties of complex exponents, and their applications Path integral and Cauchy's theorem Cauchy-Gursat theorem and its applications Cauchy's integral formula and its applications			

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

	Applications
Required textbooks (curricular books, if any)	
Main references (sources)	
Complex functions for the third grade of physics (scientific journals, reports…)	
E A First Course in Complex Analysis with Applications (2003), Dennis G. Zill and Patrick D. Shanahan,	

1. Course Name:
Mathematical Statistics

2. Course Code:

3. Semester / Year:
2024- 2025

4. Description Preparation Date:
18- 9- 2024

5. Available Attendance Forms:
Classroom and Google classroom

6. Number of Credit Hours (Total) / Number of Units (Total)
(120 hour per year) / Number of Units (6 units)

7. Course administrator's name (mention all, if more than one name)
Name: LEC .Asmaa Salih Qaddoori Email: asmaa. salih@tu.edu.iq

8. Course Objectives

Course Objectives	
• Mathematical statistics is considered one of the main topics in any mathematics program. The student usually studies the subject after studying the concept of the random variable, probability functions, and the properties of some statistical distributions, as the subject of mathematical statistics includes learning about the concept of transformations and the concept of estimates and their methods, in addition to: testing statistical hypotheses. • Emphasis on the study of inferring distributions using transformations • Identify the concept of estimation and its types • Identify estimation methods and the characteristics of a good appraiser • Be careful to introduce the concept of statistical hypothesis	• • •

9. Teaching and Learning Strategies

Strategy	• • Use explanation and clarification to present concepts. • Interact with students through discussions and practical exercises. • Use real-life examples and applications to illustrate mathematical ideas

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Learn how to use the moment generating function to extract statistical distributions.	Using the moment generating function to extract statistical distributions for the discrete random variable and the continuous random variable	Dying and discussion	Daily and monthly testing and homework

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2	4	Learn how to use transformations to derive statistical distributions for a discrete random variable.	The concept of transformations and their use in deriving random distributions.	=	=
3	4	Learn how to use transformations to derive statistical distributions for a continuous random variable.	The concept of the conversion factor and how to use it in deducing random distributions for a continuous random variable	=	=
4	4	Exercises and discussion.	Solve some different exercises, monthly exam	=	=
5	4	Identify some distributions derived from other probability distributions.	Defining the t-Student distribution and how to extract its probability function and some of its probabilistic properties	=	=
6	4	Introducing the student to the F distribution and the Chi-square distribution..	The probability function of the F distribution and the Chi-square distribution, how to derive them, and their probabilistic properties	=	=
7	4	Solve some different exercises.	General questions and group assignments, monthly exam	=	=
8	4	What is the concept of estimation and random interval?	Explaining the concept of estimation and random interval and learning how to estimate with a period	=	=
9	4	Introducing the student to grading by one point.	Explain the concept of a confidence interval for a normal population mean	=	=
10	4	Introducing the student to the concept of variation.	Explain the concept of confidence interval for the variance of a normal population	=	=
11	4	To understand the concept of the difference between averages.	Find the confidence interval between the means	=	=

12	4	Solve some different exercises.	Exercises, discussion, and monthly exam	=	=
13	4	Introducing the student to grading methods.	Maximum likelihood method, least variance method, and least squares method	=	=
14	4	Introducing the student to the characteristics of a good appraiser.	Definition of the concept of consistency and the concept of impartiality and some examples of them.	=	=
15	4	Introducing the student to the concept of competence and efficiency	Identify the efficient guesser with adequate statistics and the unbiased guesser with less variance.	=	=
16	4	Explaining the analysis theorem and its applications. .	Learn about the concept of the analysis theorem and how to use it to extract a sufficient estimate.	=	=
17	4	Recognize the text of the theorem Ro-Black Well.	Presentation of the theorem and some of its applications	=	=
18	4	Solve some different exercises.	General questions and group assignments.	=	=
19	4	. The characteristic of perfection with some examples and solutions to various exercises.	Discussion and monthly exam.	=	=
20	4	Learn about the concept of the exponential family	Introducing the student to the concept of the exponential family and identifying the members of the exponential function	=	=
21	4	Solve some different exercises	General exercises and group assignments	=	=
22	4	The concept of statistical hypothesis.	Defining the statistical hypothesis and distinguishing between the simple statistical hypothesis and the complex statistical hypothesis.	=	=
23	4	Introducing the student to the types of statistical hypotheses.	Definition of the null statistical hypothesis and the alternative statistical hypothesis.	=	=
24	4	Identify random error and its types.	Knowing random errors, their types, and how to distinguish between them.	=	=

25	4	Solve some different exercises.	Discussion and monthly exam.	=	=
26	4	Explain the concept of the critical Rigen.	. Definition of the critical region, test power, and characteristic function.	=	=
27	4	How to choose the best critical point	Introducing the student to the best area for testing and the best critical Rigen.	=	=
28	4	Various exercises on the topic.	Discussion and monthly exam	=	=
29	4	Define more robust tests regularly	Explain the Neyman-Pierson theorem and illustrate the concept of systematically more robust tests.	=	=
30	4	Solve some different exercises	General questions and group assignments	=	=

11 . Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.:
• Daily preparation.
• Daily exams.
• Oral and monthly tests.
• Written tests.
• Preparing reports and research projects.
• Quarterly activities and participation in discussions.
• Student performance in class and interaction with study materials

12 . Learning and teaching resources

Required textbooks (methodology, if any)	• Mathematical statistics, Amir Hanna Hormuz, 1990
Main references (sources)	Introduction to mathematical statistic, • Robert V Hogg Allen Craig , Joseph W McKean 2005 • • . Mathematical Statistics Amir Hanna Hormuz 1990
Recommended supporting books and references (scientific journals, reports...)	Introduction to mathematical statistics • Robert V Hogg • Allen Craig • Joseph W McKean 2005
Electronic references, Internet sites	University websites that provide educational materials in statistics and probability • Scientific articles and research available online in the field of statistics and probability.

11. Course Evaluation
Daily preparation. Daily exams. Oral and monthly tests. Written tests. Preparing reports and research projects. Quarterly activities and participation in discussions. Student performance in class and interaction with his subjects

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Evaluation and Measurement - authored by Mustafa Mahmoud Al-Imam and others
Main references (sources)	1- Evaluation and measurement in education and psychology, Sami Milhem, 2000. 2- Measurement and Evaluation in Education, Thomas George El Khoury, 2008. 3- Educational Measurement and Evaluation in the Teaching Process, Salah El-Din Mahmoud Allam, 2007.
Recommended books and references (scientific journals, reports…)	See all that is modern and published in refereed scientific journals
Electronic References, Websites	http://www.alkutubcafe.com/book/83rjar.html

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Course Description Form

Course Name: fuzzy mathematics / fourth year
Course Code: -----------
Semester / Year: 2025-2024
Description Preparation Date: 2024-9-18
5. Available Attendance Forms: Class lectures
6. Number of Credit Hours (Total) / Number of Units (Total): 90 hours / 12 Units
7. Course administrator's name (mention all, if more than one name)

Name: Asst. Prof. Hiba Omar Mousa
hiba_34@tu.edu.iq

The course develops and refines students' information about the meaning of fuzzy mathematics and fuzzy theory

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

Week	Hours	Required Lea	Unit or subject name	Learning method	Evaluation
October	2		Identify the main idea of a specific information about the fuzzy mathematics	Standard method	Class performance and exams

November	2		The difference between the fuzzy mathematics and the normal math.	Standard method & Brainstorming method	Class performance and exams
December	2		Definitions of the fuzzy sets and the fuzzy numbers	Standard method & text method	Class performance and exams
January	2		The Algebra of fuzzy sets	Standard method & text method	Class performance and exams
February	2		Fuzzy relations	Standard method & text method	Class performance and exams
April	2		The stets of pieces at alpha level	Standard method	Class performance and exams
March	2		Fuzzy symbol	Standard method	Class performance and exams
May 3&4	-------		Final Exams	-----------------	----------------

11. Learning Outcomes

Cognitive objectives of Advanced Listening and speaking subject:

A1-Remembering: At the level of remembering, the student must:

1- The student knowing the fuzzy sets and the difference between them and between the normal stets

2- Recall the ideas used of the fuzzy math

3- He has knowledge of the fuzzy theory

A2-Understanding: The student must

1- Organize ideas within each sets

2- Elicits the uses of the form of fuzzy sets and fuzzy numbers

3- Gives various ideas within the topic of each form

4- Explain the use of the fuzzy rules mentioned within each sets

A3- Application: The student must:

1- Applies the sections, union and the analog differences

2- Produces multiple ideas within each units

3- Prepare various ideas and rules in each unit

A4-Analysis: The student must...

1- Distinguishes the use of the fuzzy math.

2- knowing the types of fuzzy relationships

3- It details the expressions that used in fuzzy math.

4- Recognizes the importance of fuzzy theory in knowing the fuzzy relationships

5- solution of theorems and problems

6- knowing the types of sets and give examples and theorems.

12. 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	
13. Learning and Teaching Sources	
Required textbooks	Yuan, B. " Fuzzy sets and Fuzzy Logic"
Main references (sources)	Materials to be determined by course instructors
Recommended books and references (scientific journal, reports	Encyclopedia of scientific books and journals
Electronic References, Websites	Electronic lectures

Course Description Form

1. Course Name:
Ring Theory

2. Course Code:
Math.303

3. Semester / Year:
Year 2024-2025

4. Description Preparation Date:
18/9/2024

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**   ....

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	Unit or subject name	Learning method	Evaluation	
		Outcomes			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 exa	
2.	4	=	Divisors of zero,Integraldomain		Discussion, exercises and exa	
3.	4	=	Subring,Field,Field of divisors		Discussion, exercises and exa	
4.	4	=	Ideals,Trivial and proper,Intersection		Discussion, exercises and exa	
5.	4	=	The center and characteristic of ring		Discussion, exercises and exa	
6.	4	=	The principal ideal		Discussion, exercises and exa	
7.	4	=	The smallest ideal, The principal ideal ring		Discussion, exercises and exa	
8.	4	=	The maximal ideal - Zorn's lemma		Discussion, exercises and exa	
9.	4	=	Cosets, Quotient ring		Discussion, exercises and exa	
10.	4	=	The prime ideal and example		Discussion, exercises and exa	
11.	4	=	The principal ideal domain		Discussion, exercises and exa	
12.	4	=	The idempotent element, Boolean ring		Discussion, exercises and exa	
13.	4	=	Nilpotent element, Primary ideal		Discussion, exercises and exa	
14.	4	=	Ring homomorphism		Discussion, exercises and exa	
15.	4	=	Theorems of the ring		Discussion, exercises and exa	

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			homomorphism, Kernel of homomorphism		
16.	4	=	Theorems of kernel of homomorphism, Image and types of homomorphism		Discussion, exercises and exa
17.	4	=	The Natural mapping, Isomorphism and the 1st fundamental theorem		Discussion, exercises and exa
18.	4	=	The 2nd and 3rd fundamental theorem of Isomorphism		Discussion, exercises and exa
19.	4	=	The division ring (Skew field)		Discussion, exercises and exa
20.	4	=	Radical ideal		Discussion, exercises and exa
21.	4	=	Nil -radical ring		Discussion, exercises and exa
22.	4	=	Polynomials, Sum, Product, types of Polynomials		Discussion, exercises and exa
23.	4	=	Polynomials ring		Discussion, exercises and exa
24.	4	=	Polynomials field, Division algorithm		Discussion, exercises and exa
25.	4	=	Remainder and Factorization theorems, roots of polynomails		Discussion, exercises and exa
26.	4	=	Reducible& irreducible Polynomials		Discussion, exercises and exa
27.	4	=	Modules and submodules		Discussion, exercises and exa
28.	4	=	Modules homomorphism		Discussion, exercises and exa
29.	4	=	Representation, some types		Discussion, exercises and exa
30.	4	=	Examples		Discussion, exercises and exa

			15		

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:
Mathematical Analysis

2. Course Code:
Year 2025−2024

3. Semester / Year:
Physical attendance in the classroom/distance learning

4. Description Preparation Date:
2024-9-18

5. Available Attendance Forms:
2024-9-18

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: Asst. prof. Zinah taha abdulqader   **Email: ztaha@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

9. Teaching and Learning Strategies

Strategy						
	We use examples and explain writing on board and so use discuses for understand. So we give homeworks and discuses it.					

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
31.	4		Ordered Sets		Discussion, exercises and exam	
32.	4		Dense of Rational numbers		Discussion, exercises and exam	
33.	4		Sequences of real numbers		Discussion, exercises and exam	
34.	4		Sequences of cauchy		Discussion, exercises and exam	
35.	4		Convergent sequences		Discussion, exercises and exam	
36.	4		Test of convergence		Discussion, exercises and exam	
37.	4		Metric Spaces		Discussion, exercises and exam	
38.	4		Example for Metric spaces		Discussion, exercises and exam	
39.	4		Accumulation Points		Discussion, exercises and exam	
40.	4		Open and Closed Sets		Discussion, exercises and exam	
41.	4		Compact Sets		Discussion, exercises and exam	
42.	4		Compact Sets		Discussion, exercises and exam	
43.	4		Tests		Discussion, exercises and exam	
44.	4		Continuity		Discussion, exercises and exam	
45.	4		Continuity		Discussion, exercises and exam	
46.	4		Compact and Continuity		Discussion, exercises and exam	
47.	4		Convergence and Continuity		Discussion, exercises and exam	
48.	4		Uniform continuous		Discussion, exercises and exam	
49.	4		Partition		Discussion, exercises and exam	
50.	4		Riemman Integral		Discussion, exercises and exam	
51.	4		Properties of Rimman Integral		Discussion, exercises and exam	
52.	4		Rimman Stlijest		Discussion, exercises and exam	

53.	4		Measure of Bouneded Sets		Discussion, exercises and exam
54.	4		Measure of unbounded Sets		Discussion, exercises and exam
55.	4		Measureable function		Discussion, exercises and exam
56.	4		UnMeasurable		Discussion, exercises and exam
57.	4		Theorems and Examples		Discussion, exercises and exam
58.	4		Theorems		Discussion, exercises and exam
59.	4		Theorems and Examples		Discussion, exercises and exam
60.	4		Examples		Discussion, exercises and exam

11. Course Evaluation

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: fuzzy mathematics / fourth year
2. Course Code: -----------
3. Semester / Year: 2025-2024
4. Description Preparation Date: 18/9/2024
5. Available Attendance Forms: Class lectures
6. Number of Credit Hours (Total) / Number of Units (Total): 90 hours / 12 Units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Hiba Omar Mousa hiba_34@tu.edu.iq
8. Course Objectives

Course Objectives	The course develops and refines students' information about the meaning of fuzzy mathematics and fuzzy theory ····· ·····

	• 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
October	2		Identify the main idea of a specific information about the fuzzy mathematics	Standard method	Class performance and exams

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November	2		The difference between the fuzzy mathematics and the normal math.	Standard method & Brainstorming method	Class performance and exams
December	2		Definitions of the fuzzy sets and the fuzzy numbers	Standard method & text method	Class performance and exams
January	2		The Algebra of fuzzy sets	Standard method & text method	Class performance and exams
February	2		Fuzzy relations	Standard method & text method	Class performance and exams
April	2		The stets of pieces at alpha level	Standard method	Class performance and exams
March	2		Fuzzy symbol	Standard method	Class performance and exams
May 3&4	-------		Final Exams	-----------------	----------------

11. Learning Outcomes

Cognitive objectives of Advanced Listening and speaking subject:

A1-Remembering: At the level of remembering, the student must:

1- The student knowing the fuzzy sets and the difference between them and between the normal stets

2- Recall the ideas used of the fuzzy math

3- He has knowledge of the fuzzy theory

A2-Understanding: The student must

1- Organize ideas within each sets

2- Elicits the uses of the form of fuzzy sets and fuzzy numbers

3- Gives various ideas within the topic of each form

4- Explain the use of the fuzzy rules mentioned within each sets

A3- Application: The student must:

1- Applies the sections, union and the analog differences

2- Produces multiple ideas within each units

3- Prepare various ideas and rules in each unit

A4-Analysis: The student must...

1- Distinguishes the use of the fuzzy math.

2- knowing the types of fuzzy relationships

3- It details the expressions that used in fuzzy math.

4- Recognizes the importance of fuzzy theory in knowing the fuzzy relationships

5- solution of theorems and problems

6- knowing the types of sets and give examples and theorems.

12. 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	
13. Learning and Teaching Sources	
Required textbooks	Yuan, B. " Fuzzy sets and Fuzzy Logic"
Main references (sources)	Materials to be determined by course instructors
Recommended books and references (scientific journal, reports	Encyclopedia of scientific books and journals
Electronic References, Websites	Electronic lectures

1. Course Name:	
Partial Differential Equation	

2. Course Code:	
Math.406	

3. Semester / Year:	
Year 2024−2025	

4. Description Preparation Date:	
18/9/2024	

5. Available Attendance Forms:	
Classroom and Google classroom	

6. Number of Credit Hours (Total) / Number of Units (Total)	
90 / 4 units	

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

Name: **Amer Fadhel Nassar**

Email: amer6767@tu.edu.iq

8. Course Objectives

Course Objectives	• To learn about integration methods. • To understand the reality of the derivative and the reality of integration • To learn the connection between them • To learn about ordinary differential equations • To learn about partial differential equations • To learn about types of partial differential equations • To understand the classification of partial differential equations • To understand some applications of partial differential equations • To understand derivation and integration and their relationship to partial differential equations • To know the relationship between ordinary differential equations and partial differential equations

9. Teaching and Learning Strategies

Strategy	-We use examples and explain writing on board and so use discuses f 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
-2-1 3	9	Second order partial differential equations	Classification of equations: second order partial differential equations, nth order partial differential equations, Fourier series	E-lectures, smart board and pen	Exam, Reports
-5-4 6	9	Types of second order partial differential equations with variable coefficients and methods of solving them	Study of different types of equations with variable coefficients and methods of solving them, Laplace transform to solve this type of partial equations	E-lectures, smart board and pen	Exam, Reports
-8-7 9	9	Heat diffusion equation	Heat diffusion equation in an isolated metal arm and homogeneous boundary conditions, Heat diffusion equation in an isolated metal arm and heterogeneous boundary conditions, Heat diffusion equation in an isolated metal arm limits	E-lectures, smart board and pen	Exam, Reports
-10 -11 12	9	Wave equation in one dimension and in two dimensions	Forming the wave equation and methods of solving it in one or two dimensions, applied problems on the wave equation	E-lectures, smart board and pen	Exam, Reports
-13 -14 15	9	Laplace-Poisson equation	Solving Laplace's equation in two dimensions using the method of separation of	E-lectures, smart board	Exam, Reports

			variables, Laplace's equation in polar coordinates and its solution	and pen	

12. Learning and teaching resources	
1- Partial Differential Equations for Scientific and Engineering Colleges / Translated by Dr. Atta Allah Thamer Al-Ani 1989 2- Partial Differential Equations / Dr. Atta Allah Thamer Al-Ani 3- Introduction to Partial Differential Equations / Dr. Atta Allah Thamer Al-Ani 4- Khaled Ahmed Al-Samarrai, Yahya Abdul Saeed: Methods of Solving Differential Equations. 5- Salim Ismail Al-Gharabi, Sabah Hadi Al-Jassim: Differential Equations.	Required textbooks -1
- S. K. Kate: **Engineering Mathematics – II** - **Partial differential Equations Jhon. F.**	Main references -2 ((sources
Thomas calculus 12th edition	A- Recommended books and references (scientific journals, reports, etc.)

Course Description Form

1. Course Name:	
Statistics and Probability	
2. Course Code:	
Math .	
3. Semester / Year:	
2024- 2025	
4. Description Preparation Date:	
18- 9- 2024	
5. Available Attendance Forms:	
Classroom and Google classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(120 hour per year) / Number of Units (6 units)	

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

Name: LEC .Asmaa Salih Qaddoori
Email: asmaa. salih@tu.edu.iq

8. Course Objectives

| Course Objectives • Learn about the concept of statistics and the most important statistical measures
• Study random variables and learn about their types and probability functions.
• Learn about the first principles of probability and random experimentation.
• Identify the functions that generate moments.
• Be careful to introduce the most important statistical distributions and know the properties of each distribution. | • .....
• .....
• .....
• |

9. Teaching and Learning Strategies

Strategy	• Use explanation and clarification to present concepts. • Interact with students through discussions and practical exercises. • Use real-life examples and applications to illustrate mathematical ideas.

10. Course Structure

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

1	4	Definition of the principles of statistics	The concept of descriptive statistics, statistical population, the concept of sample and its types	Dying and discussion	Daily and monthly testing and homework
2	4	Define measures of central tendency	Definition of the arithmetic mean, median, and mode for classified and non-classified data	=	=
3	4	Measures of dispersion	Variance, standard deviation, range measures, and coefficient of variation	=	=
4	4	Definition of correlation and linear regression	Correlation coefficient and simple linear regression equation	=	=
5	4	Exercises and discussion	Solve some different exercises	=	=
6	4	Definition of probability and random experiment	The most important laws of probability, the axioms of probability, and the most important theorems of probability	=	=
7	4	Learn about the most important counting methods	The concept of combinations and permutations	=	=
8	4	Solve some different exercises	General questions and group assignments	=	=
9	4	The concept of random sampling	Discussion, monthly exam	=	=
10	4	Introducing the student to the concept of field and probability space	Identify independent, dependent, and mutually exclusive incidents	=	=
11	4	To understand the concept of conditional probability	Conditional probability and some of its theorems	=	=

12	4	Learn about Bayes' theorem	Bayes' theorem and its most important probabilistic applications	=	=
13	4	Solve some different exercises	Exercises and discussion	=	=
14	4	The concept of random variable and its types	The student knows the concept of discrete random variables and continuous random variables and their respective probability functions	=	=
15	4	Introduce the student to the concept of the distributive function.	The distribution function in the case of a discrete random variable and in the case of a continuous random variable	=	=
16	4	The concept of mathematical expectation and variance	Discussion and monthly exam	=	=
17	4	For the student to become familiar with the concept of the function generating moments	Derivation of the moment generating function for the discrete random variable and the continuous random variable	=	=
18	4	Solve some different exercises	General questions and group assignments	=	=
19	4	Identify the probability distribution of two random variables.	The joint probability function for discrete random variables and continuous random variables	=	=
20	4	Conditional function and conditional probability	The conditional probability of two random variables	=	=
21	4	The concept of expectation for two random variables.	The mathematical expectation of two random variables if the variables are discrete and if the variables are continuous	=	=
22	4	Solve some different exercises.	General questions and group assignments	=	=
23	4	Introducing the student to the function that generates the moments of two random variables.	The function generating the moments of two random variables, whether the variables are discrete or continuous	=	=

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24	4	Solve some different exercises.	Discussion and monthly exam	=	=
25	4	Introducing the student to some statistical distributions.	Uniform distribution of discrete and continuous random variables	=	=
26	4	Solve some different exercises.	Exercises and discussion	=	=
27	4	Familiarize the student with the binomial distribution function.	The probability function of the binomial distribution and its probability properties	=	=
28	4	Introducing the student to the gamma	distribution. Probability function of gamma distribution and chi-square distribution	=	=
29	4	Familiarize the student with the normal distribution.	The probability function of the normal distribution, the exponential distribution, and the Poisson distribution	=	=
30	4	Solve some different exercises.	General questions, group assignments, and a monthly exam	=	=

11 . Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.:
• Daily preparation.
• Daily exams.
• Oral and monthly tests.
• Written tests.
• Preparing reports and research projects.
• Quarterly activities and participation in discussions.
• Student performance in class and interaction with study materials

12 . Learning and teaching resources

Required textbooks (methodology, if any)	• Mathematical statistics, Amir Hanna Hormuz, 1990
Main references (sources)	• Introduction mathematical statistics 1980 G.P. Beaumont • . Mathematical Statistics Amir Hanna Hormuz 1990
Recommended supporting books and references (scientific journals, reports...)	Introduction mathematical statistics G.P. Beaumont 1980
Electronic references, Internet sites	University websites that provide educational materials in statistics and probability • Scientific articles and research available online in the field of statistics and probability.

11. Course Evaluation

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:	
Partial Differential Equation	
2. Course Code:	
Math.406	
3. Semester / Year:	
Year 2024−2025	
4. Description Preparation Date:	
18/9/2024	
5. Available Attendance Forms:	
Classroom and Google classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 / 4 units	

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

Name: **Amer Fadhel Nassar**

Email: **amer6767@tu.edu.iq**

.....

8. Course Objectives

Course Objectives	• To learn about integration methods. ..... • To understand the reality of the derivative and the reality of integration • To learn the connection between them • To learn about ordinary differential equations • To learn about partial differential equations • To learn about types of partial differential equations • To understand the classification of partial differential equations • To understand some applications of partial differential equations • To understand derivation and integration and their relationship to partial differential equations • To know the relationship between ordinary differential equations and partial different equations

9. Teaching and Learning Strategies

Strategy	-We use examples and explain writing on board and so use discuses f 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	
-2-1 3	9	Second order partial differential equations	Classification of equations: second order partial differential equations, nth order partial differential equations, Fourier series	E-lectures, smart board and pen	Exam, Reports	
-5-4 6	9	Types of second order partial differential equations with variable coefficients and methods of solving them	Study of different types of equations with variable coefficients and methods of solving them, Laplace transform to solve this type of partial equations	E-lectures, smart board and pen	Exam, Reports	
-8-7 9	9	Heat diffusion equation	Heat diffusion equation in an isolated metal arm and homogeneous boundary conditions, Heat diffusion equation in an isolated metal arm and heterogeneous boundary conditions, Heat diffusion equation in an isolated metal arm limits	E-lectures, smart board and pen	Exam, Reports	
-10 -11 12	9	Wave equation in one dimension and in two dimensions	Forming the wave equation and methods of solving it in one or two	E-lectures, smart	Exam, Reports	

			dimensions, applied problems on the wave equation	board and pen	
-13 -14 15	9	Laplace-Poisson equation	Solving Laplace's equation in two dimensions using the method of separation of variables, Laplace's equation in polar coordinates and its solution	E-lectures, smart board and pen	Exam, Reports

12. Learning and teaching resources	
1- Partial Differential Equations for Scientific and Engineering Colleges / Translated by Dr. Atta Allah Thamer Al-Ani 1989 2- Partial Differential Equations / Dr. Atta Allah Thamer Al-Ani 3- Introduction to Partial Differential Equations / Dr. Atta Allah Thamer Al-Ani 4- Khaled Ahmed Al-Samarrai, Yahya Abdul Saeed: Methods of Solving Differential Equations. 5- Salim Ismail Al-Gharabi, Sabah Hadi Al-Jassim: Differential Equations.	Required textbooks -1
• S. K. Kate: **Engineering Mathematics – II** • **Partial differential Equations Jhon. F.**	Main references -2 ((sources
Thomas calculus 12th edition	A- Recommended books and references (scientific journals, reports, etc.)

Course Description Form

1. Course Title : Numerical Analysis
2. Course Code
3. Semester/Year: 2024-2025
4. Date of preparation of this description: 18/9/2024
5. Available forms of attendance: physical or electronic
6. Number of credit hours (total) / number of units (total): 6
7. Course administrator's name (if more than one name is mentioned)
Name: Assoc. Prof. Mohamed Abdel Mohaimeed Email: mohammad.sabawi@tu.edu.iq
8. Course Objectives

	Course Objectives
- Definition of numerical analysis and its most important applications. - Understand numerical methods and how to use them. - Understand numerical error and the concept of relative error. - Identify numerical methods Numerical algorithms. - Study of convergence and its concepts - Understanding stability and its applications in real life	

9. Teaching and learning strategies	
	Strategy

- The use of explanation and clarification in presenting concepts.
- Interact with students through practical discussions and exercises.

Use real-life examples and applications to

illustrate mathematical ideas.

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	The week
Daily and monthly test Homework	Lecture and discussion	Theoretical: Analysis of errors / sources of errors / errors in calculations. Practical: Relative error and absolute error software.	Chapter One	4	1
=	=	Theoretical: Nonlinear Equations / Determination of Roots Locations / Interval Half-Period Method / Secant Method / Solid Point Iterative Method / Convergence of Iterative Methods / Newton-Raphson Method / Finding Roots for Polynomials / Methods of Solving a System of Nonlinear Equations / Peersto Method. Practical: Interval halving method program, secant method program, Newton-Raphson method program, iterative point method program, nonlinear equation solution program.	Chapter Two	16	4
		Theoretical: Linear Systems Solutions / Kaos Method of Deletion / Kaus-Gordon Method / Partial Pivot / Cramer Method / Trigonometric Analysis Method.	Chapter Three	16	4

		Practical: Cramer method software to solve a system of linear equations, using a function in the MATLAB to calculate better coefficients of multiple data compatibility limits.			
=	=	Theoretical: Insertion and Interpolation / Finite Differences / Newton's Progressive and Regressive Method / Bessel Formula and Sterlink's Formula for Insertion / Relative Differences Method / Lakrang's Formula / Horizontal Curves. Practical: Newton's progressive method program, Newton's regressive method program, Sterlink formula program for insertion, Lakrang method program (first idea), Lakrang method program (second idea).	Chapter Four	16	4
		Theoretical: Integral and Numerical Virtue / Newton's Formulas for Numerical Differentiation / Trapezoidal Rule for Numerical Integral / Simpson Rule / Three Eighths Rule / Paul's Rule / Weddell's Rule / Romberg's Method for Improving Results / Kaos Quadratic Numerical Integration Methods / Kauss Gender Method. Practical: Trapezoidal rule program for numerical integration, Simpson rule program, three-eighths rule program.	Chapter Five	16	4
=	=	Theoretical: Solutions of		16	4

		the differential equation / Tyler series method / Euler's explicit method / Euler's developed method / Runge-Kuta method / Solving a system of differential equations. Practical: Runge-Kuta method program.	Chapter VI		
=	=	Theoretical: The concept of convergence and the concept of stability / the concept of absolute continuity.	Chapter VII	8	2

11. Course Evaluation

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

- Daily preparation.
- Daily exams.
- Oral and monthly tests.
- Written tests.
- Preparing reports and research projects.
- Quarterly activities and participation in discussions.
- Student performance in class and interaction with study materials

12. Learning and Teaching Resources

Principles of Numerical Analysis - Written by: Dr. Ali Muhammad Sadiq Saifi - Dr. Ebtisam Kamal Al-Din	Required textbooks (methodology, if any)
Numerical Analysis" 9th Edition ; Richard L. Burden & J. Douglas Faires, 2011.	Key references (sources)
Instructor's Manual for Numerical	Recommended books and references

Analysis" ; Richard L. Burden & J. Douglas Faires, 2005.	(scientific journals, reports...)
• University websites that offer teaching materials in numerical analysis. • Online scientific articles and research in the field of numerical analysis.	Electronic References, Websites

Course Description Form

1. Course Name:
Group Theory

2. Course Code:
Math.201

3. Semester / Year:
2024-2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:
Classroom and Google Classroom

6. Number of Credit Hours (Total) / Number of Units (Total)
90 hour / 5 unite

7. Course administrator's name (mention all, if more than one name)
Name: **Nada Jasim Mohammed** Email: naya11415@tu.edu.iq

8. Course Objectives

Course Objectives	• Identify the concept of group, its types an Applications

9. Teaching and Learning Strategies

Strategy	-Brainstorming -Feedback at lecture time -Collaboration and feedback series

10. Course Structure

	Hours	Required Learning			Evaluation	

Week		Outcomes	Unit or subject name	Learning method	method
1-4	12	Student's ability to - principles. theories and diagnose special cognitively to understand distinguish and Practice different - proofs. styles of mathematics Prossessing thinking skills.	system, Mathematics Definitions of binary operation, Group and semi group.	Deductive - Induction - Discussion - Using Data Show and white board .	Oral discussion -Daily exams Monthly exams Homework - assignments –
5-8	12	=	Define agroup , Basic theorems of group ,Symmetric group , Group of modulo n .	=	=
9-12	12	=	Theorems of group of modulo n ,Cyclic group , Subgroups	=	=
13-16	12	=	Lagrange theorem, Normal groups , The normal elements and subgroups,Simple groups, Quotient group.	=	=
17-20	12	=	Internal and External direct product , Homomorphism, Isomorphism.	=	=
21-25	15	=	The 1st fundamental theorem of Isomorphism, The 2nd and 3rd fundamental theorem of Isomorphism.	= =	= =
26-30	15	=	Chain, Jorden-Holder theorem , Cayley's theorem , P-group, Sylow theorems	=	=

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Euclidean geometry

2. Course Code:
Math.203

3. Semester / Year:
2024-2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total)
90 hour/ 5 units

7. Course administrator's name (mention all, if more than one name)
Name:Fatin Haitham Mawlood Email: Fatin.Haitham@tu.edu.iq

8. Course Objectives

Course Objectives	• Good, correct, and integrated knowledge and understanding of engineering. • Identify the concept of the intuitive system • Learn about the concept of the intuitive system.

9. Teaching and Learning Strategies

Strategy	• Using explanation and clarification to present concepts through discussion, analysis and scientific thinking • Using different proof methods to prove the basic theorems of geometry

10. Course Structure

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

1-4	12	Knowledge of the origins and development of the intuitive system	The Yonck/Fano axiomatic system	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
5-8	12	Properties of the axiomatic system: consistency/independence	Properties of the axiomatic system	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
9-12	12	The Hilbertian system definition/cuts and convex sets	Evaluation of Euclid's geometry (foundations of geometry)	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
13-16	12	Re-proof of some of Euclid's theorems	Elementary engineering	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports

17-20	12	Elliptical definitions and theorems	Euclidean geometry	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
21-25	15	Study of structural projective geometry	Synthetic projective plane	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
26-40	15	Study of the analytical damage level	The analytical projective level	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• Basic concepts in engineering (Amal Shehab Al-Mukhtar).
Main references (sources)	• Axiom, geometry, and non-Euclidean systems (Nouri Farhan Al-Mayahi) • Axiom and geometry systems (Abdul Wahab Ahmed Al-Sarraj)
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Internet sites

Course Description Form

1. **Course Name**:	
Advanced Calculus	
2. **Course Code:**	
Math.101	
3. **Semester / Year:**	
2024-2025	
4. **Description Preparation Date:**	
18-9-2024	
5. **Available Attendance Forms:**	
Weekly	
6. **Number of Credit Hours (Total) / Number of Units (Total)**	
150 hours / 8 unit	
7. **Course administrator's name (mention all, if more than one name)**	
Name: Elaf Sabah Abdulwahid **Email:** elafs.math@tu.edu.iq	
8. Course Objectives	

- **Study and knowledge of sequences and series.**
- **Study and knowledge of some types test of the series.**
- **Study some properties of absolute converge and conditionally converge**.
- **Study and knowledge polar coordinates.**
- **Study draw in a polar coordinates.**
- **Study and knowledge intersection in a polar coordinates**
- **Study and knowledge double integrals and some applications.**
– **Study and knowledge triple integrals.**

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 name	Learning method	Evaluation method
1-2	10	Study of infinite sequences	Infinite sequences	Electronic lectures, smart board ,pens	Written and daily exams with assignments
3-4	10	Study of some type of infinite series with some examples.	Infinite series	Electronic lectures, smart board ,pens	Written and daily exams with assignments
5-8	20	Study of some type test of infinite series with examples	Infinite series	Electronic lectures, smart board ,pens	Written and daily exams with assignments
9-11	15	Study of Absolute converge and conditionally converge	Absolute converge and conditionally converge	Electronic lectures, smart board ,pens	Written and daily exams with assignments
12-15	20	Study of first and second derivatives	Derivatives	Electronic lectures, smart board ,pens	Written and daily exams with assignments
16-18	15	Study of Taylor and Maclorin series.	Taylor and Maclorin series.	Electronic lectures, smart board ,pens	Written and daily exams with assignments
19-21	15	Study of Polar coordinates	Polar coordinates	Electronic lectures, smart board ,pens	Written and daily exams with assignments
22-24	15	Study area and length of a Polar coordinates	Application of Polar coordinates	Electronic lectures, smart board ,pens	Written and daily exams with assignments
25-27	15	Study of Double integrals	Double integrals	Electronic lectures, smart board ,pens	Written and daily exams with assignments
28-30	15	Study of Triple integrals	Triple integrals	Electronic lectures, smart board ,pens	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…

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Advanced calculus , second edition Thomas.
Main references (sources)	التفاضل والتكامل تاليف رمضان محمد جهيميه واحمد عبد العالي
Recommended books and references (scientific journals, reports…)	سلسلة شوم في التفاضل المتقدم
Electronic References, Websites	

Course Description Form

1. Course Name
Computers

2. Course Code

3. Semester/Year
2024-2025

4. Date of Preparation

18/9/2024

5. Available Attendance Forms
Distance Learning / In-person

6. Total Study Hours / Units
60 hours / 3 units

7. Course Coordinator
Name: Mohammed Muayad Sultan
Email: mmsultan@tu.edu.iq

8. Course Objectives
- To teach students how to use computers in ready-made applications like Microsoft Office through interactive learning, dealing with windows, saving programs, and writing notes to ensure the execution of applications and programs.
- To describe ready-made applications and software and acquire computer skills.
- To develop self-improvement skills that enable students to compete with others.
- To meet the needs of the education sector with highly efficient staff.

9. Teaching and Learning Strategies
- Using explanation and clarification to present concepts.
- Interaction with students through discussions and practical exercises.
- Practical application in the laboratory.
- Video lectures.
- Electronic presentations.

10. Course Structure

Week	Hours	Learning Outcomes	Unit or Topic Name	Learning Method
1	4	Introduction to application programs	Word Processor 2010	Lecture and discussion - Lab
2	4	Getting to know the Microsoft Office interface	Word Processor 2010	=
3	4	Working on the Office button and Quick Access Toolbar	Word Processor 2010	=
4	4	Working on the Home tab	Word Processor 2010	=
5	4	Working on the Insert tab - Table	Word Processor 2010	=
6	4	Working on the Insert tab - Table - Design	Word Processor 2010	=
7	4	Working on the Insert tab - Table - Layout	Word Processor 2010	=
8	4	Working on the Insert tab - Picture	Word Processor 2010	=
9	4	Working on the Insert tab - Picture - Format	Word Processor 2010	=
10	4	Working on the Insert tab - Picture - Design	Word Processor 2010	=
11	4	Working on the Insert tab - Shapes - Format	Word Processor 2010	=
12	4	Working on the Page Layout tab	Word Processor 2010	=
13	4	Working on the Page Layout tab	Word Processor 2010	=
14	4	Working on the File tab	Word Processor 2010	=
15	4	Working on the File tab - Save and Retrieve	Word Processor 2010	=
16	4	How to insert tables and pictures and deal with them	Word Processor 2010	=
17	4	Working on the References and Mailings tab	Word Processor 2010	=
18	4	Working on the Review and View tab	Word Processor 2010	=
19	4	Working on the Home tab	PowerPoint 2010	=
20	4	Working on the Home tab	PowerPoint 2010	=
21	4	Working on the Insert tab	PowerPoint 2010	=
22	4	Working on the Transitions tab and related tabs	PowerPoint 2010	=
23	4	Working on the Transitions tab and related tabs	PowerPoint 2010	=
24	4	Working on the Animations tab and related tabs	PowerPoint 2010	=
25	4	Working on the Animations tab and related tabs	PowerPoint 2010	=
26	4	Working on the Design tab	PowerPoint 2010	=
27	4	Working on the Slide Show tab	PowerPoint 2010	=
28	4	Working on the Review tab	PowerPoint 2010	=
29	4	Working on the View tab	PowerPoint 2010	=

| 30 | 4 | Working on the File tab | PowerPoint 2010 | = |

11. Course Evaluation:

- Daily preparation.
- Daily exams.
- Oral and monthly tests.
- Written tests.
- Preparing reports and research projects.
- Classroom activities and participation in discussions.
- Student performance in class and interaction with study materials.

12. Learning and Teaching Resources:

- Required textbooks (if available): Basics of Computers and Office Applications.
- Main references (sources): Recommended books and supporting references (e.g., reports, scientific journals).
- Electronic references, websites: Many educational websites and video clips on YouTube.

Course Description Form

1. Course Name:
Computer

2. Course Code:

3. Semester / Year:
2024/2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:
Classroom and Google classroom

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 : Farah Amer Abd Alziz Emil : farah.amer@tu.edu.iq

8. Course Objectives	
Course Objectives	• The student gets to know the concept of computer science ̈⋯ • The student should be familiar with the personal computer • For the student to recognize the difference and relationship between software and the physical parts inside the computer • For the student to recognize the importance of using a computer • The student gets to know how the internal computer parts work • The student gets to know the concept of information that the computer deals with and its classification • The student will know how information enters and exits to and from the computer • The student gets to know some operating systems • The student gets to know the relationship between operating systems and hardware • That the student be able to maintain some parts of the computer • For the student to learn about the benefits of the computer in his general life

9

| | | • The student will know how used the Microsoft Word
•The student will know how used the Microsoft PowerPoint
•The student will know how used the printer to Print documents
•The student will know how used the Internet, networking, and email creation

• That the student be able to know the internal parts of the computer in a concrete way
• Introducing the student to concepts and strategies for computer operation |

9. Teaching and Learning Strategies

| Strategy | To apply what he has learned for the purpose of solving many issues and problems in the same subject
-Distinguishes how information enters and exits from and to the computer
 -Distinguishes between different types of operating systems.
 -Recognizes the internal parts of the computer in a tangible way |

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4	8 hours	Chapter One(p1)	Computer fundamentals	lectures, Computer, board and pen.	Report, Exams and discussions.
6	12 hours	Chapter two(p1)	Computer's components	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter four(p1)	operating systems	lectures, Computer, board and pen.	Report, Exams and discussions

4	8 hours	Chapter One(p2)	the Microsoft Word	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter three(p2)	the Microsoft PowerPoint	lectures, Computer, board ,computer and pen.	Report, Exams and discussions
4	8 hours		Print documents	lectures, Computer, board ,computer , printer and pen	Report, Exams and discussions
4	8 hours		the Internet, networking, and email creation	lectures, Computer, board ,net and pen.	Report, Exams and discussions

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Computer

2. Course Code:

3. Semester / Year:
2024/2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:
Classroom and Google classroom

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 Kholood Jamal Moulood Emil : kjamal@tu.edu.iq .....

8. Course Objectives	
Course Objectives	• The student gets to know the concept of computer science • The student should be familiar with the personal computer • For the student to recognize the difference and relationship between software and the physical parts inside the computer • For the student to recognize the importance of using a computer • The student gets to know how the internal computer parts work • The student gets to know the concept of information that the computer deals with and its classification • The student will know how information enters and exits to and from the computer • The student gets to know some operating systems • The student gets to know the relationship between operating systems and hardware • That the student be able to maintain some

| | | parts of the computer
• For the student to learn about the benefits of the computer in his general life
• The student will know how used the Microsoft Word
•The student will know how used the Microsoft PowerPoint
•The student will know how used the printer to Print documents
•The student will know how used the Internet, networking, and email creation

• That the student be able to know the internal parts of the computer in a concrete way
• Introducing the student to concepts and strategies for computer operation |

9. Teaching and Learning Strategies

Strategy	To apply what he has learned for the purpose of solving many issues and problems in the same subject -Distinguishes how information enters and exits from and to the computer -Distinguishes between different types of operating systems. -Recognizes the internal parts of the computer in a tangible way

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4	8 hours	Chapter One(p1)	Computer fundamentals	lectures, Computer, board and pen.	Report, Exams and discussions.
6	12 hours	Chapter two(p1)	Computer's components	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter four(p1)	operating systems	lectures, Computer, board and pen.	Report, Exams and discussions

4	8 hours	Chapter One(p2)	the Microsoft Word	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter three(p2)	the Microsoft PowerPoint	lectures, Computer, board ,computer and pen.	Report, Exams and discussions
4	8 hours		Print documents	lectures, Computer, board ,computer , printer and pen	Report, Exams and discussions
4	8 hours		the Internet, networking, and email creation	lectures, Computer, board ,net and pen.	Report, Exams and discussions

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:	
Foundations of mathematics	
2. Course Code:	
3. Semester / Year: 2024-2025	
4. Description Preparation Date:	
18/9/2024	
5. Available Attendance Forms:	
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 : Hiba omar musa

Emil :hom_34@tu.edu.iq

Name: .....
Email:

8. Course Objectives

Course Objectives	.
- Study and know mathematical logic - Relationship concept relationships and application and its types - Study of numbers ,their origins.	. . .

9. Teaching and Learning Strategies

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

10. Course Structure

	Hours	Required Learning			Evaluation

Week		Outcomes	Unit or subject name	Learning method	method
4-1	12	Logic	The concept logic and mathematics proof	Electronic lectures, smart board ,pen	Written and daily exams with assignments
8-5	12	The sets	algebraic operations	Electronic lectures, smart board ,pen	Written and daily exams with assignments
12-9	12	Relations	Types of relations	Electronic lectures, smart board ,pen	Written and daily exams with assignments
16-13	12	Mapping	Types of mapping	Electronic lectures, smart board ,pen	Written and daily exams with assignments
20-17	12	Number capacity	Number capacity	Electronic lectures, smart board ,pen	Written and daily exams with assignments
25-21	15	Natural number , Integers number ,Real number and group	their origins and group	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)	Foundations of mathematics
Main references (sources)	Foundations of mathematics
Recommended books and references (scientific journals, reports…)	References
Electronic References, Websites	Shawm series

Course Description Form

1. Course Name:
Computer

2. Course Code:

3. Semester / Year:
2024/2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:
Classroom and Google classroom

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:fadya abdullfatah habeeb   **Email:fadya.habeeb@tu.edu.iq**   .....

8. Course Objectives

Course Objectives	• The student gets to know the concept of computer science • The student should be familiar with the personal computer • For the student to recognize the difference and relationship between software and the physical parts inside the computer • For the student to recognize the importance of using a computer • The student gets to know how the internal computer parts work • The student gets to know the concept of information that the computer deals with and its classification • The student will know how information enters and exits to and from the computer • The student gets to know some operating systems • The student gets to know the relationship between operating systems and hardware • That the student be able to maintain some parts of the computer

| | | • For the student to learn about the benefits of the computer in his general life
• The student will know how used the Microsoft Word
•The student will know how used the Microsoft PowerPoint
•The student will know how used the printer to Print documents
•The student will know how used the Internet, networking, and email creation

• That the student be able to know the internal parts of the computer in a concrete way
• Introducing the student to concepts and strategies for computer operation |

9. Teaching and Learning Strategies

| Strategy | To apply what he has learned for the purpose of solving many issues and problems in the same subject
-Distinguishes how information enters and exits from and to the computer
-Distinguishes between different types of operating systems.
-Recognizes the internal parts of the computer in a tangible way |

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4	8 hours	Chapter One(p1)	Computer fundamentals	lectures, Computer, board and pen.	Report, Exams and discussions.
6	12 hours	Chapter two(p1)	Computer's components	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter four(p1)	operating systems	lectures, Computer, board and pen.	Report, Exams and discussions

4	8 hours	Chapter One(p2)	the Microsoft Word	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter three(p2)	the Microsoft PowerPoint	lectures, Computer, board ,computer and pen.	Report, Exams and discussions
4	8 hours		Print documents	lectures, Computer, board ,computer , printer and pen	Report, Exams and discussions
4	8 hours		the Internet, networking, and email creation	lectures, Computer, board ,net and pen.	Report, Exams and discussions

11. Course Evaluation

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

12. Learning and Teaching Resources

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

1. Course name
Educational psychology, first stage
2. Course code
3. Semester/year
Year 2024-2025
4. The date this description was prepared
18/9/2024
5. Available forms of attendance
Attend my class + electronic class onGoogle Class Room will be a support class for the attendance class and according to the controls and instructions of the Ministry of Higher Education and Scientific Research.
6. Number of study hours (total) / number of units (total)
2 hours per week = 60 hours / units 2 units
7. Name of the course administrator (if more
Name: **M. M. Saood Rajab Hassan Email saood.r@tu.edu.iq**
From a name mentioned)

8. Course objectives	
The curriculum aims to prepare students to practice the teaching profession by learning about: 1- Learn about educational psychology, style, motivation, and sensory perception. 2- Learn about the types of educational psychology. 3- How to formulate behavioral goals. 4 - Knowledge of educational schools. 5 - The importance of educational applications of learning theories.	Objectives of the study subject

9. Teaching and learning strategies	
The standard method (giving lectures). 1 - Lecture method. 2 - The method of discussion and interrogation. 3 —Brainstorming method.	The strategy

10. Course structure:The study began on 9/17/2023 and ends on 5/19/2024, the start date of final exams.

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Class performance and exams	Lecture method	Definition of educational psychology		2	November 1
Class performance and exams	Discussion and questioning	Educational psychology stage		2	November 2

Class performance and exams	Discussion and questioning	Arab Islamic philosophy		2	November 3
Class performance and exams	Brainstorming	Modern philosophy		2	November 4
Class performance and exams	Discussion and questioning	Definition of psychology, its goals and importance		2	December1
Class performance and exams	Discussion and questioning	Treads of psychology		2	December2
Class performance and exams	Discussion and questioning	Branches of psychology		2	December 3
Class performance and exams	Discussion and questioning	Applied direction		2	December4
Class performance and exams	Discussion and questioning	Behavior and the factors affecting it		2	January1
Class performance and exams	Problem Solving	The effect of genetics on behavior		2	January2
Class performance and exams	Discussion and questioning	Interaction between genetics and environment		2	January3
Class performance and exams	Discussion and questioning	Research methods in educational psychology		2	January4
Class performance and exams	Discussion and questioning	The importance of psychology in the educational process		2	February1
Class performance and exams	Discussion and questioning	Educational goals		2	February2
		Spring break		2	February3
Class performance and exams	Discussion and questioning	Factors affecting the teaching and learning process		2	February4
Class	Discussion and	Attention and sensory		2	March1

performance and exams	questioning	perception			
Class performance and exams	Discussion and questioning	Types of attention and factors affecting it		2	March2
Class performance and exams	Discussion and questioning	Sensory perception		2	March3
Class performance and exams	Discussion and questioning	Factors affecting sensory perception		2	March4
Class performance and exams	Discussion and questioning	Learning theories (conditional learning theory)		2	April1
Class performance and exams	Discussion and questioning	Clairvoyance theory		2	April2
Class performance and exams	Discussion and questioning	Transfer learning effect		2	April3
Class performance and exams	Discussion and questioning	Types of transition		2	April4
Class performance and exams	Discussion and questioning	How to benefit from transfer in the learning process		2	May1
Class performance and exams	Discussion and questioning	Feedback		2	May2
Class performance and exams	Discussion and questioning	Types of feedback		2	May3
		review		2	May4

11. Course evaluation

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

The degree is distributed through several channels:

   1- **Formative (formative) assessment through daily exams, observing and following up on the student's performance in class discussions and homework assignments, and classroom evaluation. Her grade does not exceed 20% of the total.**

2- **Diagnostic evaluation of the semester and final exams to issue judgments of success and failure. This grade is 80% and is divided into (4) exams, each semester with two exams, to extract the annual endeavor before entering the final exams.**	
12. Learning and teaching resources	
Educational Psychology, written by Dr. Raouf Mahmoud Al-Qaisi.	Required textbooks (methodology, if any)
1 - **Educational Psychology Dr. Fouad Abu Hatab**. 2 —**Educational Psychology Dr.**Rashid Marzouq Rashid. 3 -**Educational Psychology Dr. Hanaa Hussein Al-Felfali.**	Main references (sources)
Access to everything that is current and published in peer-reviewed scientific journals	Recommended supporting books and references (scientific journals, reports...)
http://www.alkutubcafe.com/book/83rjar.html	Electronic references, Internet sites

Course Description Form

1. Course Name:
Calculus

2. Course Code:
Math.204

3. Semester / Year:
2024-2025

4. Description Preparation Date:
18/9 /2024

5. Available Attendance Forms:
Actual presence/distance learning/recording video lessons

6. Number of Credit Hours (Total) / Number of Units (Total)
5/140

7. Course administrator's name (mention all, if more than one name)
Name: Hiba Hani Abdullah   Email: hiba.h.a.83@tu.edu.iq

8. Course Objectives	
Course Objectives	• Differentiation and integration are considered one of the main topics in mathematics, and the student usually studies the subject in several areas, including the topic of calculus of differentiation and integration, especially integration methods.
	• Emphasis on studying the differentiation and integration of special functions, including trigonometric, hyperbolic, logarithmic, inverse, etc.
	• . Learn about several concepts in calculus
	• Ensure knowledge of the applications and benefits of derivatives

9. Teaching and Learning Strategies	
Strategy	● Use explanation and clarification to present concepts.
	● Interact with students through discussions and practical exercises.
	● Use real-life examples and applications to illustrate mathematical ideas.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2	10	Chapter one	Real numbers - intervals - inequalities - functions - algebra of functions - finding the domain and range - complex function - drawing functions	Electronic lectures, smart board and pen	Written exam with assignments and reports
2	10	The second and third chapter	Limits and their properties - The method of finding the limit - Theorems about limits - Infinite limits and limits at infinity - Continuity - Theories of continuity	Electronic lectures, smart board and pen	Written exam with assignments and reports
4	20	Chapter four	Derivation - Properties of differentiation - Derivation of the complex function - Chain law - Implicit derivative - Higher order derivatives - Rolle's theorem - Mean value theorem - Increasing and decreasing functions, maximum and minimum limits, points of concavity, convexity, and alignments	Electronic lectures, smart board and pen	Written exam with assignments and reports
3	15	Chapter five	Special functions (trigonometric functions, hyperbolic functions, logarithmic functions, and exponential functions) - drawing special functions - deriving special functions and finding their inverse functions	Electronic lectures, smart board and pen	Written exam with assignments and reports
4	20	Chapter six	Integration - indefinite integration - properties of integration - integration of functions (trigonometric - hyperbolic functions - exponential and logarithmic functions)	Electronic lectures, smart board and pen	Written exam with assignments and reports

8	40	Chapter seven	Integration methods	Electronic lectures, smart board and pen	Written exam with assignments and reports
2	10	Chapter eight	Applications to definite integration	Electronic lectures, smart board and pen	Written exam with assignments and reports
1	5	Chapter ninth	Infinite series - Naylor polynomial - Taylor and Maclaurin series	Electronic lectures, smart board and pen	Written exam with assignments and reports
2	10	Chapter tenth	Differential equations - the order of the equation and the solution of the differential equation - differential equations whose variables separate - the first-order and first-order complete differential equation	Electronic lectures, smart board and pen	Written exam with assignments and reports

11. Course Evaluation
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.:   • Daily preparation.   • Daily exams.   • Oral and monthly tests.   • Written tests.   • Preparing reports and research projects.   • Quarterly activities and participation in discussions.   • Student performance in class and interaction with study materials

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Finney/Thomas calculus

Main references (sources)	Khaled Ahmed Al-Samarrai,, Calculus and Integration
Recommended books and references (scientific journals, reports...)	Thomas calculus 12th edition
Electronic References, Websites	1-Encyclopedia of scientific books and journals, Tikrit University Journal of Pure Sciences and the Shome series 2- Reliable websites. 3- Virtual library. 4- Library locations in some international universities .

1. **Course Name: Human Rights and Democracy - First Stage**

2. **Course Code:**

3. **Semester / Year: 2024 – 2025**

4. **Description Preparation Date:** 18/9/2024

5. **Available Attendance Forms: Classroom Lectures**

6. **Number of Credit Hours (Total) / Number of Units (Total): 28 Hours / 1 Units**

7. **Course administrator's name (mention all, if more than one name)**
Name: Assistant Lecture Elaf Hameed Email: Elaf.mukhif@tu.edu.iq

8. Course Objectives:

1. Introducing the concept of rights and freedoms.
2. Enhancing students' knowledge of rights from historical, legal, and international perspectives.
3. Highlighting the importance of respecting freedoms and their role in societal advancement.

4. Training students to apply rights and democracy concepts in real-life.

9. Teaching & Learning Strategies

Strategy	Method
Theoretical Methods	Lecture Delivery
Text-Based Method	Textual Analysis

10. Course Structure

Week	Hours	Teaching Method	Lesson Title	Teaching Approach	Assessment Method

November Week 2	1		Human Rights (Concept and Development)	Text-based method	Practical Performance and Examinations
November Week 3	1		Human Rights Violations during Wars	Text-based method	Practical Performance and Examinations
November Week 4	1		Human Rights in National and International Laws	Text-based method	Practical Performance and Examinations
December Week 1	1		Universal Declaration of Human Rights	Text-based method	Practical Performance and Examinations
December Week 2	1		Human Rights in the 2005 Iraqi Constitution	Text-based method	Practical Performance and Examinations
December Week 3	1		Political and Economic Freedoms	Text-based method	Practical Performance and Examinations
December Week 4	1		Future of Human Rights	Text-based method	Practical Performance and Examinations
January Week 1	1		Children's Rights in Society	Text-based method	Practical Performance and Examinations
January Week 2	1		Women's Rights in Society	Text-based method	Practical Performance and Examinations

			Types of Human Rights in Society (Part 1)	Text-based method	Practical Performance and Examinations
January Week 3	1				
January Week 4	1		Types of Human Rights in Society (Part 2)	Text-based method	Practical Performance and Examinations
				Method of Instruction	
February / 1	1		The Islamic perspective on human rights	Standard Method / Text Method	Classroom Performance and Examinations
February / 2	1		Freedom: Concept and its pillars	Standard Method / Text Method	Classroom Performance and Examinations
February / 3	1	Official holiday (7/7/2024 21/7/2024)			
February / 4	1		Democracy/ Concept and Historical Roots	Standard Method / Text Method	classroom Performance and Examinations
March / 1	1		The social contract	Standard Method / Text Method	Classroom Performance and Examinations
March / 2	1		Images of democracy	Standard Method / Text Method	Classroom Performance and Examinations
March / 3	1		Electoral College Composition	Electoral system/Voting systems	Electoral System / Formation of the Electorate

			Voting Systems		
March / 4	1		Types of electoral systems	Types of Electoral Systems	Types of Electoral Systems
April / 1	1		Civil society	Civil society	Political Parties
April / 2	1		interest group	interest group	Civil Society
April / 3	1		Types of political regimes	Types of political regimes	Interest Groups
April / 4	1		Evaluation of Democracy / advantages	Evaluation of Democracy / advantages	Types of Political Systems
May / 1	1		Evaluation of Democracy / disadvantages	Evaluation of Democracy / disadvantages	Evaluation of Democracy / Advantages
May / 2	1		Problems of global democracy	Electoral System / Formation of the Electorate	Problems of Democracy
May / 3	1	Final exams			

11.Course Evaluation

The grade distribution is out of 100, covering tasks such as class attendance, oral exams, theoretical, practical exams, and reports. The grades are as follows:
- 20 marks: Class interaction and evaluation during lectures
- 30 marks: Attendance and participation in small group discussions and related activities
- 50 marks: Final theoretical written exam
- 1 mark: Final course report (if applicable)

2. References and Recommended Reading

Category	Details
Printed Books and Sources	- Dr. Mohammed Mahmoud, 'Islamic Perspective on Human Rights' - General Concept of Human Rights - Historical Development of Human Rights - Political Rights and Civil Rights - International Treaties Related to Human Rights - United Nations Charters
Reports and Official Documents	- 'UN Declaration of Human Rights' - Reports from International and Regional Conferences - Specific Legal Texts and Scientific Research
Internet Resources	Online academic platforms like Google Scholar, Academia.edu, and ResearchGate to search for credible academic papers and references.

Course Description Form

1. Course Name: Headway for all Stages
2. Course Code: -----------
3. Semester / Year: 2024-2025
4. Description Preparation Date: 18/9/2024
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. Basma Faisal Ali Email: basma.faisal@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
October 1 Unit One & Two	1		1st Stage: Introduction use auxiliary /am/is/are In speaking and reading. Unit two: use the subjects /he/she/they/we/I/you In practice grammar. 2nd Stage: Teaching tenses of English language 3rd Stage: Introduction to auxiliary verbs 4th Stage: Teaching zero condition	Lecture	Discussion and exam
October 2 Unit Three	1		1st Stage: using negative and positive on short answers and	Lecture	Discussion and

			2nd Stage: Teaching how to ask questions		exam
			3rd Stage: Introduction to tenses and auxiliary verbs		
			4th Stage: Teaching first and second condition of IF		
October 3 Unit Four	1		1st Stage: Using possessives in adj. and plural nouns	Lecture	Discussion and exam
			2nd Stage: Teaching got /have got in every day conversation .		
			3rd Stage: Teaching present simple		
			4th Stage: Teaching tenses informal English spoken		
October 4 Unit Five	1		1st Stage: Teaching present simple	Lecture	Discussion and exam
			2nd Stage: Teaching how can identify sentences in present or past		
			3rd Stage: Teaching short answers and auxiliary verbs		
			4th Stage: Introduction to auxiliary verbs: be/do/have		
November 1 Unit Six	1		1st Stage: Teaching past simple		
			2nd Stage: Using much/many		
			3rd Stage:		

			Teaching questions and auxiliary verbs	Lecture	Discussion and exam
			4th Stage: Introduction to full verbs		
November 2 Unit Seven	1		1st Stage: Teaching present continuous	Lecture	Discussion and exam
			2nd Stage: Using countable a few/a little of one syllable		
			3rd Stage: Teaching the adverbs of present simple		
			4th Stage: Teaching verbs of mind		
November 3 Unit Eight	1		1st Stage: Teaching past continuous	Lecture	Discussion and exam
			2nd Stage: The use of comparative and superlative		
			3rd Stage: Teaching the adverbs of past simple		
			4th Stage: Teaching verbs of mind		
November 4 Unit Nine	1		1st Stage: Teaching past simple – irregular verbs	Lecture	Discussion and exam
			2nd Stage: Adding er to adjectives		
			3rd Stage: Teaching the state verb of present continuous		

			4th Stage: Teaching verbs possession		
December 1 Unit Ten	1		1st Stage: teach past simple in using questions and negatives	Lecture	Discussion and exam
			2nd Stage: Practicing of present perfect		
			3rd Stage: Introduction to passive		
			4th Stage: Teaching verbs certain other verbs		
December 2 Unit Eleven	1		1st Stage: Using can in positive and negatives	Lecture	Discussion and exam
			2nd Stage: Teaching adverbs		
			3rd Stage: Present simple and present continuous passives		
			4th Stage: Teaching active and passive		
December 3 Unit Twelve	1		1st Stage: Teaching model verbs	Lecture	Discussion and exam
			2nd Stage: Using word pairs		
			3rd Stage: Teaching past perfect		
			4th Stage: Teaching question forms		
December 4 Unit Thirteen	1		1st Stage: Teaching adverbs	Lecture	Discussion and exam
			2nd Stage: Using short answers		
			3rd Stage: Teaching past perfect in positives and negatives		
			4th Stage: Asking for directions		

January 1 Unit Fourteen	1		1st Stage: using would like in questions	Lecture	Discussion and exam
			2nd Stage: making plural with regular and irregular		
			3rd Stage: Introduction to modal verbs		
			4th Stage: Asking for descriptions		
January 2	1		1st Stage: Teaching some/any and the differences	Lecture	Discussion and exam
			2nd Stage: How can use determiners in formulating questions and answers		
			3rd Stage: The form of modal verbs		
			4th Stage: Teaching direct questions		
January 3	1		1st Stage: Teaching like and would like	Lecture	Discussion and exam
			2nd Stage: Formulating positive and negative		
			3rd Stage: Modal verbs in obligation and positive		
			4th Stage: Using indirect questions		
January 4	1		1st Stage: Teaching like and would like	Lecture	Discussion and exam
			2nd Stage: Practicing two forms of present and past		
			3rd Stage: modal verbs in affirmatives and negatives		

			4th Stage: Practicing possessives in different forms		
February 1	1		1st Stage: Teaching present simple and present continuous	Lecture	Discussion and exam
			2nd Stage: Practicing question words		
			3rd Stage: Using should/ought to/must		
			4th Stage: Forming negative questions		
February 2	1		1st Stage: Teaching Yes/No questions	Lecture	Discussion and exam
			2nd Stage: Practicing can/can't		
			3rd Stage: Modal verbs making request: can/could/will/would		
			4th Stage: Using will for prediction		
March 1	1		1st Stage: Teaching future plans	Lecture	Oral Test
			2nd Stage: Practicing was/were		
			3rd Stage: Modal verbs making offers: will/shall/should		
			4th Stage: Using going to make prediction		
March 2	1		1st Stage: Teaching countable and uncountable	Lecture	Oral Test
			2nd Stage: Practicing /s'/ plural		
			3rd Stage: Introduction to future forms		
			4th Stage: Using will/going to for make decisions and		

			intentions		
March 3	1		1st Stage: Teaching the determiner the	Lecture	Discussion and exam
			2nd Stage: How to indicate time		
			3rd Stage: Introduction to present continuous in using will/going to		
			4th Stage: using will and shall		
March 4	1		1st Stage: Teach the determiners a/an	Lecture	Discussion and exam
			2nd Stage: Negative short answers		
			3rd Stage: Using will/going to		
			4th Stage: Introduction to express quantities		
April 1	1		1st Stage: Teaching prepositions	Lecture	Discussion and exam
			2nd Stage: Using some/any, each /every, more/most		
			3rd Stage: Introduction to like		
			4th Stage: Introduction to modal verbs		
April 2	1		1st Stage: Teaching numbers	Lecture	Discussion and exam
			2nd Stage: How to indicate place		
			3rd Stage: The use of relative clauses		
			4th Stage: Other uses to model verbs and related verbs		
April 3	1		1st Stage: Teaching collars	Lecture	Discussion and
			2nd Stage: Teach jobs		
			3rd Stage:		

			The use of time clauses		exam
			4th Stage: Introduction relative clauses		
April 4	1		1st Stage: Teaching question words		
			2nd Stage: Teach plural pronouns	Lecture	Discussion and exam
			3rd Stage: The use of If conditions		
			4th Stage: Expressing habits		
May 1	1		Revision for all the Stages	Lecture	Discussion and exam
May 2	1		Revision for all the Stages	Lecture	Discussion and exam
May 3&4	-------		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. https://elt.oup.com/student/headway/preint4/?cc=global&selLanguage=en. https://elt.oup.com/student/headway/int/?cc=global&selLanguage=en. https://sc.nahrainuniv.edu.iq/lectures/7092_new-

	headway-upper-intermediate-students-book.pdf.

1. Course Name:
Linear algebra

2. Course Code:

3. Semester / Year:
Academic Year (2024-2025)

4. Description Preparation Date:
18-9-2024

5. Available Attendance Forms:
Weekly

6. Number of Credit Hours (Total) / Number of Units (Total)
120 hours / 6 unit

7. Course administrator's name (mention all, if more than one name)
Name: Assist . Lec . raghad wamedh faris Email: rwamedh@tu.edu.iq

8. Course Objectives
- Introducing the basic characteristics of the nature of scientific material - Understanding the mathematical system and matrices and learning the types of ----- -matrices, operations on them, and their properties - Differential equations and methods for solving them - Study vector space and operations on vectors Find the kernel and the image of the linear application How to calculate distinct values, eigenvectors and polynomials

9. Teaching and Learning Strategies	
Strategy	- Use explanation and clarification to present concepts - Interact with students through discussions and practical exercises - Use real-life examples and applications to illustrate mathematical ideas .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4	16	System of linear equation ,matrices and operation on them	System of linear equation ,matrices and operation on them	Electronic lectures, smart board ,pens	Written and daily exams with assignments
4	16	Finding determinants and methods for solving linear equations	Finding determinants and methods for solving linear equations	Electronic lectures, smart board ,pens	Written and daily exams with assignments
4	16	Vectors in 2-spaces and 3-spaces	Vectors in 2-spaces and 3-spaces	Electronic lectures, smart board ,pens	Written and daily exams with assignments
3	12	Vector spaces and subspaces	Vector spaces and subspaces	Electronic lectures, smart board ,pens	Written and daily exams with assignments
2	8	Internal product spaces	Internal product spaces	Electronic lectures, smart board ,pens	Written and daily exams with assignments
3	`2	Liner transformation	Liner transformation	Electronic lectures, smart board ,pens	Written and daily exams with assignments
4	16	Eigenvalue and Eigenvector	Eigenvalue and Eigenvector	Electronic lectures, smart board ,pens	Written and daily exams with assignments
4	16	Complex vector spaces	Complex vector spaces	Electronic lectures, smart board ,pens	Written and daily exams with assignments
3	12	Application	Application	Electronic lectures, smart board ,pens	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…

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Daige, L. S Wift, J and Slobko, T; Elements of Linear Algebra, XEROX. • 1974
Main references (sources)	S rang. G; Linear Algebra and its Applications, A cademic Press, 1976\
Recommended books and references (scientific journals, reports…)	• Lang S; Linear Algebra, Addison Wesley Publishing Co., 1973.
Electronic References, Websites	

Course Description Form

1. Course Name:
physics

2. Course Code:

3. Semester / Year:
2024-2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:

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

7. Course administrator's name (mention all, if more than one name)
Name : SarwaA.Mohammed Emil : srwa.muhammed@tu.edu.iq

8. Course Objectives

Course Objectives	• -Learn about the basics of general physics -The student acquires information about natural phenomena. .....

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 name	Learning method	Evaluation method
1-4	12	Physical quantities and motion	Scalar, vector, and motion quantities	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports

5-8	8	Knowledge of the laws of motion and its types	Circular motion and rotational motion	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
9-12	8	Discovering the relationship between work, energy, capacity and the importance of flexibility	Work, energy, capacity and elasticity	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
13-16	8	Identifying the laws of attraction and their importance for maintaining cosmic balance, the importance of harmonic motion, and the importance of their applications	Gravitational attraction harmonic motion	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
17-20	8	Identify vibration and its importance	Vibration of strings and air columns	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
21-25	12	Learn about the importance of Newton's law	Newton's laws of motion	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports
26-30	12	Heat and its common methods of transmission	the heat	Electronic lectures, lecture method, smart board and pen	Exams with homework and reports

11. Course Evaluation

Distributingthescoreoutof100accordingtothetasksassignedtothestudentsuchasdaily preparation, daily oral, monthly, or written exams, reports

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-University Physics, Part One: Mechanics, properties of matter, wave motion, and heat, written by Dr. Talib Nahi Al-Khafaji. Dr. Fayyad Abdel Latif Al-Najm.

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	• 2-University Physics, Part Two, written by Dr. Talib Nahi Al-Khafaji and Dr. Fayyad Abdul Latif Al-Najm
Main references (sources)	- Physics theories Friedrich Bosch David Gerd
Recommended books and references (scientific journals, reports…)	Encyclopedia of scientific books and journals
Electronic References, Websites	Electronic references, Internet sites

Course Description Form

1. Course name:
Developmental psychology
2. Resolution code
3. Semester/year
2024 - 2025
4. The date this description was prepared
18/9/2024
5. Available forms of attendance
Class lectures
6. Number of study hours (total)
60 hours. Number of units (total) 4
7. Name of the course administrator
Teacher: Ghaleb Mahmoud Mahoos   **gMahmod@tu.edu.iq**
8. Course objectives

Objectives of the study subject	1- Providing female students with science and knowledge related to human development at different age stages from birth to old age. 2- Introducing and training female students on the methods and requirements of age stages (childhood - adolescence - adulthood - old age). 3- Preparing a generation of college graduates to teach in the middle and secondary levels. 4- Providing female students with education and knowledge to meet the requirements of life and its development.

9. Teaching and learning strategies

13

Strategy	- The standard method (giving lectures). - Text method. Discussion method

11. Course evaluation

50 marks for the annual endeavor, 25 marks for each semester, divided as follows:

20 marks for the written exam

5 marks per day, distributed among daily exams or reports

50 marks for end-of-year exam

12. Learning and teaching resources

1- Required prescribed books	The prescribed materials are from various books related to developmental psychology
2- Main references (sources)	1- Psychology of childhood and adolescence / Jamal Al-Alusi and Omaima Ali Khan
A- Recommended books and references (scientific journals, reports,...)	2- Evolutionary Psychology / Sami Arifaj
B - Electronic references, Internet sites...	3- Basics of evolutionary psychology/Shafiq Hassan

13. Course outcomes and teaching, learning and evaluation methods

14

A- Cognitive objectives:
1 - Understanding and interpreting behavior
2 - Predicting what the behavior will be like
3 - Controlling, controlling, modifying, modifying and improving behavior

B- The skills objectives of the course:

1- Developmental psychology helps to understand the foundations and the factors that influence them of psychological processes, the stages of their development.
2- . Through developmental psychology, we can know normal appropriate behavior.
3- can know progress and delay in development..

C- Emotional and value goals:
1- Access to complete knowledge about the nature of individuals.
2- Forming desires and behavior patterns to understand their personalities and what they are affected by.
3- Knowing the genetic and environmental factors affecting growth.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

14- Course development plan

Developing the academic material according to the annual plan to update the academic programs approved in the college, through workshops, seminars, and conferences, and benefiting from their recommendations.

Curriculum skills chart																			
Please check the boxes corresponding to the individual learning outcomes from the program being assessed																			
Learning outcomes required from the programme																			
General and qualifying transferable skills (other skills related to employability and personal development)				Emotional and value goals				Skills objectives of the programme				Cognitive objectives				essential Or optional	Course name	Course code	Year/level
د4	د3	د2	د0	ج4	ج3	ج2	ج0	ب4	ب3	ب2	ب0	أ4	أ3	أ2	أ0				
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	essential	Principles of education		the first

Course Description Form

1. Course Name:
Computer

2. Course Code:

3. Semester / Year:
2024/2025

4. Description Preparation Date:
18/9/2024

5. Available Attendance Forms:
Classroom and Google classroom

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 : Assist. Prof. Dr Israa Munir Tawfik Emil :

8. Course Objectives	
Course Objectives	• The student gets to know the concept of computer science····· • The student should be familiar with the personal computer • For the student to recognize the difference and relationship between software and the physical parts inside the computer • For the student to recognize the importance of using a computer • The student gets to know how the internal computer parts work • The student gets to know the concept of information that the computer deals with and its classification • The student will know how information enters and exits to and from the computer • The student gets to know some operating systems • The student gets to know the relationship between operating systems and hardware

		• That the student be able to maintain some parts of the computer • For the student to learn about the benefits of the computer in his general life • The student will know how used the Microsoft Word •The student will know how used the Microsoft PowerPoint •The student will know how used the printer to Print documents •The student will know how used the Internet, networking, and email creation • That the student be able to know the internal parts of the computer in a concrete way • Introducing the student to concepts and strategies for computer operation

9. Teaching and Learning Strategies

Strategy	To apply what he has learned for the purpose of solving many issues and problems in the same subject -Distinguishes how information enters and exits from and to the computer -Distinguishes between different types of operating systems. -Recognizes the internal parts of the computer in a tangible way

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
4	8 hours	Chapter One(p1)	Computer fundamentals	lectures, Computer, board and pen.	Report, Exams and discussions.
6	12 hours	Chapter two(p1)	Computer's components	lectures, Computer, board and pen.	Report, Exams and discussions

4	8 hours	Chapter four(p1)	operating systems	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter One(p2)	the Microsoft Word	lectures, Computer, board and pen.	Report, Exams and discussions
4	8 hours	Chapter three(p2)	the Microsoft PowerPoint	lectures, Computer, board ,computer and pen.	Report, Exams and discussions
4	8 hours		Print documents	lectures, Computer, board ,computer , printer and pen	Report, Exams and discussions
4	8 hours		the Internet, networking, and email creation	lectures, Computer, board ,net and pen.	Report, Exams and discussions

11. Course Evaluation

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

12. Learning and Teaching Resources

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