

Course Description Form

1. Course Name:	
General Arabic language	
2. Course Code:	
UOH101	
3. Semester / Year:	
2025-2026 First Stage	
4. Description Preparation Date:	
18-9-2025	
5. Available Attendance Forms:	
In-person teaching	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours / 2 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Lecturer Mahmood Jumaa Suhail Email: mahmod.suhail@uohamdanaya.edu.iq	
8. Course Objectives	
Course Objectives	<p>1- Introduce students to the importance of the Arabic language and its literature, and help them understand Arabic grammar.</p> <p>2. Develop students' language skills.</p> <p>3. Enable students to acquire the necessary skills to understand syntactic and semantic structures.</p> <p>4. Foster students' pride in the Arabic language.</p>
9. Teaching and Learning Strategies	
Strategy	<p>1. Provide students with knowledge and concepts of the Arabic language, preparing qualified cadres for work in institutions.</p> <p>2. Teach students how to apply general Arabic grammar in their writing.</p> <p>3. Discuss with students and conduct assessments to address common linguistic and expressive errors.</p>



10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Koran	Surah Al-Hajj - Verse (5)	Reading and interpretation of the Surah	Direct questions
2	1	The Noble Prophet's Hadith	I was sent only to perfect good morals.	Explanation of the hadith and its meanings	Direct questions
3	1	Arabic literature	Selections of poetry from the pre-Islamic era / Al-Mu'allaqat	Reading the text and analyzing it technically and linguistically	Direct questions
4	1	Arabic literature	The poem of Al-Afwah Al-Awdi in the rule	Reading and analyzing the text at several levels	Direct questions
5	1	Morphology	Morphological	Lecture and practical applications	Direct questions
6	1	Morphology	conjugation	Lecture and practical applications	Direct questions
7	1	First month exam			



8	1	Language skills	Alphabets	Lecture and practical applications	Direct questions
9	1	punctuation marks	Rules for writing punctuation marks	Lecture and practical applications	Direct questions
10	1	Rules for writing the hamza	First, medium, extreme, connection and disconnection	Lecture and practical applications	Direct questions
11	1	Arabic dictionaries	Dictionary Words (Definition, Importance, Types of Dictionaries)	Lecture and practical applications	Direct questions
12	1	Arabic dictionaries	The (eye foundation) method of knowledge extracting words	Lecture and practical applications	Direct questions
13	1	Common linguistic errors	Common mistakes in contemporary language	Lecture and practical applications	Direct questions
14	1	Second month exam			
15	1	Koran	Surah Baqarah Verses 26-263	Interpretation and analysis of verses	Direct questions



16	1	The Noble Prophet's Hadith	The best among you is he who learns the Qur'an and teaches it	Explanation of the hadith	Direct questions
17	1	Arabic literature	7 verses from Rumi's Ba'iyyah	Read and analyze	Direct questions
18	1	Human values in pre-Islamic and Islamic poetry	Kindness	Lecture, discussion and dialogue	Direct questions
19	1	Arabic grammar	Parts Speech/Declension of the Built-in and Declined/Definite and Indefinite	Lecture, discussion and dialogue	Direct questions
20	1	Sections of speech	Subject predicate	Lecture, discussion, dialogue	Direct questions
21	1	Copiers	He and sisters	Lecture, discussion, dialogue	Direct questions
22	1	First month exam			
23	1	Sections of speech	Subject deputy subject	Lecture and practical applications	Direct questions
24	1	Arabic rhetoric	Definition rhetoric language terminology/The relationship	Lecture and historical	Direct questions



			rhetoric to Arabic language	present ation	
25	1	Arabic rhetoric	Definition statement and types	Lecture and historic al present ation	Direct questions
26	1	Arabic rhetoric	Simile, truth metaphor	Lecture and historic al present ation	Direct questions
27	1	Arabic rhetoric	Linguistic metaphor definition, relationships, applications metaphor, definition applications)	Lecture and historic al present ation	Direct questions
28	1	Mental metaphor	Its definition, relationships applications, metonymy, definition applications	Lecture and historic al present ation	Direct questions
29	1	Second month exam			
30	1	Common linguistic errors	Common mistakes television journalism		Direct questions

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)

None.



Main references (sources)	Ibn Aqil's Commentary on Ibn Malik's Alfiyyah/ Rhetoric and Application, Ahmed Matloub
Recommended books and references (scientific journals, reports...)	Meanings of Grammar - Dr. Fadhel Al-Samarrai, Comprehensive Grammar - Abbas Hassan, Sufficient Morphology, Ayman Amin Abdul-Ghani
Electronic References, Websites	Waqf Library, Al-Sharakh Archives, Central Library - University of Mosul



Course Description Form

1. Course name:	Educational and Developmental Psychology	
2. Course code:	EPS105	
3. Semester/Year:	2025-2026-1st	
4. Date of preparation of this description:	09/21/2025	
5. Available forms of attendance:	In-person education	
6. Number of study hours (total) / Number of units (total)	60 hours / (4) units	
7. Name of the course administrator (if more than one name is mentioned)	Name: T.A. Mohammed Qazi Jassim Email: mohammedalhadidi@uohamdaniya.edu.iq :	
8. Course objectives		Course objectives
<p>The course aims to introduce students to:</p> <p>Educational psychology, its concept and objectives. -1</p> <p>The concept of learning, its applications, theories and educational applications and role in the educational process. -2</p> <p>Information processing theory and its educational applications. -3</p> <p>Transfer of learning, its types, feedback and its importance for learners. -4</p> <p>Motivation: definition, functions, types, theories and Teaching. -5</p> <p>Problem solving, problem definition, learning problem solving skills. -6</p> <p>Historical background For Learning by computer programs, its principles and effectiveness in A Learning process. -7</p> <p>The concept of developmental psychology. with me A The stages of language development. -8 -9</p>		



Stages of human cognitive development.	-10	
Stages of the emergence of the Human.	-11	
the Distinguish between branches of developmental psychology.	-12	

9. Teaching and learning strategies		
The lecture.	-	Strategy
Discussion.	-	
Brainstorming.	-	
Cooperative groups.	-	
Self-learning.	-	
Homework and its submission in class by students	-	
Use of educational tools:	-	
Science books, blackboard, colored pencils, slide projector (PowerPoint).		

10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Feedback via direct questions	Lecture and discussion	Educational Psychology	Introducing students to: Educational Psychology: Definition, Historical Development Goals, fields and topics of educational psychology	2	the first
Feedback via direct questions	Lecture, discussion	Educational Psychology	Educational objectives, their levels, and their formulation Learning and teaching: concept, nature of the learning process	2	the second
Feedback via direct questions	Lecture and discussion, brainstorming	Educational Psychology	Its characteristics The difference between learning and	2	the third



	methods		teaching		
Feedback via direct questions	Lecture and discussion	Educational Psychology	AFactors affecting learning NLearning and teaching theories and their educational applications	2	Fourth
Feedback via direct questions	Lecture, discussion and brainstorming techniques	Educational Psychology	Theories:Thorndike, Pavlov, Skinner, Gestalt	2	Fifth
Feedback via direct questions	Lecture and discussion, methods of scientific doubt	Educational Psychology	social learning theory NCognitive learning theory	2	Sixth
Feedback via direct questions	Lecture, discussion and brainstorming techniques	First month exam	First month exam	2	Seventh
Feedback through questions Direct Rah	Lecture, discussion and brainstorming mental	Educational Psychology	Remembering and forgetting Memory and its types	2	The eighth
Feedback via direct questions	Lecture and discussion brainstorming methods	Educational Psychology	Theories explaining forgetting Strategies to help with memorization and recall, applications in acquisition and retention	2	Ninth
Extracurricular activities	Discussion sessions	Educational Psychology	Information Processing Theory, Applications of Theory Transfer of learning: definition and types	2	tenth
Feedback via direct questions	Lecture, discussion and dialogue	Educational Psychology	His educational theories and applications, assistive technologies It is said after learning Learning concepts: definition of the concept, nature of its components, influencing factors In concept acquisition, concept acquisition	2	eleventh



			theories.		
Feedback via direct questions	Lecture and discussion brainstorming methods	Educational Psychology	Thinking, its concept, creative thinking, learning skills and habits, motivation and classroom interaction, feedback: its definition, types, educational applications, practical application	2	twelfth
Feedback via direct questions	Lecture and discussion cooperative learning	Educational Psychology	Problem solving Programs for teaching problem solving, practical application	2	thirteenth
Feedback via direct questions	Lecture and discussion	Second month exam	Second month exam	2	fourteenth
Feedback via direct questions	Lecture and discussion	Educational Psychology	Computerized e-learning	2	fifteenth
Feedback via direct questions	Lecture, discussion and dialogue	Developmental Psychology	Developmental Psychology: Definition, Importance, Meaning of Development General laws (principles) of growth	2	Week 16
Feedback via direct questions	Lecture, discussion and dialogue	Developmental Psychology	Factors affecting growth Genetic factors - environmental factors	2	Seventeenth week
Feedback via direct questions	Lecture, discussion and dialogue	Developmental Psychology	Research Methods in Developmental Psychology Research: longitudinal, cross-sectional, experimental, correlational.	2	Eighteenth week
Feedback via direct questions	Lecture, discussion and dialogue	Developmental Psychology	Childhood Its definition, importance, and stages	2	Nineteenth week
Feedback via direct questions	Lecture, discussion and dialogue	Developmental Psychology	Mental and language development Social and Emotional Development - Moral Development	2	Week twentieth



Feedback via direct questions	Brainstorming, discussion and lecture techniques	Developmental Psychology	The role of social institutions in the socialization of children Family, school, peers, media	2	Week twenty -one
Feedback via direct questions	Monthly exam	First month exam	First month exam	2	Week twenty -two
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Adolescence: Definition, Importance, Stages, and Mental Development Cognitive, social and emotional development, moral development	2	Week twenty -three
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Adolescent and society	2	Week twenty -four
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Teenagers and Careers: The Importance of Work in Teenagers' Life. The importance of choosing a career and the factors influencing it... Teenagers' compatibility with work.	2	Week twenty -five
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Adolescent trends and tendencies The importance of tendencies and trends	2	Week 26
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Sources of acquisition of tendencies and trends Factors affecting adolescents' attitudes and tendencies	2	Week 27
Feedback via direct questions	Discussion and dialogue	Developmental Psychology	Some adolescent problems-academic delay	2	Week 28
Feedback via direct questions	Discussion and dialogue	Second month exam	Second month exam	2	Week 29



By evaluating a practical session	Discussion and dialogue	Developmental Psychology	-Aggressive behavior -adolescent delinquency	2	Week 30
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11. Course Evaluation

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

Learning and teaching resources:

- 1) Educational Psychology: Theories, Methods and Applications (2024) Nabil Ad Al-Hadi, Dar Al-Yazouri Scientific.
- 2) Educational Psychology: Theory and Application, Adnan Yousef Al-Atoum, Shafiq Falah Al-Alauna, and Abdul Al-Nasser Diab Al-Jarrah and Muawiya Mahmoud Ghaly (2013), Dar Al-Masirah for Publishing and Distribution Printing, Amman, Jordan.
- 3) Educational Psychology, Abdul Majeed Nashwaty(2003) Dar Al-Furqan for Publishing and Distribution, Jordan
- 4) Educational Psychology, Saleh Abu Jado. Ghazal Dar Al-Masirah for Publishing, Distribution and Printing, Amman. Jordan.
- 5) Foundations of Child and Adolescent Psychology, Kuwait – Al-Falah Library. Masn, Paul, and others.
- 6) Evolutionary Psychology, Jordan – Amman, Majdalawi Publishing House. Arefej, Sami (1993).
- 7) Introduction to Evolutionary Psychology, Cairo – Arab House Library for Books. Alwan, Fadia.



Course Description Form

1. Course Name:	
Computer	
2. Course Code:	
UOH104	
3. Semester / Year:	
Yearly\ first stage	
4. Description Preparation Date:	
2025/3/10	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 HOURS/ 2 UNITS	
7. Course administrator's name (mention all, if more than one name)	
Name: alaa salim abd alrazzaq Email :alaasalimabd161194@uohamrdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Explain the concept of computers and identify their characteristics and different types. • Explain the components of a computer and their functions. • Explain the physical components of a computer and their different types. • Provide a brief overview of computer software and its applications. • Identify some application programs and enable them to print reports, prepare presentations, and spreadsheets. • Learn how to use the Internet.
9. Teaching and Learning Strategies	
Strategy	<p>- Graduating individuals with a culture and knowledge of everything related to computers and the rapid developments in this field.</p>

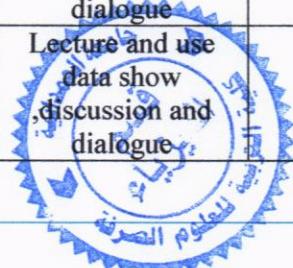


	<ul style="list-style-type: none"> - Educating students to become good computer users and enthusiasts of using them by highlighting the features they will enjoy through using the device. - Building a generation that keeps pace with the computer age and loves it. - Providing students with the opportunity to observe, reflect, and implement practical and applied knowledge in the field of computers.
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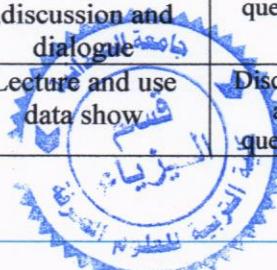
10. Course Structure

11.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Gain knowledge	Introduction to Computers	Lecture and use data show ,discussion and dialogue	Homework
2	1	Gain knowledge	Computer Hardware	Lecture and use data show ,discussion and dialogue	Discussion and questions
3	1	Gain knowledge	Computer Components 2 Software	Lecture and use data show ,discussion and dialogue	Discussion and questions
4	1	Gain knowledge	Computer Storage Units and Devices	Lecture and use data show ,discussion and dialogue	Discussion and questions
5	1	Performance evaluation	Previous Lecture Test	Lecture and use data show ,discussion and dialogue	Test
6	1	Gain knowledge	Computer Security	Lecture and use data show ,discussion and dialogue	Discussion and questions
7	1	Gain knowledge	Computer Software Licenses	Lecture and use data show ,discussion and dialogue	Questions and discussion
8	1	Gain knowledge	Computer Networks	Lecture and use data show ,discussion and dialogue	Questions and discussion
9	1	Performance evaluation	Previous Lecture Test	Lecture and use data show ,discussion and dialogue	Test



10	1	Gain knowledge	Internet	Lecture and use data show ,discussion and dialogue	Discussion and questions
11	1	Gain knowledge	Websites	Lecture and use data show ,discussion and dialogue	Discussion and questions
12	1	Gain knowledge	Email	Lecture and use data show ,discussion and dialogue	Discussion and questions
13	1	Gain knowledge	Operating System Basics	Lecture and use data show ,discussion and dialogue	Discussion and questions
14	1	Gain knowledge	Operating System Basics 2	Lecture and use data show ,discussion and dialogue	Discussion and questions
15	1	Performance evaluation	Theoretical Exam (Midterm)	Lecture and use data show ,discussion and dialogue	Test
16	1	Gain knowledge	Definition of Microsoft Office Word	Lecture and use data show ,discussion and dialogue	Discussion and questions
17	1	Gain knowledge	Definition of the Home Page and Toolbars	Lecture and use data show ,discussion and dialogue	Discussion and questions
18	1	Gain knowledge	Menu Bar: File Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
19	1	Gain knowledge	Menu Bar: Main Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
20	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
21	1	Gain knowledge	Menu Bar: Insert Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
22	1	Gain knowledge	Design Menu	Lecture and use data show	Discussion and questions



				,discussion and dialogue	
23	1	Gain knowledge	Page Layout Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
24	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
25	1	Gain knowledge	Definition of PowerPoint Presentation Program	Lecture and use data show ,discussion and dialogue	Discussion and questions
26	1	Gain knowledge	Definition of the Home Page and Toolbars	Lecture and use data show ,discussion and dialogue	Discussion and questions
27	1	Gain knowledge	Inserting, Deleting, and Duplicate Slides and Slide Design	Lecture and use data show ,discussion and dialogue	Discussion and questions
28	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
29	1	Gain knowledge	Animation Effects on Objects and Slide Transitions	Lecture and use data show ,discussion and dialogue	Discussion and questions
30	1	Performance evaluation	Final Exam	Lecture and use data show ,discussion and dialogue	Test

12. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, quizzes

13. Learning and Teaching Resources

Required textbooks (curricular books, if any)	A lecture prepared by the lecturer
Main references (sources)	أساسيات الحاسوب اعداد : الخضر علي الخضر بحث مهارات الحاسوب بم.وسيم يوسف ليلاس مظلوم
Recommended books and references (scientific journals, reports...)	Recommended mainstream books and references (scientific journals, reports)
Electronic References, Websites	Wikipedia



Course Description Template

Course Description Template	
Course Name <i>Democracy and Human Rights</i>	
1. Course Code	UOH103
2. Semester/Year	2025-2026
3. Date of Description Preparation	23/9/2025
4. Date of Description Preparation	In-Person Education
2. Total Credit Hours / Total Units	90hours
2. Course Coordinator's Name (if more than one, list them)	Dr. Humam Mohammed Yaqoub Email:dr.humam.slama@uohamdaniya.edu.iq
Course Objectives	(Defining fundamental human rights and explaining human rights in the constitution and Iraqi laws, discussing religious principles, providing students with information about their rights, and offering adequate information on human rights at both the national and international levels, as well as introducing democracy and its concepts, outlining types of
Course Objectives	



	democracy, and assessing the feasibility of applying it in Iraq).
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Teaching and Learning Strategies

Strategy

- Understanding rights in the context of modernity and development.
- Familiarizing with laws and amendments related to human rights.
- Equipping students with essential skills in rights and systems, including democracy.
- Providing students with information on rights in the Iraqi constitution and laws.

Offering students insights into rights in international treaties and agreements.

Course Structure

Assessment Method	Learning Method	Unit or Topic Name	Required Learning Outcomes	hours	week
			Required Learning Outcomes	hours	week
Clarification	Theoretical Explanation	Definition of Human Rights 1	Basic Definitions	2	The First
Clarification	Theoretical Explanation	The Historical Development of Human Rights	Historical Development	2	The



		in the Mesopotamian Valley			Second
Clarification	Theoretical Explanation	Human Rights in Islam, Christianity, and Judaism	Students' Definition of Human Rights in Religions	2	The Third
Clarification, Discussion, and Daily Exam	Theoretical Explanation	Types of Rights and Their Characteristics	Students' Definition of Types of Rights and Their Characteristics	2	The Fourth
Clarification, Discussion, and Daily Quiz	Theoretical Explanation	The Iraqi Constitution of 2005	Human Rights in the Iraqi Constitution	2	The Fifth
Discussion and Dialogue	Theoretical Explanation	Continuation of the Texts of the Iraqi Constitution of 2005	Human Rights in the Iraqi Constitution	2	The Sixth
Discussion and Dialogue	Theoretical Explanation	Supplement to the Texts of the Iraqi Constitution of 2005	Human Rights in the Iraqi Constitution	2	The Seventh
Clarification	Theoretical Explanation	Human Rights in International Agreements	Human Rights in International Laws and Agreements	2	The Eighth
Clarification	Theoretical Explanation	Human Rights in International Organizations	Human Rights in International Laws and Agreements	2	The Ninth
Clarification and Discussion	Theoretical Explanation	Human Rights in Global Organizations	Human Rights in International Laws and Agreements	2	The Tenth
Clarification and Discussion	Theoretical Explanation	Human Rights in Regional Organizations	Human Rights in International Laws and Agreements	2	The Eleventh
Clarification and Discussion	Theoretical Explanation	Labor and Social Security Law	Human Rights in Some Iraqi Laws	2	The Twelfth
Clarification, Discussion, Dialogue, and Daily Quiz	Theoretical Explanation	Personal Status Law	Human Rights in Some Iraqi Laws	2	The Thirteenth
Clarification and Discussion	Theoretical Explanation	Student Discipline Guidelines	Human Rights in Some Iraqi Laws	2	The Fourteenth
Questions, Answers, and	Theoretical Explanation	Student Discipline	Student Discipline Regulations	2	The Fifteenth



Discussion		Guidelines			
Questions, Answers, and Discussion	Theoretical Explanation	Human Rights in Iraqi Legislation	General Review	2	The Sixteenth
Discussion and Daily Exam	Theoretical Explanation	Human Rights in Iraqi Laws	General Review	2	The Seventeenth
Clarification	Theoretical Explanation	General Definitions of Democracy	Definitions of Democracy	2	The Eighteenth
Clarification	Theoretical Explanation	Basic Concepts in the Democratic System	Basic Concepts in the Democratic System	2	The Nineteenth
Clarification	Theoretical Explanation	Forms of Democracy in Iraq	Types of Democracy	2	The Twentieth
Clarification and Discussion	Theoretical Explanation	Advantages and Disadvantages of Democracy	Evaluation of the Democratic System	2	The Twenty-First
Clarification and Discussion	Theoretical Explanation	The Feasibility of Implementing the Democratic System in Iraq	Implementation of the Democratic System in Iraq	2	The Twenty-Second
Clarification and Discussion	Theoretical Explanation	Examples and Models	Global Governance Systems	2	The Twenty-Third
Clarification and Discussion	Theoretical Explanation	Examples and Models	Democracy in Middle Eastern Countries	2	The Twenty-Fourth
Clarification and Discussion	Theoretical Explanation	Examples, Models, and Cases	Democracy in the Iraqi Context	2	The Twenty-Fifth
Clarification and Daily Exam	Theoretical Explanation	Definitions, Evolution, and Types of Democratic Systems	General Review	2	The Twenty-Sixth
Reclarification	Theoretical Explanation	Human Rights	General Review of the Curriculum	2	The Twenty-Seventh
Reclarification	Theoretical Explanation	Human Rights	General Review of the Curriculum	2	The Twenty-Eighth
Reclarification	Theoretical Explanation	Democracy	General Review of the Curriculum	2	The Twenty-Ninth



Reclarification	Theoretical and Practical Explanation	Democracy	General Review of the Curriculum	2	The Thirtieth
1. Course Evaluation					"Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral exams, monthly exams, written exams, and reports, etc."
2. Learning and Teaching Resources					
1. Prof. Dr. Riyad Aziz Human Righ required textbooks (methodology, if applicable) and Democracy					
2- Omar MA., 1975, Elementary solid state physics, principles and applications, Addison-Wesley Publishing Company.					
3. Solid State Physics, Mueid Gabrie Part One and Part Two					
4. Solid State Physics, Yahya Al-Jan					
Human Rights (Dr. Hamid Hanoon)		Essential References (Sources)			
Human Rights (Prof. Dr. Ali Youssef Al-Shukri)		Recommended Standard Books and References (Scientific Journals, Reports)			
Websites of Human Rights Organizations		Electronic References, Internet Websites			



Course Description Form for the Second Stage

Course Title:			
Heat and Properties of the Material/Stage I			
Course Code:			
PHY110			
Semester/Year:			
2025-2026			
Date of creation of this description:			
9/23/2025			
Available Attendance Formats:			
Attendance			
Number of Hours of Study (Total) / Number of Units (Total):			
60 Hours			
Name of the course administrator (if more than one name is mentioned):			
Eng. Mowaffaq Moussa Mansour			
Email: muwaffaq1968@gmail.com			
Course Objectives			
<ul style="list-style-type: none"> • Teaching students to study the basic concepts of heat and the amount of heat and its effect on the thermal properties of the material. It also studies the kinetic theory of gases and the laws that are subject to them, the mechanical properties of matter such as stress and compliance of all kinds, Junk's law, and the electrical and magnetic properties of solids in particular. 	Course Objectives	9	
Teaching and Learning Strategies			



Strategy	10
<p>1- Directing the attention of students to know the mechanisms of heat transfer.</p> <p>2- Develop the student's ability to interpret phase shifts that occur in the material.</p> <p>3- Motivating students to participate in the lecture.</p> <p>Develop the student's skills in solving mathematical problems related to the subject.</p>	



9. Course Outcomes, Teaching, Learning and Assessment Methods

Course Outcomes:

- Explains the basic principles and concepts of heat.
- The student distinguishes between temperature and temperature.
- The student will learn about the methods of finding the specific heat of solids.
- Mentions the most important practical applications of Pascal's base.
- The student connects the scientific facts and data to derive Torcelli's equation.
- Enable the student to understand the mathematical laws in solving gas problems.
- Distinguishes between conductive and insulating materials.
- Identifies the factors affecting the amount and type of deformation that occurs in the solid.
- Enumerates the properties of paramagnetic materials.

B. Skill Objectives of the Course:

- The student is introduced to the basic laws of heat, gases, and liquids.
- Develop the student's abilities to understand the laws of gases and the kinetic theory of gases.
- The student discovers the properties of fluids in both stillnesses and motion.
- The student compares different magnetic materials and the extent to which heat affects them.

Teaching and Learning Methods

Lecture, Discussion, Dialogue and Analysis

Evaluation Methods



- Daily and quarterly questions.
- Homework.
- Direct questions addressed to students during the lecture.

C. Emotional and Values Goals:

- A1– Directing students' attention to know the mechanisms of heat transfer.
- C2– Developing the student's ability to interpret the phase shifts that occur in the subject.
- A3– Motivating students to participate in the lecture.
- C4– Developing the student's skills in solving mathematical problems related to the subject.

Teaching and Learning Methods

Lecture , discussion, dialogue and analysis.

Evaluation Methods

Written and oral tests

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

- Access to scientific sources
- Reviewing the latest studies in the specialization.
- Follow scientific websites using the Internet



10. Course Structure

Evaluation Method	Teaching Method	Module Name / or Subject	Required Learning Outcomes	Hours	The week
Direct Questions	Lecture, Discussion and Dialogue	temperature	Temperature, Temperature Measurement Bases, Temperature Gauges and Conversion Between Them, Types of Diapers	2	First
	Lecturer, Discussion and Dialogue	temperature	Seal Staging, Fixed-Volume Gas Heater, Thermocouple Thermodynamic, Electrical Resistance, Effect of Temperature on Material States, Thermal Expansion - Expansion of Solid Bodies	2	Second
	Lecturer, Discussion and Dialogue	temperature	Fluid Expansion, Gas Expansion, Heat Transfer Mechanisms, Conductivity	2	Third
	Lecture, Discussion and Dialogue	temperature	Radiation, Low Temperatures, Heat Energy Sources, Energy-Matter Relationship, Solved Examples	2	Fourth
	Lecture, Discussion and Dialogue	temperature	Solving questions	2	V
Daily exam	Lecture, Discussion and Dialogue	Heat	Heat and its effects, amount of heat, specific heat, methods of measuring specific heat, phase concept, phase shifts	2	Sixth
	Lecture, Discussion and Dialogue	Heat	Phase diagram , water triple point, state transformations of matter, evaporation, fusion, boiling, sublimation	2	Seventh
	Lecture, Discussion and Dialogue	Heat	The first law of thermodynamics, solving examples.	2	Eighth



	Lecture, Discussion and Dialogue	Heat	Solving questions.	2	Ninth
Daily exam	Lecture, Discussion and Dialogue	Gases	Ideal Gas and Real Gas, Kinetic Theory of Gases, Avocadura Number, Gas Law, Boyle's Law, Charles' Law, Gas Constant	2	X
	Lecture, Discussion and Dialogue	Gases	The Ideal Gas Law, Vandervase's Equation, The Internal Energy of the Gas	2	Eleventh
	Lecture, Discussion and Dialogue	Gases	Specific Heat of Gases CV, CP Relationship between CV, CP Calculation of CV, CP of Ideal Gas , Work Done by Ideal Gas	2	Twelfth
	Lecture, Discussion and Dialogue	Gases	Ideal Gas Pressure, Solved Examples	2	Thirteenth
	Lecture, Discussion and Dialogue	Gases	Solving questions	2	Fourteenth
Monthly exam	Lecture, Discussion and Dialogue	Gases	Solving questions	2	Fifteenth
	Lecture, Discussion and Dialogue	fluids	Density and specific weight, capillary property, surface tensile, liquid surface, contact angle	2	Sixteenth week
	Lecture, Discussion and Dialogue	fluids	Viscosity, Pressure in Liquids, Pascal Base, Archimedes Base	2	Week Seventeen
	Lecture, Discussion and Dialogue	fluids	Flowflow Regular, Poiselle Equation, Bernoulli's Equation, Torchley's Equation	2	Week Eighteen th
	Lecture, Discussion	fluids	Flow meters, venturi meter, petut tube, solved examples	2	Week Nineteen



	on and Dialogue				
	Lecture, Discussion and Dialogue	fluids	Solving questions	2	Week 20
Daily exam	Lecture , Discussion and Dialogue	Mechanical properties of solids	Stress and its types, Adaptability and its types, Stress curve, Adaptability, Flexibility coefficient,	2	Week 21
	Lecture, Discussion and Dialogue	Mechanical properties of solids	Junk's coefficient, an experiment to measure the Junk coefficient, the Poisson ratio, an experiment to measure the Poisson ratio	2	Week 22
	Lecture, Discussion and Dialogue	Mechanical properties of solids	The relationship between mechanical properties and temperature, the effect of temperatures on all properties, the thermal treatment of the material at high and low temperatures, solving examples	2	Week Twenty Three
	Lecture, Discussion and Dialogue	Mechanical properties of solids	Solving questions	2	Week Twenty Four
	Lecture Discussion and Dialogue	Magnetic properties of solids	Magnetic Moment of Electron, Angular Momentum of Electron, Relationship between Magnetic Moment and Angular Momentum, Magnetic Effect	2	Week Twenty Five
	Lecture, Discussion and Dialogue	Magnetic properties of solids	Classification of Magnetic Materials, Diamagnetic Materials, Paramagnetic Materials, Ferromagnetic Materials	2	Week twenty sixth
Daily exam	Lecture, Discussion and Dialogue	Magnetic properties of solids	Antiferromagnetic materials, ferromagnetic materials, magnetic elements,	2	Week twenty seven



	Lecture, Discussion and Dialogue	Electrical properties of solids	Electrical conductivity, insulators and conductors, semiconductors, insulators, electrical resistivity, electrical conductivity and its relationship to temperature, superconductivity phenomenon	2	Week Twenty Eight
	Lecture, Discussion and Dialogue	Electrical properties of solids	Critical magnetic field, Thermal electro-breakdown, Insulators affecting electrical breakdown, Issues	2	Week twenty ninth
	Lecture, Discussion and Dialogue	Plasma	Plasma, Plasma Generation, Plasma Study, Plasma and Electric Field, Plasma Containment, Geomagnetic Field and Cosmic Plasma, Questions	2	Week 30

11. Infrastructure

1- Heat and properties of the material. (Dr. Kazim Ahmed)
2- Thermodynamics (Dr. Sami Mazloum, Dr. Amjad Karjeh, Dr. Abdellatif Ibrahim)
3- Mechanic, Heat and Sound, By: Sears.
4- Physics (part 1), By: R. Resuich and D. Halliday.

1- Required Textbooks

2- Main References (Sources)

A) Recommended books and references (scientific journals, reports ,

Various websites and locations about heat and properties of materials online.

B) Electronic References, Websites,



Course Description Form

1.	:Course Name	
Fundamentals of Education		
2.	:Course Code	
.EPS106		
3.	:Semester/Year	
2026-2005		
4.	:Date of preparation of this description	
2025-9-18		
5.	:Available Forms of Attendance	
Face-to-face education		
6.	(Number of Hours (Total) / Number of Units (Total))	
Academic Hours/2 Units 60		
7.	Course administrator name (if more than one name is mentioned)	
الإسم	Name: Eng. Muhamad Ahmed Sultan mohand.1993@uohamdanaya.edu.iq	
8.	Course Objectives	
Increasing students' awareness of the importance of linking the .1 scientific aspect with the practical, especially if it is related to improving aspects of daily life, through which society is reformed, .serving the country, and living that achieves happiness for all Increasing the student's understanding of the educational and .2 social reality throughout the ages and the awareness of the		Course Objectives
9.	Teaching and Learning Strategies	
Dialogue and discussion .1 .Brainstorming and problem-solving .2 Measurement and Induction .3 Collaborative Learning.Dialogue and discussion .4 .Brainstorming and problem-solving .5 Measurement and Induction .6 .Collaborative learning .7 ."Educational seminars "Seminar .8		Strategy



<p style="text-align: center;">The Five Pillars Strategy and Linking to the Reality of Students' Daily Life to Consolidate What They Have Learned</p> <p style="text-align: right;">.10</p> <p style="text-align: right;">.11</p> <p style="text-align: right;">.12</p>		
<p style="text-align: center;">The Five Pillars Strategy and Linking to the Reality of Students' Daily Life to Consolidate What They Have Learned</p> <p style="text-align: right;">.13</p>		
<p style="text-align: center;">.14</p> <p style="text-align: right;">.15</p>		

10. Course Structure

طريقة التقييم	Teaching Method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Oral and written testing	Dialog Discussion	The meaning of education and its objectives are necessary The meaning of education and its objectives are necessary	Students should explain the meaning of education and its objectives and its necessity	2	1
Oral and written testing	Dialog Discussion	Theories, Fields	Students should distinguish between their theories and fields	2	2
Oral and written testing	Dialog Discussion	The Historical Basis of Education	Students should be introduced to the historical basis of education	2	3
Oral and written testing	Dialog Discussion	The Historical Basis of Education	To understand the ancient education	2	4



Oral and written testing	Dialog Discussion	The Historical Basis of Education	To summarize how to raise Chinese	2	5
Oral and written testing	Dialog Discussion	The Historical Basis of Education	Explain Greek Education	2	6
Oral and written testing	Dialog Discussion	The Historical Basis of Education	Illustrate Medieval Education	2	7
Oral and written testing	Dialog Discussion	The Historical Basis of Education	To compare Arab education before Islam and after Islam	2	8
Oral and written testing	Dialog Discussion	The Historical Basis of Education	Students should distinguish between the challenges that hinder them and the factors that contribute to the application of modern ..education	2	9
Oral and written testing	Dialog Discussion	The Social Basis of Education	Shows the relationship between education and society	2	10
Oral and written testing	Dialog Discussion	The Social Basis of Education	Summarizes the relationship between the individual and the environment	2	11
Oral and written testing	Dialog Discussion	The Social Basis of Education	To practice moral education	2	12
Oral and written testing	Dialog Discussion	The Social Basis of Education	Students should apply family ,education	2	13
Oral and written testing	Dialog Discussion	The Social Basis of Education	Students should apply civic ,education	2	14



Oral and written testing	Dialog Discussion	The Social Basis of Education	Students should apply health education	2	15
Oral and written testing	Dialog Discussion	The Economic Basis of Education The Economic Basis of Education	Illustrates education and its impact on economic development	2	16
Oral and written testing	Dialog Discussion	The Economic Basis of Education	To enumerate natural resources and how to invest them	2	17
Oral and written testing	Dialog Discussion	The Scientific Basis of Education	Demonstrate education and methodology in research	2	18
Oral and written testing	Dialog Discussion	National and Social Foundations	National and Social Foundations	2	19
Oral and written testing	Dialog Discussion	Education in the Perspective of Islam	Education in the Islamic Perspective	2	20
Oral and written testing	Dialog Discussion	Educational Renewal in Iraq	Explains the Comprehensive School	2	21
Oral and written testing	Dialog Discussion	Educational Renewal in Iraq	Understands Systematic Education	2	22
Oral and written testing	Dialog Discussion	Educational Renewal in Iraq	Expresses the importance of acceleration schools	2	23
Oral and written testing	Dialog Discussion	Primitive Education	The individual accepts the primitive environment and how the education itself is woven	2	24
Oral and written testing	Dialog Discussion	Social Education	Students have a specific social need	2	25



Oral and written testing	Dialog Discussion	Education throughout history	Finding the Relationship of Harmony between Civilizations	2	26
Oral and written testing	Dialog Discussion	Islamic Education	I mean symmetry and consistency in thinking and acting according to our religion	2	27
Oral and written testing	Dialog Discussion	Community Educational Applications	Students should apply the most prominent educational and awareness programs that serve the .community	2	28
Oral and written testing	Dialog Discussion	Educational Methodological Applications	Students should be able to understand the foundations on which the methodological applications are .based		29
Oral and written testing	Dialog Discussion	Challenges of Social and National Foundations	Students should contribute to reducing obstacles facing societal and national progress	2	30



11. Course Evaluation

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

12. Teaching and Learning Resources

	(Required Textbooks (Methodology, if any)
<p>Ibn Rushd and his .1 Philosophy between Heritage and Modernity, Al- ,Asam, Abd al-Amir, vol. 1 Bayt al-Hikma, Baghdad, .1999</p> <p>Dr. Ibrahim Nasser, .2 Foundations of Education, Dar Al-Tali'a, Amman, 2004</p> <p>The Republic, Plato, .3 translated by Hanna Khabbaz, Dar al-Turath, Beirut, 1969</p>	(Primary References)
<p>Dr. Maher Al-Jaafari, .4 Foundations of Education, Dar Ammar, Amman, 1998</p> <p>Dr. Ibrahim Othman, .5 Education, Dar Kazma, Kuwait, 1983</p> <p>Dr. Mahmoud El-Sayed, .6 Studies in Education and</p>	Recommended Books and References (Scientific (Journals, Reports)



Society, Al-Nadim, Cairo, 1988	
	References, Websites



Course Description Template

1. Course Title	
Mathematics I	
2. Course Code	
PHY109	
3. Semester / Academic Year	
First Year / 2025-2026	
4. Date of Preparation of this Description	
1 / 9 / 2025	
5. Available Attendance Modes	
Face-to-Face Instruction	
6. Total Study Hours / Total Credit Units	
90 hours / 6 units	
7. Name of Course Coordinator (If more than one, list all)	
Lecturer : Shahab Ahmed Hassan Email: shahab19862023@uohamdaniya.edu.iq	
8. Course Objectives	
Subject Learning Objectives	<ul style="list-style-type: none">• To equip and train the student in the principles and methods of ordinary differentiation and its applications, as well as methods of ordinary integration and their utilisation within the advanced differentiation course in the second year; to prepare the



	<p>student to solve ordinary and partial differential equations and to relate these to other topics. Lectures on differentiation and integration are delivered for 5 theoretical hours per week</p>
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9. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> • Managing the lecture in a manner that emphasises the importance of time • Assigning students group tasks • Assigning students to gather sources and references and prepare a report on the lecture topic
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic Name	Teaching Method	Assessment Method
1	3	Theoretical Knowledge and Applied Analysis	Definition of number sets and intervals, including examples, inequalities, absolute value, and its properties	According to the teaching and learning methods outlined above	Direct questions
2	3	Theoretical Knowledge and Applied Analysis	Function composition and its properties	According to the teaching and learning methods outlined above	Direct questions
3	3	Theoretical Knowledge and Applied Analysis	Types of functions (constant, identity, absolute, quadratic, polynomial)	According to the teaching and learning methods outlined above	Direct questions
4	3	Theoretical Knowledge and Applied Analysis	Types of functions (square root, even and odd, sign function, rational, greatest integer function)	According to the teaching and learning methods outlined above	Direct questions



5	3	Theoretical Knowledge and Applied Analysis	Trigonometric functions with proofs	According to the teaching and learning methods outlined above	Direct questions
6	3	Theoretical Knowledge and Applied Analysis	Limits and continuity of functions.	According to the teaching and learning methods outlined above	Direct questions
7	3	Theoretical Knowledge and Applied Analysis	Limits using definition and finding limits from one side + mid-course exam	According to the teaching and learning methods outlined above	Direct questions
8	3	Theoretical Knowledge and Applied Analysis	Continuity (definition of continuity, conditions of continuity) with various examples	According to the teaching and learning methods outlined above	Direct questions
9	3	Theoretical Knowledge and Applied Analysis	Explaining the relationship between limit and continuity through various examples and solving exercises and assignments	According to the teaching and learning methods outlined above	Direct questions
10	3	Theoretical Knowledge and Applied Analysis	Solve various questions about limit and continuity based on students' questions	According to the teaching and learning methods outlined above	Direct questions
11	3	Theoretical Knowledge	Defining the derivative	According to the teaching	Direct questions



		and Applied Analysis	mathematically and physically with a graph and finding the derivative using the definition with examples	and learning methods outlined above	
12	3	Theoretical Knowledge and Applied Analysis	Derivation of trigonometric functions with various examples	According to the teaching and learning methods outlined above	Direct questions
13	3	Theoretical Knowledge and Applied Analysis	Laws of hyperbolic functions, higher-order derivatives, and implicit differentiation	According to the teaching and learning methods outlined above	Direct questions
14	3	Theoretical Knowledge and Applied Analysis	L'Hopital's rule with various examples	According to the teaching and learning methods outlined above	Direct questions
15	3	Theoretical Knowledge and Applied Analysis	Chain rule with various examples	According to the teaching and learning methods outlined above	Direct questions
16	3	Theoretical Knowledge and Applied Analysis	Rules of slope and tangent with examples	According to the teaching and learning methods outlined above	Direct questions
17	3	Theoretical Knowledge and Applied Analysis	Integration rules with examples and integration of trigonometric functions	According to the teaching and learning methods outlined above	Direct questions



18	3	Theoretical Knowledge and Applied Analysis	Finding the area under and above a curve and the area between two curves using definite integration	According to the teaching and learning methods outlined above	Direct questions
19	3	Theoretical Knowledge and Applied Analysis	Inverse functions and finding the domain and codomain of inverse functions	According to the teaching and learning methods outlined above	Direct questions
20	3	Theoretical Knowledge and Applied Analysis	Derivative of inverse trigonometric functions and integral of inverse trigonometric functions with various examples	According to the teaching and learning methods outlined above	Direct questions
21	3	Theoretical Knowledge and Applied Analysis	Derivative of hyperbolic functions, integration of hyperbolic functions and their rules with examples	According to the teaching and learning methods outlined above	Direct questions
22	3	Theoretical Knowledge and Applied Analysis	Integration methods (UDV method, trigonometric substitution method) With examples	According to the teaching and learning methods outlined above	Direct questions
23	3	Theoretical Knowledge and	Compensation method with various examples	According to the teaching and learning	Direct questions



		Applied Analysis	+ daily exam	methods outlined above	
24	3	Theoretical Knowledge and Applied Analysis	Partition Fractions Method (first case + second case with examples)	According to the teaching and learning methods outlined above	Direct questions
25	3	Theoretical Knowledge and Applied Analysis	Finding integration using the method $\sqrt[n]{ax + b}$ + the division method with examples + the mid-course exam	According to the teaching and learning methods outlined above	Direct questions
26	3	Theoretical Knowledge and Applied Analysis	Transcendental functions (definition of the natural logarithm function, its graph and properties with various examples)	According to the teaching and learning methods outlined above	Direct questions
27	3	Theoretical Knowledge and Applied Analysis	Derivative of the natural logarithm function and its integral with various examples	According to the teaching and learning methods outlined above	Direct questions
28	3	Theoretical Knowledge and Applied Analysis	Definition of the exponential function, its graph and properties with examples, and the derivative and integral of the exponential function with examples	According to the teaching and learning methods outlined above	Direct questions



29	3	Theoretical Knowledge and Applied Analysis	Properties and derivative (exponential function to base a and logarithmic function to base a)	According to the teaching and learning methods outlined above	Direct questions
30	3	Theoretical Knowledge and Applied Analysis	Solve exercises, assignments and examples based on the student's weakness	According to the teaching and learning methods outlined above	Direct questions

11. Course Assessment

15 marks / Monthly Exams

25 marks / Midterm Exam

60 marks / Final Exam

12. Learning Resources

Required Textbooks (Methodology, if available)	Calculus
Primary References (Sources)	Calculus theory
Recommended Supporting Books and References (Scientific Journals, Reports, etc.)	Calculus I,II,III –Jerrold Marsdon & Alan Weinstein (2 nd edition , 2003)
Electronic References, Websites	YouTube

13. Curriculum Development Plan

- Add contemporary topics:
- Applications in economics (compound interest calculation, rates of change).



- Applications in Physics (Motion, Work, Energy)
- Introduction to differential equations as a natural extension of integration
- Active learning: Introducing interactive classroom activities and group problems.
- Relying on programs such as: GeoGebra, Desmos to illustrate graphs and derivations.
- Relying on modern sources in teaching the course, such as:
 - Thomas calculus–George B,2024.
 - Calculus Volume 1–Edwin Jed Herman, 2020.



Course Description Form

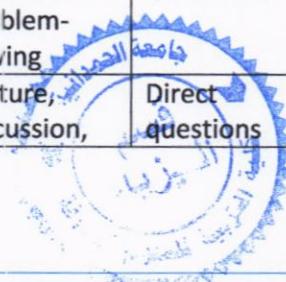
1. Course Name: Electricity and Magnetism	
2. Course Code: PHY108	
3. Semester / Year: 2025-2026	
4. Description Preparation Date: 21 / 9 / 2025	
5. Available Attendance Forms: Face-to-face learning	
6. Number of Credit Hours (Total) / Number of Units (Total) 90 (Theoretical) + 90 (Practical) / 8 Units	
7. Course administrator's name (mention all, if more than one name) Name: Asst. Lect. Ahmed Subhi Ali Hussein Email: ahmed.subhi.ali@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none">• Introduce students to the fundamentals of electricity and magnetism and their importance in our lives, integrating physical concepts with mathematical derivations, and broadening students' horizons toward scientific theories and applications.• Enable students to understand the basics of physics.• Enable students to interpret physical phenomena from a mathematical perspective.• Provide students with knowledge and understanding of scientific laws in physics, practical applications, logical and scientific analysis, and interpretation of physical phenomena.• Develop students' thinking skills and enable them to understand and solve scientific problems related to physical laws.



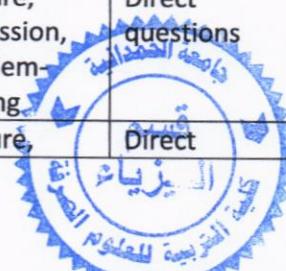
	<ul style="list-style-type: none"> • •
9. Teaching and Learning Strategies	

1. Enabling students to acquire knowledge and understanding of electricity and magnetism.
2. Providing knowledge about charges and the electric field.
3. Understanding the equations of the electric and magnetic fields, and electric current.
4. Linking capacitors and understanding the effect of dielectric materials.
5. Understanding how DC circuits work.
6. Solving numerical problems related to current in electric networks.
7. Deeper and more comprehensive understanding of mathematical aspects related to resistors and capacitors.

10. Course Schedule (Translated)					
Week	Hours	Intended Learning Outcomes	Unit / Topic	Teaching Method	Assessment Method
1	3	Prove Coulomb's law and solve problems related to the inverse square law	Coulomb's Law	Lecture, discussion, problem-solving	Direct questions and daily assignments
2	3	Verify Coulomb's law, nucleus of the atom in Rutherford's experiment	Coulomb's Law	Lecture, discussion, problem-solving	Direct questions
3	3	Electric field intensity	Electric Field	Lecture, discussion, problem-solving	Direct questions
4	3	Electric field lines	Electric Field	Lecture, discussion, problem-solving	Direct questions
5	3	Applications on	Electric Field	Lecture, discussion,	Direct questions



		calculating electric field intensity		problem-solving	
6	3	Electron charge	Electric Field	Lecture, discussion, problem-solving	Monthly exam
7	3	Electric flux	Gauss's Law	Lecture, discussion, problem-solving	—
8	3	Electric field between parallel plates	Gauss's Law	Lecture, discussion, problem-solving	—
9	3	Electric potential	Electric Potential	Lecture, discussion, problem-solving	Monthly exam
10	3	Applications on electric potential	Electric Potential	Lecture, discussion, problem-solving	Direct questions
11	3	Electric potential energy	Electric Potential	Lecture, discussion, problem-solving	Direct questions
12	3	Van de Graaff generator	Electric Potential	Lecture, discussion, problem-solving	Direct questions
13	3	Capacitance	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
14	3	Calculating capacitance	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
15	3	Importance of insulators in capacitors	Capacitors & Dielectrics	Lecture, discussion, problem-solving	—
16	3	Capacitors in series and parallel	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
17	3	Practical applications of capacitors	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
18	3	Stored	Capacitors &	Lecture,	Direct



		energy in capacitors	Dielectrics	discussion, problem-solving	questions
19	3	Variable capacitors	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
20	3	Theoretical and applied knowledge, problem-solving ability	Capacitors & Dielectrics	Lecture, discussion, problem-solving	Direct questions
21	3	Electric current	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
22	3	Resistance and resistivity	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
23	3	Problems on resistivity	Current & Resistance	Lecture, discussion, problem-solving	—
24	3	Temperature coefficient of resistivity	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
25	3	Practical types of resistors	Current & Resistance	Lecture, discussion, problem-solving	—
26	3	Color code of resistors	Current & Resistance	Lecture, discussion, problem-solving	Monthly exam
27	3	Ohm's Law	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
28	3	Power dissipation in resistors	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
29	3	Joule's Law	Current & Resistance	Lecture, discussion, problem-solving	Direct questions
30	3	Problem solving	Current & Resistance	Lecture, discussion, problem-	—



				solving	
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11. Course Assessment:

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

12. Learning and Teaching Resources

Prescribed Textbooks (if available)	<i>Fundamentals of Electricity and Magnetism</i> by Yahya Abdul-Hamid Al-Hajj Ali
Main References (sources)	<i>Electricity and Magnetism, Part I</i> , translated by Dr. Hazem Falah Sakeek
Recommended Textbooks and References (scientific journals, reports):	<ul style="list-style-type: none"> Following electronic references and the internet, including reliable websites and library portals of some international universities.



Course Description Form

1. Course Name:	Mechanics
2. Course Code:	PHY107
3. Semester / Year:	Yearly
4. Description Preparation Date:	20/9/2025
5. Available Attendance Forms:	Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS/ 7 UNITS
7. Course administrator's name (mention all, if more than one name)	Name: Dr. Ali H. Ahmed Suliman Email: dr.aha.suliman@uohamdaniya.edu.iq
8. Course Objectives	<p>Course Objectives</p> <p>The course aims to provide students with information and skills about mechanics, the relationship and movement of bodies, and the properties of matter</p> <p>Which the student will benefit from for the advanced university stage and which can qualify him for postgraduate studies in science</p> <p>Physics, building a strong background for those who will continue to study mechanics and properties of matter.</p>
9. Teaching and Learning Strategies	

Strategy	<p>Enabling students to obtain knowledge and understanding of the topics of body mechanics, movement, and properties subject.</p> <p>2- Enabling students to obtain knowledge and understanding of body mechanics applications and to conduct experiments with different processes.</p> <p>3- Enabling students to obtain knowledge and understanding of the use of basic physical laws in mechanics and use it to solve problems.</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 Theor	Unit System and Dimensions	Vectors Introduction	Attendance	Quiz
2	3 Theor	Vectors and scalar	Vectors Introduction	Attendance	Quiz
3	3 Theor	Vector algebra	Vectors Introduction	Attendance	Homework
4	3 Theor	Vector products (dot and cross)	Vectors Introduction	Attendance	Quiz
5	3 Theor	Triple products	Vectors Introduction	Attendance	Quiz
6	3 Theor	Application of vectors	Vectors Introduction	Attendance	Homework
7	3 Theory	Solution of Problems	Vectors Introduction	Attendance	Homework
8	3 Theory	Position	Motion in a straight line Motion	Attendance	Quiz
9	3 Theory	Average velocity	Motion in a straight line Motion	Attendance	Quiz
10	3 Theory	city, Instantaneous velocity, Average Instantaneous acceleration	Motion in a straight line Motion	Attendance	Quiz



11	3 Theory	Motion with constant acceleration	Motion in a straight line Motion	Attendance	Quiz
12	3 Theory	Freely falling bodies	Motion in a straight line Motion	Attendance	Quiz
13	3 Theory	Solution of Problems	Motion in a straight line Motion	Attendance	Homework
14	3 Theory	Motion in three dimensions	Motion in a plane Motion in two dimensions (plane)	Attendance	Quiz
15	3 Theory	Component of acceleration, and motion of projectile	Motion in a plane Motion in two dimensions (plane)	Attendance	Quiz
16	3 Theory	Trajectory of a projectile	Motion in a plane Motion in two dimensions (plane)	Attendance	Homework
17	3 Theory	Application on a projectile motion	Motion in a plane Motion in two dimensions (plane)	Attendance	Quiz
18	3 Theory	Solution of Problems	Motion in a plane Motion in two dimensions (plane)	Attendance	Quiz
19	3 Theory	Mass, Weight, Friction (Statics and dynamics), and Friction laws	Forces Newton's laws	Attendance	Quiz
20	3 Theory	Application of force	Forces Newton's laws	Attendance	Quiz
21	3 Theory	Center mass, and Equilibrium.	Forces Newton's laws	Attendance	Homework
22	3 Theory	work done by varying force, work and kinetic energy, Gravitational potential energy	Work and Energy Work done	Attendance	Quiz



			by constant force		
23	3 Theory	Elastic potential energy, Power, Power and velocity.	Work and Energy Work done by constant force	Attendance	Quiz
24	3 Theory	Angular velocity, Angular acceleration, Rotation with constant linear velocity, Kinetic energy of rotation, moment Inertia, Calculation of moment, Inertia of bodies (Cylinder, Sphere, Ring, Disc),	Rotation of Rigid Bodies Introduction	Attendance	Quiz
25	3 Theory	Radius of gyration, Energy of a body rolling on a horizontal plane, Work and power rotational motion, and the Torque.	Rotation of Rigid Bodies Introduction	Attendance	Homework
26	3 Theory	Conservation law of linear momentum, Angular momentum and impulse	Momentum and Impulse Momentum and linear impulsive	Attendance	Quiz
27	3 Theory	Relation between momentum and impulse in linear and rotational motion, Energy of Rotational motion of body.	Momentum and Impulse Momentum and linear impulsive	Attendance	Quiz
28	3 Theory	Elastic Collisions in one-dimension, Inelastic collision, and Collisions in two dimensions	Collisions	Attendance	Quiz
29	3 Theory	Conservation and non-Conservation force, Conservation energy, and Potential energy curve	Conservation of Energy Conservation laws	Attendance	Homework
30	3 Theor	Newton's law of gravitation, Definition of gravitation, Gravitation field, Gravitation potential, Intensity of gravitation, Kepler's law, and Artificial satellite orbital and escape velocity.	Universal Gravitation Meaning of gravitation	Attendance	Quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, quizzes

No.	Evaluation method	Marks	% Grads
1	Lab. Exam	10	%10



2	Quizzes	10	%10	
3	Term Exam	20	%20	
4	Final Exam(experimental)	10	%10	
5	Final Exam (Theory)	50	%50	
	sum	100	%100	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	University Physics by Francis W. Sears, Mark W. Zemanseky and Hugh D. Young, 1982.
Main references (sources)	Introduction to Physics by Jojn D. Cutnell, Kenneth W. Johnson 8th.Ed., 2010.
Recommended books and references (scientific journals, reports...)	Zainul Huda. <i>Metallurgy for Physicists and Engineers-Fundamentals, Applications, and Calculations</i> . CRC Press, 2020.
Electronic References, Websites	Wikipedia



Course Description Form

1. Course Name:					
English Language					
2. Course Code:					
UOH102					
3. Semester / Year:					
Annual					
4. Description Preparation Date:					
2025					
5. Available Attendance Forms:					
Daily Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
1 Hour and 2 Credits					
7. Course administrator's name (mention all, if more than one name)					
Name: Ari Dakheel Abdal					
Email: aridasi@uohamdaniya.edu.iq					
8. Course Objectives					
Course Objectives		1-Enriching and developing students' English language skills 2-Developing students' language abilities and skills			
9. Teaching and Learning Strategies					
Strategy	1. Develop students' ability to recognize the most important vocabulary and linguistic terms in the English language. 2. Enrich students' vocabulary. 3. Understand the importance of learning English and its impact on learning other subjects. 4- Developing students' English language skills. 5- Developing reading and writing skills. 6- Developing students' English-speaking skills.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 st	1	Theoretical knowledge and practical educational application	Unit one Verbs to be/ Questions word	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
2 nd	1	Theoretical knowledge and practical educational application	Unit Two Possessive adjective/ Plural nouns	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback



3 rd	1	Theoretical knowledge and practical educational application	Unit Three Questions with question words/Yes-No questions	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
4 th	1	Theoretical knowledge and practical educational application	Unit Three Verbs to be/positive and negative	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
5 th	1	Theoretical knowledge and practical educational application	Unit Four Have/ Has	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
6 th	1	Theoretical knowledge and practical educational application	Unit Four Plural nouns	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
7 th	1	Theoretical knowledge and practical educational application	Unit Four Possessive pronoun	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
8 th	1	Theoretical knowledge and practical educational application	Unit Five Possessive adjective	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
9 th	1	Theoretical knowledge and practical educational application	Unit Five Present simple	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
10 th	1	Theoretical knowledge and practical educational application	Unit Five a-an/ Adjective noun	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
11 th	1	Theoretical knowledge and practical educational application	Unit Six Present simple	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
12 th	1	Theoretical knowledge and practical educational application	Unit Six Adverbs of frequency	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
13 th	1	Theoretical knowledge and practical educational application	Unit seven Question word	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback

14 th	1	Theoretical knowledge and practical educational application	Unit Seven Pronouns	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
15 th	1	Theoretical knowledge and practical educational application	Unit Seven This & That	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
16 th	1	Theoretical knowledge and practical educational application	Unit Eight There is & The are	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
17 th	1	Theoretical knowledge and practical educational application	Unit Eight Some & Any	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback

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)	New Headway Plus for Beginners.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.



Course Description Form

1. Course Name:	
Computer	
2. Course Code:	
UOH104	
3. Semester / Year:	
Yearly\ first stage	
4. Description Preparation Date:	
2025/9/1	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 HOURS / 2 UNITS	
7. Course administrator's name (mention all, if more than one name)	
Name: alaa salim abd alrazzaq Email :alaasalimabd161194@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Explain the concept of computers and identify their characteristics and different types. • Explain the components of a computer and their functions. • Explain the physical components of a computer and their different types. • Provide a brief overview of computer software and its applications. • Identify some application programs and enable them to print reports, prepare presentations, and spreadsheets. • Learn how to use the Internet.
9. Teaching and Learning Strategies	
Strategy	<p>- Graduating individuals with a culture and knowledge of everything related to computers and the rapid developments in this field.</p>

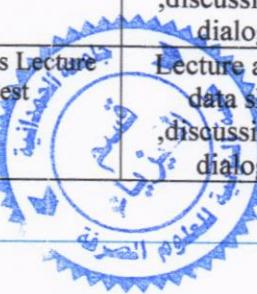


	<ul style="list-style-type: none"> - Educating students to become good computer users and enthusiasts of using them by highlighting the features they will enjoy through using the device. - Building a generation that keeps pace with the computer age and loves it. - Providing students with the opportunity to observe, reflect, and implement practical and applied knowledge in the field of computers.
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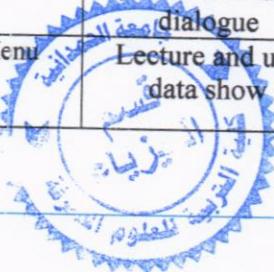
10. Course Structure

11.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Gain knowledge	Introduction to Computers	Lecture and use data show ,discussion and dialogue	Homework
2	1	Gain knowledge	Computer Hardware	Lecture and use data show ,discussion and dialogue	Discussion and questions
3	1	Gain knowledge	Computer Components 2 Software	Lecture and use data show ,discussion and dialogue	Discussion and questions
4	1	Gain knowledge	Computer Storage Units and Devices	Lecture and use data show ,discussion and dialogue	Discussion and questions
5	1	Performance evaluation	Previous Lecture Test	Lecture and use data show ,discussion and dialogue	Test
6	1	Gain knowledge	Computer Security	Lecture and use data show ,discussion and dialogue	Discussion and questions
7	1	Gain knowledge	Computer Software Licenses	Lecture and use data show ,discussion and dialogue	Questions and discussion
8	1	Gain knowledge	Computer Networks	Lecture and use data show ,discussion and dialogue	Questions and discussion
9	1	Performance evaluation	Previous Lecture Test	Lecture and use data show ,discussion and dialogue	Test



10	1	Gain knowledge	Internet	Lecture and use data show ,discussion and dialogue	Discussion and questions
11	1	Gain knowledge	Websites	Lecture and use data show ,discussion and dialogue	Discussion and questions
12	1	Gain knowledge	Email	Lecture and use data show ,discussion and dialogue	Discussion and questions
13	1	Gain knowledge	Operating System Basics	Lecture and use data show ,discussion and dialogue	Discussion and questions
14	1	Gain knowledge	Operating System Basics 2	Lecture and use data show ,discussion and dialogue	Discussion and questions
15	1	Performance evaluation	Theoretical Exam (Midterm)	Lecture and use data show ,discussion and dialogue	Test
16	1	Gain knowledge	Definition of Microsoft Office Word	Lecture and use data show ,discussion and dialogue	Discussion and questions
17	1	Gain knowledge	Definition of the Home Page and Toolbars	Lecture and use data show ,discussion and dialogue	Discussion and questions
18	1	Gain knowledge	Menu Bar: File Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
19	1	Gain knowledge	Menu Bar: Main Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
20	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
21	1	Gain knowledge	Menu Bar: Insert Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
22	1	Gain knowledge	Design Menu	Lecture and use data show	Discussion and questions



				,discussion and dialogue	
23	1	Gain knowledge	Page Layout Menu	Lecture and use data show ,discussion and dialogue	Discussion and questions
24	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
25	1	Gain knowledge	Definition of PowerPoint Presentation Program	Lecture and use data show ,discussion and dialogue	Discussion and questions
26	1	Gain knowledge	Definition of the Home Page and Toolbars	Lecture and use data show ,discussion and dialogue	Discussion and questions
27	1	Gain knowledge	Inserting, Deleting, and Duplicate Slides and Slide Design	Lecture and use data show ,discussion and dialogue	Discussion and questions
28	1	Performance evaluation	Test	Lecture and use data show ,discussion and dialogue	Test
29	1	Gain knowledge	Animation Effects on Objects and Slide Transitions	Lecture and use data show ,discussion and dialogue	Discussion and questions
30	1	Performance evaluation	Final Exam	Lecture and use data show ,discussion and dialogue	Test

12. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, quizzes

13. Learning and Teaching Resources

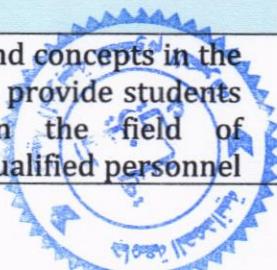
Required textbooks (curricular books, if any)	A lecture prepared by the lecturer
Main references (sources)	اساسيات الحاسوب اعداد: الخضر علي الخضر بحاث ليлас مظلوم مهارات الحاسوب بم. وسميم يوسف
Recommended books and references (scientific journals, reports...)	Recommended mainstream books and references (scientific journals, reports)
Electronic References, Websites	Wikipedia



Course Description Form

1. Course Name:	
Thermodynamics	
2. Course Code:	
PHY305	
3. Semester / Year:	
2025-2026	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms:	
In-person learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 HOURS/ 5 UNITS	
7. Course administrator's name (mention all, if more than one name)	
Name: Lect. Dr. Abdulrahman Ismael Ahmed Email: a.i.ahmed@uohamdanaya.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. Application of Thermodynamic Equations: The ability to use thermodynamic equations and concepts to calculate energy, work, and thermal efficiency in various thermodynamic systems. 2. Analysis of Thermodynamic Cycles: The ability to analyze and understand various thermodynamic cycles, including the Carnot cycle. 3. Critical Thinking and Creative Solutions: Develop the ability to think critically and devise creative solutions to complex thermodynamic problems. 4. Mathematical Analysis: Develop mathematical analysis skills in the context of thermodynamics, including an understanding of the mathematical relationships between thermodynamic quantities. 5. Data Handling and Experiments: The ability to analyze thermodynamic data, understand the results of practical experiments, and apply them to theoretical concepts.

9. Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1. Providing students with basic information and concepts in the field of thermodynamics: The strategy aims to provide students with basic information and concepts in the field of thermodynamics and to prepare trained and qualified personnel



	<p>to work in educational and research institutions.</p> <p>2. Identifying Scientific Applications: Enhancing students' understanding of the practical and scientific applications of thermodynamic principles in daily life and in industrial and research fields.</p> <p>3. Identifying Types of Scientific Knowledge: Enabling students to distinguish between different types of scientific knowledge, such as facts, concepts, principles, and theories in the field of thermodynamics. Students will also learn about the devices and techniques used to measure and analyze thermodynamic phenomena and thermodynamics concepts.</p> <p>4. Enabling students to acquire knowledge and understanding: Enhancing students' ability to understand scientific laws in thermodynamics and their practical applications, and developing logical and scientific analysis skills to explain physical phenomena related to thermodynamics.</p>
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1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Theoretical Knowledge and Applied Analysis	Chapter One: Basic Concepts: The meaning of thermodynamics, introducing basic concepts: the entity (system) and its types (real entity and ideal entity), the boundaries of the surrounding entity, the system and its types (open, closed and isolated), the adiabatic and diathermic wall	Lecture, discussion	Direct questions
2	3	Theoretical knowledge and applied analysis. Classical concepts	Implicit and non-implicit properties processes in thermodynamics, reversible and irreversible processes, thermal equilibrium and	Lecture, discussion	Direct questions

			thermodynamic equilibrium, properties of an entity (concentrate and comprehensive independent and dependent), state of the system		
3	3	Theoretical knowledge and applied analysis	Thermodynamic processes: adiabatic, isothermal, cyclic, reversible and irreversible, energy (relationship between heat and work), zeroth law.	Lecture, discussion	Direct questions
4	3	Theoretical knowledge and applied analysis	Chapter Two: Equation of State The equation of state for an ideal gas and the empirical method for deriving it.	Lecture, discussion	Direct questions
5	3	Theoretical knowledge and applied analysis	Real (non-ideal) gases, equations of state for real gases	Lecture, discussion	Direct questions
6	3	Theoretical knowledge and applied analysis	Equation of state for a van der Waals gas and finding its constants.	Lecture, discussion	Direct questions
7	3	Theoretical knowledge and applied analysis	Chapter Three: Useful Mathematical Theories	Lecture, discussion	Direct questions
8	3	Theoretical knowledge and applied analysis	Useful identities, state function and its conditions.	Lecture, discussion	Direct questions
9	3	Theoretical knowledge and applied analysis	Path function, extensibility and compression.	Lecture, discussion	Direct questions
10	3	Theoretical knowledge and applied analysis	Chapter Four: Properties of Pure Substances Phases of Pure Substances (Solid, Liquid, Gas).	Lecture, discussion	Exam

11	3	Theoretical knowledge and applied analysis	Gas and vapor, properties of vapors, saturated and unsaturated vapors, behavior of pure substances, graph of a real pure substance.	Lecture, discussion	Direct questions
12	3	Theoretical knowledge and applied analysis	Clapeyron equations, applications of Clapeyron equations.	Lecture, discussion	Direct questions
13	3	Theoretical knowledge and applied analysis	Chapter Five: The First Law of Thermodynamics: Joule's experiments, the text of the first law, the formula of the first law as a law of conservation of energy, application of the first law, results of the first law.	Lecture, discussion	Direct questions
14	3	Theoretical knowledge and applied analysis	Meaning of enthalpy, free expansion of gas, true expansion of gas, work done in adiabatic, isothermal and constant volume processes, gas work in constant temperature processes	Lecture, discussion	Direct questions
15	3	Theoretical knowledge and applied analysis	Heat capacity at constant pressure and heat capacity at constant volume, the relationship between them, and the practical proof. The concept of work in thermodynamics, the dependence of work on the path.	Lecture, discussion	Direct questions
16	3	Theoretical knowledge and applied analysis	Chapter Six: The Second Law of Thermodynamics. Formulation of the Second Law of Thermodynamics (Clasius, Kelvin-Planck, Carnot Cycle Machine)	Lecture, discussion	Direct questions
17	3	Theoretical knowledge and applied analysis	Linking the first and second laws and the consequences of this link when applied to an ideal gas. Example: the	Lecture, discussion	Direct questions

			first law, the second law		
18	3	Theoretical knowledge and applied analysis	Heat engines - cycle efficiency, heat pump.	Lecture, discussion	Direct questions
19	3	Theoretical knowledge and applied analysis	Chapter Seven: Entropy (Inertia) Definition of entropy, calculation of entropy change, and the principle of entropy increase in the universe and system.	Lecture, discussion	Direct questions
20	3	Theoretical knowledge and applied analysis	Relationship between entropy and temperature, Clausius theorem, Gibbs function.	Lecture, discussion	Direct questions
21	3	Theoretical knowledge and applied analysis	Helmholtz function, thermodynamic potential equations, Maxwell's equations.	Lecture, discussion	Direct questions
22	3	Theoretical knowledge and applied analysis	Chapter Eight: The Kinetic Theory of Gases Historical Overview Basic Principles of the Kinetic Theory	Lecture, discussion	Direct questions
23	3	Theoretical knowledge and applied analysis	Collisions with a moving wall, intermolecular forces of molecules, translational phenomena, mean free path.	Exam	Exam
24	3	Theoretical knowledge and applied analysis	Diffusion phenomenon, viscosity phenomenon, thermal conduction phenomenon	Lecture, discussion	Direct questions
25	3	Theoretical knowledge and applied analysis	Chapter Nine: Statistics	Lecture, discussion	Direct questions

			Energy States Introduction Operators with Spherical Coordinates.		
26	3	Theoretical knowledge and applied analysis	Energy levels	Lecture, discussion	Direct questions
27	3	Theoretical knowledge and applied analysis	probability	Lecture, discussion	Direct questions
28	3	Theoretical knowledge and applied analysis	Maxwell-Boltzman statistics	discussion	Direct questions
29	3	Theoretical knowledge and applied analysis	Fermi-Dirac statistics	Discussion and dialogue	Direct questions
30	3		Bose-Einstein statistics.	Exam	

2. Course Evaluation

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

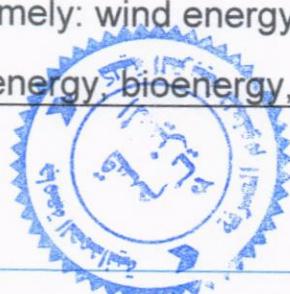
3. Learning and Teaching Resources

1- Thermodynamics.	Written by Dr. Amjad Abdul Razzaq Karajiya, Dr. Abdul Hamid Al-Abd.
2- Thermal motion and the kinetic theory of gas	2- Written by Dr. Abdul Rahman Mahmoud Al-Jumaili, Dr. Mu'ayyad Gabriel, Dr. Musa Abbas Muhammad.
Recommended mainstream books and references (scientific journals, reports)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Websites about thermodynamics



Course Description Form

1. Course Name:	solar energy
2. Course Code:	PHY308
3. Semester / Year:	Yearly
4. Description Preparation Date:	2025/9/19
5. Available Attendance Forms:	Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)	60 HOURS/ 4 UNITS
7. Course administrator's name (mention all, if more than one name)	Name: A.PROF. Rajaa Abdullah Basheer Email: ragaa.habsh@uohamdaniya.edu.iq
8. Course Objectives	<p>Course Objectives</p> <p>1. Introduce students to the concept of energy, its characteristics, sources, classifications of energy forms, types of sources, operating principles, and energy use technologies.</p> <p>2. The course aims to familiarize students with traditional (fossil) energy sources, namely: coal energy, petroleum energy, natural gas energy, and nuclear energy.</p> <p>3. Students will be introduced to renewable energy sources, namely: wind energy, hydropower, solar energy, bioenergy,</p>



	<p>geothermal energy, hydrogen energy, and lightning energy.</p> <p>4. Students will understand the generation and production of electrical energy (energy conversion), which includes: first, its characteristics and advantages; second, its limitations and problems; third, energy conversion technology.</p> <p>5. Identify the problems resulting from energy use, including: first, general problems; second, environmental problems; and third, economic problems.</p>
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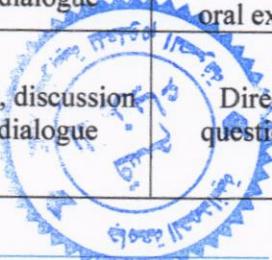
9. Teaching and Learning Strategies

Strategy	<p>1. Providing students with knowledge and concepts of physics. Preparing trained and qualified personnel to work in institutions and familiarize themselves with the scientific applications of each scientific knowledge.</p> <p>2. Identifying the various types of scientific knowledge, including facts, concepts, principles, theories, and devices for measuring weather and climate elements.</p> <p>3. Enabling students to acquire knowledge and understanding of the scientific laws of physics, practical applications of physics, and logical and scientific analysis and interpretation of physical phenomena.</p>
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10. Course Structure



Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learn about the concept of energy and its types	The concept of energies + types of energies	Lecture, discussion and dialogue	Direct questions
2	2	Learn about renewable and non-renewable energies	Renewable energies, non-renewable energies	Lecture, discussion and dialogue	Direct questions
3	2	Learn about the advantages, disadvantages and uses of solar energy (direct and indirect)	Solar energy, its advantages and disadvantages, the use of solar energy.	Lecture, discussion and dialogue	Direct questions + oral exam
4	2	Learn about the sun, its physical composition, and the solar constant.	Solar model, solar constant	Lecture, discussion and dialogue	Direct questions
5	2	Blackbody and solar spectrum recognition	black body radiation	Lecture, discussion and dialogue	Direct questions + oral exam
6	2	Learn about solar emissions	Radiation emission from the sun	Lecture, discussion and dialogue	Direct questions
7	2	Learn about solar astronomy and Earth's orbit	solar orbit, Earth's orbit	Lecture, discussion and dialogue	Direct questions
8	2	Learn about the solar day, its characteristics, the sidereal day, and the equation of time.	solar day, sidereal day, equation of time	Lecture, discussion and dialogue	Direct questions + oral exam
9	2	Learn about standard and local solar coordinates	Local solar coordinates, sunrise and sunset	Lecture, discussion and dialogue	Direct questions
10	2	Knowing the angle of the sun's inclination and the number of daylight hours	Knowing the angle of the sun's inclination and the number of daylight hours	Lecture, discussion and dialogue	Direct questions
11	2	Learn how sunlight falls on inclined surfaces	Sun rays tilt on sloping surfaces	Lecture, discussion and dialogue	Direct questions + oral exam
12	2	Learn about the thermal composition of the atmosphere and the changes in density, temperature, and pressure	atmospheric model	Lecture, discussion and dialogue	Direct questions



		with altitude. Air components (air thermodynamics)			
13	2	Learn how solar radiation is absorbed and scattered by the atmosphere.	Absorption and scattering of solar radiation by atmospheric components	Lecture, discussion and dialogue	Direct questions
14	2	Learn about solar power plant design and solar collector operation.	Solar power plant and solar collector design	Lecture, discussion and dialogue	Direct questions
15	2	Learn about solar radiation measuring devices, climate elements measuring devices, and the properties that must be available in measuring devices.	Solar radiation measuring devices	Lecture, discussion and dialogue	Direct questions
16	2	Identify the factors affecting solar radiation and the effects of the atmosphere and the Earth on absorbing solar radiation.	Weather factors affecting solar radiation	Lecture, discussion and dialogue	Direct questions
17	2	Learn about insulators, conductors, semiconductors, and energy bands.	Insulators, junctions and semiconductors	Lecture, discussion and dialogue	Direct questions
18	2	Types of solar cells and solar cell manufacturing	Solar cell manufacturing and types	Lecture, discussion and dialogue	Direct questions
19	2	Photovoltaic cell and factors affecting solar cell efficiency	Solar cell efficiency and photocurrent spectral response	Lecture, discussion and dialogue	Direct questions + oral exam
20	2	Learn about solar collectors and their components	solar collectors	Lecture, discussion and dialogue	Direct questions
21	2	Learn about the operation of the solar collector and the variables that affect it.	Solar collector operation	Lecture, discussion and dialogue	Direct questions
22	2	Learn about solar radiation estimation models.	Solar radiation estimation	Lecture, discussion and dialogue	Direct questions
23	2	The usefulness of solar radiation estimation models	Solar radiation estimation models	Lecture, discussion and dialogue	exam

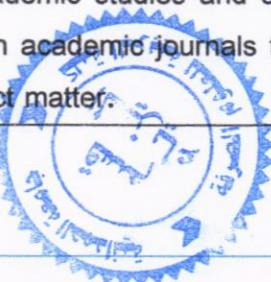
24	2	Daily and hourly direct and diffuse solar radiation	solar radiation	Lecture, discussion and dialogue	Direct questions
25	2	Identify the total solar radiation falling on the horizontal surface	Solar radiation calculation	Lecture, discussion and dialogue	Direct questions
26	2	Identify the solar radiation falling on a surface inclined from the Earth's surface	Radiation falling on an inclined surface	Lecture, discussion and dialogue	Direct questions
27	2	Identifying air masses	air masses	Lecture, discussion and dialogue	Direct questions
28	2	Identify solar radiation outside the atmosphere	Solar radiation outside the atmosphere	Lecture, discussion and dialogue	Direct questions + oral exam
29	2	reflected solar radiation	Solar radiation reflected from the Earth's surface falling on an inclined surface	Lecture, discussion and dialogue	Direct questions
30	2	Identify diffuse sky radiation	Diffuse sky radiation falling on an inclined surface	Lecture, discussion and dialogue	exam

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Introduction to Solar Energy by Saul Weider 2. Solar Cells by Martin Crane 3. Meteorology, Eric, Levin, Abrams, second edition 4. An Introduction to Solar Radiation, Muhammad Iqbal, 1983
Main references (sources)	I recommend relying on modern sources. In addition to all academic studies and scientific research published in academic journals that are relevant to the subject matter.



Recommended books and references (scientific journals, reports...)	Consider electronic references and the internet, which include reputable scientific websites and the libraries of some international universities.
Electronic References, Websites	Websites that contain information about solar energy and the scientific methods used to harness it.



Course Description Form

1. Course name:	Complex functions				
2. Course code:	PHY307				
3. Chapter/Year:	2025-2026				
4. Date of preparation of this description:	15/9/2025				
5. Available attendance forms:	In-person education				
6. Number of study hours (total) / Number of units (total):	60 hours /4 units				
7. Course Instructor Name	Name: Assistant teacher ,Mohammed Basil Abdul-Jabbar Email:mohammedbasil1994@uohamdaniya.edu.iq				
8. Course objectives	Course objectives				
<p>1. Introducing students to complex numbers their properties related functions, complex integrals, complex derivatives, and complex number sequences and series</p> <p>2. Enabling students to solve mathematical problems related to the subject Complex functions</p>					
9. Teaching and learning strategies					
<p>1. Providing students with information and concepts related to mathematics and complex functions.</p> <p>2. Preparing trained and qualified cadres to work in educational institutions</p> <p>3. Identifying the scientific applications of each scientific knowledge</p> <p>4. Identifying the different types of scientific knowledge, including facts, concepts, principles, and theories in the field of mathematics.</p> <p>5. Enabling the student to gain knowledge and understanding of scientific laws in mathematics.</p>					
10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	week
Direct questions	Lecture , discussion and	complex number	Complex number - its properties -	2	the first



+Daily homework	problem solving		arithmetic operations		
Direct + Questions Daily Homework	Lecture , discussion and problem solving	Utilities and absolute value	Utilities and absolute value	2	the second
Direct questions +Daily homework	Lecture , discussion and problem solving	Polar coordinates and geometric representation	Polar coordinates and geometric representation	2	the third
Direct questions +Daily homework	Lecture , discussion and problem solving	Powers and roots	Powers and roots	2	Fourth
Direct questions +Daily homework	Lecture , discussion and problem solving	complex variable	complex variable	2	Fifth
Direct questions +Daily homework	Lecture , discussion and problem solving	Endings	Endings	2	Sixth
exam	Lecture , discussion and problem solving	Continuity	Continuity	2	Seventh
Direct questions +Daily homework	Lecture , discussion and problem solving	Derivative	Derivative	2	Eighth
Direct questions +Daily homework	Lecture and discussion and solve problems	Analytical functions	Analytical functions	2	Ninth
Direct questions +Daily homework	Lecture , discussion and problem solving	Analytical functions	Analytical functions	2	tenth
Direct questions Exam+	Lecture , discussion and problem solving	Harmonic functions	Harmonic functions	2	eleventh
Direct questions +Daily homework	Lecture , discussion and problem solving	exponential function	exponential function	2	twelfth



Direct questions +Daily homework	Lecture , discussion and problem solving	logarithmic function	logarithmic function	2	thirteenth
Direct questions +Daily homework	Lecture , discussion and problem solving	trigonometric function	trigonometric function	2	fourteenth
Direct questions +Daily homework	Lecture , discussion and problem solving	inverse trigonometric function	inverse trigonometric function	2	fifteenth
exam	Lecture , discussion and problem solving	hyperbolic function	hyperbolic function	2	Sixteenth
Direct questions +Daily homework	Lecture , discussion and problem solving	Complex number integration	Complex number integration	2	Seventeen th week
Direct questions +Daily homework	Lecture , discussion and problem solving	Integration paths	Integration paths	2	Eighteenth week
Direct questions +Daily homework	Lecture , discussion and problem solving	Korsa's theorem	Korsa's theorem	2	Nineteenth week
Direct questions +Daily homework	Lecture , discussion and problem solving	Indefinite integrals	Indefinite integrals	2	Week twentieth
Direct questions +Daily homework	Lecture , discussion and problem solving	Cauchy's integral formula	Cauchy's integral formula	2	Week twenty-one
exam	Lecture , discussion and problem solving	Theorems	Theorems	2	Week twenty-two
Direct questions +Daily homework	Lecture , discussion and problem solving	Sequences and series	Sequences and Series - Types of Series	2	Week twenty- three



Direct questions +Daily homework	Lecture and discussion and solve problems	Power chains	Power chains	2	Week twenty-four
Direct questions +Daily homework	Lecture , discussion and problem solving	Tyler Series	Tyler Series	2	Week twenty-five
exam	Lecture , discussion and problem solving	Laurent series	Laurent series	2	Week twenty-six
Direct questions +Daily homework	Lecture , discussion and problem solving	Outliers	Outliers	2	Week twenty-seven
Direct questions +Daily homework	Lecture , discussion and problem solving	Classification of anomalous points	Classification of anomalous points	2	Week twenty-eight
Direct questions +Daily homework	Lecture , discussion and problem solving	Sediment zeros	Sediment zeros	2	Week twenty-nine
Direct questions +Daily homework	Lecture , discussion and problem solving	Residue theorem	Residue theorem	2	thirty

11. Course Evaluation

The grade is distributed out of 100 based on the tasks assigned to the student, such as daily preparation, homework, daily, oral, monthly and written exams, etc

12. Learning and teaching resources

Complex Functions: Samir Bashir Hadid, Yahya Abdul Saeed	Required textbooks (methodology if available)
Complex Functions: Samir Bashir Hadid, Yahya Abdul Saeed	Primary References (Sources)
Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities	Recommended mainstream books and references (scientific journals, reports)
Websites that are interested in the field of mathematics	Electronic references, websites

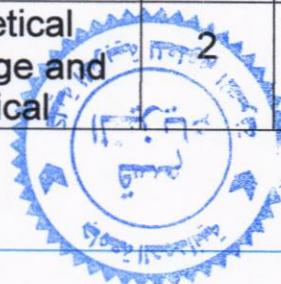


Course Description Form

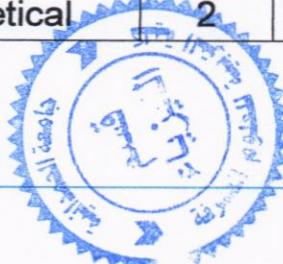
	:Course name .1
	Counseling and mental health
	:Course code .2
	EPS301
	:Chapter/Year .3
	Third Phase / 2026–2025
	:Date of preparation of this description .4
	2025/9/20
	:Available attendance forms .5
	In-person education
	Number of study hours (total) / Number of units (total) .6
	hour / 4 units 60
	Course Supervisor Name (if more than one name is mentioned) .7
	Ibrahim 1977 @uohamdaniya.edu.iq:Name: M.M. Ibrahim Mamiq Sultan Email
	Course objectives .8
<p>With the concepts of guidance and mental health from (the .1 goals of guidance and mental health, its terminology and the . (most important theories</p> <p>The field of the teacher-guide and educational counselor and .2 his role in helping the student achieve psychological, .educational and social harmony</p> <p>Means of collecting information, their importance, advantages .3 .and disadvantages of each</p> <p>.Parent-teacher councils and their role in educational guidance .4</p>	<p>Course objectives</p>
	Teaching and learning strategies .9
<p>.Understanding and comprehension .1 Methods of solving complex situations and distinguishing .2 .the correct cognitive aspects</p>	<p>Strategy</p>



. Brainstorming techniques .3 Learning and self-discovery through extracurricular and .4 .curricular activities					
Course structure .10					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	week
Feedback via direct questions	Lecture, discussion and dialogue	Guidance, the meaning of educational guidance, the origin and development of guidance and its concepts	Theoretical knowledge and practical educational application	2	the first
Feedback via direct questions	Lecture, discussion and dialogue	Justifications for guidance, its objectives, principles of guidance and direction	Theoretical knowledge and practical educational application	2	the second
Feedback via direct questions	Lecture, discussion and dialogue	The relationship between counseling and other sciences, areas of counseling	Theoretical knowledge and practical educational application	2	the third
Feedback via direct questions	Lecture, discussion and dialogue	Guidance methods individual) guidance, group (guidance	Theoretical knowledge and practical educational application	2	Fourth
Feedback via direct questions	Lecture, discussion and dialogue	Foundations of guidance, philosophical,	Theoretical knowledge and practical	2	Fifth



		social	educational application		
Feedback via direct questions	Lecture, discussion and dialogue	Foundations of guidance, moral, religious, psychological	Theoretical knowledge and practical educational application	2	Sixth
Feedback via direct questions	Lecture, discussion and dialogue	Counseling theories	Theoretical knowledge and practical educational application	2	Seventh
Feedback via direct questions	Lecture, discussion and dialogue	Psychoanalytic theories	Theoretical knowledge and practical educational application	2	Eighth
Feedback via direct questions	Lecture, discussion and dialogue	behavioral theories	Theoretical knowledge and practical educational application	2	Ninth
Extracurricular activities	Lecture, discussion and dialogue	Existential and humanistic theories	Theoretical knowledge and practical educational application	2	tenth
Feedback via direct questions	Lecture, discussion and dialogue	Information needed for guidance, importance of information, types of information	Theoretical knowledge and practical educational application	2	eleventh
Feedback via direct questions	Lecture, discussion and dialogue	Information collection methods cumulative record, case study, narrative record, (autobiography	Theoretical knowledge and practical educational application	2	twelfth
Feedback	Lecture,	Methods of	Theoretical	2	thirteen



via direct questions	discussion and dialogue	collecting information (tests and measures, observation, (interview	knowledge and practical educational application		th
Feedback via direct questions	Lecture, discussion and dialogue	Guidance and counseling in school, the counselor teacher - his duties and preparation, the educational counselor - his duties and preparation	Theoretical knowledge and practical educational application	2	fourteenth
Feedback via direct questions	Lecture, discussion and dialogue	Parent-Teacher Councils and their role in guidance, the need for guidance programs in schools	Theoretical knowledge and practical educational application	2	fifteenth
Feedback via direct questions	Lecture, discussion and dialogue	Problems addressed by educational guidance, meaning of mental health - its objectives - its importance	Theoretical knowledge and practical educational application	2	Week 16
Feedback via direct questions	Lecture, discussion and dialogue	Normal and abnormal person, normal and abnormal personality standards	Theoretical knowledge and practical educational application	2	Seventeenth week
Feedback via direct questions	Lecture, discussion and dialogue	Features of normal and abnormal behavior, personality integration	Theoretical knowledge and practical educational application	2	Eighteenth week
Feedback	Lecture,	Personal crises	Theoretical	2	Nineteen



via direct questions	discussion and dialogue		knowledge and practical educational application		nth week
Feedback via direct questions	Lecture, discussion and dialogue	The meaning of crisis, the causes and sources of psychological crises	Theoretical knowledge and practical educational application	2	Week twenty-eighth
Feedback via direct questions	Lecture, discussion and dialogue	Proper ways to solve psychological crises, frustration, and psychological disorders	Theoretical knowledge and practical educational application	2	Week twenty-one
Feedback via direct questions	Lecture, discussion and dialogue	Defense mechanisms Defensive) (methods	Theoretical knowledge and practical educational application	2	Week twenty-two
Feedback via direct questions	Lecture, discussion and dialogue	Origin of defensive behavior, development of defense mechanisms	Theoretical knowledge and practical educational application	2	Week twenty-three
Feedback via direct questions	Lecture, discussion and dialogue	Its types compensation,) reincarnation, reverse formation, projection, justification and its ((phenomenon	Theoretical knowledge and practical educational application	2	Week twenty-four
Feedback via direct questions	Lecture, discussion and dialogue	Results of defensive behavior, escape methods suppression,) withdrawal, daydreaming, (sleep dreams	Theoretical knowledge and practical educational application	2	Week twenty-five



Feedback via direct questions	Lecture, discussion and dialogue	Escape methods, regression, cancellation, compensation	Theoretical knowledge and practical educational application	2	Week twenty-six
Feedback via direct questions	Lecture, discussion and dialogue	Pathological, defensive, and escape symptoms	Theoretical knowledge and practical educational application	2	Week twenty-seven
Feedback via direct questions	Lecture, discussion and dialogue	Compatibility, meaning of compatibility, nature of compatibility, types of compatibility	Theoretical knowledge and practical educational application	2	Week twenty-eight
Feedback via direct questions	Lecture, discussion and dialogue	Characteristics of a compatible person, adaptation, compatibility and the relationship between them	Theoretical knowledge and practical educational application	2	Week twenty-nine
Feedback via direct questions	Lecture, discussion and dialogue		Theoretical knowledge and practical educational application	2	Week 30

Course Evaluation .11

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

Learning and teaching resources .12

Principles of Guidance and Psychological Counseling, Sami Muhammad Malham, 2010, Amman, Dar .Al Masirah Publishing and Distribution Zahran, Hamed Abdel Salam, 1980, Guidance and - Psychological Counseling, Alam Books, Cairo	Required textbooks (methodology if available)
Psychological Guidance and Educational Guidance, - Mustafa Mahmoud Al-Imam)1991(University of Baghdad Principles of psychological counseling for psychological	Primary References (Sources)

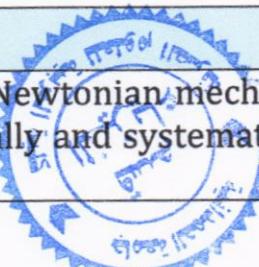


<p>counselors, Muhammad Ahmad Mashaqa)2008(.Oman - Dar Al Manahj for Publishing and Distribution Guidance and Psychological Counseling, Hamed - Zahran (2005) Cairo The world of books</p>	
<p>Personality Psychology, Dawood Aziz Hanna, and - Nazim Hashim Al-Obaidi, 1990, University of Baghdad</p>	<p>Recommended mainstream books and references (scientific journals, reports)</p>
<p>Al-Noor Library (an electronic library) is free on the - and contains various types of Google search engine . specialized sources</p>	<p>Electronic references, websites</p>



Course Description Form

1. Course Name: Analytical mechanics	
2. Course Code: PHY306	
3. Semester / Year 3^d class /2025- 2026	
4. Description Preparation Date: 122/9/2025	
5. Available Attendance Forms: Face-to-Face theoretical lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 HOURS / 5 UNITS	
7. Course administrator's name (mention all, if more than one name) Name: Malak Jaafar Ali Email: malak.jaafar.ali@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<p>The aim of the study of analytical mechanics is to solve mechanical problems that arise in physics. Starting from the physical concept of a given system, a mathematical concept or model is developed in the form of equations or differential equations and an attempt is made to solve it. The method is based on Newton's laws that describe motion with the help of vector quantities such as force, velocity and acceleration. These quantities characterize the motion of a body that is idealized as a "point mass" or a "particle" understood as a single point to which the mass is attached. Newton's method was successful and has been applied to a wide range of physical problems.</p>
9. Teaching and Learning Strategies	
Strategy	<p>1. Build up a good foundation in Newtonian mechanics. Solve variety of problems analytically and systematically with confidence.</p>



		<p>2. Learn analytical mechanics. Know how to set up and obtain the equations of motion in generalized coordinates.</p> <p>3. Acquire the knowledge of some advanced topics such as central force field, gyroscopic motion, and normal modes.</p> <ul style="list-style-type: none"> Since we will use mathematics in describing physical concepts and solving problems quantitatively, a working knowledge of algebra, and calculus is a prerequisite.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 - 4	12	vectors, frames rotation in Cartesian coordinate, velocity and acceleration components in different coordinate systems (polar, cylindrical, spherical), some mathematical operation on vectors, gradient, divergence, curl. Exam	CH 1: Basic principles	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
5-10	18	Newton's law of motion, Rectilinear Motion of Particles, force as a function of the velocity only, force as a function of time only, damping forces depending on the velocity, conservative force depending on position and some applications. Exam.	CH 2: Newtonian Mechanics	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
11 -15	15	Linear Restoring Force, Harmonic Motion, The Simple Harmonic Oscillator, Simple Harmonic Motion, Energy Considerations in Simple Harmonic Motion	CH 3: Oscillating Systems	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
16-19	12	Damped Harmonic Motion, Forced Harmonic Motion (Resonance), Applications of Simple Harmonic Motion, Exam	CH 3: Oscillating Systems	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
20-24	15	The Work Principle, Conservative Forces and Force Fields, Potential Energy Function, The Potential in a	CH 4: Dynamics a Particle, General Motion	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam

		Uniform Gravitational Field, The Del Operator, Exam		student participation	
25-30	18	Translation of the Coordinate System, General Motion of the Coordinate System, Dynamics of a Particle in a Rotating Coordinate System, Exam	CH 5: Mov Reference System	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam

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 written exams, student attendance

12. Learning and Teaching Resources

13. Developing a planning strategy: brainstorming, research groups, activities, solving more deep questions.

Required textbooks (curricular books, if any)	Golwala, Sunil. "Lecture notes on classical mechanics for physics 106ab." Publisher: CreateSpace Independent Publishing Platform (2014).
Main references (sources)	Golwala, Sunil. "Lecture notes on classical mechanics for physics 106ab." Publisher: CreateSpace Independent Publishing Platform (2014).
Recommended books and references (scientific journals, reports...)	كتاب الميكانيك التحليلي المؤلف / كرانك ر . فاولس ترجمة الدكتور / طالب ناهي الخفاج
Electronic References, Websites	متابعه المراجع الإلكترونية والأنترنتي التي تتضمن الموقع الإلكترونية العلمية الرصينة وموقع المكتبات في بعض الجامعات العالمية



Course Description Form

1. Course name:	Curricula and teaching methods				
2. Course code:	EPS302				
3. Semester/Year: Annual System	2025-2026				
4. Date of preparation of this description:	17/9/2025				
5. Available attendance forms: Daily morning attendance	In-person education				
6. Number of study hours / Number of units	60 hours / 4 units				
7. Course Supervisor Name (if more than one name is mentioned)	Name: Email: M.M. Younis Dharar Jassim youniesdrar12345@uohamdaniya.edu.iq				
8. Course objectives	<table border="1"><tr><td>Course objective</td><td>The curriculum and teaching methods course aims to enable the student to:</td></tr><tr><td>s</td><td>1. Recognize the teacher's message in society.</td></tr></table>	Course objective	The curriculum and teaching methods course aims to enable the student to:	s	1. Recognize the teacher's message in society.
Course objective	The curriculum and teaching methods course aims to enable the student to:				
s	1. Recognize the teacher's message in society.				



	<ol style="list-style-type: none"> 2. Deduce the responsibilities of the teacher in society. 3. Identify aspects of teacher preparation. 4. Understand the concept of teaching competence. 5. Classifies the teaching competencies required for the teacher.
9. Teaching and learning strategies	
Strategy	<ol style="list-style-type: none"> 1. Lectures of all kinds. 2. Dialogue, discussion and question and answer sessions. 3. Collaborative learning. 4. Project method. 5. Numbered heads strategy.

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	week
Feedback	discussion, lecture, debate	Historical development of the concept of eachOf methods and teaching	-Enable learners to identify historical stages. For teaching methods and curricula	2	1
Feedback	discussion,	Understanding the conceptScience	Forming students to define the concept ofFor your	2	2



	lecture, debate		informationAnd its connection with other concepts		
Feedback	discussio n, lecture, debate	Understand the concept of each of (a)For the truthandprinciple)	Enable students to define termsScientific facts and scientific conceptsAnd find the difference between them	2	3
Feedback	discussio n, lecture, debate	The importance of science	Empowering studentsfrom Learn about the characteristics of science	2	4
Feedback	discussio n, lecture, debate	The relationship betweenObservati on, interview, and questionnaire	Students were able to distinguish betweenScientific thinking skills	2	5
Feedback	discussio n, lecture, debate	Identify the elements Curriculum	Students were able toLinking curriculum elements	2	6



Feedback	discussion, lecture, debate	Types of calendar	Enable students to identify and apply types of educational assessment.	2	7
Feedback	discussion, lecture, debate	TypesObjectives	Students were able to identify the types of Educational objectives and its field applications	2	8
Feedback	discussion, lecture, debate	Sources of educational objectives	Students were able to identify Sources of derivation of educational objectives	2	9
Feedback	discussion, lecture, debate	roleIn formulating the behavioral objective	Students were able to Defining the formulation of behavioral objectives	2	10
a test	discussion, lecture, debate	Teaching objectives	Students were able to identify Classification of behavioral objectives	2	11



Feedback	discussion, lecture, debate	Behavioral Objectives Areas	Enabling students to know how to linking the fields of objectives	2	12
Feedback	discussion, lecture, debate	Teaching methods	Empowerment A For students of determination Strategic concepts, methods and style	2	13
Feedback	discussion, lecture, debate	Teaching methods	Enabling students to knowing the specifications of successful teaching	2	14
Semi-annual news	discussion, lecture, debate	Teaching methods	Empowering students To learn about the types of teaching methods	2	15
Feedback	discussion, lecture, debate	Teaching Jokes	Enabling students to knowing the method of delivery and its steps	2	16
Feedback	discussion, n,	Teaching methods	Enabling students to knowing how	2	17



	lecture, debate		Discussion and Menti on her steps		
Feedback	discussio n, lecture, debate	Objective tests	Empowering studentsIdentify the problem method and mention its advantages and disadvantages.	2	18
Feedback	discussio n, lecture, debate	Classification of tests by method	Enabling students to identify different testing methods	2	19
Feedback	discussio n, lecture, debate	strategy	Enabling students toLearn about cooperative learning	2	20
Monthly exam	—	Knowing the students' level and the information they have acquired	Monthly exam	2	21
Feedback	discussio n,	Teaching methods	Enabling students toKnowing the role	2	22



	lecture, debate		of the teacher during collaborative work		
Feedback	discussio n, lecture, debate	Teaching methods	Enabling students toMaster one method in reality	2	23
Feedback	discussio n, lecture, debate	Teaching methods	Enabling students toApplying the standard method in teaching	2	24
a test	discussio n, lecture, debate	Teaching methods	Enabling students toModel teaching steps	2	25
Feedback	discussio n, lecture, debate	Teaching methods	Enabling students to apply methodsIn teaching	2	26
Feedback	discussio n,	Field visits	Enabling students to identifyOn field visits	2	27



	lecture, debate				
Feedback	discussio n, lecture, debate	Field visits	Enabling students toPreparing reports when visiting schools	2	28
Feedback	discussio n, lecture, debate	Teaching methods	Enabling students toModel teaching steps	2	29
Feedback	discussio n, lecture, debate	Calendar	Enabling students toKnowing the calendar and the characteristics of the calendar	2	30

11- Learning and teaching resources

1- Required textbooks	-General teaching methods Its planning and educational applications,Walid Ahmed,Jaber,Dar Al Fikr for Publishing and Distribution 2013
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	<p>–Curriculum and teaching methods, Ramadan Masoud Badawi,Dar Al Fikr for Publishing and Distribution 2011 AD</p> <p>–General teaching methods and their evaluation,Abdul–Hayy Ahmed Al–Subhi</p> <p>Mohammed Abdullah Al–Qasaymeh Khwarazm Scientific Publishers and Libraries 2011 AD</p> <p>–Teaching methods,Khaled Al–Sarayrah and others ,Dar Al Masirah for Printing and Publishing 2010 AD</p>
2– Main references (sources)	<p>– Teaching strategies. Ali Munir Al–Husari Dar Al–Asar Al–Ilmi for Printing and Publishing 2015</p> <p>2– Creativity in teaching,Khalil Abdel Fattah Hammad,And my name is Yasra Badr,Al–Falah Library for Publishing and Distribution 2014</p>
A– Recommended books and references (scientific journals, reports, etc.)	
B – Electronic references, Internet sites	–Al–Noor Library (electronic library) is free on the search engine.Google



Course Description Form

1. Course Name:	
Atomic physics	
2. Course Code:	
PHY303	
3. Chapter/Year:	
2025-2026	
4. Date of preparation of this description:	
1/9/2025	
5. Available Attendance Formats:	
Face-to-face education	
6. Number of Hours (Total) / Number of Credits (Total)	
90 Hours/7 Units	
7. Course administrator name (if more than one name mentioned)	
Name: a.t. Ahmed Turki Abdulhameed Email: phy.ahmedturki@uohamdaniya.edu.iq	
8. Course Objectives	
1- Introduce students to the theory of special and general relativity and understand its key concepts such as relativity, temporal dilation, longitudinal contraction, and how supervelocity affects mass and energy.	Course Objectives
2- Understand the effect of relativity on motion, time, and energy, and how to explain phenomena such as time variation and longitudinal contraction using the theory of relativity.	
3- Study of atomic structures, nuclear reactions, nuclear energy reactions and their practical applications.	



4– Understand the practical applications of nuclear physics such as nuclear energy, nuclear medicine, and medical radiography.

5– Develop the computational skills necessary to understand and analyze relativistic and atomic phenomena, as well as empirical skills through conducting practical experiments and data analysis.

6– Scientific Communication: Enhancing skills in scientific communication and presenting results and conclusions accurately and understandably.

9. Teaching and Learning Strategies

Strategy
1– Students should be able to understand the concepts of special theory of relativity, such as relativistic time and longitudinal contraction, as well as understand how these concepts can be applied to solving related physics problems.
2– Students should gain a deep knowledge of atomic structures and nuclear reactions, including understanding different atomic models and interpreting nuclear fusion and fission reactions.
3– Students must be able to analyze and understand the practical applications of relativistic and atomic physics, such as nuclear power technology and nuclear medicine applications.



4- Students should acquire the skills needed to solve complex physical problems in the fields of relativity and atomization, as well as develop experimental skills by conducting hands-on experiments and data analysis.

5- Students should be able to explain physical results accurately and understandably, and present the conclusions of experiments and studies in a scientific manner.

10. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Direct Questions	Lecture, Discussion and Dialogue	Introduction to the Special Relativity Theory - The Experiment of Michelson and Morley	Theoretical Knowledge Applied Analysis	3	First
Direct Questions	Lecture, Discussion and Dialogue	Attribution Frameworks - Galileo Transformers - Hypotheses of Special Relativity Theory	Theoretical Knowledge Applied Analysis	3	Second



Direct Questions	Lecture, Discussion and Dialogue	Lawrence Transformations - Relativity of Time - The Twins Dilemma	Theoretical Knowledge Applied Analysis	3	Third
Direct Questions	Lecture, Discussion and Dialogue	Relative Length- Relative Mass-Velocity Addition	Theoretical Knowledge Applied Analysis	3	Fourth
Direct Questions	Lecture, Discussion and Dialogue	Mass and Energy Equivalence - Solving Problems	Theoretical Knowledge Applied Analysis	3	V
Direct Questions	Lecture, Discussion and Dialogue	Photon Theory - Black Body Radiation - Laws for the Study of Black Body Radiation	Theoretical Knowledge Applied Analysis	3	
	Lecture, Discussion and Dialogue	PV Phenomenon - Stop Voltage - Threshold Frequency	Theoretical Knowledge Applied Analysis	3	Sixth
Direct Questions	Lecture, Discussion and Dialogue	The photoelectric equation of Einstein-	Theoretical Knowledge Applied Analysis	3	Seventh
Direct Questions	Lecture, Discussion and Dialogue		Theoretical Knowledge Applied Analysis	3	Eighth



Direct Questions	Lecture, Discussion and Dialogue	Comtnet- Postern Electron Pair Formation Phenomenon	Theoretical Knowledge Applied Analysis	3	Ninth
Direct Questions	Lecture, Discussion and Dialogue	Problem Solving		3	X
Direct Questions	Lecture, Discussion and Dialogue	Introduction of X-rays-X-ray generation-X-ray spectrum	Theoretical Knowledge Applied Analysis	3	Eleventh
Direct Questions	Lecture, Discussion and Dialogue	Interpretation of the Spectrum Phenomenon According to Quantum Theory-X-Ray Diffraction	Theoretical Knowledge Applied Analysis	3	Twelfth
Direct Questions	Lecture, Discussion and Dialogue	Moseley's Law-X-ray Absorption	Theoretical Knowledge Applied Analysis	3	Thirteenth
Direct Questions	Lecture, Discussion and Dialogue	- X-ray absorption methods	Theoretical Knowledge Applied Analysis	3	Fourteenth
	Lecture, Discussion and Dialogue	Fluorescent X-ray- and the Oaker Effect- Solving Problems	Theoretical Knowledge Applied Analysis	3	Fifteenth



Direct Questions	Lecture, Discussion and Dialogue	De Broly- Particulate Diffraction Waves	Theoretical Knowledge Applied Analysis	3	Sixteenth week
Direct Questions	Lecture, Discussion and Dialogue	De Broly wave velocity-	Theoretical Knowledge Applied Analysis	3	Week Seventeen
Direct Questions	Lecture, Discussion and Dialogue	Wave speed and cluster speed	Theoretical Knowledge Applied Analysis	3	Week Eighteenth
Direct Questions	Lecture, Discussion and Dialogue	The principle of indeterminate inaccuracy	Theoretical Knowledge Applied Analysis	3	Week Nineteen
Direct Questions	Lecture, Discussion and Dialogue	Applications to the Principle of Accuracy - Problem Solving	Theoretical Knowledge Applied Analysis	3	Week 20
Direct Questions	Lecture, Discussion and Dialogue	Introduction to Atomic Structure - Atomic Theories - Thomson Model	Theoretical Knowledge Applied Analysis	3	Week 21
Direct Questions	Lecture, Discussion and Dialogue	Rutherford Model- Rutherford Experience	Theoretical Knowledge Applied Analysis	3	Week 22



	Lecture, Discussion and Dialogue	Electron Orbits - Atomic Spectra	Theoretical Knowledge Applied Analysis	3	Week Twenty Three
Direct Questions	Lecture, Discussion and Dialogue	Bohr Model of Atoms- Energy Levels and Spectra	Theoretical Knowledge Applied Analysis	3	Week Twenty Four
Direct Questions	Lecture, Discussion and Dialogue	Kernel Movement - Problem Solving	Theoretical Knowledge Applied Analysis	3	Week Twenty Five
Direct Questions	Lecture, Discussion and Dialogue	Introduction to quantum mechanics	Theoretical Knowledge Applied Analysis	3	Week twenty sixth
Direct Questions	Lecture, Discussion and Dialogue	Wave- Derivation of Schrödnecker' s Equation	Theoretical Knowledge Applied Analysis	3	Week twenty seven
Direct Questions	Discussion and Dialogue	Schrödnecker' s non-time- dependent equation	Theoretical Knowledge Applied Analysis	3	Week Twenty Eight
Direct Questions	Discussion and Dialogue	Schrödenker's Time-Based Equation- Hamiltonian- Momentum Effect	Theoretical Knowledge Applied Analysis	3	Week twenty ninth
		Problem Solving	Theoretical Knowledge Applied Analysis	3	Week 30



11. Course Evaluation

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

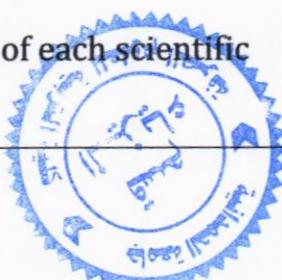
12. Learning and Teaching Resources

1- Atomic Physics (Dr.Talib Nahi Al-Khafaji).	Required textbooks (methodology if available)
2- Molecular Physics (Dr.Khalid Abdullah Jassim, Dr.Essam Ahmed Mahmoud	
Concepts in Modern Physics (Arthur Paiser)	Primary References (Sources)
Follow up on electronic and internet references that include solid scientific websites and library websites in some international universities	Recommended Books and References (Scientific Journals, Reports)
Websites related to modern and atomic physics	References, Websites



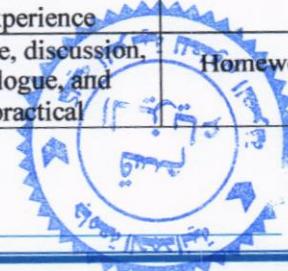
Course Description Form

1. Course Name:	Electronics
2. Course Code:	PHY304
3. Semester / Year:	Yearly
4. Description Preparation Date:	21/9/2025
5. Available Attendance Forms:	Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS / 7 UNITS
7. Course administrator's name (mention all, if more than one name)	Name: Assistant Prof. Dr. Thoalfiqar Ali Zaker Email: thoalfiqar.physics@uohamdaniya.edu.iq
8. Course Objectives	Course Objectives Introducing students to the principles of electronics, the physical laws used, and electronic circuits, in addition to the practical application of connecting electronic circuits, their working mechanism, and their applications in the laboratory.
9. Teaching and Learning Strategies	Strategy 1. Providing students with physical information and concepts Preparing trained and qualified cadres to work in institutions. 2. Identify the scientific applications of each scientific knowledge. 3. Identify the scientific applications of each scientific knowledge.



10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	theoretical and applied knowledge	General introduction to semiconductors	Lecture, discussion, dialogue, and practical experience	Quiz
2	3	theoretical and applied knowledge	Classification of materials	Lecture, discussion, dialogue, and practical experience	Quiz
3	3	theoretical and applied knowledge	Electron distribution and Fermi level	Lecture, discussion, dialogue, and practical experience	Homework
4	3	theoretical and applied knowledge	Pure semiconductors	Lecture, discussion, dialogue, and practical experience	Quiz
5	3	theoretical and applied knowledge	Conduction in solids (semiconductors)	Lecture, discussion, dialogue, and practical experience	Quiz
6	3	theoretical and applied knowledge	Doping	Lecture, discussion, dialogue, and practical experience	Homework
7	3	theoretical and applied knowledge	Diodes	Lecture, discussion, dialogue, and practical experience	Homework
8	3	theoretical and applied knowledge	Reverse bias	Lecture, discussion, dialogue, and practical experience	Quiz
9	3	theoretical and applied knowledge	Energy band diagram of a diode in biased state	Lecture, discussion, dialogue, and practical experience	Quiz
10	3	theoretical and applied knowledge	Calculate the barrier voltage	Lecture, discussion, dialogue, and practical experience	Quiz
11	3	theoretical and applied knowledge	Introduction to Diode Applications	Lecture, discussion, dialogue, and practical experience	Quiz
12	3	theoretical and applied knowledge	Continuous Component	Lecture, discussion, dialogue, and practical experience	Quiz
13	3	theoretical and applied knowledge	Modulation efficiency of half-wave rectifier hHW	Lecture, discussion, dialogue, and practical experience	Homework



				experience	
14	3	theoretical and applied knowledge	Modulation efficiency of hFW full wave modulator	Lecture, discussion, dialogue, and practical experience	Quiz
15	3	theoretical and applied knowledge	Clipping and Clamping Circuits	Lecture, discussion, dialogue, and practical experience	Quiz
16	3	theoretical and applied knowledge	Introduction to bipolar transistor	Lecture, discussion, dialogue, and practical experience	Homework
17	3	theoretical and applied knowledge	Types of transistor bias	Lecture, discussion, dialogue, and practical experience	Quiz
18	3	theoretical and applied knowledge	Transistor connection methods	Lecture, discussion, dialogue, and practical experience	Quiz
19	3	theoretical and applied knowledge	Load line and working point	Lecture, discussion, dialogue, and practical experience	Quiz
20	3	theoretical and applied knowledge	The effect of temperature and the stability of the transistor's operation	Lecture, discussion, dialogue, and practical experience	Quiz
21	3	theoretical and applied knowledge	Transistor bias circuits	Lecture, discussion, dialogue, and practical experience	Homework
22	3	theoretical and applied knowledge	Self-biasing circuit	Lecture, discussion, dialogue, and practical experience	Quiz
23	3	theoretical and applied knowledge	Voltage divider bias circuit	Lecture, discussion, dialogue, and practical experience	Quiz
24	3	theoretical and applied knowledge	Introduction: Bipolar Transistor Amplifiers	Lecture, discussion, dialogue, and practical experience	Quiz



25	3	Radius of gyration, Energy of a body rolling on a horizontal plane, Work and power rotational motion, and the Torque.	Frequency response of the amplifier	Lecture, discussion, dialogue, and practical experience	Homework
26	3	theoretical and applied knowledge	Darlington's Pair	Lecture, discussion, dialogue, and practical experience	Quiz
27	3	theoretical and applied knowledge	multistage amplifiers	Lecture, discussion, dialogue, and practical experience	Quiz
28	3	theoretical and applied knowledge	Field effect transistors	Lecture, discussion, dialogue, and practical experience	Quiz
29	3	theoretical and applied knowledge	Characteristic curves of field effect transistors	Lecture, discussion, dialogue, and practical experience	Homework
30	3	theoretical and applied knowledge	Metal oxide field effect transistor	Lecture, discussion, dialogue, and practical experience	Quiz

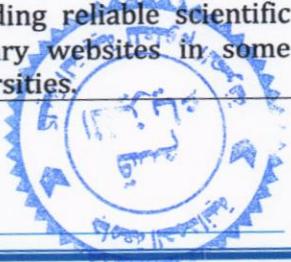
11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, quizzes

No.	Evaluation method	Marks	% Grads
1	Lab. Exam	10	%10
2	Quizzes	10	%10
3	Term Exam	20	%20
4	Final Exam(experimental)	10	%10
5	Final Exam (Theory)	50	%50
	sum	100	%100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Electronic Principles by Albert Malvino
Main references (sources)	Introduction to Physics by Jojn D. Cutnel, Kenneth W. Johnson 8th.Ed., 2010.
Recommended books and references (scientific journals, reports...)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.





Course Description Form

<p>1. Course Name: Computer/Phase II</p>					
<p>2. Course Code: UOH204</p>					
<p>3. Semester / Year: 2026-2025</p>					
<p>4. Description Preparation Date: 1/9/2025</p>					
<p>5. Available Attendance Forms: Physical Description</p>					
<p>6. Number of Credit Hours (Total) / Number of Units (Total) Two hours alone</p>					
<p>7. Course administrator's name (mention all, if more than one name) Ass. Prof. Dr. Riad Mubarak Abdullah Email : drriyad_mubarak@uohamdaniya.edu.iq</p>					
<p>8. Course Objectives</p>					
<p>Course Objective</p>	<ul style="list-style-type: none"> • Understand the principles and techniques of computer human intelligence simulation. • Developing the student's critical and creative thinking skills to deal with artificial intelligence • Learn to troubleshoot your computer. • Learn security, networking, and e-commerce. 				
<p>9. Teaching and Learning Strategies</p>					
<p>Strategy</p>	<ul style="list-style-type: none"> • Reading books and lectures related to the curriculum. • Exercises and activities during and outside the lecture. • Presentations on the topics of the lecture. • Lecture, discussion, dialogue, and applied analysis. • Theoretical and practical lecture, dialogue and discussions, oral questions and reports. 				
<p>1. Course Structure</p>					
<p>Week</p>	<p>Hours</p>	<p>Required Learning Outcomes</p>	<p>Unit or subject name</p>	<p>Learning method</p>	<p>Evaluation method</p>



First	1	Gain knowledge	Security & Networks: What is a Network? Network types, basic network components	Explanation and Discussion	Awarding Degrees to Participants
Second	1	Skills acquisition	Network Security Basics	Skills Training	Providing incentives for encouragement
Third	1	Gain knowledge	Network troubleshooting	Explain, Discuss and Apply	Awarding Degrees to Participants
Fourth	1	Knowledge Measurement	Conducting a daily exam with previous lectures	Questions and Quizzes	Applying Scientific and Practical Testing Standards
V	1	Gain knowledge	E-commerce: Concepts of e-banking including online banking,	Explain, Discuss and Apply	Awarding Degrees to Participants
Sixth	1	Skills acquisition	ATM & Debit Card Services	Skills Training	Providing incentives for encouragement
Seventh	1	Gain knowledge	SMS Banking	Explain, Discuss and Apply	Awarding Degrees to Participants
Eighth	1	Skills acquisition	Electronic Alerts & Mobile Banking	Skills Training	Providing incentives for encouragement
Ninth	1	Knowledge Measurement	Conducting a daily exam with previous lectures	Questions and Quizzes	Applying Scientific and Practical Testing Standards
X	1	Skills acquisition	Troubleshooting	Skills Training	Providing incentives for encouragement
Eleventh	1	Gain knowledge	Identify and resolve common hardware and software problems faced by computer users	Explain, Discuss and Apply	Awarding Degrees to Participants
Twelfth	1	Skills acquisition	Basic Techniques and Tools for Diagnosing and Solving Problems	Skills Training	Providing incentives for encouragement
Thirteenth	1	Knowledge Measurement	Conducting a daily exam with previous lectures	Questions and Quizzes	Applying Scientific and Practical Testing Standards
Fourteenth	1	Knowledge Measurement	Quarterly Theoretical Test	Questions and Quizzes	Applying Scientific and Practical Testing Standards
Fifteenth	1	Measuring skills	Semester Practical Exam	Presenting projects	Applying Scientific and Practical Testing Standards
Sixteenth week	1	Gain knowledge	Introduction to Artificial Intelligence	Explain, Discuss and Apply	Awarding Degrees to Participants
Week Seventeen	1	Gain knowledge	Definition of Artificial Intelligence, its History, Techniques and Methodology	Skills Training	Providing incentives for encouragement



Week Eighteenth	1	Gain knowledge	Challenges and Ethical Considerations of Artificial Intelligence	Explanation and Discussion	Awarding Degrees to Participants
Week Nineteen	1	Skills acquisition	Artificial Intelligence in Our Daily Life	Skills Training	Providing incentives for encouragement
Week 20	1	Skills acquisition	Artificial Intelligence Applications	Explain, Discuss and Apply	Awarding Degrees to Participants
Week 21	1	Knowledge Measurement	Conducting a daily exam with previous lectures	Questions and Quizzes	Applying Scientific and Practical Testing Standards
Week 22	1	Gain knowledge	Artificial Intelligence and Society	Explanation and Discussion	Awarding Degrees to Participants
Week Twenty Three	1	Gain knowledge	Its impact on social and international relations and the future of humanity	Explanation and Discussion	Providing incentives for encouragement
Week Twenty Four	1	Gain knowledge	Challenges in Artificial Intelligence	Explanation and Discussion	Awarding Degrees to Participants
Week Twenty Five	1	Gain knowledge	Privacy & Monitoring	Skills Training	Providing incentives for encouragement
Week twenty sixth	1	Gain knowledge	The Impact of Artificial Intelligence on the Labor Market	Explanation and Discussion	Awarding Degrees to Participants
Week twenty seven	1	Gain knowledge	The Future of Artificial Intelligence	Explanation and Discussion	Awarding Degrees to Participants
Week Twenty Eight	1	Skills acquisition	Future Trends in Artificial Intelligence Modern Research and Emerging Technologies	Skills Training	Providing incentives for encouragement
Week twenty ninth	1	Knowledge Measurement	Quarterly Theoretical Test	Questions and Quizzes	Applying Scientific and Practical Testing Standards
Week 30	1	Measuring skills	Semester Practical Exam	Presenting projects	Applying Scientific and Practical Testing Standards

2. Course Evaluation

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

3. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<ul style="list-style-type: none"> Adel Abdel Nour, "Introduction to the World of Artificial Intelligence", 2005. Lectures that include curriculum vocabulary
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Main references (sources)	Ahmed Banafa," Introduction to Artificial Intelligence (AI)", 1 st Edition (2024)
Recommended books and references (scientific journals, reports...)	David L. Poole & Alan K. Mackworth," Artificial Intelligence: Foundations of Computational Agents" (2017)
Electronic References, Websites	https://www.csail.mit.edu



Course Description Form

1. Course Name:			
Curricula and Textbooks			
2. Course Code:			
EPS207			
3. Semester / Year:			
2025-2026			
4. Description Preparation Date:			
23/9/2025			
5. Available Attendance Forms:			
In-person			
6. Number of Credit Hours (Total) / Number of Units (Total)			
28 hours			
7. Course administrator's name (mention all, if more than one name)			
Name: M.M Elham Abdul Samad Muhammad			
Email: elhamabdulsamad@uohamdaniya.edu.iq			
8. Course Objectives			
Course Objectives	<ul style="list-style-type: none"> • General objective: introduce students to the importance, the foundations of their approval design, textbooks, and how to design them. • Specific Objective: <ul style="list-style-type: none"> 1) To introduce students to the concept of curricula. 2) Types of curricula. 3) Foundations of their design. 4) Curriculum evaluation. 5) Textbooks 6) Textbook analysis. 7) Textbook design criteria. 8) E-books practical exercises 		
			

		activities.		
9) Teaching and Learning Strategies				
Strategy	Lecture- Questioning- discussion- Induction- cooperative learning- brainstorming- Active learning.			
10) Course Structure				
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method
		Curricula: characteristics, importance	curricula	Lecture
		Foundations curricula: philosophical <ul style="list-style-type: none"> - (intellectual) foundation - Cultural (social) psychology (developmental) foundation 	Foundations curricula	Lecture-discussion
		Elements of the school curriculum: educational objectives- educational content	Elements of curriculum	Lecture-brainstorm
		Practical objectives of teaching general and behavioral mathematics	Practical vitality	Cooperative learning. Active learning
		Types of curriculum subject curricula- activity- curricula- core curriculum	Types of curricula	Lecture-1 induction
		Collaborative practical activity	Design a unit for mathematics curriculum according to one of the design types	Cooperative learning
		Written test	Written test	
		Curriculum evaluation: concept of <ul style="list-style-type: none"> - Curriculum evaluation - curricular evaluation - objectives 	Curriculum evaluation: Academic	Lecture-brainstorm



		evaluation criteria, evaluation methods, and evaluation steps			
		Individual practical activity: evaluation first-year Individual practical activity evaluating	Practical Activity	Active learning	Individual assignment
		Individual practical activity for evaluation second-year intermediate	Practical Activity	Active learning	Individual assignment
		Individual practical activity for evaluation third-year Individual practical activity evaluating	Practical Activity	Active learning	Individual assignment
		Individual practical activity for evaluation fourth-year science curricula	Practical Activity	Active learning	Individual assignment
		Individual practical activity for evaluation fifth-year science curricula	Practical Activity	Active learning	Individual homework
		Individual practical activity: evaluation sixth grade science curricula	Practical Activity	Active learning	Individual homework
		Curriculum development and models: concepts of curriculum development - Motivation for curriculum development - principles of curriculum development - basic models of curriculum development	Curriculum development	Lecture1: Questioning	Daily tests
		Group practical activity: developing mathematics curricula	Practical activity	Active learning	Individual homework



		for the intermediate stage			
		Group practical activity: develop mathematics curriculum for the preparatory stage	Practical Activity	Active learning	Individual homework
		International experiences curriculum development	Presentation Experiences	Cooperative learning. Lecture	Joint reports
		Training	Comparison between some international curriculum and local curriculum	Cooperative learning	Joint reports
		Textbook: its content and importance part in curriculum evaluation, textbook and development	Textbook	Lecture-discussion	Daily tests
		Practical analysis of intermediate books	Practical Activity	Active learning	Individual homework
		Practical analysis of second intermediate books	Practical Activity	Active learning	Individual homework
		Practical analysis of the intermediate books	Practical Activity	Active learning	Individual homework
		Practical analysis of four intermediate books	Practical Activity	Active learning	Individual homework
		Practical analysis of intermediate books	Practical Activity	Active learning	Individual homework
		Practical analysis of six intermediate books	Practical Activity	Active learning	Individual homework
		The E-book: importance, advantages, disadvantages, development	The E- Book	Lecture-discussion	Classroom interaction
		Proactivity activity books for intermediate stage	The E- Book	Lecture-discussion	Classroom interaction
		Written test	Written test	Lecture-discussion	Classroom interaction

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)	Recommended mainstream



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



Course Description Form

This course description provides a necessary summary of the most important characteristics of the course, the course outputs, and the learning outcomes expected of the student to achieve and prove whether he has benefited from the available learning opportunities. It must be linked to the description of the program;

1. Course Name

Teaching Thinking

2. Course Code

EPS206

3. Semester/Year

2025-2026

4. Date of Preparation of this description

21/9/2025

5. Forms of attendance available

Face-to-face education

6. Number of study hours (total/number of units (total))

30 Hours – 1 Unit

7. Name of the course administrator (if more than one name is mentioned)

Name: Eng. Mariam Yalda Email : maryamyaldoka@uohamdaniya.edu.iq

8. Course Objectives

1. Introducing students to the importance of teaching thinking
2. Introducing students to the goals of teaching thinking
3. Enable students to know the types of thinking
4. Recognize thinking skills

Course Objectives

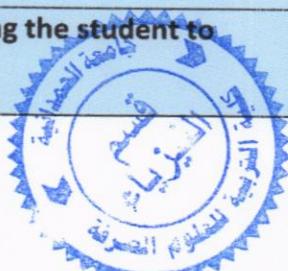
9- Teaching and Learning Strategies

- 1- Dialogue, discussion, ideas and questions
- 2- Collaborative Education
- 3- Seminars
- 4- Group Education
- 5- Individual training for students on basic skills
- 6- Liberative testing

Strategy



7- Assignment and Class Activities						
10. Course Structure						
Evaluation Method	Teaching Method	Unit Name or Subject	Required Learning Outcomes		Hours	The week
Group discussions and direct questions	Discussion and exchange of views	The Historical Development of Thinking Education	Introducing the student to thinking		One hour	1
Group discussions and direct questions	Discussion and exchange of views	Definition and function of thinking	Introducing the student to global thinking standards		One hour	2
Group discussions and direct questions	Discussion and exchange of views	Characteristics and types of the thought process	Introducing the student to the importance of thinking and the mechanisms of remembering		One hour	3
Group discussions and direct questions	Discussion and exchange of views	The Importance of Teaching Thinking	Introducing the student to the barriers to thinking		One hour	4
Group discussions and direct questions	Discussion and exchange of views	Thinking Education Trends	Introduce the student to the types of thinking		One hour	5
Group discussions and direct questions	Discussion and exchange of views	Basic Teaching Skills	Empowering students with teaching thinking methods		One hour	6
Group discussions and direct questions	Discussion and exchange of views	Thought Processes	The Importance of the Concept of Thinking Skills		One hour	7
Group discussions and direct questions	Discussion and exchange of views	Factors for the success of thinking education	Introducing students to how to classify thinking teaching skills		One hour	8
Group discussions and	Discussion and exchange of views	Barriers to Teaching Thinking	Introducing the student to thinking		One hour	9



direct questions					
Group discussions and direct questions	Discussion and exchange of views	A Method and Method for Developing Thinking	Introducing the student to global thinking standards	One hour	10
Group discussions and direct questions	Discussion and exchange of views	Thinking Teaching Trends and Strategies	Introducing the student to the importance of thinking and the mechanisms of remembering	One hour	11
Group discussions and direct questions	Discussion and exchange of views	Thought Patterns	Introducing the student to the barriers to thinking	One hour	12
Group discussions and direct questions	Discussion and exchange of views	Critical Thinking	Introduce the student to the types of thinking	One hour	13
Group discussions and direct questions	Discussion and exchange of views	Creative Thinking and Problem Solving	Empowering students with teaching thinking methods The Importance of the Concept of Thinking Skills	One hour	14
Group discussions and direct questions	-----	-----	First Semester Exam	One hour	15
Group discussions and direct questions	Discussion and exchange of views	Sound Thinking	Thinking, what is thinking, how the thinking process works, components (reality, brain, senses, information and previous experiences)	One hour	16
Group discussions and direct questions	Discussion and exchange of views	Epistemic Thinking	Standards of global thinking (Clarity, Accuracy, Accuracy, Relationship, Depth, Breadth, Logic)	One hour	17
Group discussions and direct questions	Discussion and exchange of views	Product Thinking	The Importance of Thinking and Mechanisms of Remembering	One hour	18
Group discussions and	Discussion and exchange of views	Thinking Teaching Programs	Barriers to thinking	One hour	19



direct questions					
Group discussions and direct questions	Discussion and exchange of views	Kurdish Program	Thinking, what is thinking, how the thinking process works, components (reality, brain, senses, information and previous experiences)	One hour	20
Group discussions and direct questions	Discussion and exchange of views	The Six Hats Program	Standards of global thinking (Clarity, Accuracy, Accuracy, Relationship, Depth, Breadth, Logic)	One hour	21
Group discussions and direct questions	Discussion and exchange of views	Trees Program	The Importance of Thinking and Mechanisms of Remembering	One hour	22
Group discussions and direct questions	Discussion and exchange of views	Ways and Methods to Develop Thinking	Types of Thinking (Convergent, Distant, Inductive, Deductive, Logical, Felt, Innovative, Critical, Creative 000000)	One hour	23
Group discussions and direct questions	Discussion and exchange of views	Thinking Activities Style Gardens of Ideas	Methods of Teaching Thinking	One hour	24
Group discussions and direct questions	Discussion and exchange of views	Practical Applications	Introduce the student to the types of thinking skills	One hour	25
Group discussions and direct questions	Discussion and exchange of views	Brainstorming - Practical Application	Introducing the student to the skill of fluency	One hour	26
Group discussions and direct questions	Discussion and exchange of views	Damaged Diaspora	Introducing the student to the skill of problem-solving	One hour	27
Group discussions and direct questions	Discussion and exchange of views	Practical Applications	Introduce the student to the skill of evidence assessment	One hour	28
Group discussions and	Discussion and exchange of views	Mind Maps	Introducing the Student's Personal Options Skills	One hour	29

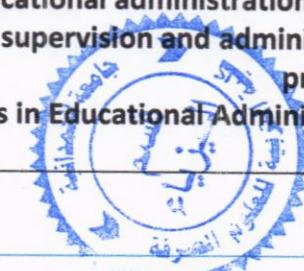


direct questions					
-----	-----	-----	Final Semester Exam	One hour	30
11. Evaluation of the Course					
Distribution of the score out of 100 according to the tasks assigned to the student, such as: Daily Preparation Daily, Oral, Monthly, Written Exams and Reports.....					
12. Teaching and Learning Resources					
Abu Jado, Saleh, Nofal, Mohammad Bakr, 2007, Teaching Thinking – Theory and Practice, Al-Masirah Publishing House.				Required Textbooks	
Teaching thinking Sama Turki Dakhil and others				Main References (Sources)	
Fathi Abdel Rahman, 11th Edition, 2020, Teaching Thinking - Concepts and Applications, Dar Al-Fikr - Publishers - Beirut.				Books and References Recommended (Scientific Journals, Reports)	
Electronic References – Websites					



Course Description Form

	Course Name .1
	Educational Leadership and Management
	Course Code .2
	EPS205
	Semester/Year .3
	2026- 2025
	Date of Preparation of This Row .4
	18/9/2025
	Available Forms of Attendance .5
	Came
	Number of Hours (Total) / Number of Units (Total) .6
	2 / Total Number (50) (4)
	Name of the course administrator) if more than one name is .7 mentioned)
الإيام	Muhannad Ahmed Sultan.م .م mohand.1993@uohamdanaya.edu.iq
	Course Objectives .8
	Introducing students to the importance of educational administration
	Introducing students to the principles of educational administration
	Enabling students in educational administration, educational administration, school administration, classroom management, educational supervision and administrative processes
	Identifying Recent Trends in Educational Administration
	Introducing students to the importance of educational administration
	Introducing students to the principles of educational administration
	Enabling students in educational administration, educational administration, school administration, classroom management, educational supervision and administrative processes
	Identifying Recent Trends in Educational Administration

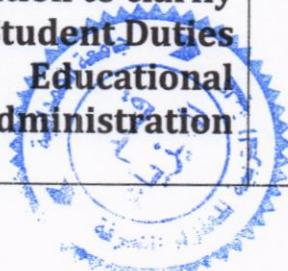


Teaching and Learning Strategy .9

1. Discussion, presentation of ideas, proverbs, lecture method.
2. Preparing for the process of giving lectures by students and preparing reports on the subject.
3. Collaborative learning, then implementing the critically friendly strategy.
4. Blended Learning
5. Exploration, induction, and brainstorming.

Course Structure .10

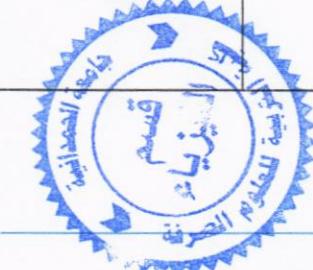
Evaluation Method	Teaching Method	Topic Name	Topic Name	Required Learning Outcomes	Hours	Weeks
Oral and written testing	Lecture	Topics of Departments	Students should be able to understand the meaning of Ultra Management and educational	2	1	
test Oral and WrittenOral and Written	Lecture	Story of the Administration	Students' knowledge of the importance of educational administration to clarify Student Duties Educational Administration	2	2	



Oral and written testing	Dialog Discussion	Difference Between Departments	Differentiation between Educational Administration and educational Differentiation between Educational Administration and educational	2	3
Oral and written testing	Dialog Discussion	العمليات الإدارية	know its importance and need es in solving their problems	2	4
Oral and written testing	Dialog Discussion	Planning Educational	knowledge of its concept and types identify his most important duties	2	5
Oral and written testing	Dialog Discussion	marshalling Administrative	Clarification of its concept and types knowledge of its concept and types	2	6
Oral and written testing	Dialog Discussion	Administrative Guidance	knowledge of its concept and types Recognizing His Duties	2	7
Oral and written testing	Dialog Discussion	Relations Humanity	able to build meaningful relationships within the elements of the educational process whether teachers or students	2	9
Oral and written testing	Dialog Discussion	Incentives and mmunication	Learn how to use oral or material incentives	2	9
Oral and written testing	Dialog Discussion	aluation & Evaluation	التعرف على الفرق بين التقييم والتقويم، وكيف استخدامها	2	10



Oral and written testing	Dialog Discussion	Study Plan	Differentiate between the plan and planning to identify the conditions of a successful study plan	2	11
Oral and written testing	Dialog Discussion	Study Plan	Difference Between Daily Plan and monthly and yearly.	2	12
Oral and written testing	Dialog Discussion	Principal	Knowledge of the basics of management of a successful school	2	13
Oral and written testing	Dialog Discussion	Crisis Management	Understanding the Concept of Crisis and its causes.	2	14
Oral and written testing	Dialog Discussion	Crisis Management	Learn how to confront and resolve crises.	2	15
Oral and written testing	Dialog Discussion	Time Management	Understanding the concept of time and the importance of time management	2	16
Oral and written testing	Dialog Discussion	Management Theories	Understanding management theories of the public	2	17
Oral and written testing	Dialog Discussion	Theories of Administrative	Knowledge of classical theories	2	18
Oral and written testing	Dialog Discussion	Theories of Administrative	Knowledge of Humanistic Theories	2	19
Oral and written testing	Dialog Discussion	Theories of Administrative	Knowledge of behavioral theories	2	20



Oral and written testing	Dialog Discussion	Theories of Administrative Knowledge	of social theories	2	21				
Oral and written testing	Dialog Discussion	Educational supervision	cognize its concept and importance	2	22				
Oral and written testing	Dialog Discussion	Educational supervision	Learn about methods supervision and duties	2	23				
Oral and written testing	Dialog Discussion	Educational Leadership	Getting to know its concept and Definitions	2	24				
Oral and written testing	Dialog Discussion	Similarities between Leadership and Management	Knowing Facets Likeness and the difference in detail	2	25				
Course Evaluation .11									
		Distribution of the grade out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports.... etc							
Learning and Teaching Resources .12									
Textbooks Methodology Sources and Approved References/ Khaled dullah Dahmash (2016) (2), Educational Administration. Khaled Ahmed Ahmed Amarat (2009) The Perspective of Al-Kadba for Educational Administration Bassina Haram (2009) Educational Institutions Management Ahmed Battah (2006), Contemporary Issues in Educational Administration									

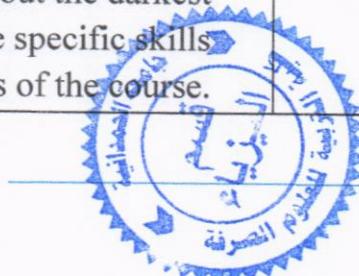


	<p>med Mohammed Al Hubaishi (201) Sources I Approved References/ Khaled Abdullah Almash (2016) (2), Educational Administration.</p> <p>Ahmed Ahmed Ahmed Amar (2009) The Perspective of Al-Kadba for Educational Administration</p> <p>Asina Haram (2009) Educational Institutions Management</p> <p>Ammed Battah (2006), Contemporary Issues in Educational Administration</p> <p>Ahmed Mohammed Al Hubaishi (201)</p>
	<p>Electronic References and Websites. Electronic References and Websites.</p>



Course Description Form

	<p>1. Course name: Crimes of the Baath regime in Iraq</p>	
	<p>2. Course code: UOH203</p>	
	<p>3. Semester/Year: 2025-2026</p>	
	<p>4. Date of preparation of this description: 09/21/2025</p>	
	<p>5. Available forms of attendance: In-person education</p>	
	<p>6. Number of study hours (total) / Number of units (total) 30 hours / (2) units</p>	
<p>7. Name of the course administrator (if more than one name is mentioned)</p>	<p>Name: Assistant Teacher. Dilshad Mohammed Zara. Email: dilshad.harki@uohamdaniya.edu.iq</p>	
<p>8. Course objectives</p> <p style="text-align: center;">The course aims to introduce students to:</p> <p style="text-align: center;">Educational psychology, its concept and objective.</p> <p>Introducing students to the crimes of the Baath regime in Iraq, such as the mass graves in Iraq before 2003. Providing the opportunity to understand the details of one of the darkest periods in modern Iraqi history.</p>	<p>Course objectives</p>	
<p>9. Teaching and learning strategies</p> <p>1. Understanding the nature of the ruling system during the rule of the Ba'ath Party in Iraq.2. Informing students about the magnitude of the crimes committed by the Ba'ath Party in Iraq.3. Developing students' knowledge about the darkest period in contemporary Iraqi history.B - The specific skills objectives of the course.</p>		<p>Strategy</p>

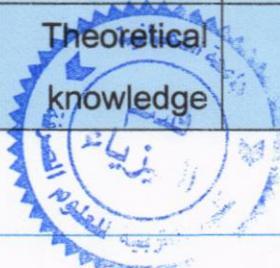


10. Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Feedback via direct questions	The lecture and discussion and dialogue	The crimes concepts and its classification	Theoretical knowledge	1	the first
Feedback via direct questions	The lecture and discussion and dialogue	The crimes classification and the Baath regime crimes according to the Iraqi Criminal Court documentation	Theoretical knowledge	1	the second
Feedback via direct questions	The lecture and discussion and dialogue	The International Crimes Types	Theoretical knowledge	1	the third
Feedback via direct questions	The lecture and discussion and dialogue	The Verdicts of the Iraqi Criminal Court regarding Halabja and Dijil Trials	Theoretical knowledge	1	Fourth



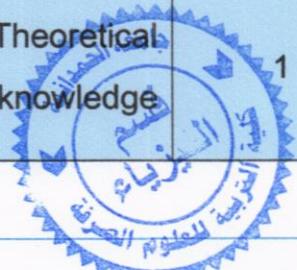
Feedback via direct questions	The lecture and discussion and dialogue	Anfal Genocides crime and the executions of several Iraqi Merchants	Theoretical knowledge	1	Fifth
Feedback via direct questions	The lecture and discussion and dialogue	The oppression of the Shabbaniya uprising and the dismissal of the religious parties	Theoretical knowledge	1	Sixth
Feedback via direct questions	The lecture and discussion and dialogue	The Legal Interest Protection in the society	Theoretical knowledge	1	Seventh
Feedback through questions Direct Rah	The lecture and discussion and dialogue	The Psychological crimes and its types	Theoretical knowledge	1	The eighth
Feedback via direct questions	The lecture and discussion and dialogue	The effect of the Psychological crimes	Theoretical knowledge	1	Ninth
Extracurricular activities	The lecture and discussion and dialogue	The societal crimes	Theoretical knowledge	1	tenth



Feedback via direct questions	The lecture and discussion and dialogue	The role of the Baath Regime with regards to the Islam 1	Theoretical knowledge	1	eleventh
Feedback via direct questions	The lecture and discussion and dialogue	The role of the Baath Regime with regards to the Islam 2	Theoretical knowledge	1	twelfth
Feedback via direct questions	The lecture and discussion and dialogue	Human Rights Violation and the Authority crimes	Theoretical knowledge	1	thirteenth
Feedback via direct questions	Lecture and discussion	The Baath Regime oppression towards Iraqi People	Theoretical knowledge	1	fourteenth
Feedback via direct questions	Lecture and discussion	Monthly Exam	Theoretical knowledge	1	fifteenth
Feedback via direct questions	Lecture, discussion and dialogue	Prisons and detentions center's location under the Baath regime	Theoretical knowledge	1	Week 16



Feedback via direct questions	Lecture, discussion and dialogue	Environmental crimes under Baath Regime	Theoretical knowledge	1	Seventh week
Feedback via direct questions	Lecture, discussion and dialogue	Usage of Internationally Banned Weapons	Theoretical knowledge	1	Eighth week
Feedback via direct questions	Lecture, discussion and dialogue	Radiation Spreading under Baath Regime	Theoretical knowledge	1	Nineteenth week
Feedback via direct questions	Lecture, discussion and dialogue	Cities Demolition	Theoretical knowledge	1	Week twentieth
Feedback via direct questions	Brainstorming, discussion and lecture techniques	Marshals Drying	Theoretical knowledge	1	Week twenty-one
Feedback via direct questions		Agricultural Farms Demolition	Theoretical knowledge	1	Week twenty-two
Feedback via direct questions	Discussion and dialogue	Graveyards Crimes 1	Theoretical knowledge	1	Week twenty-three
Feedback via direct questions	Discussion and dialogue	Graveyards Crimes 2	Theoretical knowledge	1	Week twenty-four
Feedback via direct questions	Discussion and dialogue	Events 1979–2003	Theoretical knowledge	1	Week twenty-five
Feedback via direct questions	Discussion and dialogue	Timelapse of graveyards 1963–2003	Theoretical knowledge	1	Week 26



Feedback via direct questions	Discussion and dialogue	Iraqi-Iranian War crimes	Theoretical knowledge	1	Week 27
Feedback via direct questions	Discussion and dialogue	Crimes against the Kurds	Theoretical knowledge	1	Week 28
Feedback via direct questions	Discussion and dialogue	Crimes against the Shaabanyiah uprising	Theoretical knowledge	1	Week 29
By evaluating a practical session	Discussion and dialogue	Monthly Exam	Theoretical knowledge	1	Week 30

11. Course Evaluation

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

The score for the first semester is (25) points, the theoretical exam is (25) points, including attendance and participation. The score for the second semester is (25) points, the theoretical exam is (25) points, including attendance and participation. The score for the final exam is (50) points for the theoretical exam. The total becomes (100) points.



Course Description Form

1.	Course Name:
Advanced Electrical & Magnetic	
2.	Course Code:
PHY210	
3.	Chapter/Year:
2025-2026	
4.	Date of preparation of this description:
1/9/2025	
5.	Available Attendance Formats:
Face-to-face education	
6.	Number of Hours (Total) / Number of Credits (Total)
60 Hours/5 Units	
7.	Course administrator name (if more than one name mentioned)
Name: a.t. Ahmed turki abdulhameed phy.ahmedturki@uohamdanaya.edu.iq	
8.	Course Objectives
<p>Introduce students to the basic theories and concepts in the science of electricity and magnetism and the laws that link them, through which the student can understand the proofs and solve problems related to the sciences of electricity and magnetism.</p>	
9.	Teaching and Learning Strategies
1- Promote a deep understanding of the concepts of electricity and magnetism and their relationship to nature and other sciences. 2- Develop the ability to analyze problems related to electric current and magnetic fields and understand the phenomena related to them.	
	Strategy 

3- Enable students to understand the practical applications of electricity and magnetism concepts in fields such as electrical engineering, electronics, communications, and renewable energy.

4- Develop the computational skills needed to solve complex physical problems, as well as enhance experimental skills through practical experiments and data analysis.

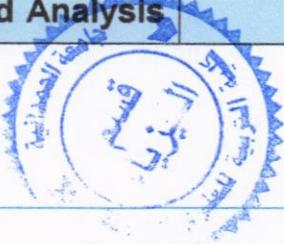
Interaction and Communication: Encourage interaction and communication between students by discussing concepts and solving physical problems collectively

10. Course Structure

Evaluation Method	Learning method	Unit Name or Subject	Required Learning Outcomes	Hours	Week
Direct Questions	Lecture, Discussion and Dialogue	Magnetic Field - Magnetic Flux - Motion of Charged Particles in the Magnetic Field	Theoretical Knowledge Applied Analysis	2	First
Direct Questions	Lecture, Discussion and Dialogue	Thomsen's experiment - the magnetic force acting on electric current	Theoretical Knowledge Applied Analysis	2	Second
Direct Questions	Lecture, Discussion and Dialogue	Torque	Theoretical Knowledge Applied Analysis	2	Third



Direct Questions		Solving the First Chapter Questions	Theoretical Knowledge Applied Analysis	2	Fourth
Direct Questions	Lecture, Discussion and Dialogue	DC- Kelvanometers -Suspended Coil Kelvanometer	Theoretical Knowledge Applied Analysis	2	V
Direct Questions	Lecture, Discussion and Dialogue	DC Amitter - DC Voltmeter	Theoretical Knowledge Applied Analysis	2	Sixth
		Solving Second Semester Questions		2	Seventh
Direct Questions	Lecture, Discussion and Dialogue	Magnetic Fields Arising from Current-Carrying Wires - Bayot's Law and Safert	Theoretical Knowledge Applied Analysis	2	Eighth
Direct Questions	Lecture, Discussion and Dialogue	Applications to Bayot's Law and Travel-Magnetic Field for Straight Wire - Magnetic Field Arising from Circular Wire	Theoretical Knowledge Applied Analysis	2	Ninth
Direct Questions	Lecture, Discussion and Dialogue	Ampere's Law - Applications to Ampere's Law	Theoretical Knowledge Applied Analysis	2	X



Direct Questions	Lecture, Discussion and Dialogue	Magnetic Field of Long Cylindrical Wire	Theoretical Knowledge Applied Analysis	2	Eleventh h
Direct Questions	Lecture, Discussion and Dialogue	Magnetic field of a helical coil	Theoretical Knowledge Applied Analysis	2	Twelfth
Direct Questions	Lecture, Discussion and Dialogue	Magnetic field of a cyclic helical coil	Theoretical Knowledge Applied Analysis	2	Thirteenth
Direct Questions	Lecture, Discussion and Dialogue	The mutual force between two parallel wires	Theoretical Knowledge Applied Analysis	2	Fourteenth
		Solving Third Semester Questions		2	Fifteenth h
Direct Questions	Lecture, Discussion and Dialogue	Electromagnetic Induction - Faraday's Law - Kinetic Induced Electromotive Force - Lens's Law	Theoretical Knowledge Applied Analysis	2	Sixteenth week
Direct Questions	Lecture, Discussion and Dialogue	Measuring the Magnetic Field Strength Using the Research-Generator	Theoretical Knowledge Applied Analysis	2	Week Seventeen



Direct Questions	Lecture, Discussion and Dialogue	Variable magnetic fields	Theoretical Knowledge Applied Analysis	2	Week Eighteenth
Direct Questions	Lecture, Discussion and Dialogue	Inductive property	Theoretical Knowledge Applied Analysis	2	Week Nineteen
Direct Questions	Lecture, Discussion and Dialogue	Current growth and decay in a circuit consisting of inductor and resistor respectively	Theoretical Knowledge Applied Analysis	2	Week 20
Direct Questions	Lecture, Discussion and Dialogue	Stored energy in the magnetic-cross-induction field	Theoretical Knowledge Applied Analysis	2	Week 21
Direct Questions	Lecture, Discussion and Dialogue	Electrical Transformer - Transmission of Power to Long Distances	Theoretical Knowledge Applied Analysis	2	Week 22
		Solving Chapter Four Questions		2	Week Twenty Three
Direct Questions	Lecture, Discussion and Dialogue	AC Basics	Theoretical Knowledge Applied Analysis	2	Week Twenty Four

Direct Questions	Lecture, Discussion and Dialogue	Voltages – Phase	Theoretical Knowledge Applied Analysis	2	Week Twenty Five
Direct Questions	Lecture, Discussion and Dialogue	Shedding sine voltages on pure resistor - Shedding voltages on pure expander - Shedding sine voltages on pure inductor	Theoretical Knowledge Applied Analysis	2	Week Twenty Six
Direct Questions	Lecture, Discussion and Dialogue	Effective Alternating Current Value - Average Effective Current Value - Electrical Power	Theoretical Knowledge Applied Analysis	2	Week twenty seven
Direct Questions	Discussion and Dialogue	Expanded Coil Resistance Circuit Sequential Splicing- Capacity in Circuit Resistive Coil Expandable Sequential Splicing	Theoretical Knowledge Applied Analysis	2	Week Twenty Eight
Direct Questions	Discussion and Dialogue	Resonance in a straight circuit - a circuit resisting a parallel splicing expanded coil	Theoretical Knowledge Applied Analysis	2	Week twenty ninth

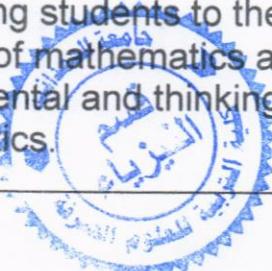


		Solving Chapter Five Questions		2	Week 30
11. Course Evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports.... etc					
12. Learning and Teaching Resources					
• Fundamentals of Electricity and Magnetism, Author : Yahya Abdel Hamid Al-Hajj Ali	Required textbooks (methodology if available)				
1- Introduction to Electromagnetism and Magnetism, by Dr.Mona Abdel Karim Al-Khashab, Dr.Kazem Ahmed Mohammed					Primary References (Sources)
2- Electricity and Magnetism, Part Two, Author: Ibrahim Nasser Ibrahim Fundamentals of Electromagnetic Theory, Translated by: Yahya Abdel Hamid Al-Hajj Ali, Rahman Rustom					
Follow up on electronic and internet references that include solid scientific websites and library websites in some international universities					Recommended Books and References (Scientific Journals, Reports)
Websites related to electricity and magnetism					References, Websites



Course Description Form

1. Course Name:	mathematics
2. Course Code:	PHY209
3. Semester / Year:	Yearly
4. Description Preparation Date:	2025/9/19
5. Available Attendance Forms:	Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS/ 6 UNITS
7. Course administrator's name (mention all, if more than one name)	Name: A.PROF. Rajaa Abdullah Basheer Email: ragaa.habsh@uohamdaniya.edu.iq
8. Course Objectives	<p>Course Objectives</p> <p>A. Introducing students to the basic principles of mathematics, which are relevant to all fields of mathematics and its applications, including engineering applications and all branches of science.</p> <p>B. Providing students with the skills that enable them to teach mathematics.</p> <p>C. Working to enable students to acquire the skills to conduct scientific research in the field of mathematics.</p> <p>C. Introducing students to the importance of mathematics and acquiring mental and thinking skills in mathematics.</p>

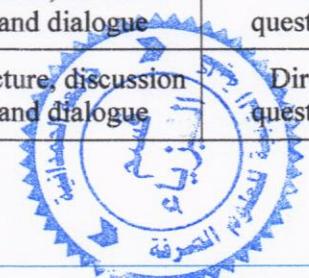


9. Teaching and Learning Strategies

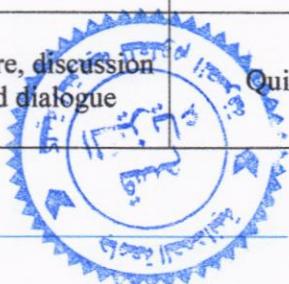
Strategy	1. Providing students with information and concepts in physics and mathematics. Preparing trained and qualified personnel to work in institutions.
	2. Identifying the scientific applications of each scientific knowledge.
	3. Identify the different types of scientific knowledge, including facts, concepts, principles, and theories.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 Theor	Displaying the curriculum vocabulary, the student learns about sequences.	Finite and infinite sequences	Lecture, discussion and dialogue	Direct questions + solved examples
2	3 Theor	The student learns the ends of sequences.	limit	Lecture, discussion and dialogue	Direct questions + solved examples
3	3 Theor	The student learns about finite and infinite series.	infinite series	Lecture, discussion and dialogue	Exam + Solutions to Examples
4	3 Theor	The student learns how to solve series.	infinite series	Lecture, discussion and dialogue	Direct questions + solved examples
5	3 Theor	The student learns about geometric series.	geometric series	Lecture, discussion and dialogue	Direct questions
6	3 Theor	The student learns methods of testing series.	Test of Convergent	Lecture, discussion and dialogue	Direct questions
7	3 Theory	The student learns how to conduct an integration test.	Integrat testi	Lecture, discussion and dialogue	exam
8	3 Theory	The student learns how to conduct a comparison test.	Comparison test	Lecture, discussion and dialogue	Direct questions
9	3 Theory	The student learns how to test the ratio.	ratio test	Lecture, discussion and dialogue	Direct questions
10	3 Theory	The student learns about the convergence of exponential series.	Power series	Lecture, discussion and dialogue	Direct questions+ exam
11	3 Theory	Tyler series solution method	Tyler series	Lecture, discussion and dialogue	Direct questions
12	3 Theory	How to solve with Maclaurin series	Maclaurin series	Lecture, discussion and dialogue	Direct questions



13	3 Theory	How to apply the binomial series to find roots	binomial series	Lecture, discussion and dialogue	Direct questions
14	3 Theory	Learn about vectors and vector units, adding and subtracting vectors	Vectors	Lecture, discussion and dialogue	Solving examples
15	3 Theory	Learn how to multiply vectors and find areas and volumes.	Vector multiplication methods	Lecture, discussion and dialogue	Exam
16	3 Theory	Partial derivatives with two or more variables	Partial derivatives	Lecture, discussion and dialogue	Direct questions + solved examples
17	3 Theory	Learn about gradient, skew, divergence, and Laplacian functions and the partial vector derivative.	Slope, divergence, involution, and partial vector derivative of functions	Lecture, discussion and dialogue	Direct questions + solved examples
18	3 Theory	Learn how to solve using the chain rule for partial derivatives.	chain rule	Lecture, discussion and dialogue	Solve examples + exam
19	3 Theory	First-order differential equations and methods of solving them. Degree and order of the differential equation.	Methods of separating variables	Lecture, discussion and dialogue	Direct questions + solved examples
20	3 Theory	How to solve homogeneous equations	homogeneous equations	Lecture, discussion and dialogue	Direct questions + solved examples
21	3 Theory	How to solve exact differential equations	Exact equations	Lecture, discussion and dialogue	Direct questions + solved examples
22	3 Theory	How to solve linear equations	linear equations	Lecture, discussion and dialogue	Direct questions + solved examples
23	3 Theory	Second order equations	Second order differential equations	Lecture, discussion and dialogue	Quiz



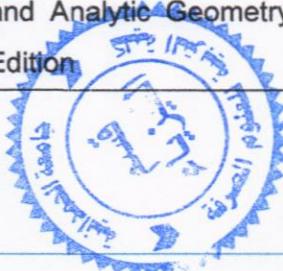
24	3 Theory	homogeneous of the second degree	Homogeneous second-order differential equations	Lecture, discussion and dialogue	Direct questions + solved examples
25	3 Theory	Identifying nonhomogeneous equations	nonhomogeneous differential equations	Lecture, discussion and dialogue	Direct questions + solved examples
26	3 Theory	Learn how to solve first-degree and second-degree equations.	Differential equations with dependent variables	Lecture, discussion and dialogue	Direct questions + solved examples + Quiz
27	3 Theory	Solving non-dependent differential equations	Equations with non-dependent variables	Lecture, discussion and dialogue	Direct questions + solved examples
28	3 Theory	Second order equations	Bernoulli's equation	Lecture, discussion and dialogue	Direct questions
29	3 Theory	Learn about Laplace transforms	Laplace transforms	Lecture, discussion and dialogue	Direct questions + solved examples
30	3 Theor	Inverse Laplace Transforms		Lecture, discussion and dialogue	solved examples

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Mathematical Physics, by Ma'an Abdul Majeed Ibrahim, First Edition, 2000
	Partial Differential Equations for Scientific and Engineering Colleges, by S. G. Farlow, translated by Dr. Atallah Thamer Al-Ani, University of Baghdad, Bayt Al-Hikma. 1- Calculus and Analytic Geometry by George Thomas, 7th Edition



	<p>2- Schaum's Outline of Theory and Problems of Advanced Calculus, 2nd Edition by Robert Wrede and Murray R. Spiegel, 2002</p> <p>3- Differential Equations with Boundary Value Problems, 2nd Edition, by John Polking, Albert Boggess, and David Arnold, 2006</p> <p>5- A First Course in Differential Equations, with Modeling Applications, 8th Edition by Dennis G. Zill, 2005</p>
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Websites about mathematics



Course Description Form

1. Course Name:	Optical physics	
2. Course Code:	PHY208	
3. Semester / Year:	سنوي	
4. Description Preparation Date:	24/9/2025	
5. Available Attendance Forms:	تعليم حضوري	
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS / 7 UNITS	
7. Course administrator's name (mention all, if more than one name)	Name: Shaimaa Haithem Zaki Email: shaimahaithemkady@uohamdanaya.edu.iq	
8. Course Objectives	<p>Course Objectives</p> <p>This is an introductory course on optics geometrical and wave optics focusing on fundamental concepts, principles and techniques.</p> <p>1- The first course will introduce basic electromagnetic, mirrors, lenses, thick mirror, thick lenses, aberrations in mirror and lenses</p> <p>2- The second course covers wave optics focusing on interference and its experiment, diffraction and its experiments, polarization and its types and methods for obtaining it.</p>	
9. Teaching and Learning Strategies	<p>Strategy</p> <p>Course Intended Outcomes</p> <p>1- Be able to explain the theories which interpret the nature of light.</p>	



	<p>2- Be able to explain image properties by calculations and graphically.</p> <p>3- Be able to contrast between different types of lens</p> <p>4- Be able to describe the interference and diffraction in addition to the method for obtaining them.</p> <p>5- Be able to describe polarized and unpolarized light</p> <p>6- Be able to describe the type of polarization light.</p> <p>Be able to describe the methods of obtaining the polarization light.</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
الاول	3	View syllabus of the article , Introduction to optical physics		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الثاني	3	Concept of ray of light, Light physics and properties, Light waves, Electromagnetic wave		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الثالث	3	Waves, Types of Waves, Electromagnetic wave , Vocabulary/Definitions,		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الرابع	3	Types of Electromagnetic , wave, Longitudinal waves, Transverse waves,		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الخامس	3	The Electromagnetic Spectra , Wavelength, Frequency,		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
السادس	3	Speed of Light and Refractive Index, Solving Examples		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
السابع	3	Exam			
الثامن	3	, Propagation of light, reflection, laws of reflection,		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
التاسع	3	Regular reflection and irregular reflection of light, Plane mirrors, H.W		القاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة



العاشر	3	Refraction, Law of refraction of light, Total Internal Reflection, Solving Examples	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الحادي عشر	3	Concave mirror, Convex mirror, Spherical mirror equation, Solving Examples	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الثاني عشر	3	The principle of Reversibility, Fermat's principle, Spherical surface, Spherical Mirrors	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الثالث عشر	3	Exam		
الرابع عشر	3	Lenses, Types of lenses: convex lens, Concave lenses,	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الخامس عشر	3	Ray Diagrams for Lenses , Image Formation by Convex Lens, Image Formation by Concave Lens	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع السادس عشر	3	Lens Maker Formula, Solving Examples, The power of the thin lens, Aberration,	إلقاء الحاضرة من خلال السبورة وشاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة



الاسبوع السابع عشر	3	Defects of Spherical Lenses, Kind of aberration, Spherical aberration, Chromatic aberration		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الثامن عشر	3	Optical instruments, Applications of Lenses, Lenses in Eyes		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الناسع عشر	3	, Focusing images , Vision Correction, Nearsightedness and farsightedness		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع العشرون	3	, Astigmatism, Refracting Telescopes, Microscopes,		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الحادي والعشرون	3	Exam			
الاسبوع الثاني والعشرون	3	Solving Examples Interference and Diffraction of light, Double-slit interference,		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الثالث والعشرون	3	Coherent Waves, Measuring the wavelength of light .Solving Examples		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الرابع والعشرون	3	, Diffraction, Single-Slit Diffraction, Diffraction pattern, Solving examples.,		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الخامس والعشرون	3	Diffraction Gratings, Measuring wavelength,		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع اسادس والعشرون	3	Solving Examples		إلقاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة



الاسبوع السابع والعشرون	3	Resolving Power of Lenses, , Rayleigh Criterion ,		القاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الثامن والعشرون	3	Polarization		القاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الناسع والعشرون	3	article review		القاء الحاضرة من خلال السبورة و شاشات العرض مع المشاركة التفاعلية للطلبة	الأسئلة المباشرة
الاسبوع الثلاثون	3	Exam			

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-Fundamentals of Optics; 1 -F. A. Jenkins and H. E. White, McGraw-Hill Primi Custom Publishing, 2001.
Main references (sources)	1. principle of optics and application by Sharma 2006 2. Miles V. Klein and Thomas E. Furtak, Optics, 2nd ed. 1986
Recommended books and references (scientific journals, reports...)	1- Optics: Principles and Applications, Elsevier Inc(2006) 2- Optics, 4th edition, Addison Wesley,(2002) 3- Modern Optics, 1st edition, John Wiley and Sons, Inc.(1990)
Electronic References, Websites	متابعه المراجع الإلكترونية والأنترنت التي تتضمن المواقع الإلكترونية العلمية الرصينة وموقع المكتبات في بعض الجامعات العالمية



Course Description Form

1. Course Name:	Sound and Wave Motion
2. Course Code:	PHY211
3. Semester / Year:	2025-2026
4. Description Preparation Date:	20/9/2025
5. Available Attendance Forms:	In-person Education
6. Number of Credit Hours (Total) / Number of Units (Total)	60 hours / 2 units
7. Course administrator's name (mention all, if more than one name)	Name: Assit.Lect. Islam Nasser Yousif Email: islam-nasser@uohamdaniya.edu.iq
8. Course Objectives	Course Objectives Skill-based Objectives of the Sound Course for Second-Year Physics Students may include the following: <ul style="list-style-type: none"> 1. Understanding the concepts of sound: The ability to comprehend the wave nature of sound and the fundamental concepts such as wave, frequency, and wavelength. 2. Analyzing the behavior of sound waves: Understanding and analyzing the behavior of sound, how it propagates in different media, and its effect on the surrounding environment. 3. Understanding the applications of sound: The ability to grasp and understand the applications of sound in various fields such as audio and video technology, and industrial acoustics. 4. Interaction: The ability to interact with the surrounding acoustic environment and sound applications.
9. Teaching and Learning Strategies	Strategy 1. Understanding the nature of sound waves: Comprehending the fundamentals of sound as a wave phenomenon and understanding the relationship between sound speed, frequency, and wavelength.



	<p>2. Analyzing sound and its behavior: The ability to analyze the behavior of sound, including reflection, refraction, propagation, and diffraction in the presence of obstacles.</p> <p>3. Interaction with the acoustic environment: The ability to interact with the surrounding acoustic environment and understand its effects on humans and the environment.</p> <p>4. Empowering students: Enabling students to acquire knowledge and understanding of scientific laws in physics, practical applications of physics, logical and scientific analysis, and interpretation of physical phenomena.</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical knowledge and applied analysis	Basic concepts of wave motion, means of energy transfer, characteristics of mechanical wave motion	Lecture, discussion dialogue	Direct questions
2	2	Theoretical knowledge and applied analysis	Types of wave motion, kinds of mechanical waves, basic properties of mechanical wave transmission	Lecture, discussion dialogue	
3	2	Theoretical knowledge and applied analysis	Transmission of mechanical wave motion	Lecture, discussion dialogue	
4	2	Theoretical knowledge and applied analysis	Waves in vibrating strings, waves in a helical spring	Lecture, discussion dialogue	
5	2	Theoretical knowledge and applied analysis	Waves on liquid surfaces, sound waves	Lecture, discussion dialogue	
6	2	Theoretical knowledge and applied analysis	Simple explanation using a piston, properties of sound waves in a piston	Lecture, discussion dialogue	
7	2	Theoretical knowledge and applied analysis	Wave velocity and particle velocity, mathematical representation of wave motion	Lecture, discussion dialogue	
8	2	Theoretical knowledge and applied analysis	Theory of free vibration, oscillatory motion, simple harmonic motion	Lecture, discussion dialogue	
9	2	Theoretical knowledge and applied analysis	Equation of linear harmonic motion, energy of a simple harmonic oscillator, average kinetic energy of the oscillator	Lecture, discussion dialogue	
10	2	Theoretical knowledge and applied analysis	Applications of simple harmonic motion: simple pendulum, floating body	Lecture, discussion dialogue	In addition to monthly exam
11	2	Theoretical knowledge and applied analysis	Liquid in a U-tube, transverse vibration of a particle in a stretched string	Lecture, discussion dialogue	
12	2	Theoretical knowledge and applied analysis	Longitudinal vibration of a body between two identical springs, piston oscillation in a cylinder containing gas	Lecture, discussion dialogue	



13	2	Theoretical knowledge and applied analysis	Resonator, theory of the resonator	Lecture, discussion dialogue	
14	2	Theoretical knowledge and applied analysis	Simple angular harmonic motion, torsional pendulum	Lecture, discussion dialogue	
15	2	Theoretical knowledge and applied analysis	Compound pendulum	Lecture, discussion dialogue	
16	2	Theoretical knowledge and applied analysis	Superposition of simple harmonic motions, principle of superposition	Lecture, discussion dialogue	
17	2	Theoretical knowledge and applied analysis	Result of combining two harmonic motions in the same line	Lecture, discussion dialogue	
18	2	Theoretical knowledge and applied analysis	Superposition of two harmonic motions in perpendicular directions, Lissajous figures	Lecture, discussion dialogue	
19	2	Theoretical knowledge and applied analysis	Graphical method of superposition of two perpendicular harmonic motions with equal angular frequency	Lecture, discussion dialogue	
20	2	Theoretical knowledge and applied analysis	Superposition of two perpendicular motions when one frequency is double the other	Lecture, discussion dialogue	
21	2	Theoretical knowledge and applied analysis	Beats	Lecture, discussion dialogue	
22	2	Theoretical knowledge and applied analysis	Damped oscillation, damping force	Lecture, discussion dialogue	Monthly exam
23	2	Theoretical knowledge and applied analysis	Equation of damped motion, solution of the damped harmonic oscillator equation	Discussion, dialog	
24	2	Theoretical knowledge and applied analysis	Cases of damping: no damping, underdamping, overdamping, critical damping	Discussion, dialog	
25	2	Theoretical knowledge and applied analysis	Measures of damping: logarithmic decrement, relaxation time, quality factor	Discussion, dialog	
26	2	Theoretical knowledge and applied analysis	Forced oscillation	Discussion, dialog	
27	2	Theoretical knowledge and applied analysis	Transverse waves in one dimension	Discussion, dialog	
28	2	Theoretical knowledge and applied analysis	Longitudinal waves (sound waves)	Discussion, dialog	
29	2	Theoretical knowledge and applied analysis	General considerations on sound and wave phenomena	Discussion, dialog	
30	2	Theoretical knowledge and applied analysis	Ultrasonic waves and their applications	Discussion, dialog	

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)	Sound and Wave Motion / Authored by Amjad Abdulrazzaq Karjiya
Main references (sources)	Physics of Sound and Wave Motion Authored by Dr. Mustafa Amin Mustafa

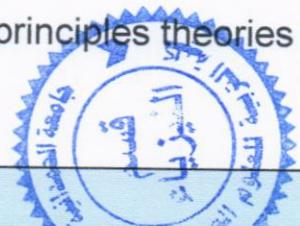


Recommended books and references (scientific journals, reports...)	Following up on electronic references a the Internet, including reputable scienti websites and library websites of so international universities.
Electronic References, Websites	Internet websites related to sound and wave motion.

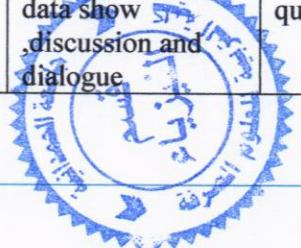


Course Description Form

<p>1. Course Name: Astronomy</p>																	
<p>2. Course Code: PHY212</p>																	
<p>3. Semester / Year: Yearly\ second stage</p>																	
<p>4. Description Preparation Date: 22/9/2025</p>																	
<p>5. Available Attendance Forms: Attendance</p>																	
<p>6. Number of Credit Hours (Total) / Number of Units (Total) 30 HOURS/ 4 UNITS</p>																	
<p>7. Course administrator's name (mention all, if more than one name)</p> <p>Name: Hanaa Nafee Azeez Email: hanaa69@uohamdaniya.edu.iq</p>																	
<p>8. Course Objectives</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 5px;">Course Objectives</td> <td style="width: 60%; padding: 5px;">Student learn about the importance of scientific knowledge of astronomy in daily life Introduction student to the principles of astronomy enabling them to derive laws related to astronomical concepts and providing them with skills to work in the field of physics.</td> </tr> </table>						Course Objectives	Student learn about the importance of scientific knowledge of astronomy in daily life Introduction student to the principles of astronomy enabling them to derive laws related to astronomical concepts and providing them with skills to work in the field of physics.										
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<p>9. Teaching and Learning Strategies</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">Strategy</td> <td style="width: 80%; padding: 5px;">Providing student with knowledge of astronomy applications and familiarization with astronomical principles theories and instruments.</td> </tr> </table>						Strategy	Providing student with knowledge of astronomy applications and familiarization with astronomical principles theories and instruments.										
Strategy	Providing student with knowledge of astronomy applications and familiarization with astronomical principles theories and instruments.																
<p>10. Course Structure</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Week</th> <th style="width: 10%;">Hours</th> <th style="width: 30%;">Required Learning Outcomes</th> <th style="width: 20%;">Unit or subject name</th> <th style="width: 20%;">Learning method</th> <th style="width: 10%;">Evaluation method</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2 Theor</td> <td>Celestial mechanics</td> <td>Celestial mechanics</td> <td>Lecture and use data show</td> <td>Direct question</td> </tr> </tbody> </table>						Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	1	2 Theor	Celestial mechanics	Celestial mechanics	Lecture and use data show	Direct question
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method												
1	2 Theor	Celestial mechanics	Celestial mechanics	Lecture and use data show	Direct question												



				,discussion and dialogue	
2	2 Theor	Astronomical coordinate system	Astronomical coordinate system	Lecture and use data show ,discussion and dialogue	Direct question
3	2 Theor	The movement of stars and the zodiac	The movement of stars and the zodiac	Lecture and use data show ,discussion and dialogue	Direct question
4	2 Theor	Astronomical seasons	Astronomical seasons	Lecture and use data show ,discussion and dialogue	Direct question
5	2 Theor	Astronomical units of measurement	Astronomical units of measurement	Lecture and use data show ,discussion and dialogue	quise
6	2 Theor	The origin of the solar system	The origin of the solar system	Lecture and use data show ,discussion and dialogue	Direct question
7	2 Theory	Physical properties of the sun	Physical properties of the sun	Lecture and use data show ,discussion and dialogue	Direct question
8	2 Theory	Physical properties of the moon	Physical properties of the moon	Lecture and use data show ,discussion and dialogue	Direct question
9	2 Theory	Lunar and solar eclipses	Lunar and solar eclipses	Lecture and use data show ,discussion and dialogue	Direct question
10	2 Theory	Stellar cycles	Stellar cycles	Lecture and use data show ,discussion and dialogue	quise
11	2 Theory	Physical properties of the planets	Physical properties of the planets	Lecture and use data show ,discussion and dialogue	Direct question
12	2 Theory	Physical properties of the comets	Physical properties of the comets	Lecture and use data show ,discussion and dialogue	Direct question
13	2 Theory	Bode base	Bode base	Lecture and use data show ,discussion and dialogue	Direct question
14	2 Theory	meteors	meteors	Lecture and use data show ,discussion and dialogue	Direct question



15	² Theory	comets	comets	Lecture and use data show ,discussion and dialogue	quise
16	2 Theory	Movement of stars	Movement of stars	Lecture and use data show ,discussion and dialogue	Direct question
17	² Theory	Stars destinies	Stars destinies	Lecture and use data show ,discussion and dialogue	Direct question
18	² Theory	Measurement the diameters, masses, density of stars	Measurement the diameters, masses, density of stars	Lecture and use data show ,discussion and dialogue	Direct question
19	² Theory	Spectra of stars	Spectra of stars	Lecture and use data show ,discussion and dialogue	Direct question
20	² Theory	A plan H-R	A plan H-R	Lecture and use data show ,discussion and dialogue	quise
21	2 Theory	Star life cycle	Star life cycle	Lecture and use data show ,discussion and dialogue	Direct question
22	² Theory	Black holes	Black holes	Lecture and use data show ,discussion and dialogue	Direct question
23	² Theory	Binary stars	Binary stars	Lecture and use data show ,discussion and dialogue	Direct question
24	² Theory	Star clusters	Star clusters	Lecture and use data show ,discussion and dialogue	Direct question
25	² Theory	Classification of binary and variable stars	Classification of binary and variable stars	Lecture and use data show ,discussion and dialogue	quise
26	² Theory	Types of galaxies	Types of galaxies	Lecture and use data show ,discussion and dialogue	Direct question

27	2 Theory	Components and mass of galaxies	Components and mass of galaxies	Lecture and use data show ,discussion and dialogue	Direct question
28	2 Theory	Star clusters and clusters	Star clusters and clusters	Lecture and use data show ,discussion and dialogue	Direct question
29	2 Theory	Stellar nebulae and quasars	Stellar nebulae and quasars	Lecture and use data show ,discussion and dialogue	Direct question
30	2 Theor	The expansion of the universe and the redshift	The expansion of the universe and the redshift	Lecture and use data show ,discussion and dialogue	quise

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, quizzes

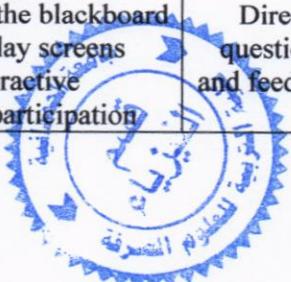
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	كتاب علم الفلك: د. حميد مخلص النعيمي ، د. فياض النجم
Main references (sources)	كتاب علم الفلك: د. حميد مخلص النعيمي ، د. فياض النجم
Recommended books and references (scientific journals, reports...)	Zainul Huda. <i>Metallurgy for Physicists and Engineers-Fundamentals, Applications, and Calculations</i> . CRC Press, 2020.
Electronic References, Websites	Wikipedia

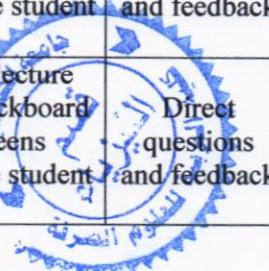


Course Description Form

1. Course Name:	English Language																						
2. Course Code:	UOH202																						
3. Semester / Year:	Annual																						
4. Description Preparation Date:	2025																						
5. Available Attendance Forms:	Daily Attendance																						
6. Number of Credit Hours (Total) / Number of Units (Total)	1 Hour and 2 Credits																						
7. Course administrator's name (mention all, if more than one name)	Name: Ari Dakheel Abdal Email: Aridasi@uohamdaniya.edu.iq																						
8. Course Objectives	Course Objectives 1-Enriching and developing students' English language skills 2-Developing students' language abilities and skills																						
9. Teaching and Learning Strategies	Strategy 1. Develop students' ability to recognize the most important vocabulary and linguistic terms in the English language. 2. Enrich students' vocabulary. 3. Understand the importance of learning English and its impact on learning other subjects. 4- Developing students' English language skills. 5- Developing reading and writing skills. 6- Developing students' English-speaking skills.																						
10. Course Structure	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Week</th> <th>Hours</th> <th>Required Learning Outcomes</th> <th>Unit or subject name</th> <th>Learning method</th> <th>Evaluation method</th> </tr> </thead> <tbody> <tr> <td>1st</td> <td>1</td> <td>Theoretical knowledge and practical educational application</td> <td>Unit One Tenses</td> <td>Delivering the lecture through the blackboard and display screens with interactive student participation</td> <td>Direct questions and feedback</td> </tr> <tr> <td>2nd</td> <td>1</td> <td>Theoretical knowledge and practical educational application</td> <td>Unit One Questions</td> <td>Delivering the lecture through the blackboard and display screens with interactive student participation</td> <td>Direct questions and feedback</td> </tr> </tbody> </table>					Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	1 st	1	Theoretical knowledge and practical educational application	Unit One Tenses	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback	2 nd	1	Theoretical knowledge and practical educational application	Unit One Questions	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method																		
1 st	1	Theoretical knowledge and practical educational application	Unit One Tenses	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback																		
2 nd	1	Theoretical knowledge and practical educational application	Unit One Questions	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback																		



3 rd	1	Theoretical knowledge and practical educational application	Unit One Question word:	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
4 th	1	Theoretical knowledge and practical educational application	Unit Two Present Continuous	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
5 th	1	Theoretical knowledge and practical educational application	Unit Two Present Simple	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
6 th	1	Theoretical knowledge and practical educational application	Unit Two Has-Have got	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
7 th	1	Theoretical knowledge and practical educational application	Unit Three Past Simple	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
8 th	1	Theoretical knowledge and practical educational application	Unit Three Past Continuou	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
9 th	1	Theoretical knowledge and practical educational application	Unit Three Time Expressio	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
10 th	1	Theoretical knowledge and practical educational application	Unit Four Quantity	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
11 th	1	Theoretical knowledge and practical educational application	Unit Four Articles	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
12 th	1	Theoretical knowledge and practical educational application	Unit Five Verb Patterns	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
13 th	1	Theoretical knowledge and practical educational application	Unit Five Future intentio	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback



14 th	1	Theoretical knowledge and practical educational application	Unit Six Comparative and Superlative	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
15 th	1	Theoretical knowledge and practical educational application	Unit Six Superlative adjectives	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
16 th	1	Theoretical knowledge and practical educational application	Unit Seven Present perfect and past simple	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback
17 th	1	Theoretical knowledge and practical educational application	Unit Eight Should & must	Delivering the lecture through the blackboard and display screens with interactive student participation	Direct questions and feedback

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

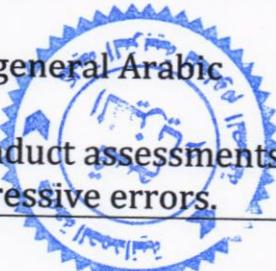
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	New Headway Plus for pre- Intermediate
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.



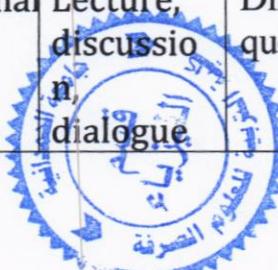
Course Description Form

1. Course Name:	General Arabic language	
2. Course Code:	UOH201	
3. Semester / Year:	2025-2026 Second Stage	
4. Description Preparation Date:	18-9-2025	
5. Available Attendance Forms:	In-person teaching	
6. Number of Credit Hours (Total) / Number of Units (Total)	30 hours / 2 units	
7. Course administrator's name (mention all, if more than one name)	Name: Assistant Lecturer Hiba Mohammed Tawfiq Ibrahim Email: hibamohamed.149@uohamdaniya.edu.iq	
8. Course Objectives	Course Objectives <ul style="list-style-type: none"> 1- Introduce students to the importance of the Arabic language and its literature, and help them understand Arabic grammar. 2. Develop students' language skills. 3. Enable students to acquire the necessary skills to understand syntactic and semantic structures. 4. Foster students' pride in the Arabic language. 	
9. Teaching and Learning Strategies	Strategy <ul style="list-style-type: none"> 1. Provide students with knowledge and concepts of the Arabic language, preparing qualified cadres for work in institutions. 2. Teach students how to apply general Arabic grammar in their writing. 3. Discuss with students and conduct assessments to address common linguistic and expressive errors. 	



10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to syllabus, introduction, subject + predicate, types of subject, types of predicate, exercises	Subject and Predicate	Lecture, discussion, dialogue	Direct questions
2	1	Simile: pillars and types, exercises	Simile	Lecture, discussion, dialogue	Direct questions
3	1	Paronomasia: types (perfect and imperfect), conditions of perfect paronomasia, exercises	Paronomasia (Jinas)	Lecture, discussion, dialogue	Direct questions
4	1	Linguistic errors and their categories	Linguistic Errors	Lecture, discussion, dialogue	Direct questions
5	1	Types of linguistic errors with applied examples	Application on Linguistic Errors	Lecture, discussion, dialogue	Direct questions
6	1	Memorization and explanation of 10 verses from Surat Al-Kahf with meanings	Qur'anic Text	Lecture, discussion, dialogue	Direct questions
7	1	Exam			Direct questions
8	1	Numbers: relation with counted noun, gender rules, exercises	Numbers	Lecture, discussion, dialogue	Direct questions
9	1	Object: definition and types	Object (ma'bihi)	Lecture, discussion, dialogue	Direct questions



10	1	Causative object: definition with examples	Cognate Accusative (ma'ül muṭlaq)	Lecture, discussion, dialogue	Direct questions
11	1	Causative object: definition with examples	Causative Object (ma-li-ajlihi)	Lecture, discussion, dialogue	Direct questions
12	1	Comitative object: definition with examples	Comitative Object (ma-ma'ahu)	Lecture, discussion, dialogue	Direct questions
13	1	Adverbial object: definition, types, exercises	Adverbial Object (ma-fīhi)	Lecture, discussion, dialogue	Direct questions
14	1	Review		Lecture, discussion, dialogue	Direct questions
15	1	Exam		Lecture, discussion, dialogue	Direct questions
16	1	Adjective: definition and types	Adjective (Na't)	Lecture, discussion, dialogue	Direct questions
17	1	Emphasis: definition and types	Emphasis (Tawkīd)	Lecture, discussion, dialogue	Direct questions
18	1	Conjunction: definition, conjunction	Conjunction ('Atf)	Lecture, discussion	Direct questions

		particles, meanings		n, dialogue	
19	1	Apposition: definition, types, whole-partial, partial-whole, inclusion, exercises	Apposition (Badal)	Lecture, discussion, dialogue	Direct questions
20	1	The five nouns: meanings, declension with letters, conditions, exercises	The Five Nouns	Lecture, discussion, dialogue	Direct questions
21	1	Exam			
22	1	Punctuation marks: comma, semicolon, period, ellipsis, colon, question mark, exclamation, quotation marks, parentheses	Punctuation	Lecture, discussion, dialogue	Direct questions
23	1	Exam		Lecture, discussion, dialogue	Direct questions
24	1	Life and upbringing of Badr Shakir al-Sayyab	Biography Badr Shakir al-Sayyab	Lecture, discussion, dialogue	Direct questions
25	1	Memorization of 8 verses from "Rain Song" poem, explanation, semantic and rhetorical analysis	Rain Song Poem	Lecture, discussion, dialogue	Direct questions
26	1	The five verbs: definition and declension	The Five Verbs	Lecture, discussion, dialogue	Direct questions

27	1	Passive subject: definition and examples	Passive Subject (Nā al-Fā'il)	Lecture, discussion, dialogue	Direct questions
28	1	Applied exercises	Exercises	Lecture, discussion, dialogue	Direct questions
29	1	General review of syllabus	Review	Lecture, discussion, dialogue	Direct questions
30	1	Exam			Direct questions

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)	None.
Main references (sources)	Main References: Sharḥ Ibn ‘Aqīl on Ibn Mālik’s Alfiyya.
Recommended books and references (scientific journals, reports...)	Meanings of Syntax by Dr. Fadel Al-Samarrai Al-Nahw Al-Wafi by Abbas Hassan.
Electronic References, Websites	Alukah Network Waddood Library Al-Waqfeya Library Archive Library Al-Noor Library



Course Description Form

1. Course Name:	Solid state physical	
2. Course Code:	PHY405	
3. Semester / Year:	2025/2026 سنوي	
4. Description Preparation Date:	23/9/2025	
5. Available Attendance Forms:	In-person learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS / 5 UNITS	
7. Course administrator's name (mention all, if more than one name)	Name: Asst. Prof. Dr. Siham Jasim Abdullah Email: : siham.jasim@uohamdaniya.edu.iq	
8. Course Objectives	<p>Course Objectives</p> <p>1. Students learn about the importance of scientific knowledge in solid-state physics in everyday life.</p> <p>2. Students learn about the different types of scientific knowledge, including facts, concepts, principles, and strict laws, in solid-state physics.</p> <p>3. Study the structural and functional properties of solid materials related to the crystal structure of solid materials. The course includes the study of interatomic forces and types of crystal bonds, crystal structure and the concept of the crystal lattice, crystal systems, elements of crystal symmetry, Miller coefficients, crystal defects, inverted lattice, X-ray diffraction and its use in studying the crystal structure, Lattice</p>	



dynamics, lattice vibration patterns and phonons, thermal properties of solids, heat capacity: classical model, Einstein model, Debye model. This course enables the student to understand the crystal structure on which the various properties of solids depend.

4. Providing students with the theory of bundles in solid materials and semiconductors.
5. Acquiring the skills necessary to work in the fields of physics.
6. Enhancing the value and importance of physics subjects for students in the College of Education when practicing their professions as teachers in middle and secondary schools.

9. Teaching and Learning Strategies

Strategy	<p>1. Providing students with physics information and concepts. Preparing trained and qualified personnel to work in institutions.</p> <p>2. Identifying the scientific applications of each scientific knowledge.</p> <p>3. Identify the different types of scientific knowledge, including facts, concepts, principles, theories, and special devices for structural and optical examinations related to the Solid State Physics course.</p> <p>Enabling the student to acquire knowledge and understanding of the scientific laws of physics, practical applications of physics, logical and scientific analysis, and interpretation of physical phenomena.</p>
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7. Course Structure



Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Presentation of syllabus vocabulary, introduction, crystal structure, crystal formula of solids, crystal lattice, Bravais lattice and transition vectors in crystals	Crystal structure	Lecture, discussion	Direct questions
2	3	Unit cell, crystal lattice in 3D space, Wickner-Sitz primitive cell, filling factor, solving examples	Unit cell	Lecture, discussion	Direct questions
3	3	Miller indexes, angle between planes, distance between parallel planes, crystal symmetry, solve examples	Miller indexes	Lecture, discussion	Direct questions
4	3	Diffraction in crystals, types of diffraction, Brague's law of diffraction, solving examples	Diffraction	Lecture, discussion	Direct questions
5	3	Experimental methods for X-ray diffraction from crystal planes, Laue method, rotating crystal method, powder method	Diffraction method	Lecture, discussion	Direct questions
6	3	Reciprocal lattice, construction methods, fundamental axes	Understanding reciprocal lattice concepts	Lecture, discussion	Direct questions
7	3			Exam	
8	3	Lattice dynamics, lattice vibration, one-atom lattice vibration in one dimension	Lattice dynamics	Lecture, discussion	Direct questions
9	3	lattice vibration, vibration of a two-atomic lattice in one dimension, Einstein's model, Debye's model	lattice vibration	Lecture, discussion	Direct questions
10	3	Band theory of solids, origin of	Band theory	Lecture, discussion	Direct questions



		energy bands, energy states in electron orbitals, Hall effect, physic explanation of Hall effect			
11	3	PN junction: diode, depletion region, barrier potential,	diode	Lecture, discussion	Direct questions
12	3	Semiconductors, Introduction, Properties of Semiconductor Materials, Types of Semiconductors,	Semiconductors	Lecture, discussion	Direct questions
13	3	Impure semiconductors (doped), negative type (n-type), positive type (p-type), doping levels	Semiconductors types	Lecture, discussion	Direct questions
14	3		review	Lecture, discussion	Direct questions
15	3			Exam	
16	3	Semiconductor devices, tunnel diode, current-voltage properties,	Semiconductor devices	Lecture, discussion	Direct questions
17	3	Semiconductor lasers, advantages of semiconductor lasers, introduction to nanotechnology and its relationship to semiconductors	Semiconductor lasers	Lecture, discussion	Direct questions
18	3	Classification of nanomaterials and their applications, one-dimensional	nanomaterials	Lecture, discussion	Direct questions



		nanomaterials, two-dimensional nanomaterials			
19	3	3D nanomaterials, properties of nanomaterials, Nano semiconductors,	nanomaterials, properties	Lecture, discussion	Direct questions
20	3	Crystal defects Crystal defects are classified as point defects, gaps, and Schottky defects.	Crystal defects	Lecture, discussion	Direct questions
21	3	Frenkel defects, lattice defects, linear defects, dislocations, ridge dislocation, spiral dislocation	Defects types	Lecture, discussion	Direct questions
22	3	Surface defect, grain boundary, stacking defect, twins	Surface defect	Lecture, discussion	Direct questions
23	3			Exam	
24	3	Superconductivity, Introduction, Applications of Superconductivity, Critical Temperature,	Superconductivity	Lecture, discussion	Direct questions
25	3	Josephson effect, Meissner effect, critical magnetic field, some applications of hyper conductivity	Josephson effect,	Lecture, discussion	Direct questions
26	3	Free electrons, classical theory of free electrons,	Free electrons,	Lecture, discussion	Direct questions



		Drude theory, Lortz model			
27	3	Failure of classical theory, Fermi-Dirac statistics of free electrons in three dimensions, Fermi energy, density of electron specific states	Fermi-Dirac statistics	Lecture, discussion	Direct questions
28	3	Solve various examples		discussion	Direct questions
29	3	General review of curriculum vocabulary		Discussion and dialogue	Direct questions
30	3			Exam	

8. 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

9. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Kittel, C., 2005,. Introduction to solid state physics, 8th ed., Wiley. -2 Omar MA., 1975, Elementary solid state physics, principles and applications, Addison-Wesley Publishing Company. -3 فيزياء الحالة الصلبة ، مؤيد جبرائيل الجزء الاول والثاني. -4 فيزياء حالة صلبة ، يحيى الجمال
Main references (sources)	1- Om Prakash Pahuja "Solid State Physics" Laxmi Publications (P) LTD 1 st ed., 2005 , New Delhi. 2- Ziman, Z.M., "Principles of the theory of solids" Cambridge, 1964



	3- Peter M., Lectures at Manchester University 2006
Recommended books and references (scientific journals, reports...)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Solid State Websites



		Drude theory, Lortz model			
27	3	Failure of classical theory, Fermi-Dirac statistics of free electrons in three dimensions, Fermi energy, density of electron specific states	Fermi-Dirac statistics	Lecture, discussion	Direct questions
28	3	Solve various examples		discussion	Direct questions
29	3	General review of curriculum vocabulary		Discussion and dialogue	Direct questions
30	3			Exam	

8. 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

9. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Kittel, C., 2005., Introduction to solid state physics, 8th ed., Wiley. -2 Omar MA., 1975, Elementary solid state physics, principles and applications, Addison-Wesley Publishing Company. -3 فيزياء الحالة الصلبة ، مؤيد جبرائيل الجزء الاول والثاني. -4 فيزياء حالة صلبة ، يحيى الجمال
Main references (sources)	1- Om Prakash Pahuja "Solid State Physics" Laxmi Publications (P) LTD 1 st ed., 2005 , New Delhi. 2- Ziman, Z.M., "Principles of the theory of solids" Cambridge, 1964

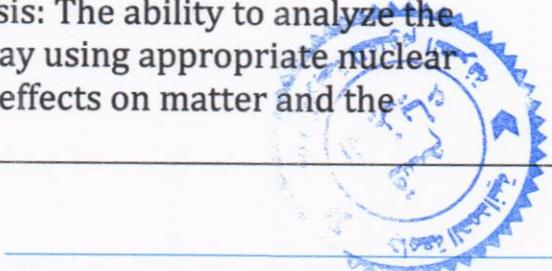


	3- Peter M., Lectures at Manchester University 2006
Recommended books and references (scientific journals, reports...)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Solid State Websites



Course Description Form

1. Course Name:	Nuclear Physics	
2. Course Code:	PHY404	
3. Semester / Year:	2025-2026	
4. Description Preparation Date:	21/9/2025	
5. Available Attendance Forms:	Presence education	
6. Number of Credit Hours (Total) / Number of Units (Total)	90 hours/7 units	
7. Course administrator's name (mention all, if more than one name)	Name: Prof. Dr. Malik Hussein Kheder Email: dr.malik73@uohamdaniya.edu.iq	
8. Course Objectives	<p>Course Objectives</p> <ul style="list-style-type: none">1. Enhancing the skill objectives of the nuclear subject for fourth-year students in the Physics Department.2. Nuclear Data Analysis: The ability to analyze nuclear data, understand its foundations, and apply it to various nuclear reactions...3. Understanding Nuclear Design and Operation: The ability to design and analyze various nuclear systems and understand how to operate and maintain them.4. Nuclear Safety Assessment: The ability to assess the nuclear safety of nuclear systems and processes and implement necessary safety procedures.	
9. Teaching and Learning Strategies	<p>Strategy</p> <ul style="list-style-type: none">1. Understanding Nuclear Theories: The ability to understand basic concepts in nuclear theories, such as nuclear reactions, radioactive decay, and nuclear fusion reactions.2. Radioactive Decay Analysis: The ability to analyze the behavior of radioactive decay using appropriate nuclear models and understand its effects on matter and the environment.	



	<p>3. Interpretation of Nuclear Reactions: The ability to interpret and analyze various nuclear reactions, including fission and fusion reactions, and their applications.</p> <p>4. Applications of Nuclear Technologies: The ability to understand and analyze applications of nuclear technologies such as nuclear energy, radiation, medical imaging, and chemical analysis.</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Theoretical knowledge and applied analysis	Introduction to nuclear properties, definitions and important terms, units and dimensions in nuclear physics	Lecture, discussion and dialogue	Direct questions
2	3	Theoretical knowledge and applied analysis	Nuclear charge, nuclear radius, distance of closest approach	Lecture, discussion and dialogue	
3	3	Theoretical knowledge and applied analysis	Nuclear mass, mass increase and decrease, binding ratio	Lecture, discussion and dialogue	
4	3	Theoretical knowledge and applied analysis	nuclear binding energy, binding energy rate, dissociation energies	Lecture, discussion and dialogue	
5	3	Theoretical knowledge and applied analysis	Valley of stability, quantum numbers of individual nucleons, fundamental quantum number,	Lecture, discussion and dialogue	
6	3	Theoretical knowledge and applied analysis	Orbital quantum number, magnetic quantum number, spin quantum number	Lecture, discussion and dialogue	
7	3	Theoretical knowledge and applied analysis	The quantum number of the total angular momentum of a single particle	Lecture, discussion and dialogue	
8	3	Theoretical knowledge and applied analysis	Nuclear angular momentum, nuclear spin, symmetry	Lecture, discussion and dialogue	
9	3	Theoretical knowledge and applied analysis	Introduction to nuclear activity, the law of radioactivity	Lecture, discussion and dialogue	
10	3	Theoretical knowledge and applied analysis	half-life, average lifespan	Lecture, discussion and dialogue	In addition to a monthly exam
11	3	Theoretical knowledge and applied analysis	Total number of radioactive nuclei, measurement of half-lives	Lecture, discussion and dialogue	
12	3	Theoretical knowledge and applied analysis	Production of radioactive isotopes from the decay of the parent nucleus, the perfect balance	Lecture, discussion and dialogue	



13	3	Theoretical knowledge and applied analysis	Time of greatest effectiveness for productive newborn nuclei, dissolution in multiple ways	Lecture, discussion and dialogue	
14	3	Theoretical knowledge and applied analysis	Show the breadth of dissolved cases, specify the date	Lecture, discussion and dialogue	
15	3	Theoretical knowledge and applied analysis	Production of a radioactive isotope by nuclear bombardment	Lecture, discussion and dialogue	
16	3	Theoretical knowledge and applied analysis	Introduction to units of radioactivity, curie, specific potency, roentgen	Lecture, discussion and dialogue	
17	3	Theoretical knowledge and applied analysis	Absorption dose, rem, permissible exposure limit	Lecture, discussion and dialogue	
18	3	Theoretical knowledge and applied analysis	Introduction to radiation interactions with matter, bremsstrahlung, and the interaction of charged particles with matter.	Lecture, discussion and dialogue	
19	3	Theoretical knowledge and applied analysis	Interaction of heavy charged particles, energy loss by collision	Lecture, discussion and dialogue	
20	3	Theoretical knowledge and applied analysis	Range, electron interaction	Lecture, discussion and dialogue	In addition to a monthly exam
21	3	Theoretical knowledge and applied analysis	Neutron interaction with matter	Lecture, discussion and dialogue	
22	3	Theoretical knowledge and applied analysis	nuclear fission, chain reaction	Lecture, discussion and dialogue	In addition to a monthly exam
23	3	Theoretical knowledge and applied analysis	How nuclear fission occurs, fission products	Lecture, discussion and dialogue	
24	3	Theoretical knowledge and applied analysis	Nuclear fusion, how fusion occurs	Lecture, discussion and dialogue	
25	3	Theoretical knowledge and applied analysis	controlled fusion, magnetic confinement fusion	Lecture, discussion and dialogue	
26	3	Theoretical knowledge and applied analysis	Problems facing scientists in nuclear fusion, advantages of nuclear fusion	Lecture, discussion and dialogue	
27	3	Theoretical knowledge and applied analysis	Nuclear models, liquid drop model	Lecture, discussion and dialogue	
28	3	Theoretical knowledge and applied analysis	Correction of the liquid drop equation	Lecture, discussion and dialogue	
29	3	Theoretical knowledge and applied analysis	Shell model	Lecture, discussion and dialogue	
30	3	Theoretical knowledge and applied analysis	How do magic numbers appear?	Lecture, discussion and dialogue	



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)	Nuclear Physics / Written by Munib Adel Khalil
Main references (sources)	Principles of Nuclear Physics / Translated by Dr. Asim Abdel Karim Azouz
Recommended books and references (scientific journals, reports...)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Websites about nuclear physics



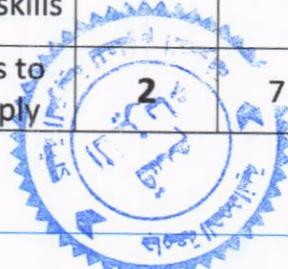
Course Description Form

(Measurement and Evaluation)

Course name:	.1
Measurement and Evaluation	
Course code:	.2
EPS401	
Chapter/Year:	.3
2025-2026	
Date of preparation of this description:	.4
17/9/2025	
Available attendance forms:	.5
In-person education	
Number of study hours (total) / Number of units (total)	.6
60 hours / 4 units	
Course Supervisor Name (if more than one name is mentioned)	.7
Name: M.M. Younis Dharar Jassim Email: youniesdrar12345@uohamdanaya.edu.iq	
Course objectives	.8
The importance of evaluation and measurement and its role in -1 improving the educational process.	Course objectives
Basic concepts in educational measurement and evaluation -2	
Types of achievement tests, advantages and disadvantages of -3 each, and methods of preparing them	
Testing methods and the advantages and disadvantages of -4 each	
Educational objectives, their types and formulation -5	
Teaching and learning strategies .9	
Self-learning strategy-brainstorming-Problem solving- Cooperative Learning - Active Learning	Strategy

10-Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	AFor a week
Feedback	discussio n, lecture, debate	The historical development of the concept of both measurement and evaluation	-Enable learners to identify historical stages across different cultures for both measurement and evaluation.	2	1
Feedback	discussio n, lecture, debate	Understanding the concept of tests	Forming students to define the concept of the test and link it with other concepts	2	2
Feedback	discussio n, lecture, debate	Understand the concept of (values and appreciation)	Enabling students to define the terms measurement and evaluation and find the difference between them	2	3
Feedback	discussio n, lecture, debate	Defining the concept of each of (measurement and evaluation)	Enabling students to define the concepts of measurement and evaluation and to find the relationship between them	2	4
Feedback	discussio n, lecture, debate	The relationship between (measurement, testing, evaluation)	Students are able to distinguish between concepts and create a diagram that links them together.	2	5
Feedback	discussio n, lecture, debate	Characteristics of educational measurement	Enable students to employ educational measurement skills	2	6
Feedback	discussio n,	Types of calendar	Enable students to identify and apply	2	7



	lecture, debate		types of educational assessment.		
Feedback	discussion, lecture, debate	Types of measurement	Students are able to identify types of measurement and their applications. HField	2	8
Feedback	discussion, lecture, debate	Evaluation and measurement in educational fields	Students are able to identify types of assessment.	2	9
Feedback	discussion, lecture, debate	The role of evaluation in improving education	Enable students to use educational applications for assessment.	2	10
a test	discussion, lecture, debate	Teaching objectives	Enable students to identify the primary objectives of teaching.	2	11
Feedback	discussion, lecture, debate	Measurement and evaluation and their relationship to goals	Enabling students to link measurement and evaluation to educational goals	2	12
Feedback	discussion, lecture, debate	Steps for constructing educational tests	Enable students to identify the main steps for constructing tests.	2	13
Feedback	discussion, lecture, debate	Specifications table	Enabling students to take steps to prepare a specification table in the educational field	2	14
Semi-annual news	discussion, lecture, debate	Statistical concept of tests	Enabling students to understand the main concepts of statistical analysis of different types of tests.	2	15
Feedback	discussion,	Types of tests	Enabling students to identify types of tests	2	16



	lecture, debate				
Feedback	discussio n, lecture, debate	Essay tests	Enabling students to identify the types of essay tests and their features	2	17
Feedback	discussio n, lecture, debate	Objective tests	Enabling students to identify the types of objective tests and their features	2	18
Feedback	discussio n, lecture, debate	Classification of tests by method	Enabling students to identify different testing methods	2	19
Feedback	discussio n, lecture, debate	Correction keys	Enabling students to define correction instructions and keys for tests	2	20
Monthly exam	-	Knowing the students' level and the information they have acquired	Monthly exam	2	21
Feedback	discussio n, lecture, debate	Good test specifications	Enabling students to define new test specifications	2	22
Feedback	discussio n, lecture, debate	Honesty and its types	Enabling students to define the concept of validity for tests	2	23
Feedback	discussio n, lecture, debate	Persistence and its methods	Enabling students to define the concept of reliability of educational tests	2	24
a test	discussio n, lecture, debate	Objectivity in educational testing	Enabling students to define the concept of objectivity in educational testing	2	25
Feedback	discussio n,	Evaluation without tests	Enabling students to apply assessment	2	26



	lecture, debate		methods other than exams		
Feedback	discussion, lecture, debate	Cumulative records	Enabling students to identify types of honesty	2	27
Feedback	discussion, lecture, debate	Educational and learning observation	Enabling students to define the concept of educational observation	2	28
Feedback	discussion, lecture, debate	Educational checklists	Enabling students to make the connection between concurrent validity and predictive validity	2	29
Feedback	discussion, lecture, debate	The interview	Enabling students to identify the role of the interview in the educational aspect	2	30

11- Learning and teaching resources

Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	1- Required textbooks
Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	2- Main references (sources)

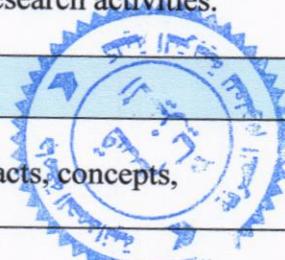


<p>Educational Measurement and Evaluation in the Educational Process, Salah El-Din Mahmoud Allam</p> <p>Measurement and Evaluation in the Teaching Process, Rahim Al-Azzawi</p>	<p>A- Recommended books and references (scientific journals, reports, etc.)</p>
<p>General Curriculum and Teaching Methods Library (Telegram)</p> <p>-Al-Noor Library (electronic library) is free on the search engine.Google</p>	<p>B - Electronic references, Internet sites</p>



Course Description Form

1. Course Name: Laser	
2. Course Code: PHY408	
3. Semester / Year: 2025-2026	
4. Description Preparation Date: 21 / 9 / 2025	
5. Available Attendance Forms: Face-to-face learning	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 Hours (Theory) / 4 Credit Units	
7. Course administrator's name (mention all, if more than one name) Name: Asst. Prof. Ban Abd Al-Maseeh Bader Email: banbader1971@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Introduce students to the topic of lasers and their importance in physics. • Enable students to apply the knowledge they acquire to explain natural phenomena related to light and lasers. • Equip students with the thinking skills necessary for teaching the subject of lasers when practicing their profession as teachers in primary, intermediate, and secondary schools, within the science or physics curriculum. • Develop students' scientific research skills for use in research and applied fields within government agencies involved in research activities.
9. Teaching and Learning Strategies	
Strategy	A-1. The student should become familiar with the types, facts, concepts, principles, theories, and laws related to the laser course.

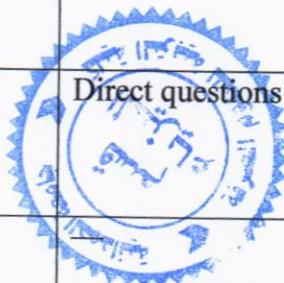


	<p>A-2. The student should understand the phenomena and practical applications related to the subject of lasers.</p> <p>B. Subject-Specific Skills</p> <p>B-1. Equip the student with the necessary skills to learn the scientific thinking method that helps acquire scientific knowledge and apply it in solving scientific problems.</p> <p>B-2. Provide the student with skills that help understand and interpret natural phenomena and practical applications related to lasers.</p> <p>C. Thinking Skills</p> <p>C-1. Teach students the steps of scientific thinking to solve scientific problems.</p> <p>C-2. Enable the student to connect scientific content with their environment and daily observations.</p> <p>C-3. Pose thought-provoking questions and examples, and discuss students' answers to stimulate scientific thinking.</p> <p>D. General and Transferable Skills (Other Employability and Personal Development Skills)</p> <p>D-1. Introduce the student to sound waves.</p> <p>D-2. Link theoretical concepts with practical application</p>
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10. Laser Course Structure

Week	Hours	Intended Learning Outcomes	Unit / Topic	Teaching Method	Assessment Method
1	2	Meaning of Maser and Laser	Meaning of Maser and Laser	Lecture, discussion, dialogue	Direct questions
2	2	Stimulated emission	Meaning of Maser and Laser	Lecture, discussion, dialogue	—
3	2	Einstein calculations for probability factors and the ratio between spontaneous and stimulated emission	Meaning of Maser and Laser	Lecture, discussion, dialogue	—
4	2	Laser system as amplifier (Laser amplifier)	Laser System	Lecture, discussion, dialogue	—
5	2	Properties of laser beam	Laser System	Lecture, discussion, dialogue	
6	2	Spectral line exposure operations	Spectral line exposure	Lecture, discussion, dialogue	Monthly exam

7	2	Types of exposure	Spectral line exposure	Lecture, discussion, dialogue	—
8	2	Properties of laser beam	Spectral line exposure	Lecture, discussion, dialogue	—
9	2	Components of the laser device	Spectral line exposure	Lecture, discussion, dialogue	Monthly exam
10	2	Pumping power	Pumping Methods	Lecture, discussion, dialogue	—
11	2	Pumping efficiency	Pumping Methods	Lecture, discussion, dialogue	Monthly exam
12	2	Importance of resonator	Optical Resonator	Lecture, discussion, dialogue	—
13	2	Oscillator	Optical Resonator	Lecture, discussion, dialogue	Direct questions
14	2	Types of resonators	Optical Resonator	Lecture, discussion, dialogue	Direct questions
15	2	Resonator stability	Optical Resonator	Lecture, discussion, dialogue	—
16	2	Resonator oscillation formulas	Optical Resonator	Lecture, discussion, dialogue	Direct questions
17	2	Resonator quality factor	Optical Resonator	Lecture, discussion, dialogue	Direct questions
18	2	Adjusting the quality factor	Optical Resonator	Lecture, discussion, dialogue	Direct questions
19	2	Techniques for adjusting the quality factor	Techniques for adjusting quality factor	Lecture, discussion, dialogue	Direct questions
20	2	Energy and power of a pulse resulting from quality factor switching	Techniques for adjusting quality factor	Lecture, discussion, dialogue	Direct questions
21	2	Mode locking	Techniques for adjusting quality factor	—	Direct questions
22	2	Solid-state lasers	Types of lasers	Monthly exam	



23	2	Liquid lasers	Types of lasers	Discussion, dialogue	Monthly exam
24	2	Gas lasers	Types of lasers	Discussion, dialogue	—
25	2	Semiconductor lasers	Types of lasers	Discussion, dialogue	—
26	2	Dye lasers	Types of lasers	Discussion, dialogue	Monthly exam
27	2	Chemical laser	Types of lasers	Discussion, dialogue	Direct questions
28	2	Laser applications in medicine	Laser Applications	Discussion, dialogue	Direct questions
29	2	Laser applications in communications	Laser Applications	Discussion, dialogue	Direct questions
30	2	Laser applications in military	Laser Applications	Discussion, dialogue	—

11. Course Assessment:

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

12. Learning and Teaching Resources

Prescribed Textbooks (if available)	<i>Fundamentals of Electricity and Magnetism</i> by Yahya Abdul-Hamid Al-Hajj Ali
Main References (sources)	"Laser Physics and Some Practical Applications" by Dr. Siham Afif Qandala
Recommended Textbooks and References (scientific journals, reports):	Following electronic references and the Internet, including reputable scientific websites and library portals of some international universities.
Electronic references, Internet sites:	Internet websites related to lasers.



Course Description Form

1. Course Name: electromagnetic theory	
2. Course Code: PHY407	
3. Semester / Year 4 th class /2025 – 2026	
4. Description Preparation Date: 22/9/2025	
5. Available Attendance Forms: Face-to-Face theoretical lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 HOURS/ 5 UNITS	
7. Course administrator's name (mention all, if more than one name) Name: prof. Muna Y. Slewa Email: muna-sh.y@uohamdaniya.edu.iq	
8. Course Objectives	
Course Objectives	<p>1 introduce the student to the coordinate system and its implementation to electromagnetics.</p> <p>2 elaborate the concept of electromagnetic waves and their practical applications.</p> <p>3 study the propagation, reflection, and refraction of plane waves in different media.</p> <p>4 Study time varying Maxwell equations and their applications in electromagnetic problems</p> <p>5 Demonstrate the reflection and refraction of waves at boundaries</p>
9. Teaching and Learning Strategies	
Strategy	<p>Weekly lectures include providing students with basics and topics related to pre-skills learning outcomes to solve practical problems through presentation or lecture.</p> <ul style="list-style-type: none"> - Solving a set of practical and applied examples by the instructor and the student.

	<ul style="list-style-type: none"> - Student participation in the discussion and solving some practical problems. - Asking the student to visit the library and the Internet to gain additional knowledge of academic materials. - Presenting a seminar to the student in front of his fellow students to enhance his self-confidence.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 - 5	15	Vector analysis- Representation, operations-Dot product and cross product, Basics of coordinate system- rectangular, cylindrical and spherical co-ordinate systems. Electrostatics one: Coulomb's Law, Electric Field Intensity - Fields due to Different Charge Distributions, Electric Flux Density; Illustrative Problems. Exam	CH 1 : Vector Analysis & Co-ordinate system	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
6 -11	18	Gauss Law and Applications, Electric Potential, Relations Between E and V, Maxwell's Equations for Electrostatic Fields, Dielectric Constant, Isotropic and Homogeneous Dielectrics, Continuity Equation, Relaxation Time, Poisson's and Laplace's Equations, Boundary conditions-conductor-Dielectric and Dielectric-Dielectric; Illustrative Problems. Exam	CH 2: Electrostatics two	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
12 -15	12	Biot - Savart's Law , Ampere's Circuital Law and Applications, Magnetic Flux Density, Maxwell's Equations for Magneto static Fields, Magnetic Scalar and Vector Potentials,	CH 3: Magneto statics	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
16,17	6	Ampere's Force law , Faraday's Law, Displacement Current Density, Maxwell's Equations for time varying fields, Illustrative Problems. Exam	CH 3: Magneto statics	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam

18 -24	21	Wave Equations for Conducting and Perfect Dielectric Media, Uniform Plane Waves - Definition, Relation Between E & H, Wave Propagation in Lossless and Conducting Media, Wave Propagation in Good Conductors and Good Dielectrics, Illustrative Problems. Exam	CH 4: EM Wave Characteristics-I	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam
25-30	18	Reflection and Refraction of Plane Waves – Normal incidence for both perfect Conductors and perfect Dielectrics, Brewster Angle, Critical Angle and Total Internal Reflection, Surface Impedance, Poynting Vector and Poynting Theorem – Applications, Illustrative Problems. Exam	CH 5: EM Wave Characteristics – II	Lecture through the blackboard and display screens with interactive student participation	Daily exam with end of each semester exam

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 written exams, student attendance

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Foundation Of Electromagnetic Theory By: John R. Reitz, Frederick J. Milford & Robert W. Christy
Main references (sources)	1.Elements of Electromagnetics - Matthew N. O. Sadiku, 4th., Oxford Univ. Press. 2.Electromagnetic Waves and Radiating Systems - E.C. Jordan and K. G. Balmain, 2nd Ed., 2000, PHI. 3.Engineering Electromagnetic - William H. Hay Jr. and John A. Buck, 7thEd., 2006, TMH
Recommended books and references (scientific journals, reports...)	المجالات الكهرومغناطيسية الجزء الاول والثاني اسasيات النظريه الكهرومغناطيسية الجزء الاول والثاني سلسلة ملخصات شوم: الكهرومغناطيسيات 2000 تاليف جوزيف ادمونست
Electronic References, Websites	متابعة المراجع الالكترونية والأنترنت التي تتضمن الموقع الالكترونية العلمية الرصينة وموقع المكتبات في بعض الجامعات العالمية

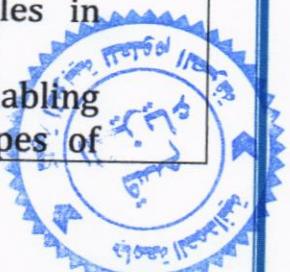


Course Description Form

1. Course Name:	Quantum Mechanics
2. Course Code:	PHY406
3. Semester / Year:	2025-2026
4. Description Preparation Date:	1/9/2025
5. Available Attendance Forms:	In-person learning
6. Number of Credit Hours (Total) / Number of Units (Total)	90 HOURS / 5 UNITS
7. Course administrator's name (mention all, if more than one name)	Name: Lect. Dr. Abdulrahman Ismael Ahmed Email: a.i.ahmed@uohamdaniya.edu.iq
8. Course Objectives	

Course Objectives	Introducing students to the principles and fundamentals of quantum mechanics, including the time-dependent and time-independent Schrödinger equation, in addition to introducing students to derivation methods, how to deal with different influences, deriving quantum momentum equations, and various applications of the Schrödinger equation.
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9. Teaching and Learning Strategies	
Strategy	1. Providing students with basic physics information and concepts: The strategy aims to provide students with basic information and concepts in the field of quantum mechanics and to prepare trained and qualified personnel to work in educational and research institutions. 2. Understanding Scientific Applications: Enhancing students' understanding of the practical and scientific applications of quantum mechanics principles in technological and research fields. 3. Identifying Types of Scientific Knowledge: Enabling students to distinguish between different types of



scientific knowledge, such as facts, concepts, principles, and theories in the field of quantum mechanics, as well as familiarizing themselves with the mathematical tools and techniques used to analyze quantum phenomena.

4. Enabling students to acquire knowledge and understanding: Enhancing students' ability to understand the scientific laws of quantum mechanics and their practical applications, and developing logical and scientific analysis skills to explain physical phenomena associated with the quantum world.

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Theoretical Knowledge and Applied Analysis	Chapter One: Foundations and Principles of Quantum Mechanics	Lecture, discussion	Direct questions
2	3	Theoretical knowledge and applied analysis. Classical concepts	fail to describe some physical phenomena	Lecture, discussion	Direct questions
3	3	Theoretical knowledge and applied analysis	Foundations of quantum mechanics, the state of a physical system.	Lecture, discussion	Direct questions
4	3	Theoretical knowledge and applied analysis	State functions, observables and operators, superposition of states.	Lecture, discussion	Direct questions
5	3	Theoretical knowledge and applied analysis	Orthogonality of functions, normalization of functions.	Lecture, discussion	Direct questions
6	3	Theoretical knowledge and applied analysis	Probability and probability density	Lecture, discussion	Direct questions
7	3	Theoretical knowledge and applied analysis	Probability current density, expected value.	Lecture, discussion	Direct questions
8	3	Theoretical knowledge and applied analysis	Chapter Two: Operators. What do operators represent in quantum mechanics?	Lecture, discussion	Direct questions

9	3	Theoretical knowledge and applied analysis	Linear effects.	Lecture, discussion	Direct questions
10	3	Theoretical knowledge and applied analysis	Properties of operators, Hermitian operators, exchange of operators.	Lecture, discussion	Exam
11	3	Theoretical knowledge and applied analysis	Time variation of expected value, Ehrenfest theory	Lecture, discussion	Direct questions
12	3	Theoretical knowledge and applied analysis	Laws of conservation energy and angular momentum	Lecture, discussion	Direct questions
13	3	Theoretical knowledge and applied analysis	Heisenberg's uncertainty principle Properties of operators	Lecture, discussion	Direct questions
14	3	Theoretical knowledge and applied analysis	Hermitian influences, exchange of influence	Lecture, discussion	Direct questions
15	3	Theoretical knowledge and applied analysis	Chapter Three: Schrödinger's Equation	Lecture, discussion	Direct questions
16	3	Theoretical knowledge and applied analysis	Time-independent Schrödinger equation	Lecture, discussion	Direct questions
17	3	Theoretical knowledge and applied analysis	Time-dependent Schrödinger equation	Lecture, discussion	Direct questions
18	3	Theoretical knowledge and applied analysis	Solve the time dependent Schrödinger equation.	Lecture, discussion	Direct questions
19	3	Theoretical knowledge and applied analysis	Chapter Four: Motion in One Dimension Free Body, Potential Gradient	Lecture, discussion	Direct questions
20	3	Theoretical knowledge and applied analysis	voltage wall, low voltage of infinite depth	Lecture, discussion	Direct questions
21	3	Theoretical knowledge and applied analysis	Low voltage, limited depth, harmonic oscillator.	Lecture, discussion	Direct questions

22	3	Theoretical knowledge and applied analysis	Chapter Five: Motion in Three Dimensions	Lecture, discussion	Direct questions
23	3	Theoretical knowledge and applied analysis	Chapter 6: Angular Momentum Angular Momentum Influences in Spherical Coordinates	Exam	Exam
24	3	Theoretical knowledge and applied analysis	Exchange of angular momentum effects.	Lecture, discussion	Direct questions
25	3	Theoretical knowledge and applied analysis	Chapter Seven: Spherically Symmetric Potentials Introduction, Operators with Spherical Coordinates.	Lecture, discussion	Direct questions
26	3	Theoretical knowledge and applied analysis	Hydrogen atom, solution of the Schrödinger equation for the hydrogen atom.	Lecture, discussion	Direct questions
27	3	Theoretical knowledge and applied analysis	Chapter Eight: Approximation Methods	Lecture, discussion	Direct questions
28	3	Theoretical knowledge and applied analysis	Unsolved cases.	Lecture, discussion	Direct questions
29	3	Theoretical knowledge and applied analysis	Applications of perturbation theory.	Discussion and dialogue	Direct questions
30	3			Exam	

2. Course Evaluation

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

3. Learning and Teaching Resources

1- Quantum mechanics:	Written by Dr. Jassim Al-Hussaini and Dr. Abdul Salam Abdul Amir.
2- Fundamentals of quantum mechanics	Written by Salem Hassan Al-Shamaa and Dr. Amjad Abdul Razzaq Karajiya.
Recommended mainstream books and references (scientific journals, reports)	Follow up on electronic references and the Internet, including reliable scientific websites and library websites in some international universities.
Electronic References, Websites	Websites about quantum mechanics

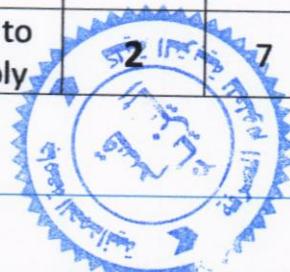


Course Description Form**(Measurement and Evaluation)**

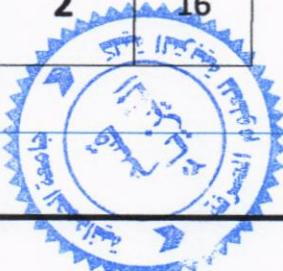
Course name: .1	
Measurement and Evaluation	
Course code: .2	
EPS401	
Chapter/Year: .3	
2025-2026	
Date of preparation of this description: .4	
17/9/2025	
Available attendance forms: .5	
In-person education	
Number of study hours (total) / Number of units (total) .6	
60 hours / 4 units	
Course Supervisor Name (if more than one name is mentioned) .7	
Name: M.M. Younis Dharar Jassim Email: youniesdrar12345@uohamdaniya.edu.ig	
Course objectives .8	
The importance of evaluation and measurement and its role in -1 improving the educational process. Basic concepts in educational measurement and evaluation -2	Course objectives
Types of achievement tests, advantages and disadvantages of -3 each, and methods of preparing them	
Testing methods and the advantages and disadvantages of -4 each	
Educational objectives, their types and formulation -5	
Teaching and learning strategies .9	
Self-learning strategy-brainstorming-Problem solving- Cooperative Learning - Active Learning	Strategy



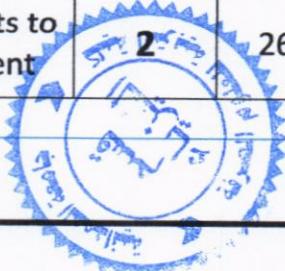
10-Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	hours	AFor a week
Feedback	discussio n, lecture, debate	The historical development of the concept of both measurement and evaluation	-Enable learners to identify historical stages across different cultures for both measurement and evaluation.	2	1
Feedback	discussio n, lecture, debate	Understanding the concept of tests	Forming students to define the concept of the test and link it with other concepts	2	2
Feedback	discussio n, lecture, debate	Understand the concept of (values and appreciation)	Enabling students to define the terms measurement and evaluation and find the difference between them	2	3
Feedback	discussio n, lecture, debate	Defining the concept of each of (measurement and evaluation)	Enabling students to define the concepts of measurement and evaluation and to find the relationship between them	2	4
Feedback	discussio n, lecture, debate	The relationship between (measurement, testing, evaluation)	Students are able to distinguish between concepts and create a diagram that links them together.	2	5
Feedback	discussio n, lecture, debate	Characteristics of educational measurement	Enable students to employ educational measurement skills	2	6
Feedback	discussio n,	Types of calendar	Enable students to identify and apply		7



	lecture, debate		types of educational assessment.		
Feedback	discussion, lecture, debate	Types of measurement	Students are able to identify types of measurement and their applications.HField	2	8
Feedback	discussion, lecture, debate	Evaluation and measurement in educational fields	Students are able to identify types of assessment.	2	9
Feedback	discussion, lecture, debate	The role of evaluation in improving education	Enable students to use educational applications for assessment.	2	10
a test	discussion, lecture, debate	Teaching objectives	Enable students to identify the primary objectives of teaching.	2	11
Feedback	discussion, lecture, debate	Measurement and evaluation and their relationship to goals	Enabling students to link measurement and evaluation to educational goals	2	12
Feedback	discussion, lecture, debate	Steps for constructing educational tests	Enable students to identify the main steps for constructing tests.	2	13
Feedback	discussion, lecture, debate	Specifications table	Enabling students to take steps to prepare a specification table in the educational field	2	14
Semi-annual news	discussion, lecture, debate	Statistical concept of tests	Enabling students to understand the main concepts of statistical analysis of different types of tests.	2	15
Feedback	discussion,	Types of tests	Enabling students to identify types of tests	2	16



	lecture, debate				
Feedback	discussio n, lecture, debate	Essay tests	Enabling students to identify the types of essay tests and their features	2	17
Feedback	discussio n, lecture, debate	Objective tests	Enabling students to identify the types of objective tests and their features	2	18
Feedback	discussio n, lecture, debate	Classification of tests by method	Enabling students to identify different testing methods	2	19
Feedback	discussio n, lecture, debate	Correction keys	Enabling students to define correction instructions and keys for tests	2	20
Monthly exam	-	Knowing the students' level and the information they have acquired	Monthly exam	2	21
Feedback	discussio n, lecture, debate	Good test specifications	Enabling students to define new test specifications	2	22
Feedback	discussio n, lecture, debate	Honesty and its types	Enabling students to define the concept of validity for tests	2	23
Feedback	discussio n, lecture, debate	Persistence and its methods	Enabling students to define the concept of reliability of educational tests	2	24
a test	discussio n, lecture, debate	Objectivity in educational testing	Enabling students to define the concept of objectivity in educational testing	2	25
Feedback	discussio n,	Evaluation without tests	Enabling students to apply assessment	2	26



	lecture, debate		methods other than exams		
Feedback	discussion, lecture, debate	Cumulative records	Enabling students to identify types of honesty	2	27
Feedback	discussion, lecture, debate	Educational and learning observation	Enabling students to define the concept of educational observation	2	28
Feedback	discussion, lecture, debate	Educational checklists	Enabling students to make the connection between concurrent validity and predictive validity	2	29
Feedback	discussion, lecture, debate	The interview	Enabling students to identify the role of the interview in the educational aspect	2	30

11- Learning and teaching resources

Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	1- Required textbooks
Measurement and Evaluation for the University Student, Abdul Hussein Arzouqi, and Yassin Ayal Measurement and Evaluation in the Educational Process, Ahmed Suleiman Awda -Badr for Educational Measurement and Evaluation, Al-Atrahi and others	2- Main references (sources)



<p>Educational Measurement and Evaluation in the Educational Process, Salah El-Din Mahmoud Allam Measurement and Evaluation in the Teaching Process, Rahim Al-Azzawi</p>	<p>A- Recommended books and references (scientific journals, reports, etc.)</p>
<p>General Curriculum and Teaching Methods Library (Telegram) -Al-Noor Library (electronic library) is free on the search engine.Google</p>	<p>B - Electronic references, Internet sites</p>

