

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



Academic Program and Course Description Guide

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Wasit

Faculty/Institute: College of Education for Pure Science

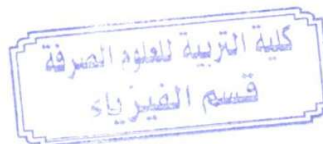
Scientific Department: Physics

Academic or Professional Program Name: Bachelor

Final Certificate Name: Bachelor of Education in Physics Science

Academic System: Annual

Description Preparation Date: 2025-2026



Signature:

Head of Department Name:

Asst. Prof. Dr. Ali A. Jaber

Date: 9-3-2026

Signature:

Scientific Associate Name:

Lecturer Ammar Awad Kazm

Date: 9/3/2026

Dr. Ammar Awad Kazm
The Dean Assis.
For Scientific Affairs

The file is checked by: Lec. Saja Hussain Dilyf

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

9/3/2026

Signature:

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

Approval of the Dean
Ali Hussein Shuaa

9/3/2026

1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

3. Program Objectives

General statements describing what the program or institution intends to achieve.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				

Department Requirements				
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods
Implemented at all stages of the program in general.

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion
(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program
State briefly the sources of information about the program.

14. Program Development Plan

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

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

Academic Program Description – Department of Physics Sciences / College of Education for Pure Sciences

This academic description of the Physics Sciences Program provides a brief and comprehensive overview of the main characteristics of the program and clearly identifies the learning outcomes that students are expected to achieve upon completing the stages of study.

This description aims to demonstrate the extent to which students acquire the scientific and educational knowledge and skills provided by the department, as well as the degree to which they benefit from the educational and training opportunities available throughout the years of study.

In addition, this guide includes a detailed description of each course within the program, ensuring clarity of academic guidance and facilitating the processes of evaluation and follow-up.

1. **Educational Institution:** Wasit University – College of Education for Pure Sciences
2. **Scientific Department / Center:** Department of Physics Sciences
3. **Name of the Academic or Professional Program:** Bachelor of Educational Physics Sciences
4. **Name of the Final Degree:** Bachelor's Degree
5. **Study System:**
Annual / Courses / Other: **Annual**
6. **Accreditation Program Adopted:** None
7. **Other External Influences:**
 1. Scientific research related to the department's specialization.
 2. The World Wide Web (Internet).
 3. Conventional and digital libraries.
 4. Data show (projector).
 5. PowerPoint.
8. **Date of Preparing the Description:** _____

9. Academic Program Objectives

- Preparing graduates with a solid scientific foundation in the principles of physics and its modern branches, enabling them to understand and analyze natural phenomena using scientific methods of thinking.
- Developing students' scientific research skills and laboratory experimentation abilities, and enabling them to use modern scientific instruments and software for measurements and analysis.
- Professionally and pedagogically qualifying students to work in the field of education by providing them with the educational knowledge and skills necessary to teach physics effectively at the intermediate and secondary school levels.
- Enhancing students' abilities in problem-solving and scientific decision-making through training in the use of mathematical models, simulation of physical systems, and data analysis.
- Preparing qualified personnel capable of pursuing postgraduate studies and contributing to the advancement of scientific research and community service through the applications of physics in industry, environment, and energy.

1. Required Program Learning Outcomes, Teaching and Learning Methods, and Evaluation Methods

A- First, the cognitive objectives of the program

The **Physics Sciences Program** aims to enable students to acquire the following knowledge:

1. Understanding the fundamental principles of physics in its main branches: mechanics, electricity and magnetism, thermodynamics, optics, and modern physics.
2. Familiarity with the mathematical foundations used in modeling, analysis, and solving physical problems.
3. Knowledge of scientific research methodologies and the principles of designing and conducting scientific experiments, as well as analyzing their results.
4. Understanding the basic educational concepts necessary for teaching physics using effective instructional methods.

B-Skill-specific objectives of the program:

The program seeks to develop students' skills as follows:

1. Using laboratory instruments and equipment, conducting experiments with accuracy and efficiency, and analyzing data scientifically.
2. Applying computational and programming skills to solve physical problems using software and numerical models.
3. Developing problem-solving skills through critical thinking and applying physical laws and theories to real-world situations.
4. Employing modern teaching strategies to explain physical concepts in the classroom and effectively manage educational activities.

Teaching and learning methods

- Lectures.
- Asking questions and encouraging open discussion.
- Computer-assisted teaching and presenting the subject using a data show (projector).
- Assigning students to write certain research papers.
- Participation in conferences and scientific field trips.

Assessment methods

- Daily and monthly examinations.
- Scientific research assignments.
- Conducting student seminars and discussion sessions to assess their level of understanding of the subject.

C- Affective and value-based objectives:

- Promoting ethical and professional values among students, including academic integrity, scholarly responsibility, and respect for the rights of others in research and education.
- Fostering an interest in scientific and societal sustainability, and encouraging active participation in addressing environmental and social challenges using physics concepts and modern technology.

Teaching and learning methods

Providing a conducive educational environment for logical thinking through continuous guidance of students by instructors during lectures, and by encouraging open and direct discussions with students.

Assessment methods**D – General and Transferable Skills (Other Skills Related to Employability and Personal Development):**

- **Developing communication and teamwork skills:** Enabling students to clearly express scientific ideas and collaborate with others in research and educational projects.
- **Enhancing self-learning and problem-solving skills:** Empowering students to keep up with modern knowledge and apply critical and creative thinking when facing scientific and professional challenges.

Teaching and learning methods

- Curriculum courses
- Use of the World Wide Web (Internet)
- Use of data show (projector)
- Use of PowerPoint

Assessment methods

- Preparing worksheets and graduation research papers for the final stage.
- Oral, monthly, and daily examinations.

Academic Staff						
Members of the Teaching Staff						
Number of Teaching Staff Member		Special Requirements/Skills (if any)		Specialization		Academic Rank
Lecturer Part-Time Lecturer	Permanent Staff			private	General	
	✓			Nuclear and Environmental Physics	General Physics	Asst. Prof. Dr. Ali A. Jaber
	✓			Plasma Physics	Physics	Asst. Prof. Dr. Haider Jameel Hassan
✓				Magnetic Materials	Arabic Language	Prof. Dr. Hashim Ali Yasir
	✓			Electro-Optics	Psychology	Asst. Prof. Dr. Mahdi Alwan Abbood
	✓			Materials Science	Mathematics	Asst. Prof. Dr. Hussein Taqi John
✓				Molecular Physics and Laser	Philosophy	Asst. Prof. Dr. Najlaa Jarjak Abdullah
	✓			Literature and Criticism	History	Asst. Prof. Ahmed Qasim Ubaid
	✓			Educational Psychology	Methods of Teaching English Language	Lecturer Dr. Huda Hameed Nayef
	✓			Mathematics	General Physics	Lecturer Dr. Alaa Sabah Mohammed
	✓			Modern Philosophy	General Physics	Assistant Lecturer Masar Fasih Jabbar
	✓			Modern History	Physics	Assistant Lecturer Fouad Latif Turki
				English Language Education	Arabic Language	Assistant Lecturer Lara Mahmood Jabbar

	✓			General Psychology	Psychology	Assistant Lecturer Sawsan Ridha Hassan
	✓			Thin Films	Mathematics	Assistant Lecturer Kareem Anwar Jasim
✓				Nuclear Physics	Philosophy	Assistant Lecturer Abdullah Ahmed Khalaf
	✓			Nuclear and Environmental Physics	History	Assistant Lecturer Rafal Kamil Khalaf

المرحلة الأولى:

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الأسبوعية		عدد الوحدات
			النظري	العملي	
1	ميكانيك كلاسيكي	Mechanics	3	2	8
2	الحرارة وخواص المادة	Heat and Properties of the Material	2	0	4
3	الكهربائية والمغناطيسية I	Electricity and Magnetism	3	2	8
4	رياضيات I	Mathemtics	3	0	6
5	أصول التربية والتعليم	Fundamentals of Education	1	0	2
6	علم النفس النمو والتربوي	Developmental and Education Psychology	2	0	4
7	الحاسوب I	Computer I	1	0	2
8	اللغة العربية I	Arabic Language	1	0	2
9	اللغة الإنكليزية I	English Language	1	0	2
10	الديمقراطية وحقوق الانسان	Democracy and Human Rights	1	0	2
المجموع (40 ساعة)					

المرحلة الثانية:

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الأسبوعية		عدد الوحدات
			النظري	العملي	
1	البصريات	Optics	3	2	8
2	الفلك	Astronomy	2	----	4
3	الكهربائية والمغناطيسية II	Electricity and Magnetism II	2	2	6
4	رياضيات II	Mathemtics II	3	----	6
5	الصوت والحركة الموجية	Sound and Wave Motion	2	---	4

4	--	2	Leadership and Educationl Administration	القيادة والإدارة التربوية	6
4	-	2	Curriculums and School Books	المناهج والكتب الرسمية	7
استيفاء	-	1	Teaching Thinking	تعليم التفكير	8
2	-	1	Computer II	الحاسوب II	9
2	0	1	Arabic Language	اللغة العربية II	10
2	0	1	English Language	اللغة الإنكليزية II	11
2	-	1	Baath Regime Crimes in Iraq	جرائم نظام البعث في العراق	12
المجموع (44 ساعة)					

المرحلة الثالثة-

ت	الدرس باللغة العربية	الدرس باللغة الإنكليزية	عدد الساعات الأسبوعية		عدد الوحدات
			النظري	العملي	
1	الالكترونيات	Electronics	3	2	8
2	مادة اختيارية (مواد)	Materials	2	-	4
3	الترمودينك	Thermodynamic	3	0	6
4	الدوال المعقدة	Complex functions	2	-	4
5	الفيزياء الذرية والجزيئية	Atomic and molecular physics	3	2	8
6	الميكانيك التحليلي	Analytical Mechanics	3	-	6
7	الارشاد والصحة النفسية	Psychological Guidance and psychological heath	2	0	4
8	طرائق التدريس	Curriculum and methods of teaching	2	-	4
المجموع (44 ساعة)					

1. Planning for Personal Development

Personal planning is not merely words on paper; rather, it is the first step toward success. It involves setting visions, defining goals and programs, working toward their implementation, and continuously evaluating progress.

1. Desire for success and achievement.
2. Reaching a certain level of competence and efficiency.
3. Achieving a specific goal.
4. Acquiring new skills.

2. . Admission Criteria (Establishing Regulations Related to Enrollment in the College or Institute)

First: Admission Requirements for the College

1. Admission requirements for students are determined according to the regulations of the Ministry of Higher Education and Scientific Research and the Central Admission System.
2. Applicants must successfully pass any special examination or personal interview required by the College or University Council.
3. Applicants must be medically fit for the specialization they intend to study.

Second: Admission Requirements for the Scientific Department

1. The student's preferences are selected from multiple options arranged according to priority.
2. The student's high school average score.
3. The grade obtained in the department-related subject that the student wishes to study.
4. The admission capacity of the scientific department.

3. Main Sources of Information about the Program

- Teaching methodology curricula approved by Wasit University.
- Various American and British academic programs from universities such as University of Iowa, University of Arkansas, University of South Carolina, University of Leeds, and University of Birmingham.

Course Description Template for First Year

Course Description Form

1. Course Name:	
Classic mechanics	
2. Course Code: PHM103	
3. Semester / Year: 2025- 2026	
4. Description Preparation Date:	
2025/10/25	
5. Available Attendance Forms:	
My attendance is mandatory	
6. Number of Credit Hours (Total) / Number of Units (6)	
90 hours 3 hours	
7. Course administrator's name (mention all, if more than one name)	
Assist Prof. ALI ABED JABER email : alia624@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Students are familiarized with the general and specific principles of classical mechanics in motion and its types, along with the interpretation of the laws related to it. • Providing students with the scientific skills to deal with mechanical problems and how to benefit from and deal with them in different situations. • Explain and illustrate real-life examples of classical mechanics. • Urging students to possess scientific information related to mechanics and apply it now and in the future when faced with any problem. • Urging students to acquire various modern teaching skills in explaining mechanical topics and thus acquiring

	Experience in dealing with various physics topics
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9. Teaching and Learning Strategies

Strategy	• Giving scientific lectures on understanding classical mechanics • Oral and short exams through discussion examples related to the topic • Written exams to refine what students have learned. • Classical mechanics describes the motion of very small (microscopic) bodies from the beginning Projectiles include machines and astronomical objects such as planets, galaxies, spaceships, and stars. • Study Newton's laws of motion • The study of the behavior of most “natural” things.
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10. Course Structure

Wee k	Ho urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Gaining knowledge in understanding the meaning of movement in one dimension and how to apply it to movement in two or three dimensions	Measurements and movement in one dimension	My presence	General questions, discussion, and problem solving
2	3	Gaining knowledge in understanding the meaning of movement in one dimension and how to apply it to movement in two or three dimensions	Movement is in one dimension	My presence	General questions and discussion or exam
3	3	Understand the meaning of vector and scalar quantities	Vector and scalar quantities	My presence	General questions, discussion, and problem solving

4	3	Understand numerical and cross multiplication	Numerical and vector multiplication	My presence	oral test
5	3	Understanding motion in two dimensions	Motion in two dimensions and derivation of its laws	My presence	General questions and problem solving
6	3	Movement in two dimensions Shells	Movement in two dimensions	My presence	solving equations
7	3	A monthly written exam	evaluation	My presence	Monthly in all previous lessons
8	3	Definition of Newton's laws of motion and when to use them in different situations	Definition and derivation of Newton's laws	My presence	oral test
9	3	Dealing with the laws of motion in the presence of friction	Friction and applied frictional forces	My presence	oral test
10	3	Definition of regular and irregular circular motion and derivation of its laws	Circular motion	My presence	Solve related issues
11	3	Understanding gravity	Circular motion	My presence	Complete the solution of related issues
12	3	Understanding work and energy and derivation of laws	Work and energy	My presence	Solve related issues

13	3	Understanding the laws Preservation	Law of conservation of energy	My presence	Solve related issues
14	3	Understanding linear momentum and linear momentum-impulse theory	Linear momentum, thrust, and collisions	My presence	Solve related issues
15	3	Understanding linear momentum and the theory of linear momentum-thrust and collisions	Linear momentum, thrust, and collisions	My presence	Complete the topic and solve the problems
16	3	A monthly written exam	evaluation	My presence	A monthly exam in all previous subjects
17	3	What is rotational motion, its laws, and its connection to translational motion	Rotary movement	My presence	Solve related issues
18	3	Understanding rotational kinetic energy and moment of inertia	Rotary movement	My presence	Solve related issues
19	3	Torque and rigid body	Rotary movement	My presence	Solve related issues
20	3	A monthly written exam	evaluation	My presence	A monthly exam in all previous subjects
21	3	Linear momentum Theory- Payment	Induction-impetus theory	My presence	Solve related issues
22	3	Rotation of solid bodies	Work in rotational motion, Rotational kinetic energy. Inertia, Newton's	My presence	Solve Related issues

			Laws of rotational motion,		
23	3	Rotation of solid bodies	The relationship between rotational motion variables, finding the moment of inertia of some bodies (cylinder, ball, ring...), problems	My presence	Solve Related issues
24	3	A monthly written exam	evaluation	My presence	A monthly exam in all previous subjects
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					
1 - Classical Mechanics for Physics Graduate Students , ERNESTO CORINALDESI , 1998 . 2 - Classical Mechanics , R. DOUGLAS and GOREGE , 2006				Required prescribed books (Methodology, if any)	
1 - Physics for Scientists and Engineers with modern physics , SERWAY and JEWETT , 9 Edition , 2014 . 2- University Physics by Francis W. Sears, Mark W. Zemansky and Hugh D. Young, 1982. 3- Introduction to Physics by John D.Cutnell, Kenneth W.Johnson 8th Ed.,2010				Main references (sources)	
1- Classical Mechanics by Herbert Goldstein, 2002. 2- Classical Mechanics by Michael Cohen, 2014. 3- Classical Mechanics by Mahmoud Hamza Dahi, 2020.				Recommended supporting books and references (scientific journals, reports....	
1- Educational Physics Network 2- Al-Farid website in physics 3- NASA website in Arabic for physics				electronic references, Internet sites	

Course Description Form

1. Course Name: Physics of heat and properties of matter	
2. Course Code: 101PHM	
3. Semester / Year: 2025-2026	
4. Description Preparation Date: 23-10-2025	
5. Available Attendance Forms: Actual mandatory attendance	
6. Number of Credit Hours (Total) 60 hours / Number of Units (Total) : 4Units	
7. Course administrator's name (mention all, if more than one name)	
Name : Assistant Prof. Ahmed Qasim Ubaid Email : aubaid @uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Students learned about heat, the properties of matter, and their role in understanding the principles of physics and in daily life • How to employ this knowledge in confronting daily life situations in the field of education, family and society. • It makes students of colleges of education for pure sciences feel the value and importance of physics and the role of heat in the history of physics And how they deal with school students after graduation and practice their specialties as teachers in primary and middle schools Preparatory schools and some research laboratories in state departments in the field of research and development

9. Teaching and Learning Strategies					
Strategy		• A- Cognitive objectives • A-1 F on heat and material properties, and how crystallization arose and became a human need for applications Engineering and technology, as well as learning about its methods, fields and theories. • A-2 Identify the laws, their standards and conditions, the crises they face, and their benefits to society. • A-3 Identify the types of temperature scales • . A-4 Identify the mechanical properties of materials • . A-5 Identify the magnetic and electrical properties of materials • . A-6 Identify the fourth state of matter, plasma • B - The skill objectives of the course • B1 - Providing the student with knowledge of heat and the properties of matter, so that it is possible for the student to transform this knowledge into behavior - And act when the situation requires a specific response to solve a problem . B2 - Providing the student with knowledge of temperature and the factors determining it, and he can transform this knowledge into behavior that contributes to eliminating the factors determining it, and enjoying personal harmony and compatibility with the environment in which he lives.			
10. Course Structure					
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation
		Outcomes			method
1+2+3+4	4*2	A lecture	Measure degree the heat Types of shellfish - Thermal expansion- -Methods of heat transfer	Gain knowledge in The field of heat physics And its role in building Human civilization .in general Determine the types of heaters And the mechanics of heat transfer	General questions, discussion, and problem solving

5+6+7+8	4*2	A lecture	energy resources Thermal Specific heat - The first law - For thermodynamics	Gain knowledge in The field of energy sources First law of thermodynamics	General questions and discussion or exam
9+10+11 +12	4*2	A lecture	Real gas and Ideal gas Kinetic theory - For gases Cv - the relationship between Cp	Gain knowledge in distinguishing between ideal gas and real gas	General questions, discussion, and problem solving
13+14+15 +16	4*2	A lecture	Density and weight Qualitative Surface tension - Bernoulli's equation - -Viscosity		oral test
17+18+19 +20	4*2	A lecture	Types of stress and strain Unique coefficient- Isotropic relationship - mechanical and temperature		General questions and problem solving
21+22+23 +24	4*2	A lecture	Study of properties Magnetism of materials -Classification of materials		solving equations
25+26	2*2	A lecture	- Connectivity electrical Conductors and insulators - And semiconductors		A monthly exam in all previous lessons

27+28	2*2	A lecture	Know the difference between States of matter Plasma shapes- -The importance of studying plasma		Oral exam
29+30	2*2	A lecture	Classification of materials Types of materials - Overlaid Advantages and disadvantages - Overlay materials		General questions, discussion, and problem solving

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					

main references :

- 1- 1 Heat and properties of Materials ,by Kadem Ahmed mohemed**
- 2- The Science and Engineering of Materials, thed Donald R. Askeland - Pradeep P. Phulé . Classification of**
- 3- materials Josep Poch March.**
- 4- Heat and Thermodynamics, Mark W. Zymansky .**

1. Course Name: Electricity And Magnetism	
2. Course Code: 102PHEM	
3. Semester / Year: 2024-2025	
4. Description Preparation Date: 20-10-2025	
5. Available Attendance Forms: Actual mandatory attendance	
6. Number of Credit Hours (Total) 90 hours / Number of Units (Total) : 7 Units	
7. Course administrator's name (mention all, if more than one name)	
Name : lecturer Dr. Ali Aqeel Salim Email : asalim@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Students learn about the basics of electricity and magnetism and their importance in our lives, integrating physical meanings with mathematical laws and derivations, and opening horizons for the student towards scientific theories and their applications. • Make the student able to know the basics of physics • Make the student able to understand physical phenomena from a mathematical point of view. • Enable the student to obtain knowledge and understanding of the scientific laws of physics, practical applications of physical sciences, logical and scientific analysis, and interpretation of physical phenomena. • Teaching the student thinking skills and enabling him to understand and solve scientific problems related to the laws of physics • Using laboratory equipment in the electrical laboratory.

9. Teaching and Learning Strategies					
Strategy	• Live interactive classroom education. • Using the display screen (smart board) • Asking intellectual questions and thought-provoking examples during recited and written lectures. • Practical laboratory. • Discussion through social networking sites and educational sites such as Telegram and Classroom.				
10. Course Structure					
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation
		Outcomes			method
1	3	A lecture	• Definitions and basic principles 1) Material and shipment 2) The phenomenon of electrification 3) Atomic number 4) Mass number 5) Isotopes 6) Law of conservation of charge • Division of materials A- Conductive materials B- Insulating materials T- Semiconductor materials	Chapter One Coulomb's Law	General questions, discussion, and problem solving
2	3	A lecture	1.1 Coulomb's law Notes : • To solve law problems using the vector method: • Vector collection • Vector analysis • Law of cosines • Solved examples • General questions about the first chapter		General questions and discussion or exam

3	3	A lecture	2-1 Electric field 2-2 Electrical power lines A- Lines of electric force for a field created by an isolated point charge or a charged ball B- Electric force lines for a field created by a dipole C - Lines of electric force for a field created by a charged plate D- Electric force lines for a field between two parallel plates 3-2 Forms of electric field 1- Regular electric field 2- An irregular electric field 4-2 Characteristics of electric field lines	Chapter Two The electric Field	General questions, discussion, and problem solving
4	3	A lecture	5-2 Movement of charged particles in a uniform electric field 1. The movement of a charged particle when it is placed at rest in a regular field 2. The movement of a charged particle when it is thrown at a speed perpendicular to the field 3. Calculate the electric field strength E 4. The electric field intensity of an isolated point charge of magnitude q. 5. Find (E) for a number of point charges 6. The field created by the electric dipole: • At point P located along the dipole axis • At the point Q located on the bisector of the dipole axis		oral test

5	3	A lecture	7. The field created by the continuous charge distribution 8. The field created by a charge distributed in a sheet shape 9. Some other applications		General questions and problem solving
6	3	A lecture	Solved examples and chapter problems		solving equations
7	3	A lecture	3. Introduction 3.1 Electrical flux resulting from an electric field 3.2 Electric flux due to 3.3 point charge 3.4 Gaussian surface 3.5 Gauss's law	Chapter Three Gauss's Law	A monthly exam in all previous lessons
8	3	A lecture	3.6 Applications of Gauss's Law 1. The field created by a point charge 2. The field created by an infinitely long line of charges 3. The field created by a charge distributed in the form of a flat plate 4. The field created by a spherical charge 5. The electric field between two parallel conducting plates		Oral exam
9	3	A lecture	6. The field of a charged body when it is in electrostatic equilibrium 7. The magnitude and direction of the electric field intensity outside the conducting body at points that are small distances from its surface.		General questions, discussion, and problem solving

10	3	A lecture	Solved examples and chapter problems		General questions and discussion or exam
11	3	A lecture	4. Introduction 4.1 The potential difference between two points located in an electric field 4.2 The relationship of voltage to field strength Linear integration of the electric field intensity	Chapter Four The Electric Potential	General questions, discussion, and problem solving
12	3	A lecture	4.3 Calculate the electrical voltage 1. The electric potential generated by a point charge (q) at any point located at a distance of (r) 2. If we have a set of point charges ($r_1, r_2, r_3...r_n$) from the point we want to find For effort then. 3. The voltage created by the dipole		Oral Exam.
13	3	A lecture	4.4 Electric potential arising from a connected charge distribution If we have a continuous distribution of charge, such as: 1. The charged wire. 2. The charged ring. 3. Charged disk. 4. Plane plate. 5. The voltage generated by 4.5 Voltage generated by a charged ring		General questions and problem solving

14	3	A lecture	4.6 The potential of a charged sphere when it is in electrostatic equilibrium 4.7 Voltage gradient 4.8 Equipotential surfaces		Problems Solving
15	3	A lecture	4.9 Electric Potential Energy 1. The potential energy of a group of two charges $1q$ and $2q$. 2. The potential energy of a group of three charges.		Oral Exam.
16	3	A lecture	Solved examples Chapter Four exercises		General questions, discussion, and problem solving
17	3	A lecture	5.1 Capacity 5.2 Types of capacitors 1. Parallel plates capacitors 2. Spherical capacitors 3. cylindrical capacitors 4. advantages of capacitors	Chapter Five Capacitors & Insulators	General questions and discussion or exam
18	3	A lecture	5.3 Capacity calculation: for a capacitor with two parallel plates 5.4 Calculating the capacitance: For a cylindrical capacitance, calculate the capacitance for an isolated sphere 5.5 Connecting Capacitors 1. Connecting in parallel 2. Connecting capacitors in series		General questions, discussion, and problem solving
19	3	A lecture	5.6 Capacitor with two parallel plates with insulating material between them. 5.7 Electrical energy stored in capacitors. 5.8 Electric field in an insulating material.		Oral Exam.

			5.9 Insulators and Gauss's Law		
20	3	A lecture	Solved examples and answers to chapter questions		General questions and problem solving
21	3	A lecture	6.1 Current 6.1.1 Current density 6.2 Resistance Factors affecting the electrical resistance of a metal conductor 1. Temperature 2. Length 3. Cross-sectional area 4. Type of material 6.2.1 Types of resistors used in practice 1. Wired fixed resistance 2. Standard resistors 3. Variable resistors 4. Wheatstone Bridge.	Chapter Six Current & Resistance	Problems Solving
22	3	A lecture	6.3 Connecting resistors 1. Straight connection 2. Connect parallelism 3. Mixed bonding 6.4 Specific resistance 6.4.1 The relationship between resistance and the specific resistance of a conductor 6.5 Ohm's law 6.5.1 Measurement of current and voltage 6.5.2 Energy transfers between an electrical circuit 6.6. Electromotive force Solve chapter questions		A monthly exam in all previous lessons

23	3	A lecture	7.1 Equation of a circle 7.2. Calculating the potential difference in an electrical circuit 7.3 Electrical networks with multiple circuits 7.4 Kirchhoff's law 7.4.1 Kirchhoff's first law of current 7.4.2 Kirchhoff's second law of voltage	Chapter Seven Kirchhoff's law	Oral Exam.
24	3	A lecture	How to use Kirchhoff's law Connecting electrical poles Connect the columns in a row Connect the columns in parallel Mixed linkage		General questions, discussion, and problem solving
25	3	A lecture	Solve chapter problems		
26	3	A lecture	8.1 Introduction 8.2 Magnetic field 8.3 Magnetic flux 8.4 Direction of the magnetic field 8.5 Force on an electric charge Moving in a magnetic field 8.6 Movement of charged particles in a magnetic field 8.6.1 A particle carrying a positive charge (q) is projected with a speed (v) perpendicular to a uniform magnetic field (B). The particle will be affected by a force equal to (qvB). 8.6.2 If a charged particle enters a magnetic field at an angle 8.6.3 If the particle enters a	Chapter Eight Magnetism	General questions and discussion or exam

			non-uniform magnetic field		
27	3	A lecture	• The movement of a charged body in two perpendicular electric and magnetic fields • The force on a conductor carrying an electric current in a magnetic field		General questions and discussion or exam
28	3	A lecture	The coupling torque on a coil passing through an electric current in a magnetic field.		Oral Exam.
29	3	A lecture	Solved examples and solutions to chapter problems		General Equations and solve problems
30	3	A lecture	A comprehensive mock exam for all semesters		Problems Solving

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

main references :

5- Electricity by Sears

6- Electrical magnetism (Halliday and Resnick)

7- University physics (Young freedman).

Electronic reference : Alfreed in Physics

4. Description Preparation Date:

2025

5. Available Attendance Forms:

weekly

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

3 hours a week / 30 week

7. Course administrator's name (mention all, if more than one name)	
NAME / MASAR FASEEH JABBAR EMAIL/ majabbar@uowasit.edu.iq	
8. Course Objectives	
Course Objectives Provide an explanation to the student that helps him understand functions, derivatives, integrations and the method of dealing with them and enable the student to determine the types and nature of functions and draw them on the coordinate axis	. . .
9. Teaching and Learning Strategies	
Strategy a. Knowledge and understanding In. Skill Objectives c. Teaching and learning methods W. General Skills	1. Enable the student to recognize the concept of functions. 2. Helping the student to identify and understand the types of functions 3. Enable the student to identify the drawing of functions. B1. Training students to distinguish between derivatives B2. Enable the student to understand the method of derivation. T1. Sudden daily tests. T2. Quarterly exams. T3. Giving students grades for daily participation W1. Encourage daily discussions. W2. Ask thought-provoking questions.
10. Course Structure	

Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation
		Outcomes			method
1-8	24	The concept of a function, the domain and range of a function, the numerical function, drawing the diagrams of functions, the structure of functions, limits and their properties, some theorems about limits, continuous and non-continuous functions, some continuum theorems (without proof), examples and applications of polynomial and rational functions, inverse functions, examples and applications Derivation, definition, basic theorems of the process of differentiation, derivative (sum-difference-multiplication-division-combination of functions), derived from a higher order, Rolle's theorem, average value theorem, Loptal's rule,	Chapter One: Functions	Daily preparation	Exam and daily discussion

9-16	24	use of the concept of differentiation to obtain local maxima and minimum limits and inflection points, drawing functions, use of the concept of differentiation for speed and acceleration, intermediate functions and their derivation, examples and applications Definition, relationship to tangent, approximation use, examples and applications	Chapter Two: Derivation	Daily preparation	Exam and daily discussion
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		Indefinite integration, some theorems about indefinite integration, basic theorem of integration, properties of definite integration, examples and applications			
		Trigonometric - exponential-logarithmic functions, properties of these functions and their derivatives, inverse			

17-22	18	trigonometric functions, inverse hyperbolic functions with their applications, examples and applications	Chapter Three: Differentia tion	Daily prep Aration	Exam and daily discussion
23-27	15		Chapter Four: Integration	Daily prep Aration	Exam and daily discussion

28-30	9		Chapter Five: Special Functions	Daily preparation	Exam and daily discussion
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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					

11. Course Evaluation

2

لمراجع: 1- حساب التفاضل والتكامل مع الهندسة التحليلية. تأليف أي.جي.برسل، ترجمة د.علي عزيز علي. ج 1 و ج Calculas and analytical geometry by: George B. Thomas 11th. Ed. 2005.

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 Template

Course Description	
Course Name: Fundamentals of Education and Teaching Instructor Name: fuad latif turki Instructor Email: fturki@uowasit.edu.iq Stage: First Year	
1. Educational Institution	Ministry of Higher Education and Scientific Research / University of Wasit / College of Education for Pure Sciences
2. Academic Department	physics
3. Course Name / Code	
4. Available Attendance Modes	In-Person
5. Semester / Year	2025_2026
6. Total Credit Hours	30
7. Date of Description Preparation	27/9/2025
8. Course Objectives	Enhancing students' understanding of the educational and social reality throughout history and recognizing the essential aspects of the educational journey.
	Understanding educational theories across different civilizations, both ancient and modern.
	Interpreting the educational process from historical and philosophical perspectives.
	Highlighting the concepts of upbringing and education.
	Training students to appreciate the significance of the educational process.

	Describing and analyzing the impact of educational systems on historical realities, past and present.
	Identifying the educational realities revealed by philosophical schools in education.
	Defining the educational objectives of society and applying educational concepts.
10. Course Outcomes, Teaching and Learning Methods, and Assessment 1. Cognitive Objectives: 1. The student should possess knowledge and information that helps them achieve psychological adaptation and coping skills for solving daily life problems. 2. The student should understand the meaning of the foundations of education, its objectives, and its theories. 3. The student should grasp the basic principles of educational foundations and be able to apply them in real life. 4. The student should recognize the historical foundation of education and understand the key ideas proposed by scholars and thinkers. 5. The student should be equipped with sufficient information and knowledge to analyze and assess educational theories. 6. The student should understand the meaning of intellectual development and how to achieve academic success through the specific objectives of the course. 2. Skills Objectives: 1. Enhance the student's research skills and scientific knowledge acquisition. 2. Develop the student's ability to improve the effectiveness of their academic performance. 3. Strengthen the student's interpersonal skills, especially in dealing with others effectively.	

Teaching and Learning Methods:	
-Using educational discussions (dialogues) that rely on exchanging ideas to reach truths. -Applying modern scientific technologies (computers)	
Assessment Methods	
Grades (out of 100) are distributed based on the student's assigned tasks, such as daily preparation, oral and written quizzes, monthly exams, report discussions, seminars, etc.	
G- Affective and Value Objectives: 1. The student should listen attentively to the lesson. 2. The student should respond to questions related to the fields of education and its foundations. 3. The student should accept the subject of education and its foundations. 4. The student should compare the fields of education in different societies. 5. The student should evaluate the fields of education and its foundations.	
Teaching and Learning Methods :	
1. Thinking through specific thinking points, which will help the learner develop and organize their thinking skills. 2. Presenting big ideas, also through specific thinking points, leading to deep thinking and verification of matters, allowing the learner to become an active and organized thinker. This will help them explore deeper and broader topics in their fields. 3. Creating a desire for thinking or forming mental habits, and fostering an environment that encourages learners to spark thought. 4. Connecting what has been learned to new learning situations. 5. Encouraging thinking through evaluation processes based on criteria for performance patterns in understanding and thinking.	
Assessment Methods	
General and Transferable Skills (skills related to employability and personal development): 1. Encouraging students to engage with different educational materials through appropriate technical and artistic skills. 2. Developing students' abilities to analyze educational content and recognize thinking skills and problem-solving techniques. 3. Enhancing students' ability to design presentations related to thinking skills. 4. Developing the ability to produce specific tools to teach thinking skills in English. 5. Evaluating the processes presented to students.	

10 - General and Transferable Skills.

The student should analyze the sections of educational studies throughout history.

By asking questions, such as defining education.

Describing personal relationship skills and the ability to take responsibility for development (enhancing communication skills through group work during direct involvement in fulfilling course requirements).

The teaching strategies used to develop these skills and abilities (lectures, accompanying presentations through data show projectors).

11. Course Structure

Evaluation method	Teaching method	Unit or topic name	Required learning outcomes	Watches	The week
Oral test	Dialogue and discussion	The meaning of education, its goals and its necessity	The meaning of education, its goals and its necessity	1	1
Oral test	Dialogue and discussion	Its theories and fields	Its theories and fields	1	2
Oral test	Dialogue and discussion	Historical basis of education	Historical basis of education	1	3
Oral test	Dialogue and discussion	Historical basis of education	Old education	1	4
Oral test	Dialogue and discussion	Historical basis of education	Chinese education	1	5
Oral test	Dialogue and discussion	Historical basis of education	Greek education	1	6

		Oral test	Dialogue and discussion	Historical basis of education	medieval education	1	7
		Oral test	Dialogue and discussion	Historical basis of education	Arab education before and after Islam	1	8
		Oral test	Dialogue and discussion	Historical basis of education	Modern education	1	9
		Oral test	Dialogue and discussion	Social basis of education	The relationship between education and society	1	10
		Oral test	Dialogue and discussion	Social basis of education	The relationship between the individual and the environment	1	11
		Oral test	Dialogue and discussion	Social basis of education	Moral education	1	12
		Oral test	Dialogue and discussion	Social basis of education	Family education,	1	13
		Oral test	Dialogue and discussion	Social basis of education	National education,	1	14
		Oral test	Dialogue and discussion	Social basis of education	Health education	1	15
		Oral test	Dialogue and discussion	The economic basis of education	Education and its impact on economic development	1	16

		Oral test	Dialogue and discussion	The economic basis of education	And exploitation of natural resources	1	17
		Oral test	Dialogue and discussion	Scientific basis of education	Education and methodology in research	1	18
		Oral test	Dialogue and discussion	National and social foundations	National and social foundations	1	19
		Oral test	Dialogue and discussion	Education in Islamic perspective	Education in Islamic perspective	1	20
		Oral test	Dialogue and discussion	Educational renewal in Iraq	Comprehensive School	1	21
		Oral test	Dialogue and discussion	Educational renewal in Iraq	systematic education	1	22
		Oral test	Dialogue and discussion	Educational renewal in Iraq	Accelerated Schools of Excellence	1	23
		Oral test	Dialogue and discussion	primitive education	The individual's acceptance of the primitive environment and how education wove itself	1	24
		Oral test	Dialogue and discussion	Social education	That the individual has a certain social need.	1	25

		Oral test	Dialogue and discussion	Education throughout history	Finding the harmonious relationship between civilizations	1	26
		Oral test	Dialogue and discussion	Islamic education	It means consistency and consistency in thinking and acting in accordance with what our religion dictates to us.	1	27
		Oral test	Dialogue and discussion	Adjustment Social	It means social control and positive control.	1	28
		Oral test	Dialogue and discussion	Culture and Education	The practices we do during our lives, whether short or long	1	29
		Oral test	Dialogue and discussion	Social education	That the individual has a certain social need.	1	30

12-Infrastructure	
Principles of education	1- Required Textbooks

• Introduction to the Philosophy of Education, Econor , D.G.: Translated by Muhammad Saif al-Din Fahmy, Anglo-Egyptian Library, Cairo 1982 ,AD. • The philosophy of Islamic education in the Noble Hadith, Bakr, Abdul Jawad Sayed: Dar Al Fikr Al Arabi, Cairo 1983 ,M. • The Republic, Plato: Translated by Hanna Khabbaz, Dar Al Turath, Beirut, 1969 AD.	2- Main References (Sources)
	3 -Books and references recommended (scientific journals ,reports(
• Wikipedia, the free encyclopedia (international network) https://ar.wikipedia.org/wiki/ .	4 -Electronic references , websites

Course Description Form

1. Course Name:
Educational and developmental psychology
2. Course Code:
3. Semester / Year:
2026/2025
4. Description Preparation Date:

2025/9/25					
5. Available Attendance Forms:					
6. Number of Credit Hours (Total) / Number of Units (Total) :					
2 hours/4 units					
7. Course administrator's name (mention all, if more than one name)					
ALAA SABAH MOHAMMD					
Aala.mohammed@uowasit.edu.iq					
8. Course Objectives					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy		Lecture and discussion Dialogue and interrogation			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge	Educational Psychology Definition and Objectives	Lecture and discussion	Today's oral and written exam
2			Educational, Teaching and Behavioral Objectives		
3			Learning and Learning Factors		

4		Knowledge	Thinking	Lecture and discussion	Today's oral and written exam
5			Perception		
6			Intelligence		
7		Knowledge	Attention	Lecture and discussion	Today's oral and written exam
8			Intelligence		
9			Motivation		
10		Knowledge	Memory and forgetting	Lecture and discussion	Today's oral and written exam
11			Schools of psychology		
12		Knowledge	Growth and Maturity	Lecture and discussion	Today's oral and written exam
13			Adolescence		
14			Adolescent Physical Development		
15		Knowledge	Cognitive development of adolescents	Lecture and discussion	Today's oral and written exam
16			Social and emotional development of adolescents		
17			Moral development of adolescents		
18		Knowledge	Adolescents and Society	Lecture and discussion	Today's oral and written exam
19			Parenting Styles		
20		Knowledge	Teenage Problems	Lecture and discussion	Today's oral and written exam
21			Trends		
22		Knowledge	Concept of ethics	Lecture and discussion	Today's oral and written exam
23			Concept of profession		
24		Knowledge	The concept of professional ethics	Lecture and discussion	Today's oral and written exam
25			Teacher ethics		
26	2	Knowledge	School Principal Ethics	Lecture and discussion	Today's oral and written exam
27			Leadership		
28	2	Knowledge	Leadership Theories	Lecture and discussion	Today's oral and written exam
29	2	Knowledge	Career Compatibility	Lecture and discussion	Today's oral and written exam

30			Job Satisfaction		
31	2	Knowledge	The teacher in the era of globalization	Lecture and discussion	Today's oral and written exam
	2				
10. 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					
11. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Educational Psychology and Developmental Psychology Book		
Main references (sources)			Educational Psychology: Dr. Abdul Aziz Nashawati, Dar Al Furqan. Educational Psychology: Raouf Mahmoud Al Qaisi, Amman, Jordan / Dar Dijlah. Childhood and Adolescent Psychology: Amina Ali Khan Ethics of the Teaching Profession: Dr. Nafeth Suleiman Al Jaab 2018 Ethics of the Teaching Profession: Dr. Qadriya Muhammad Al Bishri 2011		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:
Computer/theoretical part
2. Course Code:
PH11

3. Semester / Year:	
2025/ 2026	
4. Description Preparation Date:	
25/9/2025	
5. Available Attendance Forms:	
Daily attendance	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
30 hours Number of units (2 units)	
7. Course administrator's name (mention all, if more than one name)	
Name: Lecturer . zamen abood ramadhan	
Email: z.ramadaan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1– Distance from industry: (a) Provides the artist with commercial ideas, data and basic topics of this subject in terms of its emergence and its role in contributing to the development of technology. (b) That the student comprehends the concepts contained in this subject and is able to apply them practically. 2– Emotional methods: (a) Helping the student develop his abilities and inclinations to understand the topics of this subject. (b) Developing the student's attitudes and interests towards understanding the basic concepts of this subject and employing them in the field of education (teaching). 3– Psychomotor methods (skills): (a) Developing the student's ability to master the skill of fact-finding and the basics and principles of this subject to practical administrative practices that can be observed. (b): Training the student on the basic skills that enable him to invest and employ the concepts and principles of this subject in the field of work after graduation.
9. Teaching and Learning Strategies	

Strategy			–Thinking and Discussion Method		
			– E–learning (Explanatory Videos and Electronic Tests)		
			– Practical Tests		
10. Course Structure					
Week	Hours	RequiredLearning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Knowledge	Computer fundamental Computer types Hardware &software ram	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
2	1	Knowledge	Storage device Operating system &type Compare between application &programs	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
3	1	Knowledge	Start work with window Windows fundamental Control panel	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
4	1	Knowledge	Document Shut down windows	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
5	1	Knowledge	Text box Create new account	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
6	1	Knowledge	Create and delete password Create files File types security	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
7	1		exam		

8	1	Knowledge	Network Types of network internet	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
9	1	Knowledge	Internet services Start page	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
10	1	Knowledge	Email Properties of email Create a count of Google	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
11	1	Knowledge	Microsoft word Introduction of Microsoft word Menu bar	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
12	1	Knowledge	File menu Home menu Insert menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
13	1	Knowledge	Page setup menu References menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
14	1	Knowledge	View menu Review menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
15	1	Knowledge	Power point File menu Home menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
16	1	Knowledge	Insert menu Design menu Transition menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
17	1	Knowledge	Animation menu Review menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
18	1	Knowledge	Slide show	Using whiteboard and data show and E-learning	Exams and quick exams and assignments

19	1	Knowledge	Microsoft excel Introduction of excel	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
20	1	Knowledge	File menu Home menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
21	1	Knowledge	Insert menu View menu Review menu	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
22	1	Knowledge	Create equation of excel	Using whiteboard and data show and E-learning	Exams and quick exams and assignments

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily and monthly oral exams. And editing, discussing and evaluating reports and seminars , etc.

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Arabic language
2. Course Code:

103ar	
3. Semester / Year:	
2025/2026	
4. Description Preparation Date:	
25/10/2025	
5. Available Attendance Forms:	
Self-attendance	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
30hours per year and 1 units per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Huda hameed naif	
Email: hnaif@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Learn the concept of grammar, language and literature, and the concepts surrounding them that are included in the Arabic language. Highlight the study of the basics of the Arabic language and continue to use it to maintain writing in a correct language free of errors. The necessity of paying attention to the Arabic language to combat errors and distortions, as well as collecting common errors and placing the correct ones next to them to reduce errors in the language as much as possible. Teaching the student how to look at the linguistic text in a correct way by differentiating between the letter Dad and the letter Dhad and how to write the Hamza and differentiate between the letter Ha and the letter Ta Marbuta, as well as teaching the student how to delete a number of letters when writing, which are: –

	Alif – Ta – Noon – Waw – Ya. As well as learning the correct reading of the sermon of the pious by Imam Ali, peace be upon him, from Nahj al-Balagha. Focus on the importance of writing in a beautiful and clear correct handwriting.
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9. Teaching and Learning Strategies

Strategy	Method of educational thinking and discussion E-learning (explanatory videos and electronic tests)
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	The student learns what was presented in the lecture	The word and its parts -The name and its signs Action and its signs -The letter and its signs	Using the pen and board and data show	Exams and quick exams and assignments

2	1	The student learns what was presented in the lecture	Built and expressed -Constructed from verbs -Past tense - Cases of construction of the past tense	Using the pen and board and data show	Exams and quick exams and assignments
3	1	The student learns what was presented in the lecture	- Present tense verb - Cases of constructing the present tense verb -Do the command - Cases of constructing the imperative verb	Using the pen and board and data show	Exams and quick exams and assignments
4	1	The student learns what was presented in the lecture	Built from nouns	Using the pen and board and data show	Exams and quick exams and assignments
5	1	The student learns what was presented in the lecture	Parsing of the Muthanna and its appendix	Using the pen and board and data show	Exams and quick exams and assignments
6	1	The student learns what was presented in the lecture	Parsing the sound masculine plural And the appendix to it -Definition of the sound masculine plural -Conditions for the sound masculine plural	Using the pen and board and data show	Exams and quick exams and assignments

			-His Arabs		
7	1	The student learns what was presented in the lecture	Supplement to the sound masculine plural -Exercises	Using the pen and board and data show	Exams and quick exams and assignments
8	1	The student learns what was presented in the lecture	Parsing the sound feminine plural -tariff - Its conditions - Its benefits	Using the pen and board and data show	Exams and quick exams and assignments
9	1	The student learns what was presented in the lecture	Parsing what is prohibited from being exchanged -tariff - Reasons for preventing the noun from being morphed -The first section is to prevent the name from Exchange	Using the pen and board and data show	Exams and quick exams and assignments
10	1	The student learns what was presented in the lecture	The second section is to prevent the name from Exchange - Exercises	Using the pen and board and data show	Exams and quick exams and assignments
11	1	The student learns what was presented in the lecture	First semester exam		
12	1	The student learns what was presented in the lecture	Parsing the five names - Its terms - Exercises	Using the pen and board and data show	Exams and quick exams and assignments

13	1	The student learns what was presented in the lecture	Parsing the five verbs - Exercises on the five verbs	Using the pen and board and data show	Exams and quick exams and assignments
14	1	The student learns what was presented in the lecture	Parsing the other invalid -tariff - Shortened name -And the missing name - Exercises	Using the pen and board and data show	Exams and quick exams and assignments
15	1	The student learns what was presented in the lecture	Parsing the defective verbs	Using the pen and board and data show	Exams and quick exams and assignments
16	1	The student learns what was presented in the lecture	Quranic texts -Interpretation of a number of vocabulary from the Qur'an Generous and correct the reader's understanding	Using the pen and board and data show	Exams and quick exams and assignments
17	1	The student learns what was presented in the lecture	A study on Surat Yusuf Ali Peace	Using the pen and board and data show	Exams and quick exams and assignments
18	1	The student learns what was presented in the lecture	Distinguishing between dha and dha - The importance of differentiating between dha and dha - Means of differentiating between dha and dha - Exercises	Using the pen and board and data show	Exams and quick exams and assignments

19	1	The student learns what was presented in the lecture	Second semester exam (first month)	Using the pen and board and data show	Exams and quick exams and assignments
20	1	The student learns what was presented in the lecture	Literary texts - Nazik Al-Malaika's poem (Strangers) - Save and analyze	Using the pen and board and data show	Exams and quick exams and assignments
21	1	The student learns what was presented in the lecture	Common mistakes in the Arabic language	Using the pen and board and data show	Exams and quick exams and assignments
22	1	The student learns what was presented in the lecture	A poem of optimism and hope by Ibrahim Touqan - Critical comment	Using the pen and board and data show	Exams and quick exams and assignments
23	1	The student learns what was presented in the lecture	Reading the morning prayer of Imam Ali Peace be upon him - Explaining its meanings - Explaining its rhetorical form	Using the pen and board and data show	Exams and quick exams and assignments
24	1	The student learns what was presented in the lecture	Letters that are deleted when writing -A thousand - Delete the alif from the beginning of the word - Delete the alif from the middle of the word	Using the pen and board and data show	Exams and quick exams and assignments

25	1	The student learns what was presented in the lecture	- Delete the alif from the end of the word - Exercises	Using the pen and board and data show	Exams and quick exams and assignments
26	1	The student learns what was presented in the lecture	Ta'a marbuta in the Arabic language - Define it - How to write it	Using the pen and board and data show	Exams and quick exams and assignments
27	1	The student learns what was presented in the lecture	The open ta' in the Arabic language - Define it - How to write it	Using the pen and board and data show	Exams and quick exams and assignments
28	1	The student learns what was presented in the lecture	Second semester exam (second month)	Using the pen and board and data show	Exams and quick exams and assignments
29	1	The student learns what was presented in the lecture	Reading Imam Ali's sermon on him Greetings from Nahj al-Balagha (the sermon of the righteous) correctly - Explaining a number of its meanings	Using the pen and board and data show	Exams and quick exams and assignments
30	1	The student learns what was presented in the lecture	Analysis of the sermon of the righteous	Using the pen and board and data show	Exams and quick exams and 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)	Arabic language for departments other than specialization
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Main references (sources)	Explanation of Ibn Aqeel on Al-Fiyah Ibn Malik, edited by Muhyiddin Abdul Hamid
Recommended books and references (scientific journals, reports...)	The collection of Arabic lessons is an encyclopedia in three parts
Electronic References, Websites	

Course Description Form

13. Course Name:	
English language	
14. Course Code:	
15. Semester / Year:	
2025-2026	
16. Description Preparation Date:	
17/9/2025	
17. Available Attendance Forms:	
Actual mandatory attendance	
18. Number of Credit Hours (Total) / Number of Units (Total)	
30 theoretical hours	
19. Course administrator's name (mention all, if more than one name)	
Sawsan Ridha Hasan Email: s.ridha@uowasit.edu.iq	
20. Course Objectives	

Course Objective	1. Enabling the student to acquire basic English language skills 2. Enable the student to employ the English language for the purposes of communication, academic study and research. 3. Enable the student to acquire the language proficiency necessary for the current academic and future professional aspects 4. Enabling the student to benefit from foreign sources by developing his translation skill 5. Enable the student to acquire a store of necessary vocabulary and linguistic structures 6. To increase the students’ background about English language 7. Enhance students’ ability in listening, speaking, reading and writing 8. Make the students familiar with the English language in their study				
21. Teaching and Learning Strategies					
Strategy	1- Through teaching theoretical material by the instructor 2- Making the students involved in various activities that encourage them to speak, listen, read and write in English 3- Employing the videos and pictures that help students to interact in English 4- Encouraging the students to participate in the lesson by raising topics that have contact with their lives 5- Using English short stories and jokes given in their book				
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1-8				Theoretical lectures	
	1	Acquire social manner, like introduction and greeting	Unit one: Hello		
	1	Asking about things and numbers from one up to ten	unit 1: Hello		Examinations and daily activity
	1	Know his environment as some cities, the phone numbers	Unit 2: your world		
	1	Know some cities			
		Reading and speaking, the numbers from 11up 30, some new vocabulary (adjectives & nouns)	Unit 2: your world		
	1	information's about his identity			
	1	short answers, asks about jobs and some jobs, making dialog, social expression (1)	Unit3: All about you		
	1	know the basic terms about their specialist	Unit 3: All about you		
	1	revision	Writing a paragraph about subject deal with their specialist Exercises and solutions (workbook)		

9-16	1	Know how to use the possessives	Unit4: family and friends	Theoretical lectures	Examinations and daily activity
	1	Noun + adjective, the family (mother, father....), describing friends Revision	Unit 4: Family and friends Exercises and solutions(workbook)		
	1	Know some nationalities and countries, the present simple	Unit 5: The way live		
	1	How to use (a, an), languages, drinks, food, sports, some adjectives and verbs,	Unit 5; The way live		
	1	Know how to arrange the times and preference	Unit 6: Every day		
	1	Present simple (he, she, it), adverbs of frequency, words that go together, days of week (Sunday, Monday....), prepositions of time (in, on, at)	Unite 6: Every day		
	1	Revision			
			Exercises and solutions (workbook)		

17-22		How to use pronouns and the question words	Unit 7: My favorites	Theoretical lectures	Examinations and daily activity
	1	This and that, adjectives, opposite adjective (old /new), places	Unit 7: My favorites		
	1	Know house parts and furniture	Unit 8: Where I live		
	1	There is and there are, prepositions (in, on, under, next to), listening and writing, directions.	Unit 8: Where I live		
	1	Learn the past tense (was/were), irregular verbs.	Unit 9: Times past		
	1	Saying years (1999,2000....),people and jobs (singer, politician ,artist)	Unit 9: Times past		
23-27	1	Know the importance of doing homework and sports	Unit 10: We had a great time	Theoretical lecture	Examinations and daily activity
	1	Revision	Exercises and solutions		
	1	Use the model verb can, adverb, request and offers, every day problems	Unit 11: I can do that		
	1	Some and any, like and would like,	Unit:12 Please and thank you		

28-30	1	shopping, in a restaurant Learn some new terms	Write a paragraph Unit 13: Here and now	Theoretical lecture	Examinations and daily activity
	1	Present continuous, present simple and present continuous, colours, opposite verbs	Unit 14: It's times to go		
	1	Future plans, transport, pronunciation, revision (question word, tenses)	Exercise and solution		
	1	Revision			
23. Course Evaluation					
- The annual average is out of 40 and it is divided into - 30 marks for the semester exams (at last two test in each semester) -5 marks for participation, activities and homework					

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

Course Description Form

25. Course Name:	
Human rights and democracy	
26. Course Code:	HR101
27. Semester / Year:	
2025–2026	
28. Description Preparation Date:	
28/10/2025	
29. Available Attendance Forms:	
Attendance is required	
30. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours	
31. Course administrator's name (mention all, if more than one name)	
Asist-lecturer: Lara Mahmod Jabba Email: ljabbar@uowasit.edu.iq	
32. Course Objectives	

Course Objectives	1- The student should know his rights as a human being and the rights of other people 2- For students to become familiar with the rights established by divine laws 3- For students to be familiar with statutory laws at all levels, international, regional and national 4- For the student to become familiar with the public freedoms guaranteed by international constitutions. 5- In order to learn about the freedoms recognized in heavenly laws 6- To learn about his country's political system by learning about the democratic system
33. Teaching and Learning Strategies	
Strategy	❖ Active learning: 1- Cooperative learning: Dividing students into small groups to work on group projects or tasks 2- Assigning students to realistic projects by applying what they learned from scientific lectures 3- Problem-based learning: presenting problems to students in order to solve them using critical thinking and problem-solving skills ❖ Use of technology: 1- Using e-learning platforms to provide scientific lectures and interact between the student and the professor 2- Integrating social media and computers into the educational process ❖ Continuous evaluation 1- Evaluate students' learning continuously and periodically to identify their strengths and weaknesses in order to address them 2- Conducting surprise oral and written exams for the previous lecture to refine what students have learned from the academic material
34. Course structure	

week	hours	Required learning outcomes	Name of the topic	Teaching method	Evaluation method
1		Introducing students to the concept of human rights and its principles, as well as its importance in public life	Introduction to the academic subject	Presence	General questions and discussion
2		Explaining the roots of human rights in Mesopotamian civilization, and explaining the most important laws enacted for this purpose	Human rights in ancient civilizations (Mesopotamian civilization)	Presence	General questions and discussion
3		Learn about Egyptian civilization and the most important laws that stipulate respect for humans	human rights in ancient Egyptian civilization	Presence	General questions and discussion
4	1	Considering the most important laws that spoke about man in Greek and Roman civilization which led to class divisions in society	Human rights in the Greek and Roman civilizations	Presence	oral test

5		Explaining the most important beliefs of the monotheistic religions that their messengers brought in order to respect the rights of others, as stated in their heavenly books.	Human rights in the Jewish and Christian religions	Presence	General questions and discussion
6		The Islamic religion brought by the Noble Prophet Muhammad is considered one of the most complete divine laws that stipulate respect for others and the preservation of their rights through the injection of blood, honour, and money.	Human rights in the Islamic religion	Presence	Clarifying what was mentioned in the previous lecture and discussion
7		A monthly written exam	evaluation	Presence	Monthly in all previous lessons
8		Introducing the most important laws declared in the Universal Declaration of Human Rights, political, civil, social and economic	International human rights sources	Presence	General questions and discussion
9		Identifying the most important sources of the Iraqi Constitution of 2005 and the political, social, economic and cultural rights and freedoms of the Iraqi individual.	National sources for human rights	Presence	General questions and discussion

10		Understanding the concept of constitutional, judicial and regulatory guarantees in business management Clarifying the role played by the judiciary in respecting human rights and ensuring their rights	Constitutional and judicial human rights guarantees	Presence	General questions and discussion
11		Examining the religious character of Islamic law and the principle of dualism it established in society. Discussing some Islamic systems, such as the belief system, the worship system, and the moral system of the Islamic religion	Human rights guarantees in Islam	Presence	General questions and discussion
12		Addressing and clarifying the United Nations Charter and the demands of the General Assembly for Human Rights Understanding international social and economic human rights by establishing the Economic and Social Council	Human rights guarantees at the international level	Presence	General questions and discussion
13		Discussing the Arab community's vision of human rights, while emphasizing the principles contained in the Universal Declaration of Human Rights. Understanding what is stated in the International Covenants on Economic, Social and Cultural Human Rights and Civil and Political Rights and their application in the Arab Charter	Project of the Arab Charter for Human Rights	Presence	General questions and discussion

14		Introducing the importance of the organization in promoting respect for people's rights and disseminating its culture in accordance with international standards The organization's role and work among the major Arab groups outside the Arab world	Arab Organization for Human Rights	Presence	General questions and discussion
15		Evaluating students through a monthly exam and clarifying the scientific content of previous lectures by conducting a monthly written exam	evaluation	Presence	A monthly exam in all previous subjects
		Spring break	Spring break		Spring break
16		Explaining the roots of the word democracy and its principles that were developed by ancient Greek philosophers such as Plato and Socrates...etc. Discussing the idea of democracy and its development in the Middle Ages up to modern times and explaining the most important developments that were developed in order to reduce the phenomenon of tyranny in society.	The concept of democracy and its roots	Presence	General questions and discussion

17		Explain the types of governments or social structures that allow people to participate on an equal footing, directly or indirectly, in the political system Recognizing and empowering the popular will	Forms of democracy	Presence	General questions and discussion
18		Clarifying the relationship between Islam and democracy in terms of giving the public the right to express opinions and for rulers to consult the ruled The concept of Islam's command to apply equality among members of society and achieve justice in many legal texts	The concept of the relationship between Islam and democracy	Presence	General questions and discussion
19		Addressing the most important democratic foundations is the commitment to responsibility, prohibiting the system, and favoring knowledge over force and violence The possibility of transferring power peacefully and legitimately in Arab societies, away from military coups and violence, and ensuring the role of society in this transfer.	The basic components democracy	Presence	General questions and discussion

20		Explaining the most important characteristics that characterize countries, such as the existence of a constitution Popular participation in politics Independence of the judiciary	Characteristics of a democratic state	Presence	General questions, scientific discussion, and an oral exam
21		Discuss the importance of elections as a human idea that contributes to resolving conflicts and differences over an opinion. Clarifying the role of voting as an important and essential means through which an individual can influence government decisions	Elections and democracy	Presence	General questions and discussion
22		Addressing the importance of ensuring free and fair elections by providing a democratic climate and basic freedoms for citizens. Statement of the most important findings of the United Nations General Assembly regarding periodic elections as a necessary and indispensable element in continuing efforts to protect the rights and interests of the governed.	Elections, their concept and organization	Presence	General questions and discussion
23		Clarifying the role of electoral districts represented by the geographical area in which elections are held Preparing lists that include the names of people who have the right to vote in each electoral district	Organizing election operations	Presence	General questions and discussion

24		Explaining the optimal electoral system according to which the elected person reaches the parliament to represent the various trends and trends among the people as much as possible. The role of these systems in determining election results	Direct and indirect election systems	Presence	General questions and discussion
25		Evaluating students through a monthly exam and clarifying the scientific content of previous lectures by conducting a monthly written exam	evaluation	Presence	A monthly exam in all previous subjects
26		Discussing and counting the optional vote is an obligation on the voter from a moral standpoint Also clarifying compulsory voting by imposing a penalty on voters who fail to vote without an excuse	Optional and compulsory voting system	Presence	General questions and discussion
27		Explaining the importance of government systems in societies and the difference between these two systems by clarifying the positives and negatives of each of these systems and in which societies they are better.	Parliamentary system and presidential system	Presence	General questions and discussion
28		Interpreting the media in democratic systems Explaining the importance of media performance in political participation and democratic practices	The role of the media under the democratic system	Presence	General questions and discussion

29		Review of scientific material in previous lectures	review	Presence	General questions and discussion of what was discussed in previous lectures
30		final exams	final exams		final exams
11- Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily participation, daily attendance, monthly exams, reports, etc.					
12- Learning and teaching resources					
Main references (sources)	1- Maher Saleh Allawi Al-Jubouri and others, Human Rights, Children and Democracy, Tikrit University, 2009. 2- Abdel Latif Abdel Hamid Al Ani, Democracy and Human Rights.				
Recommended supporting books & references (scientific journals, reports....)	Law books on public freedoms				
Electronic references, Internet sit	All relevant references related to the above sources				

Course Description Form

1. Course Name:
Electrical laboratory I
2. Course Code: PHEM102
3. Semester / Year: 2025-2026
4. Description Preparation Date:
2025/10/1
5. Available Attendance Forms:

My attendance is daily	
6. Number of Credit Hours (60 Total) / Number of Units (1)	
2 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ali Aqeel Salim Email:- asalim@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1- Cognitive objectives: a- Preparing trained and qualified cadres to work in scientific and educational institutions. b- Enabling students to know and understand the practical side of electricity and magnetism and its use in community service 2- Skill objectives of the course: a- Providing students with knowledge of all devices. b- Providing students with comprehensive knowledge of the physical principles related to electricity and magnetism. 3- Emotional and value objectives: a- Asking questions during the experiment in order to link the practical side with the theoretical side. b- Linking the practical experiment with engineering and technological applications. 4- General and transferable qualification skills (other skills): a- Optimal use of concepts related to the subject of the experiment and employing them for integrated knowledge Regarding the change of scientific phenomena. b- Optimal use of devices and knowing how to use them.
9. Teaching and Learning Strategies	
Strategy	1- Providing the student with knowledge of all devices 2- Providing the student with knowledge of the electrical components for practical experiments 3- Providing the student with knowledge of how to study the relationship between charge and voltage between the two ends of a capacitor with two parallel plates separated by air 4- Providing the student with knowledge of studying the relationship between the voltage difference and the current passing through an ohmic resistor and achieving Ohm's law

	5- Providing the student with knowledge of how to connect resistors of both types series and parallel 6- Providing the student with knowledge of proving that the resistance of the conducting wire is inversely proportional to its cross-sectional area. Teaching and learning methods: 1- Experiment 2- Discussion
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	2	A lecture	1-General instructions about the laboratory. 2- Instructions on how to write the report. 3- Steps to teach graphing		
4-6	2	Lecture and practical application	The capacitance of Parallel plate capacitor	Student acquisition of knowledge	Daily exam and solving experimental questions
7-9	2	Lecture and practical application	Ohm law	Student acquisition of knowledge	Daily exam and solving experimental questions
10-12	2	Lecture and practical application	Nonlinear Load	Student acquisition of knowledge	Daily exam and solving experimental questions
13-15	2	Lecture and practical application	Connecting resistors in series	Student acquisition of knowledge	Daily exam and solving experimental questions
16			Review		
17			Exam 1		

18-20	2	Lecture and practical application	Connecting resistors in parallel	Student acquisition of knowledge	Daily exam and solving experimental questions
21-23	2	Lecture and practical application	Connecting mixer of resistor (series and parallel)	Student acquisition of knowledge	Daily exam and solving experimental questions
24-26	2	Lecture and practical application	Wheatstone Bridge	Student acquisition of knowledge	Daily exam and solving experimental questions
27-28	2	Lecture and practical application	Study of the factors on which the resistance of a metal wire depends	Student acquisition of knowledge	Daily exam and solving experimental questions
29			Review		
30			Exam2		

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

Electricity and Magnetism (Yahya Abdel Hamid)	Required prescribed books (Methodology, if any)
Electrical magnetism (Halliday and Resnik)	Main references (sources)
University physics (Young freedman)_	Recommended supporting books and references (scientific journals, reports....
Alfreed in Physics	electronic references, Internet sites

Course Description Form

1. Course Name:	
Classic mechanics/practical part	
2. Course Code: PHM103	
3. Semester / Year:2025- 2026	
4. Description Preparation Date:	
2025/9/16	
5. Available Attendance Forms:	
My attendance is mandatory	
6. Number of Credit Hours (Total) / Number of Units (4)	
2 hours	
7. Course administrator's name (mention all, if more than one name)	
Assist Proff. Dr. ALI ABED JABER , assistant . lecturer maysloon kareem kazam Email:alia624@uowasit.edu.iq ,mkazm@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Students are familiarized with the general and specific principles of classical mechanics in motion and its types, along with the interpretation of the laws related to it. • Providing students with the scientific skills to deal with mechanical problems and how to benefit from and deal with them in different situations. • Explain and illustrate real-life examples of classical mechanics. • Urging students to possess scientific information related to mechanics and apply it now and in the future when faced with any problem. • Urging students to acquire various modern teaching skills in explaining mechanical topics and thus acquiring Experience in dealing with various physics topics
9. Teaching and Learning Strategies	
Strategy	• Giving scientific lectures on understanding classical mechanics

	• Oral and short exams through discussion examples related to the topic • Written exams to refine what students have learned. • Classical mechanics describes the motion of very small (microscopic) bodies from the beginning Projectiles include machines and astronomical objects such as planets, galaxies, spaceships, and stars. • Study Newton's laws of motion • The study of the behavior of most “natural” things.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knowledge	Introduction -general laboratory instructions -instructions on how to write a report -steps for teaching graphing	My presence	Daily exam
2	2	The student acquires knowledge of finding the acceleration due to gravity	The experiment 1: Simple pendulum	My presence	Daily exam
3	2	The student acquires knowledge of Hooke's constant	The experiment 2: Hooke's law	My presence	Daily exam
4	2	The student acquires knowledge of legitimate friction	The experiment 3: Calculating the coefficient of friction on a horizontal surface	My presence	Daily exam
5	2	The student acquires knowledge of speed of the liquid	The experiment 4: Measuring the speed of a liquid the stokes	My presence	Daily exam
6	2		Review		
7	2		First semester exam	A test	

8	2	The student acquires knowledge of moment of inertia	The experiment 5: Pfeller's pendulum	My presence	Daily exam
9	2	The student acquires knowledge of free fall	The experiment 6: Free fall	My presence	Daily exam
10	2	The student acquires knowledge of surface tension	The experiment 7: Calculating surface tension using the capillary tube method	My presence	Daily exam
11	2	The student acquires knowledge by power table	The experiment 8: Power table	My presence	Daily exam
12	2		Second semester exam	A test	

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

1 - Classical Mechanics for Physics Graduate Students , ERNESTO CORINALDESI , 1998 . 2 - Classical Mechanics , R. DOUGLAS and GOREGE , 2006	Required prescribed books (Methodology, if any)
1 - Physics for Scientists and Engineers with modern physics , SERWAY and JEWETT , 9 Edition , 2014 . 2- University Physics by Francis W. Sears, Mark W. Zemanseky and Hugh D. Young, 1982. 3- Introduction to Physics by Jojn D.Cutnell, Kenneth W.Johnson 8th Ed.,2010	Main references (sources)
1- Classical Mechanics by Herbert Goldstein, 2002. 2- Classical Mechanics by Michael Cohen, 2014. 3- Classical Mechanics by Mahmoud Hamza Dahi, 2020.	Recommended supporting books and references (scientific journals, reports....
1- Educational Physics Network 2- Al-Farid website in physics 3- NASA website in Arabic for physics	electronic references, Internet sites

Course Description Template for Second Year

Course Description Template

1- Course Title	
Optics / Theoretical Part	
2- Course Code:	
3- Semester / Year:	
2026-2025	
4- Date of Preparing this Syllabus:	
2025 /9 /22	
5- Available Attendance Modes:	
Daily attendance	
6- Number of Contact Hours (90 hours) / Number of Credit Units (6 units):	
3 hours theoretical + 2 hours practical	
7- Course Coordinator (if more than one, list all names):	
Names: Hussein Taqi John Ali	
Email: hjohn@uowasit.edu.iq	
1- Course Objectives:	
Course Objectives:	1. Knowledge and Understanding: Enable students to understand • the fundamental principles of optics, including the nature of light, reflection, refraction, interference, and diffraction.

	Familiarize students with the basic laws of optics, such as the law of reflection, Snell's law, and the laws of total internal reflection. • Study the properties of light waves, their types, and their interaction with different media. • 2. Analytical Skills: Develop students' ability to analyze optical phenomena and solve problems related to light refraction and reflection. • Apply optical principles to interpret natural and experimental phenomena. • Use mathematical methods and physical models to describe the behavior of light in various media. • 3. Practical and Applied Skills: Acquire skills in using basic optical instruments such as lenses, mirrors, microscopes, and lasers. • Ability to design optical experiments and interpret results logically and scientifically. • Apply optics concepts in technical fields such as lasers, •
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	optical fibers, photonic devices, and optical communications. 4. Critical and Creative Thinking: Encourage students to • connect optical theories with practical applications in everyday life. Develop the ability to • innovate solutions for complex optical problems.				
2- Teaching and Learning Strategies					
☐ Interactive Lectures: Explain the fundamental principles of optics using examples and illustrative diagrams, while posing thought-provoking questions for discussion. ☐ Virtual Practical Activities: Utilize simulators and virtual experiments to demonstrate reflection, refraction, interference, and diffraction. ☐ Problem Solving and Discussion: Train students to solve practical problems and discuss optical phenomena to reinforce theoretical understanding. ☐ Active Learning: Encourage students to participate in group discussions and connect theoretical concepts with practical applications.					Strategy
3- Course Structure					
Assessment Method	Learning Method	Unit / Topic Name	Expected Learning Outcomes	Hours	Week

Daily oral exam	Using the blackboard, projector, and e-learning tools	Introduction to Light Introduction to the concept of light • Reflection and its laws • Applications of reflection • Refraction and its related laws •	Knowledge of the Basic Concepts of Optics	3	1
Daily oral exam	Using the blackboard, projector, and e-learning tools	Properties of Electromagnetic Rays Theories of light and their explanations - Fermat's principle - Chapter questions -	Understanding the Nature and Reality of Light	3	2
Daily oral exam	Using the blackboard, projector, and e-learning tools	Fundamentals of Total Internal Reflection Observation of light transmission between different media • Verification of Snell's law and •	Mirrors and the Mechanism of Image Formation	3	3

		the critical angle			
Daily oral exam	Using the blackboard, projector, and e-learning tools	Chapter 2 Problems	Understanding How to Apply Laws in Problem-Solving	3	4
Daily oral exam	Using the blackboard, projector, and e-learning tools	Mirrors - Plane mirrors • - Reflection in plane mirrors • - Applications of plane mirrors •	Mirrors and the Mechanism of Image Formation	3	5
Daily oral exam	Using the blackboard, projector, and e-learning tools	Spherical Mirrors - Convex mirrors • - Formation of images in convex mirrors • - Formula for calculating object and image distances •	Image Formation by Reflection	3	6
Written Exam	Using the blackboard, projector, and e-	First Course Exam	Teast	3	7

	learning tools				
Daily oral exam	Using the blackboard, projector, and e-learning tools	Convex Mirror Mechanism of image formation • Formation of virtual images in mirrors • Calculation of object and image distances • Magnification and image characteristics •	Formation of Virtual Images	3	8
Daily oral exam	Using the blackboard, projector, and e-learning tools	Surfaces and Image Formation Image formation on curved surfaces • Mechanism of image formation on these surfaces with relevant equations •	Image Formation on Surfaces	3	9
Daily oral exam	Using the blackboard, projector,	Lenses Types of lenses •	Lenses and Image Formation	3	10

	and e-learning tools	- Compound lenses - Concept of focal length - Gauss's formula for calculating focal length			
Daily oral exam	Using the blackboard, projector, and e-learning tools	- Using Lenses - Lens maker's formulas	Acquiring Knowledge of the Basic Concepts of Lenses and Their Applications	3	11
Daily oral exam	Using the blackboard, projector, and e-learning tools	- Aberration - Concept of spherical aberration - Types of spherical aberration - Methods of eliminating aberration	Understanding the Concept of Aberration	3	12
Daily oral exam	Using the blackboard, projector, and e-	- Interference - Concept of interference	Concept of Polarization	3	13

	learning tools	Constructive • and destructive interference Newton's rings • experiment			
Daily oral exam	Using the blackboard, projector, and e-learning tools	Polarization Meaning of • polarization Types of • polarization Polarizing • materials	Concept of Polarization	3	14
Daily oral exam	Using the blackboard, projector, and e-learning tools	Optical Instruments Types of • optical instruments Microscope • Telescope • Human eye •	Knowledge of the Basic Concepts of Optical Instruments	3	15
Daily oral exam	Using the blackboard, projector, and e-learning tools	Second Course Exam	Test	3	16
Daily oral exam	Using the blackboard, projector, and e-	Electron Optics	Understanding the Principles of Electron Optics	3	17

	learning tools				
Daily oral exam	Using the blackboard, projector, and e-learning tools	Nonlinear Optics	Understanding Nonlinear Optics	3	18
Daily oral exam	Using the blackboard, projector, and e-learning tools	Quantum Optics	Study of Quantum Optics	3	19
Daily oral exam	Using the blackboard, projector, and e-learning tools	Medical Optics	Medical Applications of Optics	3	20
Daily oral exam	Using the blackboard, projector, and e-learning tools	Industrial Optics	Industrial Applications of Optics	3	21
Daily oral exam	Using the blackboard, projector, and e-learning tools	Laser	Introduction to Modern Optics	3	22

Daily oral exam	Using the blackboard, projector, and e-learning tools	Laser Applications	Laser Applications	3	23
Daily oral exam	Using the blackboard, projector, and e-learning tools	Advanced Imaging Techniques	Understanding Advanced Imaging Techniques	3	24
Daily oral exam	Using the blackboard, projector, and e-learning tools	Optics and Energy	Enhancing Solar Cell Efficiency Using Innovative Optical Materials Studying Reflection and Absorption in Thermal and Optical Energy Materials	3	25
Daily oral exam	Using the blackboard, projector, and e-	Communications and Information Applications	Developing High-Speed Optical	3	26

	learning tools		Fiber Networks (Multi-core Fibers). Studying Light Propagation in Multi-core Fibers Applications of Optical Computing and Optical Gates		
Daily oral exam	Using the blackboard, projector, and e-learning tools	Structured Light → 3D Optics and Structured Light Techniques	Designing 3D Imaging Systems Using Structured Light for Manufacturing, Robotics, and Augmented Reality Applications	3	27

Daily oral exam	Using the blackboard, projector, and e-learning tools	Nano-Optics and Development of Optical Sensors	Nanoscale Optical Sensors for High-Precision and Highly Sensitive Detection of Chemical or Biological Materials	3	28
Daily oral exam	Using the blackboard, projector, and e-learning tools	General Review		3	29
Second Semester Exam	In-Person Exam	Second Semester Exam		3	30
4- Course Assessment					
The course grade (out of 100) is distributed based on the student's assigned tasks, including daily preparation, oral and written quizzes, monthly exams, discussion and evaluation of reports, seminars, and other related activities.					
5- Learning and Teaching Resources					
Required Textbooks / References: Printed Lectures: Prepared by the course instructors.			Required Textbooks (if any): [List the main textbooks specified for the course, if available]		

Course Textbook: <i>Fundamentals of Optics</i> by Francis A. Jenkins & Harvey E. White.	
Recommended Supporting References: None	Primary References (Sources): [List the key reference books, academic sources, or materials used as the main basis for the course]
Nothing	Recommended Supporting Books and References: Scientific journals, reports, and additional reading materials that complement the main textbooks and references.
Electronic References / Online Resources: The course e-class platform, including all materials, references, and tests published there.	Electronic References / Internet Resources: Online databases, educational websites, and other electronic resources relevant to the course content.

Course Description Template

1- Course Title	
Optics / practical Part	
2- Course Code:	
3- Semester / Year:	
2026-2025	
4- Date of Preparing this Syllabus	
2025 /9 /24	
5- Available Attendance Modes:	
Daily attendance	
\6- Number of Contact Hours (90 hours) / Number of Credit Units (6 units):	
3 hours theoretical + 2 hours practical	
7- Course Coordinator (if more than one, list all names):	
Names: Hussein Taqi John Ali	
Email: hjohn@uowasit.edu.iq	
1. اهداف المقرر	
• Cognitive Dimension: (a) Provides the student with ideas, information, data, and the fundamental principles of the subject topics, including their origin and role in improving and developing the teaching process. (b) Enables the student to comprehend the concepts presented in the subject and apply them practically. • Affective Dimension: (a) Assists the student in developing their abilities and inclinations toward understanding the topics of the subject. (b) Cultivates the student's attitudes and interests in understanding the fundamental principles of the subject and applying them in the field of education and teaching.	اهداف المادة الدراسية

• Psychomotor Dimension (Skills): (a) Develops the student's ability to master the skills of investigating the facts, fundamentals, and principles of the subject into observable practical performances. (b) Trains the student in essential skills that enable them to utilize and apply the concepts and principles of the subject in their professional work after graduation.					
2. استراتيجيات التعليم والتعلم					
• Thinking and discussion methods • E-learning (instructional videos and online tests) • Practical examinations					الاستراتيجية
3. Course Structure					
Assessment Method	Learning Methods	Module / Topic Title	Required Learning Outcomes	Hours	Week
			Knowledge	2	1
Daily Exam	Using the whiteboard.	Introduction	Providing students with knowledge of Snell's Law.	2	2
Daily Exam	Using the whiteboard, display screen, and e-learning.	General instructions about the laboratory	Providing students with knowledge of the refractive index of light.	2	3
Daily Exam	Using the whiteboard.	Instructions on how to write the laboratory report	Providing students with knowledge of the focal length (F).	2	4
Daily Exam	Using the whiteboard.	Steps for learning graphical plotting	Providing students with knowledge of the photoelectric cell.	2	5

Daily Exam	Using the whiteboard.	Experiment 1		2	6
Daily Exam	Using the whiteboard.	Snell's Law	Assessment: Examination	2	7
Daily Exam	Using the whiteboard.	Experiment 2		2	8
Daily Exam	Using the whiteboard.	Refraction of Light	Providing students with knowledge of the Rydberg Constant.	2	9
Daily Exam	Using the whiteboard.	Experiment 3	Providing students with knowledge of the refractive index of light through a single surface.	2	10
Assessment Method	Learning Methods	Determination of the Focal Length of Lenses	Providing students with knowledge of wavelength.	2	11
		Experiment 4	Providing students with knowledge of diffraction.	2	12
4. تقييم المقرر					
The distribution of marks out of 100 according to the tasks assigned to the student, such as daily preparation, daily and monthly oral and written examinations, discussion and evaluation of reports and seminars, etc.					
5. مصادر التعلم والتدريس					
- Printed lectures authored by the course instructors <i>Fundamentals of Optics</i> by Francis A. Jenkins and Harvey E. White			Required Textbooks (Syllabus, if available)		
كتاب المقرر. Fundamental of optics Francis A, Jenkins, Harvey, white			Main References (Sources)		

لا توجد	Recommended supporting books and references (scientific journals, reports, etc.).
The e-classroom and the materials, resources, and tests published within it.	Electronic references and Internet websites.

Course Description Form

Course Name: .1
Astronomy
Course Code: .2
Semester / Year: 2026 -2025 .3
Description Preparation Date: .4
25/9/2025
Available Attendance Forms: .5
My attendance is mandatory
Number of Credit Hours (Total) / Number of Units (4) .6
60 hours 3 hours
Course administrator's name (mention all, if more than one name) .7
Assist Prof. Mohammed. Y. Raham email: mohammady@uowasit.edu.iq
Course Objectives .8

Course Objectives	1. Understand the basic structure and components of the universe, including stars, planets, galaxies, and other celestial objects. 2. Explain the motion of celestial bodies, such as the Sun, Moon, and planets, and interpret related phenomena like eclipses and seasons. 3. Develop skills in astronomical observation, including the use of telescopes, star maps, and simulation software. 4. Apply physical laws—such as Kepler’s laws and Newton’s law of gravitation—to describe and analyze astronomical phenomena. 5. Enhance critical and scientific thinking through analyzing astronomical data and interpreting observational evidence. 6. Understand the life cycle of stars and the evolution of various celestial objects. 7. Recognize the relationship between Earth and the universe, and how cosmic phenomena influence life on Earth. 8. Encourage scientific curiosity and independent learning in astronomy and space science.
Teaching and Learning Strategies .9	
Strategy	1. Lecture-Based Learning: Presenting key concepts and phenomena in a structured lecture format. 2. Inquiry-Based Learning: Encouraging students to ask questions and seek answers through research. 3. Project-Based Learning: Assigning practical projects such as star maps, planetary studies, or observation reports.

	4. Hands-On Learning: Using telescopes, sky simulation software (e.g., Stellarium), and star charts to enhance practical understanding. 5. Collaborative Learning: Working in groups to analyze astronomical phenomena and solve problems. 6. Self-Directed Learning: Motivating students to explore additional resources and follow new discoveries independently. 7. Problem-Based Learning: Applying laws and formulas to solve real astronomical problems.
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Course Structure	.10
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We ek	Ho urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to astronomy	Explain Kepler's law	Using the whiteboard, projector screen, and e-learning	General questions, discussion, and problem solving
2	2	Planetarium	Axis of b Planetarium	Using the whiteboard, projector screen, and e-learning	General questions and discussion or exam
3	2	Planetarium	The zodiac system and the galactic system	Using the whiteboard, projector screen, and e-learning	General questions, discussion, and problem solving
4	2	Planetarium	Astronomical seasons, astronomical	Using the whiteboard, projector	oral test

			units of measurement	screen, and e-learning	
5	2	The solar system	Physical properties of the sun, layers of the sun, surface phenomena of the sun	Using the whiteboard, projector screen, and e-learning	General questions and problem solving
6	2	The solar system	Physical properties of the moon,	Using the whiteboard, projector screen, and e-learning	solving equations
7	2	A monthly written exam	evaluation	My presence	Monthly in all previous lessons
8	2	The moving planets	Th moving Planets and pod Rule	Using the whiteboard, projector screen, and e-learning	oral test
9	2	The moving planets	Minor asteroids, meteors Comets and meteoroids	Using the whiteboard, projector screen, and e-learning	oral test
10	2	The moving planets	Origin of the solar system	Using the whiteboard, projector	Solve related issues

				screen, and e-learning	
11	2	Stars	Physical properties of stars	Using the whiteboard, projector screen, and e-learning	Complete the solution of related issues
12	2	Stars	Stars and star values	Using the whiteboard, projector screen, and e-learning	Solve related issues
13	2	stars	Star luminosity; the relationship between the energy received from a star and its bolometric magnitudes.	Using the whiteboard, projector screen, and e-learning	Solve related issues
14	2	Stars	Hertz-Spurnk-Russell diagram, stellar life cycle	Using the whiteboard, projector screen, and e-learning	Solve related issues
15	2	Types of stars	White dwarfs, red giants, neutron stars	Using the whiteboard, projector	Complete the topic and solve the problems

			and black holes	screen, and e-learning	
16	2	Stellar systems and variables	Star systems, binary stars	Using the whiteboard, projector screen, and e-learning	A monthly exam in all previous subjects
17	2	Stellar systems and variables	Measuring the mass of two stars in terms of the mass of the Sun; solving exercises related to the topic.	Using the whiteboard, projector screen, and e-learning	Solve related issues
18	2	Stellar systems and variables	Types of binary stars	Using the whiteboard, projector screen, and e-learning	Solve related issues
19	2	galaxy	Our Milky Way galaxy	Using the whiteboard, projector screen, and e-learning	Solve related issues
20	2	galaxy	The movement of the galaxy and star clusters	Using the whiteboard, projector screen, and e-learning	A monthly exam in all previous subjects

21	2	galaxy	Calculate galaxy mass	Using the whiteboard, projector screen, and e-learning	Solve related issues
22	2	galaxy	Nebulae	Using the whiteboard, projector screen, and e-learning	Solve Related issues
23	2	A monthly written exam	evaluation	My presence	Monthly in all previous lessons
24	2	Galaxyes	Types of galaxies, galactic clusters	Using the whiteboard, projector screen, and e-learning	Solve Related issues
25	2	Galaxies	Active galaxies, colliding galaxies, exploding galaxies	Using the whiteboard, projector screen, and e-learning	Solve Related issues
26	2	Quasars, the universe, and life.	Quasars (quasi-stars), the expansion of the universe and the redshift	Using the whiteboard, projector screen, and e-learning	Solve Related issues

27	2	Quasars, the universe, and life.	Theories of the Origin of the Universe	Using the whiteboard, projector screen, and e-learning	Solve Related issues
28	2	Quasars, the universe, and life.	The future of the universe, life on the universe	Using the whiteboard, projector screen, and e-learning	Solve Related issues
29	2	-	General review	Using the whiteboard, projector screen, and e-learning	Solve Related issues
30	2	A monthly written exam	evaluation	My presence	Monthly in all previous lessons

Course Evaluation .11

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

Learning and Teaching Resources .12

1. علم الفلك الحديث – د. فوزي غالب الطويل 2. موسوعة الفلك – د. عبد الله العلويط	Required prescribed books (Methodology, if any)
.1 Astronomy: A Beginner's Guide to the Universe Chaisson & McMillan	Main references (sources)

2. Foundations of Astronomy Michael Seeds 3. The Cosmic Perspective Bennett, Donahue, Schneider 4. Universe Freedman & Kaufmann 5. An Introduction to Modern Astrophysics Carroll & Ostlie (للطلاب المتقدمين)	
لا توجد	Recommended supporting books and references (scientific journals, reports....
الصف الالكتروني وما يتم نشره من مصادر واختبارات فيه	electronic references, Internet sites

Course Description Form

Course Name:	35.
Electricity II	
Course Code:	36.
BHEM102	
Semester / Year:	37.
2025-2026	
Description Preparation Date:	38.

20/9/2025	
Available Attendance Forms: .39	
Daily Attendance	
Number of Credit Hours (60) / Number of Units (4) .40	
2 Theoretical Hours	
Course administrator's name (mention all, if more than one name) .41	
Dr. Haider Jameel Hassan hjameel@uowasit.edu.iq	
Course Objectives .42	
Course Objectives	Students learn about the basics of • electricity and magnetism, their importance in our lives, and the integration of physical meanings Mathematical laws and derivations and opening the student's horizons towards scientific theories and their applications. Make the student able to know the basics of • .physics Make the student able to understand • physical phenomena from a mathematical point of view. Enable the student to obtain knowledge and • understanding of the scientific laws of physics and practical applications of logical and scientific physical sciences analysis and explanation of physical phenomena

		Teaching the student thinking skills and enabling him to understand and solve scientific problems related to the laws of physics use of laboratory equipment in the electrical laboratory.			
Teaching and Learning Strategies .43					
Strategy	The main strategy that will be adopted in presenting this unit is to encourage student participation in the exercises, and at the same time itself refine and expand their critical thinking skills. This will be achieved through classes and educational programmers interactive and by looking at the type of simple experiments that include some sampling activities that are of interest to students.				
Course Structure .44					
Week	Hours	Learning Outcomes	Unit / Topic Name	Learning Method	Assessment Method
1-4	8	Understanding and teaching the student the basics of electrical physics and mathematics related to electrical physics, teaching him electrical circuits and everything related to them.	Magnetic field of electric current - Biot-Savert Law And its applications - Ampere's law and its uses	Blackboard, Display Screen, E-learning	Daily oral and written exams

5-8	8	Empowering students to get knowledge and understanding in action modern electrical circuits.	Some electrical appliances - The force on a current conductor There is an electric current through it Exists in a magnetic field - Coupling torque on a coil through which an electric current passes in a magnetic field	Blackboard, Display Screen	Daily oral and written exams
9-12	8	Enabling students to obtain knowledge and understanding of the design of various electrical circuits	- Moving coil galvanometer - Current meter - Potentiometer - Ejection galvanometer	Blackboard, Display Screen	Daily oral and written exams
13-15	6	Electrical by specialists in the subject matter with emphasis on using mathematics as a basis to understand and learn.	Induced electromotive force - Kinetic induced electromotive force - Faraday's law	Blackboard, Display Screen	Daily oral and written exams

			- Lenz's law - Measure magnetic induction using a search coil - Faraday disk - Induced electric field		
16	2	Midterm Exam	On-Site Examination	Exam	Exam
17-20	8	Giving them practical skills in solving problems related to electrical circuits.	Inductance - Mutual induction - Self-induction - Energy stored in the magnetic field - Energy density Magnetism - Connecting inductors - Electrical transformer - Eddy currents	Blackboard, Display Screen	Daily oral and written exams
21-24	8	Emphasis is placed on topics of fundamentals of electricity and analysis of	Alternating electric current - Basic alternating current	Blackboard, Display Screen	Daily oral and written exams

		electrical circuits using control systems for programming.	- Instantaneous current - Elements of impedance - The instantaneous value of capacity - Effective value of current - Trend chart for potential differences		
25-26	4	Acquiring knowledge in the field of inductors and capacitors circuits	Inductor circuits And the expansive T - Change in electrical current In the circuit (resistance - inductance) - Transformed and power transfer - Rectifiers and filters Studies	Blackboard, Display Screen	Daily oral and written exams
27-29	6	Acquiring knowledge in the field of	Introduction to electromagnetic waves	Blackboard, Display Screen	Daily oral and written exams

		electromagnetic radiation	- Maxwell's equations - Plane electromagnetic waves - Portable energy mediated Electromagnetic waves - Momentum and radiation pressure - Wave production Electromagnetism - Electromagnetic spectrum		
30	2	Final Exam	On-Site Examination	Exam	Exam
Course Evaluation .45					
Grades are distributed out of 100 based on tasks assigned to students such as daily preparation, oral and written quizzes, discussions, report evaluations, and seminars					
Learning and Teaching Resources .46					
• أساسيات الكهرباء والمغناطيسية , تأليف : يحيى عبد الحميد الحاج علي					Required Textbooks (If Available)

• مدخل إلى الكهرباء والمغناطيسية, تأليف د.منى عبد الكريم الخشاب، د.كاظم احمد محمد • أساسيات النظرية الكهرومغناطيسية , ترجمه: يحيى عبد الحميد الحاج علي ، رحمن رستم.	
Electricity by Sears Halliday and Resnick)(Electrical magnetism University physics (Young freedman).	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....
Al-Fareed Physics Website	electronic references, Internet sites
.....	

Course Description Form

Course Name: Electricity And Magnetism ¹ .
PHEM102 Course Code: 2.
Semester / Year: 2024-2025

Description Preparation Date: 14-9-2025	
5. Available Attendance Forms: Actual mandatory attendance	
6. Number of Credit Hours (Total) 90 hours / Number of Units (Total) : 7 Units	
7. Course administrator's name (mention all, if more than one name)	
Name : lecturer Dr. Ali Aqeel Salim Email : asalim@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Students learn about the basics of electricity and magnetism and their importance in our lives, integrating physical meanings with mathematical laws and derivations, and opening horizons for the student towards scientific theories and their applications. • Make the student able to know the basics of physics • Make the student able to understand physical phenomena from a mathematical point of view. • Enable the student to obtain knowledge and understanding of the scientific laws of physics, practical applications of physical sciences, logical and scientific analysis, and interpretation of physical phenomena. • Teaching the student thinking skills and enabling him to understand and solve scientific problems related to the laws of physics • Using laboratory equipment in the electrical laboratory.
9. Teaching and Learning Strategies	

Strategy	• Live interactive classroom education. • Using the display screen (smart board) • Asking intellectual questions and thought-provoking examples during recited and written lectures. • Practical laboratory. • Discussion through social networking sites and educational sites such as Telegram and Classroom.				
10. Course Structure					
WW	Cours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	A lecture	• Definitions and basic principles 1) Material and shipment 2) The phenomenon of electrification 3) Atomic number 4) Mass number 5) Isotopes 6) Law of conservation of charge • Division of materials - A- Conductive materials - B- Insulating materials - T- Semiconductor materials	Chapter One Coulomb's Law	General questions, discussion, and problem solving

2	3	A lecture	1.1 Coulomb's law Notes : • To solve law problems using the vector method: • Vector collection • Vector analysis • Law of cosines • Solved examples • General questions about the first chapter		General questions and discussion or exam
3	3	A lecture	2-1 Electric field 2-2 Electrical power lines A- Lines of electric force for a field created by an isolated point charge or a charged ball B- Electric force lines for a field created by a dipole C - Lines of electric force for a field created by a charged plate D- Electric force lines for a field between two parallel plates 3-2 Forms of electric field 1- Regular electric field	Chapter Two The electric Field	General questions, discussion, and problem solving

			2- An irregular electric field 4-2 Characteristics of electric field lines		
4	3	A lecture	5-2 Movement of charged particles in a uniform electric field 1. The movement of a charged particle when it is placed at rest in a regular field 2. The movement of a charged particle when it is thrown at a speed perpendicular to the field 3. Calculate the electric field strength E 4. The electric field intensity of an isolated point charge of magnitude q. 5. Find (E) for a number of point charges 6. The field created by the electric dipole: • At point P located along the dipole axis • At the point Q located on the bisector of the dipole axis		oral test

5	3	A lecture	. The field created by 7 the continuous charge distribution . The field created by a 8 charge distributed in a sheet shape . Some other 9 applications		General questions and problem solving
6	3	A lecture	Solved examples and chapter problems		solving equations
7	3	A lecture	3. Introduction 3.1 Electrical flux resulting from an electric field 3.2 Electric flux due to 3.3 point charge 3.4 Gaussian surface 3.5 Gauss's law	Chapter Three Gauss's Law	A monthly exam in all previous lessons
8	3	A lecture	3.6 Applications of Gauss's Law 1. The field created by a point charge 2. The field created by an infinitely long line of charges		Oral exam

			3. The field created by a charge distributed in the form of a flat plate 4. The field created by a spherical charge 5. The electric field two parallel between conducting plates		
9	3	A lecture	6. The field of a charged body when it is in electrostatic equilibrium 7. The magnitude and direction of the electric field intensity outside the conducting body at points that are small distances from its surface.		General questions, discussion, and problem solving
01	3	A lecture	Solved examples and chapter problems		General questions and discussion or exam
11	3	A lecture	4. Introduction 4.1 The potential difference between two points located in an electric field 4.2 The relationship of voltage to field strength Linear integration of the electric field intensity	Chapter Four The Electric Potential	General questions, discussion, and problem solving

21	3	A lecture	4.3 Calculate the electrical voltage 1. The electric potential generated by a point charge (q) at any point located at a distance of (r) 2. If we have a set of point charges ($r_1, r_2, r_3 \dots r_n$) from the point we want to find For effort then. 3. The voltage created by the dipole		Oral Exam.
31	3	A lecture	4.4 Electric potential arising from a connected charge distribution If we have a continuous distribution of charge, such as: 1. The charged wire. 2. The charged ring. 3. Charged disk. 4. Plane plate. 5. The voltage generated by 4.5 Voltage generated by a charged ring		General questions and problem solving

41	3	A lecture	4.6 The potential of a charged sphere when it is in electrostatic equilibrium 4.7 Voltage gradient 4.8 Equipotential surfaces		Problems Solving
51	3	A lecture	4.9 Electric Potential Energy 1. The potential energy of a group of two charges $1q$ and $2q$. 2. The potential energy of a group of three charges.		Oral Exam.
61	3	A lecture	Solved examples Chapter Four exercises		General questions, discussion, and problem solving
71	3	A lecture	5.1 Capacity 5.2 Types of capacitors 1. Parallel plates capacitors 2. Spherical capacitors 3. cylindrical capacitors 4. advantages of capacitors	Chapter Five Capacitors & Insulators	General questions and discussion or exam

18	3	A lecture	5.3 Capacity calculation: for a capacitor with two parallel plates 5.4 Calculating the capacitance: For a cylindrical capacitance, calculate the capacitance for an isolated sphere 5.5 Connecting Capacitors 1. Connecting in parallel 2. Connecting capacitors in series		General questions, discussion, and problem solving
19	3	A lecture	5.6 Capacitor with two parallel plates with insulating material between them. 5.7 Electrical energy stored in capacitors. 5.8 Electric field in an insulating material. 5.9 Insulators and Gauss's Law		Oral Exam.
20	3	A lecture	Solved examples and answers to chapter questions		General questions and problem solving

21	3	A lecture	6.1 Current 6.1.1 Current density 6.2 Resistance Factors affecting the electrical resistance of a metal conductor 1. Temperature 2. Length 3. Cross-sectional area 4. Type of material 6.2.1 Types of resistors used in practice 1. Wired fixed resistance 2. Standard resistors 3. Variable resistors 4. Wheatstone Bridge.	Chapter Six Current & Resistance	Problems Solving
22	3	A lecture	6.3 Connecting resistors 1. Straight connection 2. Connect parallelism 3. Mixed bonding 6.4 Specific resistance 6.4.1 The relationship between resistance and the specific resistance of a conductor 6.5 Ohm's law		A monthly exam in all previous lessons

			6.5.1 Measurement of current and voltage 6.5.2 Energy transfers between an electrical circuit 6.6. Electromotive force Solve chapter questions		
23	3	A lecture	7.1 Equation of a circle 7.2. Calculating the potential difference in an electrical circuit 7.3 Electrical networks with multiple circuits 7.4 Kirchhoff's law 7.4.1 Kirchhoff's first law of current 7.4.2 Kirchhoff's second law of voltage	Chapter Seven Kirchhoff's law	Oral Exam.
24	3	A lecture	How to use Kirchhoff's law Connecting electrical poles Connect the columns in a row Connect the columns in parallel Mixed linkage		General questions, discussion, and problem solving

25	3	A lecture	Solve chapter problems		
26	3	A lecture	8.1 Introduction 8.2 Magnetic field 8.3 Magnetic flux 8.4 Direction of the magnetic field 8.5 Force on an electric charge Moving in a magnetic field 8.6 Movement of charged particles in a magnetic field 8.6.1 A particle carrying a positive charge (q) is projected with a speed (v) perpendicular to a uniform magnetic field (B). The particle will be affected by a force equal to (qvB). 8.6.2 If a charged particle enters a magnetic field at an angle 8.6.3 If the particle enters a non-uniform magnetic field	Chapter Eight Magnetism	General questions and discussion or exam

72	3	A lecture	The movement of a charged body in two perpendicular electric and magnetic fields • The force on a conductor carrying an electric current in a magnetic field •		General questions and discussion or exam
82	3	A lecture	The coupling torque on a coil passing through an electric current in a magnetic field.		Oral Exam.
29	3	A lecture	Solved examples and solutions to chapter problems		General Equations and solve problems
30	3	A lecture	A comprehensive mock exam for all semesters		Problems Solving

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					

main references :

8- Electricity by Sears

9- Electrical magnetism (Halliday and Resnick)

10- University physics (Young freedman).

Electronic reference : Alfreed in Physics

Course Description Form

47. Course Name:	
Mathematics II	
48. Course Code:	
49. Semester / Year: 2025-2026	
50. Description Preparation Date:	
2025/9/1	
51. Available Attendance Forms:	
In Person	
52. Number of Credit Hours (Total) / Number of Units (6)	
90 hours 3 hours	
53. Course administrator's name (mention all, if more than one name)	
PHD. lecturer	
Masar faseh jabbar	
email :majabbar@uowasit.edu.iq	
54. Course Objectives	
Course Objectives	This course aims to provide students with advanced mathematical foundations that enable them to analyze mathematical and applied problems in various engineering and scientific fields. This includes: Developing a Deep Understanding of Fundamental Mathematical Concepts - Understanding the nature of infinite series and convergence tests. - Learning power series and their use in function representation. - Understanding vector operations and handling different coordinate systems. Acquiring Analytical and Problem-Solving Skills

	○ Solving first and second-order differential equations using analytical and practical methods. ○ Applying directional analysis and partial differentiation to solve mathematical and physical problems. ○ Using derivatives and integrals to analyze multi-variable functions. 3. Enhancing Application Skills in Mathematics and Engineering ○ Applying mathematics to analyze physical and engineering phenomena such as dynamics, thermodynamics, and electromagnetism. ○ Understanding and using vector calculus in practical fields. ○ Solving real-world problems using differential equations and numerical analysis techniques.
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55. Teaching and Learning Strategies

Strategy	To achieve the course objectives and provide an effective learning experience, a variety of teaching strategies will be used to enhance understanding and practical application of mathematical concepts. The key strategies include: Active Learning • Encouraging students' active participation through: ○ Classroom discussions to solve mathematical problems and analyze results. ○ Group work on exercises and mathematical challenges. ○ Critical analysis of mathematical concepts and linking them to practical applications. Problem-Based Learning (PBL) • Presenting real-world mathematical challenges that require the application of acquired skills, such as: ○ Solving physical and engineering problems using calculus. ○ Analyzing mathematical modeling data in different fields. ○ Applying differential equations to problems in dynamics, thermodynamics, and electricity. Use of Technology and Digital Tools
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	- Integrating digital tools into the course for better understanding and practical application: - Using software like MATLAB and Python to solve differential equations, plot vectors, and analyze series. - Utilizing digital simulations and interactive applications to understand function behaviors and infinite series. - Reviewing recorded lessons and online lectures to enhance self-learning
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56. Course Structure					
Week	Hours	Learning Outcomes	Unit/Topic	Teaching Method	Assessment Method
1	3	Understanding the nature of sequences and series	Infinite Sequences and Series	In-person	General questions, discussion, and problem-solving
2	3	Performing convergence tests for series	Infinite Series and Convergence Tests	In-person	General questions, discussion, and problem-solving
3	3	Analyzing geometric series	Geometric Series	In-person	General questions, discussion, or quiz
4	3	Expanding functions using power series	Power Series and Function Expansion	In-person	General questions, discussion, and problem-solving
5	3	Applying Taylor and Maclaurin series	Taylor and Maclaurin Series	In-person	Oral exam
6	3	Computing logarithms using series expansion	Logarithm Computation with Power Series	In-person	General questions and problem-solving
7	3	Applying series to trigonometric functions	Computation of Trigonometric Functions	In-person	Problem-solving
8	3	Using series in engineering applications	Practical Applications of Power Series	In-person	Monthly test covering previous topics
9	3	Representing and operating vectors	Vectors and Vector Operations	In-person	Oral exam
10	3	Using coordinate systems to solve problems	Space Coordinates	In-person	Oral exam
11	3	Computing dot and cross products	Dot and Cross Products	In-person	Solving related problems

12	3	Representing lines and planes	Equations of Lines and Planes	In-person	Continuing problem-solving
13	3	Applying partial differentiation in function analysis	Partial Differentiation and Directional Derivatives	In-person	Solving related problems
14	3	Computing directional derivatives and gradients	Directional Derivative and Gradient Vector	In-person	Solving related problems
15	3	Analyzing divergence and curl	Divergence and Curl in Mathematics	In-person	Solving related problems
16	3	Applying the chain rule in differentiation	Chain Rule and Total Differentiation	In-person	Continuing topic and solving problems
17	3	Solving first-order differential equations	First-Order Differential Equations	In-person	Monthly test covering all previous topics
18	3	Analyzing linear and nonlinear equations	Linear and Nonlinear Differential Equations	In-person	Solving related problems
19	3	Handling homogeneous and non-homogeneous equations	Homogeneous and Non-Homogeneous Equations	In-person	Solving related problems
20	3	Analyzing second-order differential equations	Second-Order Differential Equations	In-person	Solving related problems
21	3	Applying methods for solving partial differential equations	Methods for Solving Partial Differential Equations	In-person	Monthly test covering all previous topics
22	3	Using differential equations in engineering and science	Applications of Differential Equations	In-person	Explanation and problem-solving
23	3	Review and practical assessments	Final Review and Progress Evaluation	In-person	Explanation and problem-solving
24	3	Conducting final exam and comprehensive evaluation	Final Exam and Course Evaluation	In-person	Explanation and problem-solving

57. Course Evaluation

Student assessment is based on participation, attendance, monthly exams, reports, and practical applications.

58. Learning and Teaching Resources

1. Calculus and Analytic Geometry - George B. Thomas, 7th Edition, 2005.	Required prescribed books
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2. A First Course in Differential Equations with Modeling Applications - Dennis G. Zill, 8th Edition, 2005. 3. Differential Equations with Boundary Value Problems - John Polking, Albert Boggess, David Arnold, 2nd Edition, 2006. 4. Schaum's Outline of Advanced Calculus - Robert Wrede, Murray R. Spiegel, 2nd Edition, 2002.	(Methodology, if any)
1. Calculus and Analytic Geometry - George B. Thomas, 7th Edition, 2005. 2. A First Course in Differential Equations with Modeling Applications - Dennis G. Zill, 8th Edition, 2005. 3. Differential Equations with Boundary Value Problems - John Polking, Albert Boggess, David Arnold, 2nd Edition, 2006. 4. Schaum's Outline of Advanced Calculus - Robert Wrede, Murray R. Spiegel, 2nd Edition, 2002. 5. Mathematical Physics - Ma'an Abdul-Majid Ibrahim, 1st Edition, 2000. 6. Partial Differential Equations for Scientists and Engineers - S. J. Farlow, Translated by Dr. Ataallah Thamer Al-Ani, University of Baghdad - Bayt Al-Hikma.	Main references (sources)
1. Calculus and Analytic Geometry - George B. Thomas, 7th Edition, 2005. 2. A First Course in Differential Equations with Modeling Applications - Dennis G. Zill, 8th Edition, 2005. 3. Differential Equations with Boundary Value Problems - John Polking, Albert Boggess, David Arnold, 2nd Edition, 2006. 4. Schaum's Outline of Advanced Calculus - Robert Wrede, Murray R. Spiegel, 2nd Edition, 2002.	Recommended supporting books and references (scientific journals, reports....)
1. MIT OpenCourseWare - Mathematics: https://ocw.mit.edu/courses/mathematics/ 2. Khan Academy - Mathematics: https://www.khanacademy.org/math 3. Paul's Online Math Notes: https://tutorial.math.lamar.edu/	electronic references, Internet sites

Course Description Form

59. Course Name:

Sound and wave motion	
60. Course Code:	
61. Semester / Year:	
2025- 2026	
62. Description Preparation Date:	
2025/9/28	
63. Available Attendance Forms:	
Attendance is Mandatory	
64. Number of Credit Hours (Total) / Number of Units ()	
60 hours / 2 hours weekly	
65. Course administrator's name (mention all, if more than one name)	
Prof. Dr. Hashim Ali Yusr Email :hashim@uowasit.edu.iq	
66. Course Objectives	
Objectives of the study subject	Cognitive dimension: Providing students with general knowledge about: 1. Understanding the science of wave motion and its importance in comprehending various branches of physics such as light and sound. 2. Mastering the understanding and interpretation of various wave phenomena and solving their applied problems. 3. Understanding vibrations, their types, interference, analysis, as well as types of waves, their equations, and propagation in different media. 4. Fundamental concepts of sound and understanding the conditions for its formation and transmission. 5. Conducting a comparison between simple harmonic motion and uniform circular motion. 6. Deriving general equations for linear and angular simple harmonic motion.

	7. Understanding applications of simple harmonic motion. 8. Ability to express and mathematically analyze the principle of superposition of simple harmonic motions. 9. Understanding damped oscillatory motion, the forces causing it, and the mathematical representation of damped oscillatory motion. 10. Understanding the most important practical applications of damped harmonic motion. 11. Understanding wave superposition in non-dispersive media (beats, amplitude modulation of radio waves). 12. Understanding the interference of sound waves equal in amplitude and frequency, whether equal or different in phase. 13. Understanding reflection and diffraction phenomena in sound. 14. Understanding forced oscillatory motion and deriving its general equation. 15. Understanding ultrasonic waves (ultrasound) and their most important applications. Skill objectives: 1. Applying theoretical concepts related to waves and sound in interpreting everyday physical phenomena. 2. Analyzing experimental data and extracting mathematical relationships between wave variables and interpreting them in light of physical laws. 3. Linking acoustic concepts with characteristics of human hearing and acoustic devices (such as resonance, sound frequencies, noise). Affective Objectives: Students demonstrate interest and readiness to learn modern concepts in sound physics and wave motion. Students appreciate the role of scientists and research that contributed to developing understanding of sound and wave motion laws. Students exhibit precision and discipline in conducting experiments and solving scientific problems.
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	Students show a spirit of cooperation and teamwork when discussing concepts or implementing classroom and laboratory activities. Students commit to scientific integrity in writing reports and research and avoiding cheating. Students show respect for others' opinions and acceptance of scientific discussion based on evidence. Students develop creativity and critical thinking in analyzing physical phenomena. Students recognize the importance of applying principles of sound physics and wave motion in modern technological fields. Students' express appreciation for the beauty of order and precision in natural laws governing the atomic and molecular world.
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67. Teaching and Learning Strategies

Strategy	First: General Teaching Strategies
	1. Interactive Lecture: To present basic theoretical concepts such as types of waves, sound characteristics, propagation laws, with opening discussion and questions during explanation. 2. Group Discussion: To stimulate scientific thinking through analyzing wave and acoustic phenomena and linking them to real-life situations. 3. Problem-Based Learning: By posing real problems such as "Why does sound change when a train passes?" or "How do we calculate the speed of sound in different media?", then analyzing them scientifically. 4. Cooperative Learning: Dividing students into small groups to conduct practical experiments or prepare scientific reports on specific topics (such as resonance or Doppler phenomenon). 5. Brainstorming: To extract the largest number of possible scientific explanations for phenomena such as diffraction or interference, before reaching the correct physical law.
	Second: Modern Teaching Strategies
	1. Blended Learning: Combining in-person lectures with e-learning through educational platforms that allow displaying videos or acoustic simulations. 2. Concept-Based Learning: Focusing on deep physical concepts instead of memorization (such as the concept of wave energy or disturbance transmission).

	3. Concept Maps: To link concepts between wave motion, sound, resonance, Doppler, and others visually to help comprehensive understanding. 4. Active Learning Strategy: Involving students in solving problems, interpreting experiments, or representing waves through hand movements or using ropes.
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68. Course Structure					
Week	H o u r s	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2	2	Knowledge acquisition specific to the lecture	Chapter One: Basic Concepts in Wave Motion: Introduction, energy transmission means, what is wave motion, types of wave motion, basic properties of mechanical wave motion transmission	Using board, projector, and e-learning	Daily oral examination
3+4	2	Knowledge acquisition specific to the lecture	Models of mechanical wave motion, sound waves, categories of mechanical wave motion, characteristics of mechanical wave motion, wave velocity and particle velocity, mathematical representation of wave motion, general equation of wave motion	Using board, projector, And e-learning	Daily oral examination
5+6+7	2	Knowledge acquisition specific to the lecture	Chapter Two: Theory of Free Vibration Introduction, oscillatory motion, equation of simple harmonic motion, solution of simple harmonic motion equation, instantaneous velocity and acceleration of simple harmonic oscillator, energy of simple harmonic oscillator, applications of simple harmonic motion (simple pendulum, floating body, liquid in U-tube, mass attached to vibrating wire, piston in cylinder, tuning forks), angular simple harmonic motion	Using board, projector, and e-learning	Daily oral examination

8	2	Exam	First Semester Examination	Classrooms	First month written examination
9+10+11	2	Knowledge acquisition specific to the lecture	Chapter Three: Superposition of Simple Harmonic Motions Superposition principle, superposition of two simple harmonic motions in the same direction, Lissajous figures, superposition of two perpendicular simple harmonic motions with the same frequency, graphical superposition of two perpendicular simple harmonic motions with the same frequency, graphical superposition of two perpendicular simple harmonic motions with frequency ratio 2:1, beats	Using board, projector, and e-learning	First month written examination
12+13+14	2	Knowledge acquisition specific to the lecture	Chapter Four: Damped Oscillation Introduction, force causing oscillation damping, damped harmonic motion equation, solution of damped harmonic motion equation (undamped case, underdamped case, critical case, overdamped motion), damping measures (logarithmic decrement, relaxation time, quality factor)	Using board, projector, and e-learning	Daily oral examination
15	2	Exam	First Semester Examination	Classrooms	Second month examination
16+17+18	2	Knowledge acquisition specific to the lecture	Chapter Five: Forced Oscillation Introduction, equation of motion for damped oscillator under external periodic force, solution of forced motion equation, resonance, amplitude of oscillation at resonance, relationship between resonance frequency and natural frequencies of oscillator, relationship between phase angle, forced frequency, and resonance	Using board, projector, and e-learning	Daily oral examination
19+20+21	2	Knowledge acquisition specific to the lecture	Chapter Six: Transverse Waves in One Dimension Introduction, oscillatory and wave motion, one-dimensional	Using board, projector, and e-learning	Daily oral examination

			transverse wave motion, equation of transverse wave motion in vibrating string, transverse wave energy, wave reflection (at fixed end of stretched wire, at free end, at movable end of stretched wire), standing waves, free vibration of stretched string with finite length, sonometer, laws of vibrating strings		
22+23+24	2	Knowledge acquisition specific to the lecture	Chapter Seven: Longitudinal Waves (Sound Waves) Introduction, longitudinal waves in metal rod, longitudinal waves in fluid column, sound wave equation in terms of pressure, speed of sound wave in gas, Laplace correction, sound intensity, standing longitudinal waves in resonance tubes (closed at both ends, open at both ends, open at one end and closed at the other)	Using board, projector, and e-learning	Daily oral examination
25	2	Exam	Second Semester Examination	Classrooms	First month examination
26+27	2	Knowledge acquisition specific to the lecture	Chapter Eight: General Considerations in Sound and Wave Phenomena Introduction, subjective aspect of sound, loudness, pitch, sound quality, pure sounds (or inaudible), decibel scales, noise, factors affecting sound wave speed in air, sound wave properties, Doppler phenomenon	Using board, projector, and e-learning	Daily oral examination
28+29	2	Knowledge acquisition specific to the lecture	Chapter Nine: Ultrasonic Waves and Their Applications Introduction, historical overview of ultrasonic waves, mechanism of ultrasonic wave generation, components of ultrasonic device, effect of ultrasonic waves on biological cells, behavior of ultrasonic waves in human body, some applications of ultrasonic waves (defect and crack detection, depth estimation by echo, metal	Using board, projector, and e-learning	Daily oral examination

			mixing, biological medical applications)		
30	2	Exam	Second Semester Examination		Second month examination
69. Course Evaluation					
Grade distribution out of 100 according to tasks assigned to students such as daily preparation, daily and monthly oral and written examinations, where 60% is the final examination and 40% includes discussion, evaluation of reports and seminars, etc.					
70. Learning and Teaching Resources					
Physics of Sound and Wave Motion, Dr. Amjad Abdul-Razzaq Karjiya, University of Mosul, 2000				Required prescribed books (Methodology, if any)	
1. Mechanical Properties of Materials - Joshua Pelleg 2. Theory and Problems of Acoustics (Schaum's Outline Series). William W. Seto. Published by McGraw-Hill, 1971				Main references (sources)	
1. Acoustics: An Introduction to Its Physical Principles and Applications, by Allan D. Pierce 2. Vibrations and Waves by A.P. French 3. The Journal of the Acoustical Society of America (JASA) By: Acoustical Society of America / AIP Publishing				Recommended supporting books and references (scientific journals, reports....	
Information available on the Internet in the form of texts, lectures, books, and videos.				electronic references, Internet sites	

Course Description Form

1. Course Name:
Educational Administration and Secondary Education

2. Course Code:
216 PHSE
3. Semester / Year:
2025-2025
4. Description Preparation Date:
28/9/2025
5. Available Attendance Forms:
Daily Attendance
6. Number of Credit Hours (60) / Number of Units (4)
2 Theoretical Hours
7. Course administrator's name (mention all, if more than one name)
Assist.Assistant lecturer.KAREEM ANWER JASIM kjasem@uowasit.edu.iq
8. Course Objectives

Course Objectives	Increasing the student's understanding of the educational reality even throughout the ages and awareness of the educational biography in its utmost necessities and understanding of educational theories on various ancient and modern peoples. Interpreting the educational process from a historical and philosophical point of view sheds light on the creator and education, clarifying the illiteracy role of educational social upbringing institutions, and helping the demand for training and sensitivity to the importance of the educational method, organized and it is also a science that describes and explains the educational effect in reality History Ancient and modern Defining the educational reality revealed by the philosophical schools in education and defining the goals of education Society and applications of concepts Increasing the student's understanding of the educational reality even
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	throughout the ages and realizing the educational biography in its most essential necessities and understanding the educational theories of various peoples, ancient and modern Interpreting the educational process from the historical and philosophical point of view 0 and shedding light on the creator and creator of education, stating the importance of the role Educational and social institutions, and help the demand for training and sensitivity to the importance of
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9. Teaching and Learning Straies

Strategy	Brainstorming strategies, learning strategies, and other solutions for solving problems.
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10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Learning Method	Assessment Method
1-4	8	Understanding and teaching the student the basics of electrical physics and mathematics related to electrical physics, teaching him electrical circuits and everything related to them.	Management concepts and function Educational management concepts and characteristics Educational management skill Educational management management Centralization and centralization	Blackboard, Display Screen, E-learning	Daily oral and written exams
5-8	8	Empowering students to get knowledge and understanding in action modern electrical circuits.	School Circuit Classical Teacher School Administration Functions School Administration Patterns Foundations of Democratic Administration School Principal Skills -Factors Influencing Educational Administration	Blackboard, Display Screen	Daily oral and written exams
9-12	8	Enabling students to obtain knowledge and understanding of the design of various electrical circuits	Classroom Management Concept The Importance of Classroom Management Areas of Classroom Management	Blackboard, Display Screen	Daily oral and written exams

			Objectives of Classroom Management Factor Influencing Classroom Management The Importance of Classroom Interaction		
13-15	6	Electrical by specialists in the subject matter with emphasis on using mathematics as a basis to understand and learn.	The concept of educational supervision Objectives of educational supervision Foundations of educational supervision Functions of educational supervision Types of educational supervision Methods of educational supervision	Blackboard, Display Screen	Daily oral and written exams
16	2	Midterm Exam	On-Site Examination	Exam	Exam

17-20	8	Giving them practical skills in solving problems related to electrical circuits.	School Society Communication outside the school For secondary education General objectives Specific objectives Stages of secondary education Problems facing education Importance of secondary education	Blackboard, Display Screen	Daily oral and written exams
11. Course Evaluation					
Grades are distributed out of 100 based on tasks assigned to students such as daily preparation, oral and written quizzes, discussions, report evaluations, and seminars					
12. Learning and Teaching Resources					
Educational management				Required Textbooks (If Available)	

Educational management	Main references (sources)
Abu Jado, Saleh (2001) Educational Psychology, Dar A1 Masirah Publishing House, Amman Abu Shindi, Sahar. (2011), Human Resources Management in Educational Institutions, Osama Publishing and Distribution House, Amman, Jordan. Abu Sheikha Nader, (2002), Time Management, Majdalawi Publishing House, Amman, Jordan. Abu Ghazala, Muhammad (2005), Building a training program for department directors in the Jordanian Ministry of Education in light of reality and contemporary administrative trends, unpublished doctoral thesis, Amman Arab University for Postgraduate Studies, Amman, Jordan.	Recommended supporting books and references (scientific journals, reports....
	electronic references, Internet sites

1. UNTRANSLATED_CONTENT_START المقرر UNTRANSLATED_CONTENT_END
Curriculum and Textbook/Practical
2. UNTRANSLATED_CONTENT_START: UNTRANSLATED_CONTENT_END
-
3. Semester/year
2025-2026
4. :
5 October 2025

5. Available attendance forms					
In-Person					
6. UNTRANSLATED_CONTENT_START UNTRANSLATED_CONTENT_END					
60H					
7. UNTRANSLATED_CONTENT_START UNTRANSLATED_CONTENT_END					
Name: EMD.Amer Karim Hasal					

		discussion and empowerment Students from that art in a scientific way Realistic			
Second	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Curriculum regulations	Panel Discussion Active Learning Lecture	- Questions and Discussions Exchange of views
The third	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Philosophical method.	Panel Discussion Active Learning Lecture	- Questions and Discussions
The Fourth.	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Panel Discussion Active Learning Lecture	- Questions and Discussions	

		Students from that art in a scientific way Realistic			
Fifth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Foundations of Building a Cognitive and Social Approach	Panel Discussion Active Learning Lecture	- Questions and Discussions Exchange of views
Sixth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Separate Curriculum Types	Panel Discussion Active Learning Lecture	- Questions and Discussions A written test
The seventh	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Types of interrelated curricula and broad areas	Panel Discussion Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
Eighth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Type of Curriculum Activity and Units	Panel Discussion 19. Active Learning Lecture	- Questions and Discussions
Ninth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Pivotal Curriculum Types	Panel Discussion Active Learning Lecture	- Questions and Discussions
tenth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Elements of Method	Panel Discussion Active Learning Lecture	- Questions and Discussions A written test

		Students from that art in a scientific way Realistic			
11th Grade	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Elements of Method	Panel Discussion Active Learning Lecture	- Questions and Discussions
twentieth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Elements of Method	Panel Discussion 19. تعاوني تعليم Active Learning Lecture	- Questions and Discussions
Thirteenth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	textbook	Panel Discussion 19. تعاوني تعليم Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
Fourteenth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Paper and electronic textbooks	Panel Discussion تعاوني تعليم 19. Active Learning Lecture	- Questions and Discussions A written test
Fifteenth	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Theoretical basis of content analysis Definition of content analysis	Panel Discussion تعاوني تعليم 19. Active Learning Lecture	- Questions and Discussions
XVI	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Content analysis in light of some variables	Panel Discussion Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
XVII	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Curriculum elements and teaching methods	Panel Discussion Active Learning Lecture	- Questions and Discussions
XVIII	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Educational Activities:	Panel Discussion Active Learning Lecture	- Questions and Discussions
XIX	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Teaching Aids	Panel Discussion Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
20th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Technological innovations	Panel Discussion Active Learning Lecture	- Questions and Discussions
21st	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Evaluation in Teaching	Panel Discussion Active Learning Lecture	- Questions and Discussions
22nd	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Types of Classroom Tests	Panel Discussion Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
23rd	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Curriculum Evaluation and its Annexes	Panel Discussion Active Learning Lecture	- Questions and Discussions
24th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Curriculum Development	Panel Discussion Active Learning Lecture	- Questions and Discussions
XXV	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Basic Models for Curriculum Development	Panel Discussion. Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
26th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Updated Curriculum Trends Curriculum Theories	Panel Discussion · Active Learning Lecture	- Questions and Discussions
Twenty-seventh	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Classification of Curriculum Theories	Panel Discussion · Active Learning Lecture	- Questions and Discussions
28th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment	Curriculum theories are encyclopedic and fundamental	Panel Discussion · Active Learning Lecture	- Questions and Discussions

		Students from that art in a scientific way Realistic			
29th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Pragmatic and Polytechnic Curriculum Theories	Panel Discussion Active Learning Lecture	- Questions and Discussions
30th	2	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowerment Students from that art in a scientific way Realistic	Technological Approach	Panel Discussion Active Learning Lecture	- Questions and Discussions A written test
Distribution of the score of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly and written examinations and reports etc.)					
Required textbooks (methodology if any)			Curriculum and textbook		

Key References (Sources)	
UNTRANSLATED_CONTENT_START UNTRANSLATED_CONTENT_END)	
E-References , Websites	

Course Description Form

2. Course Name:
Exercises and textbook/practical work
3. Course Code:
4. Semester / Year:
2026-2025
5. Description Preparation Date:
28/9/2025
6. Available Attendance Forms:
Daily Attendance
7. Number of study hours (total) / Number of units (total)
30 hours / 2 hours per week
8. Course administrator's name (mention all, if more than one name)

Assist.Assistant lecturer. Alaa Sabah Mohammed

alaa.mohammed@uowasit.edu.iq

9. Course Objectives

Course Objectives

Understanding the objectives of the curriculum and textbook.

The logical and psychological organization of the material.

The ability to analyze current issues in the curriculum and contemporary issues.

10. Teaching and Learning Strategies

Strategy	Brainstorming strategies, learning strategies, and other solutions for solving problems.
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11. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Learning Method	Assessment Method
1-4	8	Enabling students to understand the material. Cultivating a culture of scientific discussion and empowering students to master this art in a practical and scientific manner.	Curriculum and textbook	Discussion group Collaborative learning Active learning Report writing	Questions and Discussions - Test Written

12. Course Evaluation

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

13. Learning and Teaching Resources

Curriculum book and textbook	Required Textbooks (If Available)
	Main references (sources)

Course Description Form

_Course Name:
Teaching Thinking
The chapter /Year
2025_2026
Date of preparation of description
2025/10/7
Available forms of attendance
Mandatory physical attendance
Number of Credit Hours (Total) / Number of Units (Total)
30 Hours Theoretical
Course administrator's name (mention all, if more than one name)
Fuad Latif Turki fturki@uowasit.edu.iq
Course objectives

Course objectives	-1_The cognitive dimension: (a) It provides the student with ideas, information, data, and basic principles for the topics of this subject in terms of their emergence and role in improving and developing the teaching process.)b) That the student understands the concepts contained in this course and is able to apply them practically. -22_The emotional dimension: (a) Helping the student develop his abilities and inclinations towards understanding the topics of this study subject The psychomotor dimension (skills): (a) Developing the student's ability to master 3_the skill of investigating the facts, basics and principles of this academic subject into practical, observable performance practices.)B): Training the student on the basic skills that enable him to invest and employ the concepts and principles of this subject in his field of work after graduation..
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Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Knowledge	Transition to teaching and learning thinking; characteristics of thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
2	1	Knowledge	The importance of teaching thinking, the nature of thinking and its levels	Using the whiteboard, display screen, and e-learning	Daily oral and written exam

3	1	Knowledge	Factors affecting teaching thinking Obstacles to teaching thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
4	1	Knowledge	Thinking skills The difference between thinking and thinking skills	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
5	1	Knowledge	Teaching thinking skills with some applications	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
6	1	Knowledge	Quality in teaching thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
7	1	Knowledge	Lifelong learning	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
8	1	Knowledge	Education for sustainable development	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
9	1		First semester exam	Exam	
10	1	Knowledge	Thinking patterns	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
11	1	Knowledge	The relationship between thinking and intelligence	Using the whiteboard, display screen, and e-learning	Daily oral and written exam

12	1	Knowledge	Types thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
13	1	Knowledge	Core thinking skills	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
14	1	Knowledge	Information processing skills	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
15	1	Knowledge	Intuitive thinking Inferential thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
16	1	Knowledge	Critical thinking Creative thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
17	1	Knowledge	Second semester exam	Exam	
18	1	Knowledge	Metacognitive thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
19	1	Knowledge	Learn about thinking training programs	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
20	1	Knowledge	Mistori programs	Using the whiteboard, display screen, and e-learning	Daily oral and written exam

21	1	Knowledge	Pestalozzi programs	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
22	1	Knowledge	SCAMPER programs	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
23	1	Knowledge	Cort software	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
25	1	Knowledge	Six Hats Programs	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
26	1	Knowledge	The most important strategies that develop thinking	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
27	1	Knowledge	Thinking and method	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
28	1	Knowledge	Teaching thinking in the school curriculum	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
29	1	Knowledge	Trends in teaching thinking in the school curriculum	Using the whiteboard, display screen, and e-learning	Daily oral and written exam
30	1	Knowledge	The relationship between thinking and method	Using the whiteboard, display	Daily oral and written exam

				screen, and e-learning	
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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

1. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Thinking, its types, and teaching strategies
Main references (sources)	Mohsen Ali Attia 2015
Recommended books and references (scientific journals, reports...)	Websites
Electronic References, Websites	

Course Description Form

1. Course Name:
Biology/ theoretical part
2. Course Code:
215 PHC2
3. Semester / Year:
2025/ 2026
4. Description Preparation Date:
25/9/2025
5. Available Attendance Forms:
Daily attendance
6. Number of Credit Hours (Total) / Number of Units (Total) :
30 hours Number of units (2 units)
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer . zamen abood ramadhan
Email: z.ramadaan@uowasit.edu.iq
8. Course Objectives

Course Objectives	1- Distance from industry: (a) Provides the artist with commercial ideas, data and basic topics of this subject in terms of its emergence and its role in contributing to the development of technology. (b) That the student comprehends the concepts contained in this subject and is able to apply them practically. 2- Emotional methods: (a) Helping the student develop his abilities and inclinations to understand the topics of this subject. (b) Developing the student's attitudes and interests towards understanding the basic concepts of this subject and employing them in the field of education (teaching). 3- Psychomotor methods (skills): (a) Developing the student's ability to master the skill of fact-finding and the basics and principles of this subject to practical administrative practices that can be observed. (b): Training the student on the basic skills that enable him to invest and employ the concepts and principles of this subject in the field of work after graduation.
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9. Teaching and Learning Strategies

Strategy	-Thinking and Discussion Method - E-learning (Explanatory Videos and Electronic Tests) - Practical Tests
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Knowledge	Security and network and types of network	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
2	1	Knowledge	Basic network component and basic security components	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
3	1	Knowledge	Concept of electronic banking ATM	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
4	1	Knowledge	Phone banking and Telephone banking	Using whiteboard and data show and E-learning	Exams and quick exams and assignments

5	1	Knowledge	Determine and solve problem hardware and software	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
6	1	Knowledge	Tools and technique for diagnosing and resolve issue	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
7			exam		
8	1	Knowledge	Define of A.I and history of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
9	1	Knowledge	Technique and challenging	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
10	1	Knowledge	A.I in our life	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
11	1	Knowledge	Application of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
12	1	Knowledge	A.I and security	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
13	1	Knowledge	Relations spatial of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
14	1	Knowledge	A.I and future of human	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
15	1	Knowledge	Challenging of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments

16	1	Knowledge	Ethos of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
17	1	Knowledge	Privacy and surveillances	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
18	1	Knowledge	Effect of A.I for job market	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
19	1	Knowledge	Future of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
20	1	Knowledge	Future trend of A.I	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
21	1	Knowledge	Emerging technologies	Using whiteboard and data show and E-learning	Exams and quick exams and assignments
22	1	Knowledge	Emerging technologies	Using whiteboard and data show and E-learning	Exams and quick exams and assignments

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily and monthly oral exams. And editing, discussing and evaluating reports and seminars , 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:	
Arabic language	
2. Course Code:	
AR103	
3. Semester / Year:	
2025/2026	
4. Description Preparation Date:	
25/10/2025	
5. Available Attendance Forms:	
Self-attendance	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
30hours per year and 1 units per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Huda hameed naif Email: hnaif@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Identifying the concept of grammar, language, and literature, and the surrounding concepts within the Arabic language. Highlighting the study of the basics of the Arabic language and continuing to circulate it to maintain writing in a sound language free of errors. The necessity of paying attention to the Arabic language to resist error and distortion, alerting students to the importance of the Arabic language in developing communication abilities and skills between the speaker and the recipient, writing reports and articles in the Arabic language in a smooth, accurate and organized manner, and students communicating with their mother tongue, as well as enabling students to read the Qur'an correctly, as well as focusing on the importance of writing in a beautiful, clear and sound handwriting.

9. Teaching and Learning Strategies					
Strategy		Educational Thinking and Discussion Method E-learning (Explanatory Videos and Electronic Tests)			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	The student learns what was presented in the lecture	Hamza in the Arabic language -The hamza of the pieces and their locations	Using the pen and board and data show	Exams and quick exams and assignments
2	1	The student learns what was presented in the lecture	- Hamzat al-Wasl and its places - Differentiating between the two hamzas of pieces And the connection - The hamza is at the beginning of the word	Using the pen and board and data show	Exams and quick exams and assignments
3	1	The student learns what was presented in the lecture	- The medium hamza - Cases of drawing the middle hamza	Using the pen and board and data show	Exams and quick exams and assignments
4	1	The student learns what was presented in the lecture	The hamza at the end of the word (extreme) - Exercises	Using the pen and board and data show	Exams and quick exams and assignments

5	1	The student learns what was presented in the lecture	Writing the letters dhaad and dhaa in Arabic	Using the pen and board and data show	Exams and quick exams and assignments
6	1	The student learns what was presented in the lecture	Punctuation marks in Arabic -The importance of punctuation marks - Commas and their positions - Semicolons and their positions -The point and its locations -The two vertical dots	Using the pen and board and data show	Exams and quick exams and assignments
7	1	The student learns what was presented in the lecture	Question mark and its locations - Exclamation mark and its locations -Police (-)	Using the pen and board and data show	Exams and quick exams and assignments
8	1	The student learns what was presented in the lecture	- ellipsis - Quotation marks and their positions -The two semicircular arcs and their positions	Using the pen and board and data show	Exams and quick exams and assignments
9	1	The student learns what was presented in the lecture	Writing the alif maqasara at the end The word - In names	Using the pen and board and data show	Exams and quick exams and assignments

			- In actions		
10	1	The student learns what was presented in the lecture	Writing the extended alif at the end The word - In names - In actions	Using the pen and board and data show	Exams and quick exams and assignments
11	1	The student learns what was presented in the lecture	The Arabic sentence and its types - Past tense -His signs	Using the pen and board and data show	Exams and quick exams and assignments
12	1	The student learns what was presented in the lecture	Present tense verb -His cases	Using the pen and board and data show	Exams and quick exams and assignments
13	1	The student learns what was presented in the lecture	First semester exam	Using the pen and board and data show	Exams and quick exams and assignments
14	1	The student learns what was presented in the lecture	Types of present tense verbs - The present tense verb is correct - The present tense verb is in the other's condition - The present tense verb is one of the five verbs	Using the pen and board and data show	Exams and quick exams and assignments
15	1	The student learns what was presented in the lecture	Do the command Construct an imperative verb - Exercises	Using the pen and board and data show	Exams and quick exams and assignments
16	1	The student learns what was presented in the lecture	Number rules and numerical adjectives	Using the pen and board and data show	Exams and quick exams and assignments

			- Definition of number - The rule of number in terms of reminder And feminization - Contract terms - Parsing and constructing numbers - Presenting the countable to the number		
17	1	The student learns what was presented in the lecture	Actor - Types of actor - Pictures of the actor - Characteristics of the actor - Feminine sign in verbs	Using the pen and board and data show	Exams and quick exams and assignments
18	1	The student learns what was presented in the lecture	Second semester exam (first month)	Using the pen and board and data show	Exams and quick exams and assignments
19	1	The student learns what was presented in the lecture	The representative of the actor - Definition - Pictures of the deputy actor - Provisions of the active subject - What replaces the subject after deleting it	Using the pen and board and data show	Exams and quick exams and assignments

20	1	The student learns what was presented in the lecture	- Modal verbs	Using the pen and board and data show	Exams and quick exams and assignments
21	1	The student learns what was presented in the lecture	Literature - History of literature and its codification - Divisions of the history of Arabic literature and its eras - Pre-Islamic literature - Its characteristics	Using the pen and board and data show	Exams and quick exams and assignments
22	1	The student learns what was presented in the lecture	- Prose in the pre-Islamic era - The arts of pre-Islamic prose - Imru' al-Qais ibn Hajar and his famous commentator, memorizing part of its verses	Using the pen and board and data show	Exams and quick exams and assignments
23	1	The student learns what was presented in the lecture	- Literature in the Islamic era - Literary arts in early Islam - Characteristics of poetry in early Islam	Using the pen and board and data show	Exams and quick exams and assignments
24	1	The student learns what was presented in the lecture	- Prose in Islam - Public speaking - Messages	Using the pen and board and data show	Exams and quick exams and assignments
25	1	The student learns what was presented in the lecture	Umayyad era - Literary arts in the Umayyad era - the hair	Using the pen and board and data show	Exams and quick exams and assignments

			- Public speaking and debates		
26	1	The student learns what was presented in the lecture	Al-Farazdaq - His intention (the famous Al-Farazdaq meme)	Using the pen and board and data show	Exams and quick exams and assignments
27	1	The student learns what was presented in the lecture	Abbasid literature - the hair -His stuff - Prose and its types	Using the pen and board and data show	Exams and quick exams and assignments
28	1	The student learns what was presented in the lecture	Second semester exam (second month)	Using the pen and board and data show	Exams and quick exams and assignments
29	1	The student learns what was presented in the lecture	Abu Alaa Al-Maarri -His life - Topics of his poems	Using the pen and board and data show	Exams and quick exams and assignments
30	1	The student learns what was presented in the lecture	Quranic study - The inheritance verse from Surat An-Nisa - The reason for going down - Interpretation	Using the pen and board and data show	Exams and quick exams and 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)	Arabic language for departments other than specialization
Main references (sources)	Explanation of Ibn Aqeel on Al-Fiyah Ibn Malik, edited by Muhyiddin Abdul Hamid
Recommended books and references (scientific journals, reports...)	The collection of Arabic lessons is an encyclopedia in three parts

Course Description Form

1-	Course Name
	English Language
2-	Course Code
	2C2EI 106
3-	Semester / Year
	2025/2026
4-	Description Preparation Date
	21/10/2025
5-	Available Attendance Forms
	Actual Mandatory Attendance
6-	Number Of Credit Hours (Total / Number of Units (Total)
	30 Theoretical Hours
7-	Course Administrators Name (mention all if more than one name)
	Name:- Sawsan Ridha Hasan Email:- s.ridha@uowasit.edu.iq
8-	Course Objectives
	1- To enrich the students' knowledge about English language 2- Improve students ability in listening ,speaking , reading and writing 3- make the students familiar to use English language in their study
9-	Teaching and Learning Strategies
strategy	- Discussion and asking questions, encouraging students to participate in speaking, reading and translation.

10-	Course Structure				
Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1-8	8	Tenses ,questions, using bilingual dictionary . parts of speech . words with more than one meaning .	Unit1 :- Getting to Know You.	Theoretical Lectures	Examinations and daily Activities
		present simple . present continuous . using have got and has got ,describing countries .	Unit 2:- The Way We Live.	Theoretical Lectures	Examinations and daily Activities
		past simple , past continuous , irregular verbs , making connections suffixes to make different words and negatives	Unit 3:- It all Went Wrong	Theoretical Lectures	Examinations and daily Activities
		Review	Exercises and solutions		
9-16	8	Quantity (much, many)Some and any(someone, anyone) somewhere, anywhere) learning buying things	Unit 4: Lets go shopping	Theoretical Lectures	Examinations and daily Activities
		Review	Exercises and solutions	Theoretical Lectures	Examinations and daily Activities
		Verb patterns 1 , future intentions , hot verbs (have , go and come)	Unit 5: What do you want to do		Examinations and daily Activities
		What's like ,comparative and superlative adjectives , talking about cities , synonyms and antonyms	Unit 6 : tell me what's like Exercises and solutions	Theoretical Lecture	Examinations and daily Activities

		Present perfect and past simple , for and since , tense revision, past participle , adverbs and word pairs	Unit 7: Fame	Theoretical Lectures	
17-22	6	Review Obligation (have (got),should and must). Jobs , words that go together and compound nouns. Time and conditional clauses, hot verbs (take , get , , do and make) Verb patterns 2 infinitive purposes, describing feelings and situations	Exercises and solutions Unit 8: Do and Don't Unit 9: Going places Unit 10: Scared to death	Theoretical Lectures Theoretical Lectures Theoretical Lectures Theoretical Lectures	Examinations and daily Activities Examinations and daily Activities Examinations and daily Activities Examinations and daily Activities
23-27	5	Review Passive , verbs and participle , verbs and nouns go together	Exercises and solutions Unit 11: Thing that changed the world	Theoretical Lectures Theoretical Lectures	Examinations and daily Activities Examinations and daily Activities
28-30	3	Second conditional , might phrasal verbs Present perfect and present perfect continuous	Unit 12: Dreams and reality Unit 13: Earning a living	Theoretical Lectures	Examinations and daily Activities

		, word formation and adverbs Past perfect , reported statement , hot verbs (bring, take , go and come)	Unit 14: Family Ties	Theoretical Lectures	Examinations and daily Activities
11-	Course Evaluation				
	- The 40th annual session is divided into - 30 marks for the semester exams (at last Two test in each semester . - 10 marks for participation , activities and homework				
12-	Learning and Teaching Resources				
Required textbooks(curriculum books , if any)			New Headway plus for Pre -Intermediate , John and Liz Soars , Oxford		
Main references (sources)					
Recommended books and references (scientific journals , reports....)					
Electronic References , Websites					

Course Description Form

1- Course name					
Crimes of the Baath regime in Iraq					
2- Course code					
3- Chapter/Year					
2025_2026					
4- Date of preparation of this description					
2025/9/28					
5- Available attendance forms					
Daily attendance					
6- Number of study hours (30) / Number of units (1(					
1One hour theory					
7- Course Instructor Name					
M.M. Lara Mahmoud Jabbar/ ljabbar@uowasit.edu.iq: Email					
8- Course objectives					
This course aims to introduce students to the heinous crimes committed by the Baath regime in Iraq, and to track, document, analyze and study them to reveal the truth about the tragedies, calamities and disasters that occurred in our country as a result of the unjust Baath regime, which included all aspects of social life.					
9- Teaching and learning strategies					
1_Identifying the crimes of the Baath regime in Iraq -2Analyzing and documenting an important era in modern Iraqi history that was characterized by darkness -3Reviewing the crimes of mass graves -4Clarifying the effects of the crimes of draining the marshes and adopting the scorched earth policy and its impact on Iraqi society					
10- Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Watches	The week

General questions and scientific discussion	My theoretic al presence	Introduction to the subject	We explain the most important vocabulary of the subject matter.	1	1
General questions and scientific discussion	My theoretic al presence	Iraqi High Criminal Court Law of 2005 against the Baath regime	We introduce the student to the most important laws of the new Iraqi constitution.	1	2
General questions and scientific discussion	My theoretic al presence	The concept of Baath crimes and their types	Detailed definition of crime types	1	3
viva voce	My theoretic al presence	Definition of crime	Teaching students the definitions and concept of crime.	1	4
General questions and scientific discussion	My theoretic al presence	Crime Sections	Detailed explanation of all crime sections	1	5
Clarification of what was mentioned in the previous lecture	My theoretic al presence	International crimes	Explaining in detail what was mentioned about the party's international crimes	1	6
Monthly exam	MY theoretic	Exam	a test	1	7

	al presence				
General questions and scientific discussion	My theoretic al presence	Psychological crimes of the Baath regime and their effects Mechanisms of psychological crimes Effects of psychological crimes	The effects of psychological crimes on individuals	1	8
General questions and scientific discussion	My theoretic al presence	Social crimes of the Baath regime and their effects Militarization of society	Highlighting the brutal methods used by students in society	1	9
Daily activity + report	My theoretic al presence	The economic crimes of the Baath regime and their effects	Explaining the role of economic crimes and their negative effects on the individual economy	1	10
General questions and scientific discussion	My theoretic al presence	International crimes of the Baath regime and their effects	The impact of international crimes on the people	1	11
Scientific and general questions about the subject matter	My theoretic al presence	The most prominent violations of the Baath regime in Iraq	Providing a detailed explanation of the most prominent violations of the party against the Iraqi people	1	12
General questions and scientific discussion	My theoretic	The Baath regime's position on religion	Explaining the party's vision of the true religion	1	13

	al presence				
Analysis and discussion	My theoretic al presence	Violations of Iraqi laws	Highlighting the party's role in violating the status quo laws and making them mere ink on paper	1	14
exam	My theoretic al presence	First semester exam	a test	1	15
		Spring break	vacation		
General questions and scientific discussion	My theoretic al presence	Human rights violations	A detailed explanation of the most brutal violations that the Iraqi people were subjected to, ignoring human rights.	1	1
General questions and scientific discussion	My theoretic al presence	Political violations of the Baath regime	Delving into the political violations committed by the party with individuals	1	2
General questions and scientific discussion	My theoretic al presence	Military violations of the Baath regime	Delving into the military violations committed by the party against individuals	1	3
General questions and scientific discussion	My theoretic al presence	The most prominent torture prisons of the Baath regime	A pictorial explanation of the violations in Iraqi prisons during the rule of the tyrant and their shameful	1	4

			actions towards the prisoners		
General questions and scientific discussion	My theoretic al presence	Environmental crimes in Iraq	We should not forget the negative effects of the party on the environment and the methods used in this regard.	1	5
General questions and scientific discussion	My theoretic al presence	War and radioactive pollution	A detailed explanation of the prohibited weapons of war with radiation that is destructive to the environment and humans.	1	6
Monthly exam in all previous subjects	My theoretic al presence	Evaluation Second semester exam	a test	1	7
General questions and scientific discussion	My theoretic al presence	A detailed explanation of the reasons for drying up the marshes and the negative effects resulting from drying up	The methods of repression used by the party to remove and destroy cities and villages opposing its authority	1	8
General questions and scientific discussion Oral exam	My theoretic al presence	Drying up the Iraqi marshes	A detailed explanation of the reasons for drying up the marshes and the negative effects resulting from drying up	1	9
				1	10

General questions and scientific discussion	My theoretical presence	Cutting trees, removing orchards and bulldozing farms	Meandering to the causes of orchard clearing and tree cutting, with mention of the resulting effects		
Daily activity + report	My theoretical presence	Mass grave crimes	Detailed presentation with pictures of mass graves, concept, methods of crime, and its effects	1	11
General questions and scientific discussion	My theoretical presence	Chronological classification of mass graves 1963-2003	A chronological display of the events related to the mass graves for each location and governorate in detail.	1	12
General questions and scientific discussion	My theoretical presence	Creating genocide graves committed by the Baath regime	Explaining the methods used in the process of mass grave crimes, touching on the groups affected by these crimes.	1	13
General questions and discussion of what was covered in previous lectures	My theoretical presence	Pictures of crimes of the authorities and their reviews	A visual review of most of the crimes committed by the Saddamist party against the Iraqi people	1	14
General questions and scientific discussion	My theoretical presence	Final Exam	Final exam	1	15

11- Course Evaluation					
- The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and final written exams, reports, etc.					
12- Learning and teaching resources					
Crimes of the Baath regime in Iraq			-1Required textbooks		
1 -Iraqi Center for Documenting Baath Crimes, Reports Condemning the Baath Regime (Human Rights Violations(2 -Abdul Razzaq Al-Saadi, Bitter Legacy (Lessons from the De- Baathification Process in Iraq(			-2Main references (sources(		
The Poisoned Chalice (UN Reports on the Iraqi High Tribunal's Decision in the Dujail Case(			-3Recommended books and references (scientific journals, reports, etc((.		

Course Description Template for Third Year

Course description template

71.	Course Name
Electronics / Theoretical Part	
72.	Course code
73.	Semester/Year
2026 - 2025	
74.	Date this description was prepared
2025/9/22	
75.	Available forms of attendance
Daily attendance	
76.	Number of study hours (90 hours) / Number of units (6 units)
hours theory + 2 hours practical 3	
77.	Name of the course coordinator (if there is more than one, please .(mention it
:Name Assist prof. Ahmed Qasim Ubaid	
:tends A The letter aubaid@uowasit.edu.iq	
78.	objectives Course
Knowledge and understanding: To enable the student to understand the basic principles of the atom , including , the nature of atoms , crystal structure atomic theories , electrons , and protons.	Course objectives

- Understanding the basic laws of semiconductor conduction, such as forward and reverse bias.
- Studying the properties of semiconductor materials, their conductivity mechanisms, and doping.

- **Analytical skills:**

- Developing the student's ability to analyze how semiconductors are connected
- Applying the principles of electronics to explain the movement of electrons.
 - Using mathematical methods and physical models to describe the behavior of atoms in different environments.

Practical and applied skills :

- Acquiring skills in using basic electronic devices such as diodes and transistors
- The ability to design visual experiments and interpret the results logically and scientifically.
 - Applying electronics concepts in ,technological fields such as lasers optical fibers, optical devices, and optical communications.

Critical and creativethinking :

- Encouraging students to connect theories with practical applications in everyday life.

- Developing the ability to devise solutions to complex electronic problems.

79. Teaching and learning strategies

- **Interactive lectures:** Explanation of the basic principles of atomic structure with Examples and diagrams Clarification, and posing stimulating questions for discussion.
- **Virtual practical activities:** Using simulators and virtual experiments to illustrate the movement of electrons.
- **Problem solving and discussion:** Training students to solve practical problems and discuss the workings of electronic circuits
- **Active learning:** Encouraging students to participate in group discussions and link theoretical concepts to practical applications.

strategy

80. Course structure

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
The exam Ali and Mi Oral	Using the whiteboard and screen The show and education electronic	Atomic structure, theory Packages in materials Solids, material classification	General introduction to Semiconductors	3	1

		Semiconductors and their relationship Energy gap conductivity in solids			
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Electron distribution Fermi level Semiconductors Pure, grafted semi-pure The connector is of type p, n .	General introduction to Semiconductors	3	2
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	PN junction configuration and its energy band diagram the crystalline diode, barrier potential and its calculation PN junction in biased condition	Second crystal	3	3
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Diode equation effect of temperature on diode properties equivalent circuit of a crystal diode diode properties	Second crystal	3	4

		line of convection and point of .operation			
The exam Ali and Mi Oral	Using the whiteboard and screen The show and education electronic	Modulation (calendar), half and full ,modulation bridge ,modulationRF ripple factor , modulation ,efficiencyPIV , ,filter circuitsRC filter ,LC filter and RLC , filter	Binary applications crystal	3	5
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Waveform :shaping circuits limiting and its types, binding ,and its types voltage ,multiplier special diodes and)diodes 10(white light- emitting diode	Binary applications crystal	3	6
exam Editorial	In-person exam	Exam No. 1	a test	3	7
The exam Ali and Mi	Using the whiteboard and	,Composition ,properties	Zener duo	3	8

Oral and written	screen The show and education electronic	The symbol, the equivalent circle Lesner, thermal coefficient For the Zener duo, dissipated power In the Zenner pair, descent ability Due to the high temperature the heat			
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Zener binary applications Equation for organizing photons VR Zener , locator, Zener regulator with .integrated circuit	Zener duo	3	9
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	transistor assembly ,Its types package diagram Energy, types ,Transistor bias α_{dc} , β_{dc} Ways	Jet) Transistor BJT (	3	10

		Transistor ,connection features CB , connection CE , features			
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Transistor ,operating areas Load line and work point impact Work Point Location on The shape of the ,outgoing signal effect of degree heat and stability Transistor operation	Bijunction) transistor BJT (	3	11
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	CE biasing methods , fixed bias, base ,resistance backfeed ,resistance ,voltage divider .two-source bias	Bijunction) transistor BJT (	3	12
The exam Ali and Mi	Using the whiteboard and	Emitter amplifier ,The shared ,shared amplifier	Transistor amplifiers	3	13

Oral and written	screen The show and education electronic	Base amplifier Common to comparison between the :three amplifiers ,gain in current voltage, and .power			
The exam Daily Oral and written	Using the whiteboard and display screen	Input and output impedance of common-emitter multistage ,amplifiers alternating transistor equivalent ,circuit alternating load line, dough ,constants relationship with r coefficients .	Transistor amplifiers	3	14
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Amplifier bandwidth and minimum and maximum cutoff ,frequencies ,emitter flooding ,Darlington pair pairing types for multistage .amplifiers	Transistor amplifiers	2	15

The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	SCR , Thyroster ,Diac, Triac Silicon Key) The dominant SCS practical ,(applications for each type, the unipolar transistor and its applications UJT .	thyroster	3	16
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	JFET – Channel n – and Channel p operating , ,principle transition characteristics and properties ,Directing	effect transistor The junctional field JFET	3	17
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Methods for biasingJFETs and assigning the load line and ;operating point field-effect transistor Metal oxide MOSFET	effect transistor The junctional field JFET	3	18
The exam Ali and Mi	Using the whiteboard and	,Types ,characteristicsE- MOSFET ,D-	effect transistor	3	19

Oral and written	screen The show and education electronic	MOSFET , amplifiers JFET .	The junctional field JFET		
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Power amplifiers of the class A Class ,B , Class AB Class ,C , Dissipated Power In a power ,amplifier	Power amplifiers	3	20
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	The decibel is a .unit of power Operations amplifier OP-Amp and its .components Differential amplifier and .input modes	Power amplifiers	3	21
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	:Chapter Ten Nutrition negative background OP.Amp with feed	Back feed negative	3	22

		Negative ,background voltage follower the amplifier with input ,Reflector feeding effect negative background on Input and output impedance of the amplifier, phase .shift			
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Exam No. 2	a test	3	23
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Positive ,feedback oscillation ,conditions oscillator T coupling- , oscillatorLC oscillators	oscillators	3	24
The exam	Using the whiteboard	Colpitus ,oscillator	oscillators	3	25

Ali and Mi Oral and written	and screen The show and education electronic	Hartley oscillator, Clapp oscillator Quartz crystal oscillator			
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Non-sine wave :oscillators unistable ,multivibrators multivibrators Dual vibrations ,Stability multifaceted Unstable .vibrations	oscillators	3	26
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	Computer language, gates ,Basic logicAND ,OR ,NOR , ,Boolean algebra NOR gate , NAND ,Private or portal application My work on logic circuits in controlling a system .Industrial	Logic . circuits	3	27

The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	General introduction to the concept ,Nanotechnology Historical overview For the development of ,nanotechnology The relationship of nanotechnology ,to daily life Carbon nanotubes, nano- transistors and nanotechnology .applications	Introduction to Nanotechnol ogy	3	28
The exam Ali and Mi Oral and written	Using the whiteboard and screen The show and education electronic	General review		3	29
exam Editorial	In-person exam	Exam No. 3	a test	3	30
81. Course evaluation					

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation and daily and monthly oral exams .Editorial work, discussion and evaluation of reports and seminars , etc

82. Learning and teaching resources

Paper-based lectures written by the course instructors 1. .Physics of Electronics (Dr .(Subhi Al-Rawi 2. Principles of Electronics .(Malfino)	Required textbooks (methodology, if (applicable
3. : Textbook Electronic Devices (Floyd, 2005)	Main references (sources)
Nothing	Recommended supporting books and ,references (scientific journals (...reports
The online classroom and the resources and tests published within it	Electronic references, websites

Course Description Form

1. Course Name:	
Electronics laboratory II	
2. Course Code:	
3. Semester / Year:2025- 2026	
4. Description Preparation Date:	
2025/10/6	
5. Available Attendance Forms:	
My attendance is daily	
6. Number of Credit Hours (60Total) / Number of Units (1)	
2 hours	
7. Course administrator's name (mention all, if more than one name)	
Name :- M.s.c. Abdullah Ahmed Khalaf	
Email:- abdallah@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1- Cognitive objectives: a-Preparing trained and qualified cadres to work in scientific and educational institutions. b-Enabling students to know and understand the practical side of electricity and magnetism and its use in community service 2- The course's skill objectives:

	a-Providing students with knowledge of all devices. b-Providing students with a comprehensive knowledge of physical principles. Related to electricity and magnetism. 3- Emotional and value-based goals: a- Ask questions during the experiment to connect the side Practical with theoretical side. b-Linking practical experience with engineering and technological applications. 4-General and transferable qualification skills (other skills): a-Optimal use of concepts related to the topic Experience and its use for integrated knowledge Regarding the change of scientific phenomena. b-Optimizing the use of devices and knowing how to use them.
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9. Teaching and Learning Strategies

Strategy	1- Providing the student with knowledge of all devices. 2- Providing the student with knowledge of the electrical components of practical experiments.
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- 3 Providing the student with the knowledge to calculate and draw the output voltage of the rectified wave and half-wave current.
- 4- Providing the student with knowledge of how a voltmeter works.
- 5- Providing the student with knowledge of transferring the greatest amount of electrical energy.
- 6- Providing the student with knowledge of Stefan-Boltzmann's law and researching the relationship between current and voltage difference.
- 7- Providing the student with knowledge about proving the validity of Kirchhoff's law.
- 8-Providing the student with the knowledge of how to know the direction of the magnetic field.
- 9-Providing the student with knowledge of using the galvanometer, Ameter and voltmeter.
- 10- Providing the student with knowledge of the electrical transformer and determining the potential difference in the secondary coil The potential difference in the primary coil.
- 11- Providing the student with the knowledge to measure the electromotive force of a battery.

Teaching and learning methods

1- Experience

2- Discussion

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
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1-2	2	Students gain knowledge on how to write a report.	1- General laboratory instructions. 2- Instructions on how to write the report. 3- Steps for teaching the graph.	Lecture	
5-3	2	Students gain knowledge on how to evaluate the wave and how the wave appears	Diode Characteristics	Lecture and practical application	Daily exam and daily activity
7-6	2	Gain knowledge in knowing internal resistance	Rectifier Circuits	Lecture and practical application	Daily exam and daily activity
9-8	2	Students gain knowledge in knowing the maximum value of power	The Zener Diode	Lecture and practical application	Daily exam and daily activity
10-11	2	Students gain knowledge in the investigation of the Stefan-	Light Emitting Diodes	Lecture and practical	Daily exam and daily activity

		Boltzmann law.		applicati on	
12-13	2	Students gain knowledge in applying Kirchhoff's law for current and voltage	Characteristics of Bipolar Junction Transistors	Lecture and practical applicati on	Daily exam and daily activity
14	2		Review	Lecture and practical applicati on	Daily exam and daily activity
15	2		Monthly Exam	Lecture and practical applicati on	Daily exam and daily activity
16-17	2	Students gain knowledge of measuring voltage	Transistor DC Biasing Circuit	Lecture and practical applicati on	Daily exam and daily activity
18-19	2	Students gain knowledge of measuring current values	Logic Gate Circuits	Lecture and practical applicati on	Daily exam and daily activity
20-23	2	Students gain knowledge of determining	The Common Emitter Amplifier	Lecture and practical	Daily exam and daily activity

		the voltage difference ratio in the secondary coil		applicati on	
24-25	2	Students gain knowledge of measuring the electromotive force of a battery	The Common Base Amplifier	Lecture and applicati on practical	Daily exam and daily activity
26-27	2	Students gain knowledge of knowing the direction of the field	Amplifier Frequency Response	Lecture and practical applicati on	Daily exam and daily activity
28-29	2		Review	Lecture and practical applicati on	Daily exam and daily activity
30	2		Monthly Exam	Lecture and practical applicati on	Daily exam and daily activity

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

Book: Experiments in Practical Physics (Dr. Suhaam Qandala, M. Diah Abdul Ali Tawij)	Required prescribed books (Methodology, if any)
Book: Electricity and Magnetism / Part Two	Main references (sources)
Directing students to follow what is stated on the physics website	Recommended supporting books and references (scientific journals, reports....
Unique location in physics	electronic references, Internet sites

Course Description Template

1- Course Title	
Materials Science	
2- Course Code:	
3- Semester / Year:	
2026-2025	
4- Date of Preparing this Syllabus:	
2025 /10 /5	
5- Available Attendance Modes:	
Daily attendance	
6- Number of Contact Hours (60 hours) / Number of Credit Units (4 units):	
2 hours theoretical	
7- Course Coordinator (if more than one, list all names):	
Names: Hussein Taqi John Ali	
Email: hjohn@uowasit.edu.iq	
1- Course Objectives:	
Course Objectives:	• Understanding Basic Materials: Students are often able to distinguish between different benefits and their classifications (mechanical, electrical, thermal, magnetic, optical, and oxidative/corrosive). • Linking Profit to Structure:

	Understand the compatibility between the internal structure of materials and their properties, and the effect of the arrangement of atoms and molecules on the material's physical performance. • Identifying Material Types: Training among metallic, ceramic, polymeric, and composite materials, and learning about their everyday applications in the industrial sciences. • Simple Applications of Basic Problems: Using scientific principles to analyze the control of materials under various conditions, such as pressure, temperature, electric, or magnetic fields. • Developing Analytical Thinking: Developing the student's ability to accurately evaluate materials for engineering and scientific applications. • Awareness of Sustainability and Quality: Understanding the impact of material selection on the sustainability benefits of performance, and the importance
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			of using materials in different ways in industry and technology.		
2- Teaching and Learning Strategies					
☐ Interactive Lectures: Explain the fundamental principles of optics using examples and illustrative diagrams, while posing thought-provoking questions for discussion. ☐ Virtual Practical Activities: Utilize simulators and virtual experiments to demonstrate reflection, refraction, interference, and diffraction. ☐ Problem Solving and Discussion: Train students to solve practical problems and discuss optical phenomena to reinforce theoretical understanding. ☐ Active Learning: Encourage students to participate in group discussions and connect theoretical concepts with practical applications.				Strategy	
3- Course Structure					
Assessment Method	Learning Method	Unit / Topic Name	Expected Learning Outcomes	Hours	Week
Daily oral exam	Using the blackboard, projector, and e-learning tools	Introduction to Materials Science and its Importance in Physics and Technology	Understand the concept and importance of materials science and its branches.	2	1

Daily oral exam	Using the blackboard, projector, and e-learning tools	Classification of Materials (Metals, Ceramics, Polymers, Composites)	Differentiate between materials based on structure and properties.	2	2
Daily oral exam	Using the blackboard, projector, and e-learning tools	Atomic Structure of Materials	Understand atomic arrangement, chemical bonding, and atomic interactions.	2	3
Daily oral exam	Using the blackboard, projector, and e-learning tools	Chemical Bonding in Solids	Explain ionic, covalent, metallic, and Van der Waals bonds and their effects on properties.	2	4
Daily oral exam	Using the blackboard, projector, and e-learning tools	Crystalline and Amorphous Materials	Distinguish between crystalline and non-crystalline solids.	2	5

Daily oral exam	Using the blackboard, projector, and e-learning tools	Crystal Systems and Structures	Identify the seven crystal systems and their main features.	2	6
Written Exam	Using the blackboard, projector, and e-learning tools	Unit Cells and Packing	Calculate atoms in simple cubic, BCC, and FCC structures.	2	7
Daily oral exam	Using the blackboard, projector, and e-learning tools	Crystal Defects	Recognize point, line, and surface defects and their impact on properties.	2	8
Daily oral exam	Using the blackboard, projector, and e-learning tools	Diffusion in Solids	Describe atomic diffusion mechanisms and their significance in materials processing.	2	9
Daily oral exam	Using the blackboard, projector,	Mechanical Properties of Materials	Analyze stress, strain, Young's	2	10

	and e-learning tools		modulus, and fracture behavior.		
Daily oral exam	Using the blackboard, projector, and e-learning tools	Hardness, Ductility, and Toughness	Compare mechanical strength and deformation properties of materials.	2	11
Daily oral exam	Using the blackboard, projector, and e-learning tools	Dislocations and Plastic Deformation	Understand dislocation motion and strengthening mechanisms.	2	12
Daily oral exam	Using the blackboard, projector, and e-learning tools	Heat Treatment and Strengthening of Metals	Explain thermal processing and its effect on microstructure.	2	13
Daily oral exam	Using the blackboard, projector, and e-learning tools	Thermal Properties of Materials	Discuss heat capacity, thermal expansion, and thermal conductivity.	2	14

Daily oral exam	Using the blackboard, projector, and e-learning tools	Midterm Exam	Evaluate students' understanding of the first half of the course.	2	15
Daily oral exam	Using the blackboard, projector, and e-learning tools	Electrical Properties of Materials	Explain conduction behavior in insulators, conductors, and semiconductors.	2	16
Daily Oral exam	Using the blackboard, projector, and e-learning tools	Semiconducting Materials	Understand energy band concepts and doping effects on conductivity.	2	17
Daily oral exam	Using the blackboard, projector, and e-learning tools	Dielectric Materials and Capacitors	Describe dielectric behavior and applications in electronics.	2	18
Daily oral exam	Using the blackboard, projector,	Magnetic Materials and Their Types	Differentiate between diamagnetic, paramagnetic,	2	19

	and e-learning tools		ferromagnetic , and ferrimagnetic materials.		
Daily oral exam	Using the blackboard, projector, and e-learning tools	Magnetic Phenomena in Ferrites	Explain the relationship between crystal structure and magnetic properties in ferrites.	2	20
Daily oral exam	Using the blackboard, projector, and e-learning tools	Optical Materials	Understand transparent, opaque, and absorbing materials and their uses.	2	21
Daily oral exam	Using the blackboard, projector, and e-learning tools	Superconducting Materials	Study superconductivity, its properties, and applications.	2	22
Daily oral exam	Using the blackboard, projector, and e-	Nanomaterials	Discuss nanoscale effects and their	2	23

	learning tools		influence on physical properties.		
Daily oral exam	Using the blackboard, projector, and e-learning tools	Composite Materials	Understand the concept and benefits of composite materials.	2	24
Daily oral exam	Using the blackboard, projector, and e-learning tools	Corrosion, Fatigue, and Thermal Stress	Analyze material failure mechanisms and protection techniques.	2	25
Daily oral exam	Using the blackboard, projector, and e-learning tools	Non-Destructive Testing of Materials	Describe NDT techniques (ultrasound, X-ray, etc.) and their applications.	2	26
Daily oral exam	Using the blackboard, projector, and e-learning tools	Industrial Applications of Materials Science	Link theoretical knowledge to practical applications in electronics, energy, and defense.	2	27

Daily oral exam	Using the blackboard, projector, and e-learning tools	Recent Trends in Materials Science	Explore new developments such as smart and phase-change materials.	2	28
Daily oral exam	Using the blackboard, projector, and e-learning tools	Comprehensive Review	Summarize key concepts and solve applied problems.	2	29
Daily Oral exam	Using the blackboard, projector, and e-learning tools	Final Exam	Assess overall achievement of course learning outcomes.	2	30

4- Course Assessment

The course grade (out of 100) is distributed based on the student's assigned tasks, including daily preparation, oral and written quizzes, monthly exams, discussion and evaluation of reports, seminars, and other related activities.

5- Learning and Teaching Resources

New Scientific Articles	1- Recent articles from Scopus Q1 journals such as Materials Today, Journal of Materials Science, Advanced Materials.
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	2- Applied research on the properties of metallic, ceramic, polymeric, and composite materials.
Organizational Source	1. Trusted educational websites: - o MatWeb (materials properties database). - o ScienceDirect (recent research articles). 2. Videos and interactive simulations of material properties via YouTube and specialized educational channels.
Accurate Precision	1. University laboratories to test the mechanical, electrical, and thermal properties of materials. 2. Field visits to factories or materials manufacturing plants to learn about practical applications.
Worksheets and Assignments	1. Practical worksheets to practice analysis and select appropriate materials. 2. Problems and exercises on material properties and their theoretical calculations..

Course Description Form

1. Course Name: Thermodynamic	
2. Course Code: PHY-3TH	
3. Semester / Year: 2025-2026	
4. Description Preparation Date: 2-10-2025	
5. Available Attendance Forms: Actual mandatory attendance	
6. Number of Credit Hours (Total) 90 hours / Number of Units (Total) : 6 Units	
.....	
.....	
7. Course administrator's name (mention all, if more than one name)	
Name : lecturer : Dr. Najlaa Jerjack Abdullah	
Email : njerjack@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Thermodynamics is the science concerned with studying the physical phenomena of heat transfer between objects at different temperatures. We examine the concepts of temperature, heat, and internal energy from a macroscopic viewpoint, which is the study of changes in matter by observing changes in volume, pressure, and temperature.

	We can also study and understand thermal phenomena from a microscopic viewpoint, which is the study of changes in the particles of matter. In these lectures, we also study the laws of thermodynamics, which relate heat flow, work, and the internal energy of a system. Thermodynamics is an experimental science concerned with studying everything related to temperature and heat energy. It is used in engineering applications such as the design of engines, power generators, and refrigeration and air conditioning systems, and it plays a role in various industrial applications.
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9. Teaching and Learning Strategies

Strategy	• Live interactive lectures and class discussions. • Use of smart board and graphical presentations. • Problem-solving tutorials and oral discussions. • Assignments and homework focusing on derivations and physical interpretation. • Discussion through educational platforms (Telegram, Google Classroom).
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10. Course Structure

Week		Ch 1 – Basic Principles	Unit or subject name	Learning method	Evaluation
		Outcomes		Ch 1 – Basic Principles	method

1	3	Lecture Discussion Connecting the material to real-life situations	Identifying the types of thermodynamic systems	Chapter One – Basic Concepts in Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
2	3	Lecture Discussion Connecting the material to real-life situations	Definition of thermodynamic processes and explanation of temperature scales	Chapter One – Basic Concepts in Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

3	3	Lecture Discussion Connecting the material to real-life situations	The student can determine the equation of state for an ideal gas.	Chapter Two – Equation of State	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
4	3	Lecture Discussion Connecting the material to real-life situations	Understanding the stages of ideal gas compression	Chapter Two – Equation of State	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

5	3	Lecture Discussion Connecting the material to real-life situations	Equation of state for a real gas	Chapter Two – Equation of State	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
6	3	Lecture Discussion Connecting the material to real-life situations	Identifying the stages of real gas compression and solving a set of questions	Chapter Two – Equation of State	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

7	3	Lecture Discussion Connecting the material to real-life situations	Defining work and finding work during various thermodynamic processes	Chapter Three – Work and the First Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
8	3	Lecture Discussion Connecting the material to real-life situations	Definition of the first law of thermodynamics and solutions to questions related to the first law of thermodynamics	Chapter Three – Work and the First Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

9	3	Lecture Discussion Connecting the material to real-life situations	Understanding the concept of internal energy of gases and heat capacity	Chapter Three – Work and the First Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
10	3	Lecture Discussion Connecting the material to real-life situations	Understanding the concept of the state function and solving a set of questions	Chapter Three – Work and the First Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

11	3	Lecture Discussion Connecting the material to real-life situations	Defining the second law of thermodynamics and understanding the operating principle of a thermodynamic machine.	Chapter Four – The Second Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
12	3	Lecture Discussion Connecting the material to real-life situations	Understanding the principle of thermodynamic engine efficiency and the operating principle of the Carnot engine. Understanding the operating principle of the Otto engine and the diesel engine.	Chapter Four – The Second Law of Thermodynamics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

13	3	Lecture Discussion Connecting the material to real-life situations	Understanding the relationship between pressure, volume, and temperature in pure materials.	Chapter Five – Properties of Pure Substances	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
14	3	Lecture Discussion Connecting the material to real-life situations	Definition of the Clausius and Clapeyron equation	Chapter Five – Properties of Pure Substances	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams

15	3	----	Final Exam (Semester I).		Covers Weeks 1–14
16	3	Lecture Discussion Connecting the material to real-life situations	Understanding the concept of entropy Calculating the entropy of thermodynamic processes	Chapter Six – Entropy	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
17	3	Lecture Discussion Connecting the material to real-life situations	Understanding the concept of entropy of the universe	Chapter Six – Entropy	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
18	3	Lecture Discussion Connecting the material to real-life situations	Calculating the entropy of an ideal gas and solving a set of questions	Chapter Six – Entropy	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
19	3	Lecture Discussion Connecting the material to real-life situations	Understanding partial differentials	Chapter Seven – Partial Differentiation	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
20	3	Lecture Discussion Connecting the material to real-life situations	Understanding some physical and mathematical concepts such as volumetric expansion and isothermal compressibility	Chapter Seven – Partial Differentiation	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
21	3	Lecture Discussion Connecting the material to real-life situations	Definition of the modulus of elasticity and its mathematical formula	Chapter Seven – Partial Differentiation	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
22	3	Lecture Discussion Connecting the material to real-life situations	Solving problems related to thermodynamic processes using partial differentials	Chapter Seven – Partial Differentiation	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
23	3	Lecture Discussion Connecting the material to real-life situations	Identifying transitional phenomena	Chapter Eight – Kinetic Theory of Gases	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
24	3	Lecture Discussion Connecting the material to real-life situations	Understanding the phenomenon of thermal conductivity	Chapter Eight – Kinetic Theory of Gases	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
25	3	Lecture Discussion Connecting the material to real-life situations	Understanding kinetic theory and solving a set of questions	Chapter Eight – Kinetic Theory of Gases Functions	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
26	3	Lecture Discussion Connecting the material to real-life situations	Understanding the concept of statistical mechanics	Chapter Nine – Statistical Mechanics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
27	3	Lecture Discussion Connecting the material to real-life situations	Identifying thermodynamic probability	Chapter Nine – Statistical Mechanics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain

					chapters of the course - Monthly and periodic exams
28	3	Lecture Discussion Connecting the material to real-life situations	Understanding the laws of particle distribution and solving related problems	Chapter Nine – Statistical Mechanics	Daily oral and written exams - Solving problems for each chapter - Preparing reports related to certain chapters of the course - Monthly and periodic exams
29	3	Discussion	A comprehensive review of the issues and applications (Chapters 6–9).	-----	Final revision
30	3	-----	Final Exam (Semester II).	-----	Covers entire course

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

main references :

1. Thermal Motion and the Kinetic Theory of Gases (Dr. Abdul Rahman Mahmoud Al-Jumaili, Dr. Mu'ayyad Jibril, Dr. Musa Abbas Muhammad, 1991, University of Mosul Press)
2. Heat and Thermodynamics (Dr. Ramzi Hanna, Dr. Hashim Aboud Qasim, 1984)

Electronic Resources and Websites

1. Wikipedia (Free Encyclopedia) website.
2. Physics Education website.

Course description form

1. Course name:	
complex analysis	
2. Course code:	
complex analysis	
3. Semester/year:	
Annual system / third stage	
4. the date this description was prepared:	
21-9-2025	
5. Available forms of attendance:	
Actual mandatory attendance	
6. Number of study hours (total)/number of units (total)	
120 hour	
7. Name of the course administrator (if more than one name is mentioned)	
8. Course objectives	
● Developing students' analytical capabilities to reach logical solutions to various problems related to the subject of complex analysis ● Preparing and qualifying students to meet the requirements of work in the private and public sectors in mathematics sciences and to meet the	

education sector with highly qualified cadres.					
● Students acquire the skills that enable them to teach mathematics					
9. Teaching and learning strategies					
● Explanation and clarification through lectures					The strategy
● Self-education through homework					
● Graduation projects					
● Solving difficult problems using scientific material					
● Use of e-learning					
●					
10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Daily and monthly exams and group discussions	Blackboard with datashow	Introduction, real and complex number, powers and roots for complex number, regions in complex plane	Introducing the student to the principles of complex numbers, their algebraic properties, and their	24	1-8

			geometric representation, as well as regions in the complex plane and points such as open and closed points, continuous regions, etc.		
Daily and monthly exams and group discussions	Blackboard with datashow	Function and complex variable functions, limits and derivatives function, continuity, analytic functions, Cauchy Riemann equations, harmonic functions	Identifying complex functions, their derivation, and end points, in addition to analytical functions, the Cauchy-Riemann equations, and their role in analytical functions	24	9-16

Daily and monthly exams and group discussions	Blackboard with datashow	Some elementary functions, exponential functions, polynomials and trigonometric functions, rational, Hyperbolic function , Properties of elementary and logarithmic functions.	Identify exponential functions and their properties	24	17-22
Daily and monthly exams and group discussions	Blackboard with datashow	Complex integration, contour, simply and multiple connected domain, Cauchy	Identify complex integrals, Cauchy's integral theorems,	24	23-27

		integral theorem, Cauchy integral formula, Conformal mappings and its applications.	and application s of angle conservatio n		
Daily and monthly exams and group discussions	Blackboar d with datashow	Powers series and convergent, Tayler and Laurent theorems, singulars points ant types, Residue theorem and its applications	Identify power series and their types, abnormal points and their types, and the theory of remainders and their application s	24	28- 30

11. Course evaluation

- Daily and monthly tests and use of brainstorm
- Open group discussion method

12. learning and teaching resources

By Churchill	Complex Variable and Applications
By James ward Brown	Complex variable and applications

Course Description Form

13. Course Name:
Atomic and Molecular Physics
14. Course Code:
PHAP319
15. Semester / Year:
2026-2025
16. Description Preparation Date:
2025/9/28
17. Available Attendance Forms:
My attendance is mandatory
18. Number of Credit Hours (Total) / Number of Units (6)
90 hours 3 hours
19. Course administrator's name (mention all, if more than one name)
PHD. Lecturer

20. Course Objectives

Course Objectives	Cognitive dimension:
	1. The student will introduce the basic concepts of the atom and molecules and the evolution of atomic models throughout history. 2. The student will explain the fundamental experiments that led to the discovery of the structure of the atom, such as the Rutherford experiment and the Franck-Hertz experiment. 3. The student will explain the basic principles of quantum theory and its applications to atomic and molecular systems. 4. The student will distinguish between the Bohr and Schrödinger models and the difference between their descriptions of the atom. 5. The student will describe the energy levels and spectral radiation of single atoms and simple molecules. 6. The student will apply the Schrödinger equation to the hydrogen atom and some simplified systems. 7. The student will explain the mechanism of chemical bond formation from a quantum physics perspective (covalent and ionic bonds). 8. The student will analyze atomic and molecular emission and absorption spectra to

	determine the energy properties of the systems studied. 9. The student will deduce the relationship between electronic structure and the behavior of matter at the atomic and molecular levels. 10. The student will compare different experimental methods for studying atomic and molecular structure, such as Raman and infrared spectroscopy. Skill objectives: 1. The student will use quantitative concepts and models to solve numerical problems related to energy levels in atoms and molecules. 2. The student will analyze the results of atomic and spectroscopic experiments to arrive at the properties of the systems under study. 3. The student will employ basic laws and equations (such as the Schrödinger equation, the Bohr equation, and energy equations for levels) to explain physical phenomena. 5. The student will plan a simple experiment to measure or analyze the emission or absorption spectrum of a particular element or molecule. 6. The student will interpret the resulting spectra practically using experimental data or graphs. 7. The student will develop skills in using software or computer tools to calculate energy levels or analyze spectra.
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9. The student evaluates the accuracy of computational solutions and compares them to theoretical or experimental values.

10. The student presents the results of their analyses or scientific projects in a systematic and clear manner (via reports or presentations).

Emotional goals:

1. The student must demonstrate interest and willingness to learn modern concepts in atomic and molecular physics.

2. The student must appreciate the role of scientists and the research that has contributed to advancing the understanding of atomic and molecular structure.

3. The student must demonstrate precision and discipline in performing experiments and solving scientific problems.

4. The student must demonstrate a spirit of cooperation and teamwork when discussing concepts or performing classroom and laboratory activities.

5. The student must adhere to academic integrity in writing reports and research, refraining from plagiarism or cheating.

6. The student must demonstrate respect for the opinions of others and accept evidence-based scientific discussion.

7. The student must develop a spirit of creativity and critical thinking in analyzing physical phenomena.

8. The student will understand the importance of applying the principles of atomic and molecular physics to modern technological fields (such as lasers and advanced materials).
9. The student will express appreciation for the beauty of the order and precision of the natural laws that govern the atomic and molecular world.

21. Teaching and Learning Strategies

Strategy

Style of thinking and discussion
E-learning (explanatory videos and electronic tests)
Practical tests

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
+2+1 3	3	Knowledge	Chapter One: Special Theory of Relativity Galileo's Transformations, Michelson's and Morley's Experiments, Einstein's Postulates, Lorentz Transformations and their Inverses,	Use the whiteboard and display screen And e-learning	The exam The daily Oral

			Relativistic Length Contraction, Relativistic Time Dilation, Relativistic Velocity Addition, Mass, Energy, and Relativistic Momentum		
+5+4 6	3	Knowledge	Chapter Two: Electromagnetic radiation and matter, photon theory, blackbody radiation, photoelectric effect, Compton effect, pair production and annihilation, absorption of photons, de Broglie waves, electron diffraction experiments, phase velocity and group velocity, Heisenberg's uncertainty principle.	Use the whiteboard and display screen And e-learning	The exam The daily Oral
7	3	Knowledge	Solving problems for the first and second chapters	Use of the whiteboard	Solve problems
8	3	Knowledge	First month exam	Classrooms	The exam Editorial

					The first month
10+9 + 11	3	Knowledge	Chapter Three: The Hydrogen Atom and Its Similar, Bohr Atom, Hydrogen Atom Spectrum, Bohr Theory of the Hydrogen Atom, Spectral Series of the Hydrogen Atom, Nuclear Motion, Emission of Radiation According to Bohr Theory, Energy Levels, Solution of the Schrödinger Equation for the Hydrogen Atom, Hydrogen-Similar Atoms, Bohr-Sommerfeld Model, The Global Model.	whiteboard and display screen And e-learning	The exam The daily Oral
1+12 +3 14	3	Knowledge	Chapter Four: Electron Motion Classical orbital angular momentum, classical magnetic dipole moment, Zeeman experiment, quantization of orbital	whiteboard and display screen And e-learning	The exam The daily Oral

			angular momentum, interpretation of the Zeeman effect, Stern and Kärlich experiment, electron spin, spin- orbit coupling.		
15	3	Knowledge	Solving problems for the third and fourth chapters	Use of the whiteboard	Solve problems
16	3	Knowledge	Second month exam	Classrooms	Monthly Exam (Second Month)
17+18+19	3	Knowledge	Chapter Five: Multi-Electron Atoms Quantum mechanical systems with more than one electron, the Pauli exclusion principle, spectral symbols for electron configuration in atoms, the periodic table and the shell model, spectral symbols for	Blackboard, Projector, E-learning	Daily Oral Exam

			atomic states, atomic excitation states, L.S. coupling, the surprising Zeeman effect, and the lambda factor.		
20+2 1+ 22	3	Knowledge	Chapter Six: X-Rays, Discovery of X-rays, Première Language production, characteristic X-ray spectra, Moseley's relationship, X-ray absorption edges, Ucher effect, and fluorescent X-rays.	whiteboard and display screen And e-learning	Daily Oral Exam
23	3	Knowledge	Solve the problems of Chapters Five and Six	Use of the whiteboard	Solve problems
24	3	Knowledge	Third month exam	Classrooms	Monthly Exam (Third Month)
25+2 6	3	Knowledge	Chapter Seven: Molecular Physics, Hydrogen ion, hydrogen molecule,	whiteboard and display screen And e-learning	Daily Oral Exam

			molecular bonds, molecular spectra, diatomic molecules		
27+2 8	3	Knowledge	Review of important topics + solving problems	whiteboard and display screen And e- learning	Solve problems

23. Course Evaluation

The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily and monthly oral and written exams, with 60% being the final exam and 40% being divided between theoretical (28 points) and practical (12 points).

24. Learning and Teaching Resources

Required prescribed books (Methodology, if any)	
Main references (sources)	Sources 1. Atomic Physics (Dr. Talib Nahi Al-Khafaji). 2. Molecular Physics (Dr. Khaled Abdullah Jassim, Dr. Issam Ahmed Mahmoud).

	3. Fundamentals of Modern Physics (F. Bush, translated, 1977 edition)
Recommended supporting books and references (scientific journals, reports....)	4- Atomic and Laser Physics, A.M. FOX, 2015. 5- Concepts of Modern Physics, Arthur Beiser, 6th ed. 2003. 6- Fundamentals of physics- Halliday, Resnick, Walker—10th ed. 2014. 7- Introduction to Atomic and Nuclear Physics, Semat and Albright, 5th ed. 1972. 8- Modern Physics, A. Serway, J. Moses and A. Moyer, 3rd ed. 2005. 9- Modern Physics, Paul A. Tipler and Ralph A. Llewellyn, 6th Edition, 2012. 10- Physics for Scientists and Engineers with Modern Physics, Serway and Jewett, 10th ed. 2019. 11- Principles of physics, A. Serway and W. Jewett, 4th ed. 2006. 12- University Physics with modern physics, Young & Freedman , 15th ed. 2020.
electronic references, Internet sites	

Course Description Form

1. Course Name:	
Atomic and Molecular Physics practical	
2. Course Code:	
3. Semester / Year:	
2025-2026	
4. Description Preparation Date:	
28/9/2025	
5. Available Attendance Forms:	
My attendance is mandatory	
6. Number of Credit Hours (Total) / Number of Units (6)	
90 hours 2 hours	
7. Course administrator's name (mention all, if more than one name)	
PHD. lecturer ALI ABED JABER email: alia624@uowasit.edu.iq Name: Mohammed. Y. Raham Email: mohammady@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Cognitive dimension: 1. The student will introduce the basic concepts of the atom and molecules and the evolution of atomic models throughout history. 2. The student will explain the fundamental experiments that led to the discovery of the

	structure of the atom, such as the Rutherford experiment and the Franck-Hertz experiment. 3. The student will explain the basic principles of quantum theory and its applications to atomic and molecular systems. 4. The student will distinguish between the Bohr and Schrödinger models and the difference between their descriptions of the atom. 5. The student will describe the energy levels and spectral radiation of single atoms and simple molecules. 6. The student will apply the Schrödinger equation to the hydrogen atom and some simplified systems. 7. The student will explain the mechanism of chemical bond formation from a quantum physics perspective (covalent and ionic bonds). 8. The student will analyze atomic and molecular emission and absorption spectra to determine the energy properties of the systems studied. 9. The student will deduce the relationship between electronic structure and the behavior of matter at the atomic and molecular levels. 10. The student will compare different experimental methods for studying atomic and molecular structure, such as Raman and infrared spectroscopy. Skill objectives:
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1. The student will use quantitative concepts and models to solve numerical problems related to energy levels in atoms and molecules.
2. The student will analyze the results of atomic and spectroscopic experiments to arrive at the properties of the systems under study.
3. The student will employ basic laws and equations (such as the Schrödinger equation, the Bohr equation, and energy equations for levels) to explain physical phenomena.
5. The student will plan a simple experiment to measure or analyze the emission or absorption spectrum of a particular element or molecule.
6. The student will interpret the resulting spectra practically using experimental data or graphs.
7. The student will develop skills in using software or computer tools to calculate energy levels or analyze spectra.
9. The student evaluates the accuracy of computational solutions and compares them to theoretical or experimental values.
10. The student presents the results of their analyses or scientific projects in a systematic and clear manner (via reports or presentations).

Emotional goals:

1. The student must demonstrate interest and willingness to learn modern concepts in atomic and molecular physics.
2. The student must appreciate the role of scientists and the research that has contributed to

	advancing the understanding of atomic and molecular structure. 3. The student must demonstrate precision and discipline in performing experiments and solving scientific problems. 4. The student must demonstrate a spirit of cooperation and teamwork when discussing concepts or performing classroom and laboratory activities. 5. The student must adhere to academic integrity in writing reports and research, refraining from plagiarism or cheating. 6. The student must demonstrate respect for the opinions of others and accept evidence-based scientific discussion. 7. The student must develop a spirit of creativity and critical thinking in analyzing physical phenomena. 8. The student will understand the importance of applying the principles of atomic and molecular physics to modern technological fields (such as lasers and advanced materials). 9. The student will express appreciation for the beauty of the order and precision of the natural laws that govern the atomic and molecular world.
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9. Teaching and Learning Strategies

Strategy	Style of thinking and discussion
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		E-learning (explanatory videos and electronic tests)			
		Practical tests			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2+3	2	Knowledge	General introduction to practical experiments, lecture On teaching graphing and using a scientific calculator to calculate results	Use the whiteboard and display screen And e-learning	The exam The daily Oral
4	2	Knowledge	The first experiment (measuring the specific charge of the electron) involved representing the data on graph paper, calculating the practical value of the charge-to-mass ratio of the electron, comparing it with the theoretical value, And calculating the margin of error.	Use the whiteboard and display screen And e-learning	Daily Oral Exam + Reports

5+6	2	Knowledge	The second experiment (electron absorption in material layers): Representing the data on graph paper and finding the attenuation coefficient and half-thickness of the aluminum layers.	Use the whiteboard and display screen And e-learning Use of the whiteboard	Daily Oral Exam + Reports
7+8	2	Knowledge	Experiment 3: Beta Particle Backscattering To understand the interaction of electrons with matter To calculate the backscattering coefficient of beta particles in aluminum Representing the results on graph paper and calculating the saturation thickness of the aluminum layers	Use the whiteboard and display screen And e-learning Use of the whiteboard	Daily Oral Exam + Reports
9	2	Knowledge	First month exam	Classrooms	The exam Editorial The first month

10+ 11	2	Knowledge	Experiment 4: Studying the Emission Spectrum of a Cathode Lamp. Calculating the energy of the lowest frequency, the highest emission, and the variation between these quantities. Graphically representing the results and calculating the emission spectrum.	whiteboard and display screen And e-learning	Daily Oral Exam + Reports
12+1 3+	2	Knowledge	Experiment 5: Photovoltaic Cell and Linear Light Attenuation Coefficient. This experiment aims to understand the meaning of the internal photoelectric effect and to calculate the linear light attenuation coefficient in plastics.	whiteboard and display screen And e-learning	Daily Oral Exam + Reports
+141 5	2	Knowledge	Experiment 6: Line Spectra and Redberk's Constant This experiment aims to study the emission spectrum of hydrogen and calculate the value of Redberk's constant. The experimental results are then compared with the	Use of the whiteboard	Daily Oral Exam + Reports

			theoretical value by graphically representing the findings And using mathematical relationships.		
16	2	Knowledge	Second month exam	Classrooms	Monthly Exam (Second Month)
17+18+19	2	Knowledge	Experiment 1, Second Semester: The Photoelectric Effect and Calculation of Planck's Constant. Understanding the external photoelectric effect, the work function, and the contact potential. (Calculating Planck's constant, threshold wavelength, and work function for different photoelectric voltages at different wavelengths. Explaining the theoretical part of the experiment using tables and representing them on graph paper. Using mathematical relationships, we calculate Planck's constant.).	Blackboard, Projector, E-learning	Daily Oral Exam + Reports

20+2 1+	2	Knowledge	Experiment 2, Course 2. Steady Zone of a Caeker-Müller Counter Understanding the Characteristic Curve of a Caeker-Müller counter. (Studying the effect of changing the characteristic value on the shape of the counter's characteristic curve. (To determine the slope of the counter's stability zone And calculate the appropriate voltage for its operation.)	whiteboard and display screen And e-learning	Daily Oral Exam + Reports
22+2 3	2	Knowledge	Brack's Law and X-ray Spectrum Analysis X-ray spectrum analysis from a copper anode using a potassium bromide crystal (KBr). Calculation of the energy (E) and wavelength (λ) of the X-ray spectral lines using tables, graphical representation, and the mathematical relationships of Brack's law.	Use of the whiteboard	Solve problems
24	2	Knowledge	Third month exam	Classrooms	Monthly Exam

					(Third Month)
25+2 6	2	Knowledge	Experiment 4, Course 2: Properties of the Ionization Chamber The range of alpha particles in air. This experiment aims to calculate the number of alpha particles emitted from a radioactive source that cause an ion saturation current. (To calculate the range of alpha particles in air, using tables, graphical representation, and mathematical relationships.)	whiteboard and display screen And e-learning	Daily Oral Exam + Reports
27+2 8	2	Knowledge	Experiment 5, Course 2: Back Scattering This experiment aims to determine the characteristics and methods of interaction of gamma rays with matter. (Calculating the back scattering coefficient for gamma rays in iron and aluminum using tables, representing it graphically, and using mathematical relationships)	whiteboard and display screen And e-learning	Daily Oral Exam+ Reports

29	2	Knowledge	Experiment 6, Course 2: Elementary Charge and Millikan Experiment The experiment aims to measure the time of rise and fall of oil droplets with different charges. (Calculating the radii and charges of the droplets. (Calculating the electron charge) Elementary charge. Using tables And representing them graphically and using mathematical relationships	whiteboard and display screen And e-learning	Daily Oral Exam + Reports
30	2	Knowledge	2 ND month exam	Classrooms	Monthly Exam (Third Month)

11. Course Evaluation

The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, daily and monthly oral and written exams, with 60% being the final exam and 40% being divided between theoretical (28 points) and practical (12 points).

12. Learning and Teaching Resources	
Required prescribed books (Methodology, if any)	
Main references (sources)	Sources
Recommended supporting books and references (scientific journals, reports.... (	
electronic references, Internet sites	

Course Description Form

1. Course Name: Analytical Mechanics

2. Course Code: PHY-3AM	
3. Semester / Year: 2025-2026	
4. Description Preparation Date: 23-19-2025	
5. Available Attendance Forms: Actual mandatory attendance	
6. Number of Credit Hours (Total) 90 hours / Number of Units (Total) : 6 Units	
7. Course administrator's name (mention all, if more than one name)	
Name : lecturer : Dr. Haider Jameel Hassan	
Email : hjameel@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Understand and apply fundamental principles of motion and force in various coordinate systems. • Analyze the motion of a single particle and systems of particles under central and non-central forces. • Employ energy methods and conservation theorems to simplify mechanical problems. • Formulate Lagrange's and Hamilton's equations for constrained systems.

	• Apply analytical methods to realistic physical situations such as planetary motion, oscillations, and rigid body rotation. • Use mathematical reasoning to connect physical concepts with general laws of mechanics.
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9. Teaching and Learning Strategies

Strategy	• Live interactive lectures and class discussions. • Use of smart board and graphical presentations. • Problem-solving tutorials and oral discussions. • Assignments and homework focusing on derivations and physical interpretation. • Discussion through educational platforms (Telegram, Google Classroom).
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10. Course Structure

Week	Hours	Ch 1 – Basic Princip les	Unit or subject name	Learning method	Evaluation
		Outcomes		Ch 1 – Basic Principles	
1	3	A lecture	Vectors, coordinate frames, vector operations (gradient, divergence, curl).	Ch 1 – Basic Principles	Review session
2	3	A lecture	Velocity and acceleration in Cartesian, polar, cylindrical, and spherical coordinates.	Ch 1 – Basic Principles	Practice problems

3	3	A lecture	Vector differentiation; physical meaning of gradient, divergence, and curl.	Ch 1 – Basic Principles	Quiz 1
4	3	A lecture	Force as a function of time and velocity; damping motion.	Ch 2 – Motion of a Particle (1D)	Homework 1
5	3	A lecture	Resistive forces, exponential decay, conservative forces.	Ch 2 – Motion of a Particle (1D)	Discussion
6	3	A lecture	Potential energy and relation ($F=-dU/dx$).	Ch 2 – Motion of a Particle (1D)	Tutorial 1
7	3	A lecture	2D and 3D motion, acceleration components.	Ch 3 – Motion in Two or Three Dimensions	Group work
8	3	A lecture	Translational motion of coordinate systems and relative motion.	Ch 3 – Motion in Two or Three Dimensions	Problem set
9	3	A lecture	Potential energy surfaces and conservative fields.	Ch 3 – Motion in Two or Three	Quiz 2

				Dimensions	
10	3	A lecture	Gravitational field, potential in central field, angular momentum.	Ch 4 – Central Forces	Homework 2
11	3	A lecture	Orbit of a body in a central field, energy of orbit, Kepler's laws.	Ch 4 – Central Forces	Tutorial 2
12	3	A lecture	Motion in approximately circular orbits, small perturbations.	Ch 4 – Central Forces	Class derivation
13	3	A lecture	Center of mass, linear and angular momentum conservation.	Ch 5 – System of Particles	Homework 3
14	3	A lecture	Variable-mass systems (rocket motion) and collisions.	Ch 5 – System of Particles	Review session
15	3	A lecture	Final Exam (Semester I).		Covers Weeks 1–14
16	3	A lecture	Center of gravity of extended bodies, gravitational field and potential.	Ch 6 – Gravitation	Introductory lecture

17	3	A lecture	Gravitational field equation and applications.	Ch 6 – Gravitation	Tutorial 3
18	3	A lecture	Introduction to generalized coordinates and generalized forces.	Ch 7 – Lagrange's & Hamiltonian Functions	Homework 4
19	3	A lecture	Derivation of Lagrange's equations from D'Alembert's principle.	Ch 7 – Lagrange's & Hamiltonian Functions	Quiz 3
20	3	A lecture	Applications of Lagrange's equations (pendulum, Atwood machine).	Ch 7 – Lagrange's & Hamiltonian Functions	Discussion
21	3	A lecture	Generalized momentum and energy function (Hamiltonian).	Ch 7 – Lagrange's & Hamiltonian Functions	Homework 5
22	3	A lecture	Hamilton's equations and canonical form.	Ch 7 – Lagrange's & Hamilton	Tutorial 4

				ian Functions	
23	3	A lecture	Relation between Lagrangian and Hamiltonian mechanics.	Ch 7 – Lagrange 's & Hamilton ian Functions	Class problem
24	3	A lecture	Small oscillations and energy conservation in Hamiltonian systems.	Ch 7 – Lagrange 's & Hamilton ian Functions	Homewo rk 6
25	3	A lecture	Principle of least action and variational formulation.	Ch 7 – Lagrange 's & Hamilton ian Functions	Discussi on
26	3	A lecture	Poisson brackets and canonical transformations.	Ch 7 – Lagrange 's & Hamilton ian Functions	Quiz 4
27	3	A lecture	Applications to rigid body motion (Euler equations).	Ch 7 – Lagrange 's & Hamilton	Homewo rk 7

				ian Functions	
28	3	A lecture	Motion of rotating systems and stability analysis.	Ch 7 – Lagrange 's & Hamilton ian Functions	Seminar
29	3	A lecture	Comprehensive problem review (Chapters 6–7).	Ch 6 – Gravitati on	Final revision
30	3	A lecture	Final Exam (Semester II).		Covers entire course

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					

main references :

- Grant R. Fowles & George L. Cassiday – Analytical Mechanics, 7th Edition, Brooks/Cole.
- K. R. Symon – Mechanics, Addison-Wesley.
- Atam P. Arya – Classical Mechanics, Allyn and Bacon.
- Murray R. Spiegel – Theoretical Mechanics (Schaum's Outline Series), McGraw-Hill.
- H. Goldstein, C. Poole & J. Safko – Classical Mechanics, 3rd Edition, Addison-Wesley.
- J. R. Taylor – Classical Mechanics, University Science Books.
- Department of Physics, College of Education for Pure Sciences, Wasit University Lecture Notes.

Course Description Form

Educational administration	
Psychological Counseling and Mental Health:	
2. Course Code:	
Chapter one	
2026/2025	
4. Description Preparation Date:2025/9/28	
5. Available Attendance Forms:	
My presence	
6. Number of Credit Hours (60) / Number of Units (6)	
Theoretical Hours 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Kareem Anwer Jasim Email: kjasem@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• •

			•		
9. Teaching and Learning Strategies					
Strategy		Using educational discussion (educational dialogue), which depends on exchanging ideas to reach facts Use of modern computer technologies			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1-8	2	The concept of psychological counselling Counseling and psychological guidance The difference between guidance and counselling Misconceptions about guidance and counselling Psychological counseling and psychotherapy			
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1722	The difference between psychological counseling and psychotherapy			
2	The origins and development of psychological counseling			
28130	Justifications for psychological guidance and counseling and the need for goals and approaches to psychological guidance			

		and counselling The relationship of guidance and counseling to other sciences Areas of psychologic al .counseling Educational ..guidance Professiona l guidance Aggressive (offensive) defense .tricks Alternative defense tricks			
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11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Educational administration
Main references (sources)	Fadil, Malik (2020) Counseling and mental health Zahran, Hamed Abdel Salam (1980) Psychological guidance and counselling

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Curriculum and Teaching Methods
2. Course Code:
PHS
3. Semester / Year:
2025–2026
4. Description Preparation Date:
2/9/ 2025

5. Available Attendance Forms:	
Daily attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours (theoretical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Dr. Mahdi Alwan Aboud Al-Quraishi Email: malwan@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1. To identify the concepts of curriculum, its foundations, and its types. 2. To understand the components of the curriculum (educational objectives, content, teaching methods, and evaluation). 3. To become familiar with the concepts of the educational process (education, teaching, approach, method, and strategy). 4. To identify the main basic teaching methods (lecture, discussion, questioning, etc.).

	5. To become familiar with teaching methods related to cooperative and active learning. 6. To understand e-learning, its benefits, and its types. 7. To identify the concepts of special education, disability, learning difficulties, and methods of teaching students with special needs. 8. To recognize the concept of planning, its importance, and the types of instructional plans.
9. Teaching and Learning Strategies	
Strategy	1. Lecture 2. Questioning 3. Discussion 4. E-learning (Blended Learning, Google Classroom)

	5. Cooperative Learning 6. Practical Application
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2		Basic Concepts in Curriculum / Traditional and Modern Concepts of Curriculum	Lecture	Oral Exam
second	2		Foundations of Curriculum / Philosophical, Cognitive, Psychological, and Social Foundations	Lecture	Oral Exam
third	2		Types of Curricula / Separate Subjects Curriculum,	Lecture	Oral Exam

			Correlated Curriculum, Activity Curriculum, Core Curriculum		
fourth	2		Curriculum Components / First: General, Specific, and Behavioral Educational Objectives	Blended Learning	Oral Exam
fifth	2		Practical Application (Formulating Behavioral Objectives for Physics Topics in Secondary Stage) – Students Divided into Groups	Cooperative and Practical Learning	In-class Practical Activity
sixth	2		Discussion of Students' Activities	Discussion with Feedback	Homework
seventh			First Monthly Exam		
eighth	2		Second: Textbook Content (Its Importance and	Lecture and Questioning	Oral Exam

			Functions) / Principles of Textbook Preparation		
ninth	2		Factors Affecting Textbook Writing / Characteristics of a Good Textbook	Lecture	Oral Exam
tenth	2		Third: Teaching Methods – Introduction to Teaching Methods, Meaning of Method, Technique, Strategy, Importance of Teaching Methods, Characteristics of a Good Method, and Principles of Effective Teaching	Lecture	Oral Exam
eleventh	2		Teaching Skills – Concept and Characteristics of Skill,	Lecture and Questionin g	Oral Exam

			Concept and Characteristics of Teaching, Types of Teaching Skills		
twelfth	2		Lecture Method, Discussion Method	Lecture	Oral Exam
thirteenth	2		Questioning Method, Discovery Method	Lecture	Oral Exam
fourteenth			Second Monthly Exam		
fifteenth	2		Cooperative Learning – Concept, Importance, and Roles of Teacher and Student	Lecture, Blended Learning	Oral Exam
sixteenth	2		A Number of Cooperative Learning Strategies	Lecture, Blended Learning	Oral Exam
seventeenth	2		Active Learning – Concept, Importance, and Roles of Teacher and	Lecture, Blended Learning	Oral Exam

			Student / A Number of Active Learning Strategies		
eighteenth	2		Practical Application of Basic Teaching Methods and Cooperative & Active Learning Strategies	Practical Application – Students Present Lessons to Their Peers	Observatio n
nineteenth	2		Practical Application of Basic Teaching Methods and Cooperative & Active Learning Strategies	Practical Application – Students Present Lessons to Their Peers	Observatio n
twentieth	2		Practical Application of Basic Teaching Methods and Cooperative & Active Learning Strategies	Practical Application – Students Present Lessons to Their Peers	Observatio n
twenty-first	2		E-learning	Blended Learning	Oral Exam

twenty-second	2		Concept of Special Education / Concept of Disability / Concept of Impairment / Concept of Learning Difficulties	Blended Learning	Oral Exam
twenty-third	2		Special Education Teacher and Principles of Classroom Management	Lecture	Oral Exam
twenty-fourth			First Monthly Exam of the Second Semester		Oral Exam
twenty-fifth	2		Types of Teaching Strategies According to Disability Type (Simulation, Memory Reinforcement)	Lecture	Oral Exam
twenty-sixth	2		Types of Teaching Strategies According to Disability Type	Lecture	Oral Exam

			(Think-Aloud, Communication with Autistic Students, Educational Games)		
twenty-seventh	2		Planning – Importance and Types of Plans	Lecture	Oral Exam
twenty-eighth			Elements of the Daily Lesson Plan with Examples	Blended Learning	Homework
twenty-ninth			Second Monthly Exam of the Second Semester		
thirtieth	2		Discussion of Students' Prepared Daily Lesson Plans	Discussion	Observation
thirtieth	2		Discussion of Students' Prepared Daily Lesson Plans	Discussion	Observation

11. Course Evaluation
Grade Distribution (out of 100):
1. Continuous Assessment (40 marks):

- Based on monthly written exams, daily activities, and other tasks or assignments given to students.

2. Final Written Exam (60 marks):

- Based on the end-of-term written examination.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

1. Al-Munajjih, M. & Aayef Habib. Curriculum and the Textbook.
2. Muhammad Mahdi Majid. Curricula and Their Educational Applications.
3. Raouf Abdul Razzaq. Modern Trends in Science Teaching.
4. Ayesh Mahmoud Zaitoun. Methods of Teaching Science, 1st Edition, Amman: Dar Al-Shorouk for Publishing and Distribution, 1994.
5. Dawood Maher Muhammad & Majid Mahdi Muhammad. Fundamentals of General Teaching Methods, Mosul:

	Dar Al-Hikma for Printing and Publishing, 1991.
Main references (sources)	• Abdullah Bin Khamis, Ambo Saidi & Huda Bint Ali Al-Hawsaniya (2016). Active Learning Strategies (180 Strategies with Practical Examples), 1st Edition, Amman: Dar Al-Maseera for Publishing, Distribution, and Printing. • Dr. Iman Abbas Al-Khafaf. Cooperative Learning. • Abdullah Bin Khamis, Ambo Saidi & Suleiman Al-Balushi. Methods of Teaching Science.
Recommended books and references (scientific journals, reports...)	Dr. Muslim Muhammad Jasim. E-Learning.
Electronic References, Websites	

Course description form

Course name:.13					
complex analysis					
Course code:.14					
complex analysis					
Semester/year:.15					
Annual system / third stage					
the date this description was prepared:.16					
21-9-2025					
Available forms of attendance:.17					
Actual mandatory attendance					
Number of study hours (total)/number of units (total).18					
120 hour					
Name of the course administrator (if more than one name is mentioned).19					
Course objectives.20					
Developing students' analytical capabilities to reach logical solutions to various problems related to the subject of complex analysis • Preparing and qualifying students to meet the requirements of work in the private and public sectors in mathematics sciences and to meet the education sector with highly qualified cadres. • Students acquire the skills that enable them to teach mathematics •					
Teaching and learning strategies.21					
Explanation and clarification through lectures • Self-education through homework • Graduation projects • Solving difficult problems using scientific material • Use of e-learning • •					the strategy
Course structure.22					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

Daily and monthly exams and group discussions	Blackboard with datashow	Introduction, real and complex number, powers and roots for complex number, regions in complex plane	Introducing the student to the principles of complex numbers, their algebraic properties, and their geometric representation, as well as regions in the complex plane and points such as open and closed points, continuous regions, etc.	24	1-8
Daily and monthly exams and group discussions	Blackboard with datashow	Function and complex variable functions, limits and derivatives function, continuity, analytic functions, Cauchy Riemann equations, harmonic functions	Identifying complex functions, their derivation, and end points, in addition to analytical functions, the Cauchy-Riemann equations, and their role in analytical functions	24	9-16
Daily and monthly exams and group discussions	Blackboard with datashow	Some elementary functions, exponential functions, polynomials and trigonometric functions, rational, Hyperbolic function, Properties of elementary and logarithmic functions.	Identify exponential functions and their properties	24	17-22

Daily and monthly exams and group discussions	Blackboard with datashow	Complex integration, contour, simply and multiple connected domain, Cauchy integral theorem, Cauchy integral formula, Conformal mappings and its applications.	Identify complex integrals, Cauchy's integral theorems, and applications of angle conservation	24	23-27
Daily and monthly exams and group discussions	Blackboard with datashow	Powers series and convergent, Tayler and Laurent theorems, singulars points ant types, Residue theorem and its applications	Identify power series and their types, abnormal points and their types, and the theory of remainders and their applications	24	28-30
Course evaluation.23					
Daily and monthly tests and use of brainstorm • Open group discussion method •					
learning and teaching resources.24					
By Churchill		Complex Variable and Applications			
By James ward Brown		Complex variable and applications			