

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



Academic Program and Course Description Guide

2026-2025

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name:University of Basrah.....

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

Scientific Department:Department of Physics.....

Academic or Professional Program Name:BSc. in Physics....

Final Certificate Name: BSc. in Physics.....

Academic System:Yearly.....

Description Preparation Date: 11/11/2025

File Completion Date: 5/12/2025

Signature:

Head of Department Name: Prof. Dr.

Ra'ed M. Hassan Date: 15/1/2026

Signature:

Scientific Associate Name: Asst. Prof.

Haider Q. Fadel Date: 15/1/2026

The file is checked by:

Director of the Quality Assurance and University Performance Department:

Prof. Dr. Hussein A. Badran

Date: 17/1/2026 **Signature:**



1. Program Vision

The College of Education for Pure Sciences strives to be one of the leading higher education institutions at the University of Basrah in the field of modern education and scientific research through its academic, research, and administrative activities. It also works to provide a comprehensive path for its students and faculty members, enabling them to be active and creative in serving society in the fields of physics education and its dynamic branches.

2. Program Mission

Working on preparing and graduating outstanding scientific and leadership competencies in physics and its sciences and disciplines, as well as advancing knowledge in scientific research to serve the local, regional, and international communities. Additionally, the college focuses on training and refining students' minds scientifically and intellectually, emphasizing social and cultural values, and responding to the demands of the local job market.

3. Program Objectives

1. Embodying the vision, mission, and objectives of the University of Basrah by implementing best educational practices with a strong focus on quality assurance, performance enhancement, and continuous improvement.
2. Preparing specialized cadres capable of serving the community and paving the way for future specializations.
3. Promoting a culture of human diversity in society, transferring knowledge and linguistic skills, fostering academic research writing, and encouraging creative scientific achievements through student- and faculty-centered activities.
4. The college seeks to establish scientific and cultural cooperation agreements with peer colleges and departments in various institutions to achieve best practices in teaching and learning.

5. Emphasizing the educational and ethical aspects of all its members, fostering a spirit of dedication, tolerance, commitment, and service to the nation.
6. Focusing on intellectual and cultural development by engaging with the experiences of other countries in the field of physics and its diverse applications.
7. Prioritizing the educational and ethical development of students, instilling a sense of dedication, tolerance, and responsibility.

4. Program Accreditation

No

5. Other external influences

No

6. Program Structure

Program Structure	Number of Courses		Credit hours	Percentage	Reviews*
Institutional Requirements (University)	First Stage	3	6	3.43%	-
	Second Stage	2	4	2.29%	-
	Third Stage	-	-	0.00%	-
	Fourth Stage	1	4	2.29%	-
College Requirements	First Stage	4	10	5.71%	-
	Second Stage	4	14	8.00%	-
	Third Stage	2	8	4.57%	-

	Fourth Stage	3	10	5.71%	-
Department Requirements	First Stage	4	24	13.71%	-
	Second Stage	5	28	16.00%	-
	Third Stage	6	36	20.57%	-
	Fourth Stage	5	31	17.71%	-
Summer Training	-	Not Available	-	-	-
Other					

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical - Number of Units	Practical
First Year		Electricity and Magnetism 1	3h-7U	2h
		Arabic Language	1h-2	
		Mathematics (1)	3h-6U	
		Mechanics	3h-7U	2h
		Educational Psychology	2h-4U	
		Computers		2h-2U
		Heat and Properties of Matter	3h-6U	
		Foundations of Education	2h-4U	
		Human Rights and Democracy	1h-2U	
		Physical Education	1h	
		English	1h-2U	
Second Year		Electricity and Magnetism 2	3h-7U	2h
		Optics	3h-7U	2h
		Mathematics (2)	3h-6U	
		Sound and Wave Motion	2h-4U	
		Programming (Computers		2h-2U
		Astronomy	2h-4U	
		Scientific Research Methodology	2h-4U	
		Secondary Education and Educational Administration	2h-4U	
		Developmental Psychology	2h-4U	
		English Language	1h-2U	

		Baath Regime Crimes	1h-2U	
Third Year		Complex Functions	3h-7U	
		Elective (Meteorology) – Elective	2h-4U	
		Atomic and Molecular Physics	3h-7U	2h
		Advanced Mechanics	3h-6U	
		Curriculum and Teaching Methods	2h-4U	
		Thermodynamics	3h-6U	
		Electronics	3h-7U	2h
		Guidance and Mental Health	2h-4U	
Forth Year		Solid-State Physics	3h-6U	
		Laser	3h-6U	
		Measurement and Evaluation	2h-4U	
		Quantum Physics	3h-6U	
		Nuclear Physics	3h-7U	2h
		Educational Laboratory and Teaching Aids		2h-4U
		Observation, Application, and Practical Training		2h-4U
		Research Project	2h-4U	

8. Expected learning outcomes of the program

Knowledge	
	1- Enabling students to gain a deep understanding of physics. 2- Preparing qualified teachers to teach physics in educational institutions. 3- Training teaching staff with a high level of competence in physics. 4- Preparing physics teachers capable of keeping up with scientific advancements in the field of physics.
Skills	
	1- Enabling students to grasp the fundamental concepts of physics. 2- Developing students' ability to analyze physical phenomena scientifically and practically. 3- Enhancing students' ability to clearly express their physics-related ideas and connect them to everyday life.
Ethics	
	1- Enhancing critical thinking skills and systematic analysis in applying physical principles. 2- Encouraging students to explore physics-related topics and benefit from them. 3- Developing students' abilities and instilling scientific values and principles through the study of physics.

9. Teaching and Learning Strategies

- Explaining the material during the lecture.
- Clarifying concepts on the board.
- Encouraging cooperative learning through questions and discussions.
- Presenting images and explanatory videos on the screen..

10. Evaluation methods

- Weekly, monthly, and daily exams, as well as the final year exam.
- Homework assignments and oral questions.

11. Faculty

Faculty Members			Specialization	Special Requirements/Skills (if applicable)		Number of the teaching staff	
	Academic Title	General	Special			Staff	Lecturer
Majid Mohammed Jasim	Professor	Physics	Theoretical Physics				
Raed Mohammed Hassan	Professor	Physics	Laser Physics				
Jenan Majeed AL- Mukh	Professor	Physics	Solid State Physics (Surface Physics)				
Thaer Munshad Salman	Professor	Physics	Theoretical Physics				
Hussain Ali Badran Ali	Professor	Physics	Electronics Physics				
Jasim Mahdi Mohammed	Professor	Physics	Solar Energy Physics				
Hussein Falaih Hussein	Professor	Physics	Solid State Physics				
Jabbar Mansoor Khalaf Al-zyadi	Professor	Physics	Condensed Matter Physics				
Riyadh. CH. Abul –Hail	Professor	Physics	Radiation Physics				

Hamza Bakr Salman	Professor	Physics	Solid State Physics (Surface Physics)			
Falih Hussain Khudair	Professor	Physics	Nuclear Physics			
Hasan Abdullah Sultan	Professor	Physics	Laser Physics			
Qusay Mohammed Ali Hassan Wasfi	Professor	Physics	Nonlinear Optics			
Ahmed S. Al-Asadi	Professor	Physics	Applied Physics / Nanotechnology			
Mohammed F. Al-Mudhaffer	Professor	Physics	Nanotechnology and Renewable Energy			
Furat Ahmed Mahdi Al-Saymari	Professor	Physics	Nanotechnology Applications / Optoelectronics			
Haider Kassim Fadel Al-Edany	Assistant Professor	Physics	Material Physics			
Sana Kadhim Khalff	Assistant Professor	Physics	Health Physics			
Fatima H. Al-Saeed	Assistant Professor	Physics	Theoretical Solid State Physics			
Hassan Kadhim Ibrahim Al-Kharsan	Assistant Professor	Physics	Polymer Physics			
Israa Qaddori Taha Alyaseen	Assistant Professor	Physics	Theoretical Solid State Physics			
Jabbar Hafez Jeber AL Wuhaili	Assistant Professor	Physics	Applied Nuclear Physics			
Rusul Dawood Salim	Assistant Professor	Physics	Solar Energy Physics			

Musa Kadhim Shamer Abd Al- Maliki	Assistant Professor	Physics	Theoretical Nanoelectronics			
Amir Hussein Ali	Assistant Professor	Physics	Fluid Mechanics			
Fadhil Abbas Tuma Alhashim	Assistant Professor	Physics	Condensed Matter Physics			
Sawsan Sharief Fliefil	Assistant Professor	Physics	Radiation Physics			
Maged A. Nattiq	Assistant Professor	Physics	Nanoelectronics / Perovskite Electronics			
Ahmed Jasem Hmood ALMALIKY	Assistant Professor	Physics	Materials Physics			
Abdulameer Imran	Assistant Professor	Physics	Nonlinear Optics			
May Jassim	Lecturer	Physics	Solid State Physics			
Amjad Fawzi Abdulkader	Lecturer	Physics	Theoretical Nuclear Physics			
Sundes Juma Fakher	Lecturer	Physics	Materials Physics / Nanotechnology Techniques			
Alaa M.I Al- Roumy	Lecturer	Physics	Laser Physics			
Hisham Yousef Abdulredha	Lecturer	Physics	Nanoelectronics			
Abdullah Al- Hussein	Lecturer	Physics	Thin Film Electronics and Solid State Electronics			
Abadhar Rahman Ahmed ALMaliki	Lecturer	Physics	Material Science			

Ashwaq Faisal Jaafer	Lecturer	Physics	Nuclear Physics			
Amjad Fawzi Abdulkader	Lecturer	Physics	Polymer Physics			
Numan Sleem Hashim	Lecturer	Physics	Polymer Physics			
Hayfaa Abdulhadi Noori	Lecturer	Physics	Teaching Methods			
Israa Mohammed Ali	Lecturer	Physics	Solid State Physics			
Sttar Jabbar Badr Ahmed	Assistant Lecturer	Physics	Radiation and Applied Nuclear Physics			
Shatha Sami Ebady	Assistant Lecturer	Physics	Polymer Physics			
SHAYMAA HASHIM JASIM	Assistant Lecturer	Physics	Polymer Physics			
Huda Hazem Noori	Assistant Lecturer	Physics	Laser Physics			
Zainab Njam Ahmed	Assistant Lecturer	Physics	Nuclear Physics			
Rana Azeez Abed	Assistant Lecturer	Physics	Applied Nuclear Physics			
Maha Saddam Abd	Assistant Lecturer	Physics	Educational Psychology			
Sahira Nabeel Hussien	Assistant Lecturer	Physics	History			
Haider Riyadh Sabeeh	Assistant Lecturer	Physics	English Language and Literature			
Reman Jamal Jasim	Assistant Lecturer	Physics				
Hanien Faleh	Assistant Lecturer	Physics				

Professional Development

Mentoring new faculty members

- 1- Engaging with experienced university professors, utilizing modern teaching technologies, and structuring scientific lectures.
- 2- Continuously improving teaching methods and encouraging reading in public libraries.
- 3- Attending specialized developmental courses in this field.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

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

13. The most important sources of information about the program

- 1- Sources approved by the university and counterpart colleges (Sectorial Committee).
- 2- External sources and various books from the internet or private and public libraries.

14. Program Development Plan

This academic program aims to enhance the level of faculty members, strengthen their competencies, and prepare graduates with the skills and qualifications that enable them to compete in the job market, whether in education and pedagogy or other sectors within society. Accordingly, the program seeks to achieve the following objectives:

1. Providing society with highly qualified teachers.
2. Keeping up with the latest scientific and specialized developments to ensure quality education.
3. Strengthening collaboration with the community to meet educational and professional needs.
4. Directing the educational process toward achieving community development.
5. Instilling ethical and professional principles in the field of teaching.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First Year		Electricity and Magnetism		√		√		√	√	√	√		√	√	
		Arabic Language		√	√	√	√	√	√		√			√	
		Mathematics (1)			√		√	√	√	√		√	√	√	√
		Mechanics		√	√	√	√		√	√	√	√		√	√
		Educational Psychology		√	√	√	√	√	√	√		√			√
		Computers		√		√	√	√	√		√	√			
		Heat and Properties of Matter		√		√		√	√	√	√		√	√	
		Foundations of Education		√	√	√	√	√	√		√			√	

		Human Rights and Democracy		√		√	√	√	√		√	√			
		Physical Education		√	√	√		√	√	√	√		√	√	
		English Language			√	√	√	√	√		√			√	
Second Year		Electricity and Magnetism		√	√	√	√		√	√	√	√		√	√
		Optics		√	√	√	√	√	√	√		√			√
		Mathematics (2)		√		√		√	√	√	√		√	√	
		Sound and Wave Motion		√	√	√	√	√	√		√			√	
		Programming (Computers)			√		√		√	√	√	√		√	√
		Astronomy		√	√	√	√		√	√	√	√		√	√
		Scientific Research Methodology		√	√		√	√	√	√		√			√
		Secondary Education and			√	√	√	√		√			√		

		Educational Administrati on													
		Development al Psychology		√		√	√		√	√	√	√		√	√
		English Language		√	√	√	√	√	√	√		√			√
		Baath Regime Crimes			√		√	√	√	√		√	√		
Third Year		Complex Functions		√	√	√	√		√	√	√	√		√	√
		Elective (Meteorology) – Elective		√	√	√	√	√	√	√		√			√
		Atomic and Molecular Physics			√		√		√	√	√	√		√	√
		Advanced Mechanics		√	√	√	√	√	√	√		√			√
		Curriculum and Teaching Methods		√	√	√	√		√	√	√	√		√	√
		Thermodyna mics			√		√	√	√	√		√	√		√

		Electronics			√	√	√	√		√			√		
		Guidance and Mental Health		√		√	√		√	√	√	√		√	√
				√	√	√	√	√	√	√		√			√
Fourth Year		Solid-State Physics				√		√	√	√	√		√	√	
		Laser		√		√	√	√	√		√	√		√	
		Measurement and Evaluation		√	√	√	√		√			√			
		Quantum Physics		√		√	√		√	√	√	√		√	√
		Nuclear Physics		√	√	√	√	√	√	√		√			√
		Educational Laboratory and Teaching Aids		√	√		√	√	√	√		√	√	√	√
		Observation ,		√	√	√	√	√		√			√		√

		Application, and Practical Training													
		Research Project		√	√	√	√		√			√			

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

Course Description Form-Year One

1. Course Name:	
Electricity	
2. Course Code:	
3. Semester / Year: 2025-2026	
Annual	
4. Description Preparation Date:	
5/12/2025	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 hours per year. 3 hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist prof. Dr. Jabbar hafez Email: jabbar.jebur@uobasrah.edu.iq Name: lecturer Dr. Amjad Alshaw Email: amjad.mohammed@uobasrah.edu.iq	
8. Course Objectives	
Course Objectives	1-studying the Coulombs law 2-studying the Electric field 3-studying the Gauss's law 4-studying the Electric potential 5-studying the Capacitors and insulators .
9. Teaching and Learning Strategies	
Strategy	1. Lesson Planning – Define clear learning objectives and connect new topics with previous knowledge. 2. Visual & Technological Aids – Use presentations, graphs, and simulations to explain concepts. 3. Interactive Teaching – Engage students with discussions, real-life examples, and thought-provoking questions. 4. Practical Applications – Conduct experiments, show videos, and encourage critical thinking. 5. Problem-Solving Skills – Provide diverse exercises, encourage logical analysis, and promote teamwork. 6. Student Assessment – Use quizzes, quick questions, and instant feedback to track progress. 7. Real-World Connections – Link physics to technology, engineering, and daily life applications.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Coulombs law The structure of the atom Electric charges Charge conservation law	Coulombs law	Presentation and discussion	Weekly, monthly, daily written and end-of-year exams.
2	3	Charging by conducting Charging by induction Conductors, insulators and		Presentation and discussion	
3	3	semiconductors Coulombs law		Presentation and discussion	
4	3	Examples		Presentation and discussion	
5	3	problems		Presentation and discussion	
6	3	The electric field Electric field intensity Electric field line Lines of electric force	The electric field	Presentation and discussion	
7	3	Gausses law Electric dipole		Presentation and discussion	
8	3	Application The electric field due to charged rod		Presentation and discussion	

9	3	the electric field due to charged ring The electric field due to charged plain plate example	Gausses' law	Presentation and discussion	
10	3	Gausses' law gausses law application		Presentation and discussion	
11	3	determine the electric field due to line charge		Presentation and discussion	
12	3	determine the electric field due to plain plate charge		Presentation and discussion	
13	3	determine the electric field due to the conducting material near its surface		Presentation and discussion	
14	3	problems		Presentation and discussion	
15	3	problems	electric potential	Presentation and discussion	
16	3	electric potential electric potential energy		Presentation and discussion	
17	3	potential potential difference potential and charge distribution		Presentation and discussion	
18	3	potential due to more charges single		Presentation and discussion	
19	3	potential of conducting ball charge		Presentation and discussion	
20	3	potential gradient examples			

21	3	potential of electric dipole potential due to charge ring		Presentation and discussion	
22	3	potential due to charge disc equipotential surfaces dielectric strength		Presentation and discussion	
23	3	Pointed heads and charges discharge		Presentation and discussion	
24	3	Capacitors and insulators Capacitors Capacitors storage Parallel plate capacitor	Capacitors and insulators	Presentation and discussion	
25	3	Ball capacity Capacitors conducting method Insulator between charge capacity		Presentation and discussion	
26	3	Electric susceptibility Electric permittivity		Presentation and discussion	
27	3			Presentation and discussion	
28	3	Examples		Presentation and discussion	
29	3	Capacitors energy The relation between storage energy and electric field		Presentation and discussion	
30	3	Problems		Presentation and discussion	

11.Course Evaluation

The distribution is as follows: 17.5 grades of monthly and daily exams for the first semester. 17.5 monthly and daily exam grades for the second semester. 35 grades for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basic of Electricity and magnetism (Dr.yahya Abdul-hameed)
Main references (sources)	B. Sc. I YEAR Electricity and magnetism (prof S.C.Garg)

Recommended books and references (scientific journals, reports...)	lectures from the International Information Netw (Internet)
Electronic References, Websites	https://www.researchgate.net/

1. Course Name: Heat and properties of matter	
Heat and properties of matter	
2. Course Code:	
3. Semester / Year: Annual	
4. Description Preparation Date: 5/12/2025	
5. Available Attendance Forms: presence only	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours per year, 6 hours per a week	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Sawsan Sharief Fliefil Email: sawsan.fliefil@uobasrha.edu.iq Name: rusul dawood salim Email: rusul.salim@uobasrah.edu.iq	
8. Course Objectives	
Course Objectives	1 - Providing students with the skill of using the laws of heat and work, the first law of thermodynamics, methods of measuring pressure and pressure changes with depth, and the properties of matter and classifying them according to their response to types of stress. 2 - Providing students with the skill of solving mathematical and

			intellectual problems related to the subject.....		
					
9. Teaching and Learning Strategies					
Strategy		1 - Educational strategy, collaborative concept planning. 2- Brainstorming education strategy. 3- Education Strategy Notes Series			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1-Getting to know the concept of the system and the external environment that surrounds the system and getting to know the viewpoints on interpreting the system	Heat and properties of matter	Explaining the scientific material through the use of the blackboard, writing laws and mathematical relationships related to the subject of the lesson, solving questions related to the material, and giving homeworkes, especially for each subject.	Daily and monthly exams are set, in addition to the end-of-first semester exam and the final exam
2	2				
3	2				
4	2				
5	2				
6	2				
7	2	2- Getting to know the concept of thermal equilibrim, thermal contact and the difference between the thermal energy and internal energy.			
8	2	, then getting to know thermal expansion and the types of expansion for solid bodies, liquid and gaseous			
9	2				
10	2				
11	2				
12	2				
13	2				
14	2				
15	2				
Half year holiday					
16		3-An explanation for students about the types of transitional energies, the difference between temperature and thermal energy, temperature units, equations for converting heat units, the meaning of thermal balance, the zeroth law, methods for measuring energy,			
17					
18					
19					
20					

21		heat and temperature, and the mechanical equivalent of the joule.			
22		Learn about pressure and how to measure it using a manometer and barometer.			
23		Study the change in pressure with depth.			
24					
25		Study the properties of fluids and Pascal's rule as an application of pressure transfer to all parts of the fluid. Studying the first law of thermodynamics and applying theoretical questions about all types of curriculum vocabulary while giving assignments on each topic.			
26					
27					
28					
29					
30					

11.Course Evaluation

25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Heat and properties of matter Authorship: Dr. Kazem Ahmed Mohammed
Main references (sources)	Physics for Scientists and Engineers with Modern Physics by Raymond A. Serway Thermodynamics / Authorship: Dr. Amjad Abdel Razzaq Karjiya
Recommended books and references (scientific journals, reports...)	Lectures from the International Information Network (Internet, PowerPoint)
Electronic References, Websites	Lectures from the International Information Network (Internet, PowerPoint)

1. Course Name:
English Language
2. Course Code:
3. Semester / Year:
2026-2025
4. Description Preparation Date:
5/12/2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours per year. 1 hour per week
7. Course administrator's name (mention all, if more than one name)
Name: Haider Riyadh Sabeeh

Email: haidarryad4@gmail.com

Name: Sundes Jummah Fakhir

Email: uobasrah.edu.iq@sundes.fakher

8. Course Objectives

Course Objectives	Learn the importance of English grammar, learn the four skills, translate scientific terms, and how to learn English pronunciation as well to understand the basic structure of the word in English
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9. Teaching and Learning Strategies

Strategy	Exploring English grammar to understand how grammar is important in the process of writing and speaking. in the translation of scientific terms to understand it and to use it in other scientific subjects.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1	1		1. Introduction to the English language and its importance at the present time 2. Study of general rules: parts of speech 3. Types of sentences in the English language such as simple, compound and complex sentences 4. Study of pronouns and their importance in writing and speaking. 5. Study of indefinite and definite articles for their importance in writing and teaching the student how to use		1 2 3 4 5 6 7 8	1 1 1 1 1 1 1 1

			them in sentences phrases and compositional pieces. 6. Explaining verbs and their importance in tenses 7. Explaining tenses and simplifying them for the student by representing them in sentences and applying them practically by giving the student exercises to solve 8. Translating scientific terms from English to Arabic and vice versa. 9. Scientific compositional passages related to Physics, Biology and other departments and how to answer the questions of the passage in an academic manner		9	1
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11.Course Evaluation

First Term Exam: 20 Marks
Second Term Exam: 20 Marks
Assignments and attendance: 10 Marks
Final Exam: 50 Marks.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soars, L., & Soars, J. (2002). <i>New Headway: Beginner: Student's book</i> . Oxford University Press.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Cunningham, S., Moor, P., & Cosgrove, A. (2013). <i>Cutting Edge 3rd Edition Pre-Intermediate Workbook with Key</i> . Pearson Longman Murphy, R. (2000). <i>English grammar in use: Grammar Reference</i> .
Electronic References, Websites	

1. Course Name:
Mathematics 1
2. Course Code:
MA101
3. Semester / Year:
Annual
4. Description Preparation Date:
5.12.2025
5. Available Attendance Forms:
presence only
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours annually. 3 hours per week
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Fadhil Abbas Tuma, Email: fadhil.tuma@uobasrah.edu.iq Name: Dr. Abadhar Rahman Ahmed, Email: abadhar.ahmed@uobasrah.edu.iq
8. Course Objectives
1. Learn about the basic concepts of calculus 2. Identify the connection of functions and their relationship to limits 3. Identify the ability to differentiate functions, the integration of various functions, and its relationship to continuity

4. Knowledge of applications of calculus in various sciences					
5. The ability to use calculus to solve mathematical equations					
9. Teaching and Learning Strategies					
(1) Regular lectures (2) Presentations (3) Electronic screen (4) Exercises and activities in classroom (5) Directing students to some sources that contain examples and exercises benefit from					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Sets, operations on real numbers, intervals	Groups, numbers their properties	Theoretical lecture	questions discussion
2	3	Inequalities, absolute value, constants variables	Groups, numbers their properties	Theoretical lecture	questions discussion
3	3	Definition of function, starting point and range algebra of functions	Functions	Theoretical lecture	questions discussion
4	3	Composition of functions, graphing functions, inverse of functions	Functions	Theoretical lecture	questions discussion
5	3	Basic trigonometric functions and their properties, periodic functions	Functions	Theoretical lecture	questions discussion
6	3	Even and odd functions, inverse of trigonometric function	Functions	Theoretical lecture	questions discussion
7	3	Exponential functions and their properties logarithmic functions and their properties	Functions	Theoretical lecture	questions discussion
8	3	Hyperbolic functions, properties of hyperbolic functions	Functions	Theoretical lecture	questions discussion
9	3	Inverse hyperbolic functions, the relations between functions	Functions	Theoretical lecture	questions discussion
10	3	Theories of limits, their mathematical definitions and theorems	Limits continuity	Theoretical lecture	questions discussion
11	3	The limit in undefined cases is the limit of right and left limits	Limits continuity	Theoretical lecture	questions discussion
12	3	Limit of trigonometric functions, continuous functions	Limits continuity	Theoretical lecture	questions discussion
13	3	Definition of the derivative, finding derivative using the definition, general laws	Differentiation (derivatives)	Theoretical lecture	questions discussion
14	3	The derivative of the reciprocal of the function derivative Composite functions (series rule)	Differentiation (derivatives)	Theoretical lecture	questions discussion
15	3	The second derivative and higher order derivatives, the equation of the tangent and perpendicular to the tangent to the curve implicit differentiation	Differentiation (derivatives)	Theoretical lecture	questions discussion
16	3	Derivative of trigonometric functions derivative of the inverse of trigonometric functions	Differentiation (derivatives)	Theoretical lecture	questions discussion

17	3	Derivative of exponential and logarithmic functions	Differentiation (derivatives)	Theoretical lecture	questions discussion
18	3	Derivative of hyperbolic functions, derivative of the inverse of hyperbolic functions	Differentiation (derivatives)	Theoretical lecture	questions discussion
19	3	L'Hopital's Rule and its uses	Differentiation (derivatives)	Theoretical lecture	questions discussion
20	3	Definition of integration, indefinite integration and its laws	Integration	Theoretical lecture	questions discussion
21	3	Integration of trigonometric functions, exponential functions, general exponential functions	Integration	Theoretical lecture	questions discussion
22	3	Integration of hyperbolic functions, definite integration, properties of definite integration	Integration	Theoretical lecture	questions discussion
23	3	1. Integrals of certain trigonometric functions Integrals by trigonometric substitutions	Integration methods	Theoretical lecture	questions discussion
24	3	3. Integrals containing a quadratic function Integration by division	Integration methods	Theoretical lecture	questions discussion
25	3	5. Integration with partial fractions	Integration methods	Theoretical lecture	questions discussion
26	3	6. Integration with other substitutions	Integration methods	Theoretical lecture	questions discussion
27	3	Applications of definite integration, 1. Find the area between two curves	Applications	Theoretical lecture	questions discussion
28	3	2. Find the displacement of a body moving in a straight line with instant speed and acceleration	Applications	Theoretical lecture	questions discussion
29	3	3. Rotational body size (hard disk method)	Applications	Theoretical lecture	questions discussion
30	3	(cylindrical shell method)	Applications	Theoretical lecture	questions discussion

11.Course Evaluation

Distribution is as follows: 25 marks for monthly and quarterly exams for the first semester. 25 marks for monthly and quarterly exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Chris McMullen, Essential Calculus Student Practice Workbook with Full Solutions, Zisheng Publishing (August 16, 2018) 2. Mark Ryan, Calculus For Dummies,, Dummies; 2 edition (June 7, 2016)
Main references (sources)	Durfee. W.H , Calculus and Analytic Calculus & Analytic Geometric , Durfee . W.H , 2017 New York إن التفاضل والتكامل والهندسة التحليلية, برسل أ. ج. ترجمة علي ثنين الاول والثاني 1983, جامعة الموصل , عزيز علي وآخرون العراق –
Recommended books and references (scientific journals, reports...)	James Stewart, Calculus, calculusCengage Learning; 8 edition (May 19, 2015).

	اهم الكتب والمصادر الخاصة لحسبان التفاضل والتكامل الموجودة في المكتبة المركزية ومكتبة الكلية والقسم.
Electronic References, Websites	المواقع الالكترونية الرصينة (www. Freescience.info/math) المكتبة الافتراضية مواقع المكتبات في بعض الجامعات العالمية

1. Course Name: Mechanics
Classical mechanics, its theories and applications
2. Course Code:
3. Semester / Year:
annual
4. Description Preparation Date:
5/12/2025
5. Available Attendance Forms:

presence only					
6. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours annually. 3 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: Ass. Proff. Dr. Israa kaddori Email: israa.taha@uobasrah.edu.iq Name: Dr. Amjad fawzi Abdulkader Email: Amjad.abdulkader@uobasrah.edu.iq					
8. Course Objectives					
Course Objectives			1- Study of the laws of one-dimensional and two-dimensional motion in classical mechanics 2- Study of Newton’s laws 3- Study of the mechanics of circular motion 4- Study of theories of energy and work 5- Study of momentum and collisions of moving objects		
9. Teaching and Learning Strategies					
Strategy		Lectures Theory + discussion lessons in solving theoretical problems + daily and monthly exams			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3hrs	Standards of Length, Mass, and Time 2) The Blocks Matter 3) Dimensional Analysis	Introduction to Mechanics Motion in One Dimension	Lectures Theory discussion lessons solving theoretical problems daily and monthly exams	
2	3hrs				
3	3hrs				
4	3hrs				
5	3hrs				
6	3hrs	4) Conversion Units 5) Problem-Solving 1) Displacement 2) Velocity 3) Acceleration 4) Motion Diagrams 5) Or Dimensional Motion	Vectors and Two-Dimensional Motion		
7	3hrs				
8	3hrs				
9	3hrs				
10	3hrs				
11	3hrs	Dimensional Motion with			
12	3hrs				
13	3hrs				
14	3hrs				

15	3hrs	Constant			
عطلة	3hrs	Acceleration			
16	3hrs	6) Freely Falling	The Laws of Motion		
17	3hrs	Objects			
18	3hrs	1) Vectors and			
19	3hrs	Their Properties			
19	3hrs	2) Components of			
19	3hrs	Vector			
20	3hrs	3) Displacement	Circular Motion		
21	3hrs	Velocity, and	Dynamics		
22	3hrs	Acceleration in Two			
23	3hrs	Dimensions	Energy		
24	3hrs	Motion in Two			
25	3hrs	Dimensions			
26	3hrs	Forces			
27	3hrs	Newton's First Law			
28	3hrs	Newton's Second Law			
29	3hrs	Newton's Third Law	Momentum		
30	3hrs	Applications	Collisions		
31	3hrs	Newton's Laws			
32	3hrs	Forces of Friction			
33	3hrs	Angular Momentum			
34	3hrs	Rigid Body Kinematics			
35	3hrs	Work			
36	3hrs	Kinetic Energy and the			
37	3hrs	Work-Energy			
38	3hrs	Theorem			
39	3hrs	Gravitational Potential			
40	3hrs	Energy			
41	3hrs	Spring Potential Energy			
42	3hrs	Systems and Energy			
43	3hrs	Conservation			
44	3hrs	Power			
45	3hrs	Momentum and			
46	3hrs	Impulse			
47	3hrs	Conservation			
48	3hrs	Momentum			
49	3hrs	Collisions			

11.Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12.Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form-Year Two

1. Course Name:
Educational administration and supervision
2. Course Code:
3. Semester / Year:
Year
4. Description Preparation Date:
5 / 12 / 2025
5. Available Attendance Forms:
Only Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours Year . 2 hours weekly
7. Course administrator's name (mention all, if more than one name)
Name: Zahraa Salman Ab-dul Hussein Email: lec.zahraa.salman@uobasrah.edu.iq

8. Course Objectives

1-The student should know classroom management

2- The student should distinguish between scientific theory and bureaucratic theory

3- That the student applies what he has learned when dealing with students

4- That the student be able to predict and explain some of the behaviors issued by students

9. Teaching and Learning Strategies

Strategy	1- Educational strategy, collaborative concept planning. 2- Brainstorming strategy 3-Education Strategy Discussion Series
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2hours	1-Learn about development Administration 2- Identify theories Administration 3- Get to know the theory Scientific 4- Identify theories Administrative divisions 5-Learning about the theory Administrative systems 6- Get to know the theory Management as functions 7 Getting to know the administration Educational 8- Getting to know Management characteristics 9- Getting to know Management levels 10- Recognizing patterns Administration 11- Getting to know the administration Authoritarianism 12- Getting to know the administration	Management development	1-Explaining The Scientific Material in detail in a lecture. 2- Writing reports on main topics	Weekly, monthly, daily, written exams, and the end -of-year exam
2	2hours		Management theories		
3	2hours		Scientific theory		
4	2hours		The theory of administrative divisions		
5	2hours		Administrative systems		
6	2hours		theory		
7	2hours		Management theory as functions		
8	2hours		Educational administration		
9	2hours		Characteristics of educational administration		
10	2hours		Management levels		
11	2hours		Management styles		
12	2hours		Authoritarian management		
13	2hours		Chaotic management		
14	2hours		Democratic administration		
15	2hours		First semester exam		
			Diplomatic administration		
			Factors affecting management		
			Mid-year exam		

Off day	2hours	Anarchism			
16	2hours	13- Getting to know Democratic administration	prevailing trends in educational administration		
17	2hours	14- Getting to know Diplomatic administration	The school administration		
18	2hours	15-Get to know Influencing factors	The importance of school administration		
19	2hours	16- Getting to know directione	School administration goals		
20	2hours	17- Getting to know educational administration	Characteristics of school administration		
21	2hours	18- Getting to know The school administration	School management styles		
22	2hours	19-Getting to know The importance of management	Modern trends in Administration		
23	2hours	20- Getting to know Management objectives	Classroom management		
24	2hours	21-Getting to know Management characteristics	For educational communication		
25	2hours	22-Getting to know Management styles	Means of communication		
26	2hours	23-Getting to know Modern trends	Second semester exam		
27	2hours	24- Getting to know Classroom management	Types of communications		
28	2hours	25- Getting to know Educational communication	Educational Supervision		
29	2hours	26 - Getting to know Means of communication	Types of educational supervision		
30	2hours	27- Getting to know Types of communications	The importance of educational supervision		
		28- Getting to know Types of supervision	Teacher-teacher relationship		
		29- Getting to know The importance of supervision	And the supervisor		
		30-Get to know Teacher-teacher relationship	End of year exams		
		And the supervisor			
11.Course Evaluation					

Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Methodological textbooks, if any	Ahmed Abdul Baqi Al-Bustan and others: management and supervision Educational: Theory, Research and Practice, Kuwait, Library Al Falah Publishing, 2003
Main references (sources)	
Recommended supporting books and references scientific journals, reports....)	Ahmed Ismail Hajji: Management of the learning and teaching environment, theory and practice within the classroom and school. Cairo, Dar Al-Fikr Al-Arabi, 2001.
Electronic references, Internet sites	

1. Course Name:	
Optics	
2. Course Code:	
3. Semester / Year:	
2026-2025	
4. Description Preparation Date:	
5. Available Attendance Forms:	
Attendance only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 hours /3 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Qusay Mohammed Ali Hassan Email: : qusay.hassan@uobasrah.edu.iq Name: A.Prof. Dr. Abdulameer Imran Musa Email: abdulameer.musa@uobasrah.edu.iq	
8. Course Objectives	
Course Objectives	
9. Teaching and Learning Strategies	
Strategy	To Concept of optics

- Refraction and reflection at plane and Graphical surface
- To Concept the interference ,diffraction and polarization

10. Course Structure

Wee k	Hour s	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
1	3	The Nature of Light, The Ray Approximation in Geometric Optics ,		The Nature of Light	-	-	
2	3	Wave front and rays ,The Ray Approximation in Geometric Optics		The Nature of Light	-	-	
3	3	Index of Refraction, Velocity of light, Reflection and refraction at plane surfaces,		The Nature of Light	-	-	
4	3	Reflection and refraction at plane surfaces ,The Laws of Reflection and Refraction,		Reflection and refraction at plane surfaces	-	-	
5	3	Ray treatment of reflection and refraction, Fermat's Principle, Optical Path		Reflection and refraction at plane	-	-	
6	3	; The Principle Of Reversibility, FOCAL POINTS AND FOCAL LENGTHS, Convension of Signs, -		Reflection and refraction at Graphical surface	-	-	
7	3	Graphical constructions, The parallel-ray method, Oblique-Ray Methods		Reflection and refraction at Graphical surface	-	-	
8	3	Magnification ,REDUCED VERGENCE: ,Focal Points And Focal Lengths,		Reflection and refraction at Graphical surface	-	-	
9	3	Image Formation, CONJUGATE POINTS AND PLANES , ,		Reflection and refraction at Graphical surface	-	-	
10	3	, The Parallel-Ray Method ,The Oblique-Ray Method		Reflection and refraction at Graphical surface	-	-	
11	3	Use of the lens Formula , Lateral Magnification ,Virtual Images.		Reflection and refraction at Graphical surface			
12	3	Lens Makers' Formula ,Thin-Lens Combinations , The Power of a Thin Lens,		Thin-Lens			
13	3	Thin Lenses In Contac , Derivation Of The Lens Formula , Derivation Of The Lens Makers' Formula ,		Thin-Lens			
14	3	Thick Lenses , Two Spherical Surfaces , FOCAL POINTS AND PRINCIPAL POINTS		Thick Lenses			
15	3	Focal Point And Focal Length, Graphical Constructions, Mirror Formulas.		Thick Lenses			
16	3	Mirror Formulas., Thick Mirrors, Thick-Mirror Formulas,		Mirrors			
17	3	Aberrations, Spherical Aberrations, Chromatic Aberrations, ASTIGMATISM		Aberrations			
18	3	The Eye ,Conditions of the Eye, The Simple Magnifier,		The Eye			
19	3	Interference of Light Waves, Huygens principle, Interference of Coherent Light, Young's Double-Slit Experiment, (Young, s experiment),		Interference of Light Waves			
20	3	,Intensity distribution in the fringe system, Intensity Distribution of the Double-Slit Interference Pattern:,Fresnel, s biprism		Interference of Light Waves			
21	3	, Other apparatus depending on division of the wave front Fresnel double-mirror, Lloyd' s mirror: Change of Phase Due to Reflection, Billet' s split lens, The Michelson Interferometer		Interference of Light Waves			

22	3	Circular fringes, Localized fringes, White-light fringes, Visibility of the fringes, Interferometric measurements of length, Twyman and Green interferometer,	Interference of Light Waves		
23	3	Index of refraction by interference methods, Interference Involving Multiple Reflections, Interference in Thin Films, Newton's Rings	Interference of Light Waves		
24	3	Introduction to Diffraction Patterns, Fresnel and Fraunhofer Diffraction, Diffraction Patterns from Narrow Slits, Intensity of Single-Slit Diffraction Patterns	Diffraction Patterns		
25	3	, Intensity of Two-Slit Diffraction Patterns, Resolution of Single-Slit and Circular Apertures, Rectangular Aperture, Resolving Power With A Rectangular Aperture,	Diffraction Patterns		
26	3	Chromatic Resolving Power Of A Prism, Circular Aperture, Resolving Power of a Telescope, Relation between magnification and resolving power of a telescope, Resolving Power of a Microscope,	Diffraction Patterns		
27	3	The Diffraction Grating, Intensity Distribution From an Ideal Grating, PRINCIPAL MAXIMA, Minima and Secondary Maxima,	Diffraction Patterns		
28	3	Resolving Power of the Diffraction Grating, Diffraction of X-Rays by Crystals, Diffraction Patterns from Narrow Slits, Diffraction Patterns from Narrow Slits	Diffraction Patterns		
29	3	, Polarization of Light Waves, Polarization by Selective Absorption, Polarization by Reflection, Plane-polarizing	Polarization of Light Waves		
30	3	Circular polarizing, Elliptical polarizing, Polarization by Double Refraction, Polarization by Scattering.	Polarization of Light Waves		

11.Course Evaluation

"The distribution is as follows: 17.5% for monthly and daily exams for the first semester. 17.5% for monthly and daily exams for the second semester. 35% for final exams."

12.Learning and Teaching Resources

Fundamentals of optics Francis A.Jekins & Harvey E.White	

1.	Course name: Sound and wave motion	
	Sound and wave motion theories and applications	
2.	Course code:	
3.	Semester/Year: Annual	
	Annual	
4.	Date this description was prepared	
	5/122025	
5.	Available attendance forms:	
	My presence only	
6.	Number of study hours (total)/number of units (total):	
	60 hours annually. 2 hours a week	
7.	Name of the course administrator (if more than one name is mentioned)	
	Name: P.D. Hamza Bakr Salman Email :hamza.salman@uobasrah.edu.iq Name Ahmed Jassim Hmode	
8.	Course objectives	
	 • 1-Providing students with the skill • of using force laws and applying them to different types of wave motion • 2-Giving students the skill of solving differential equations by assuming appropriate solutions	
9.	Teaching and learning strategies	
	.Educational strategy, collaborative concept planning -1 .Brainstorming education strategy -2 Education Strategy Notes Series -3	The strategy

10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Weekly, monthly, daily, written exams, and the end-of- year .exam	Explaining the scientific material through the use of blackboard and screen illustrations, writing laws and mathematical relationship s related to the subject of the lesson, and arriving at the final solutions for the different types of movement by making the required derivations.	Chapter One: The origin of the sound	Informing students about the importance of sound and the types of wave motion, and that it is one of the important types of motion in our lives	hours 2	1
		Basic properties of wave transmission		hours 2	2
		Classification of sound waves		hours 2	3
		Solve the questions of the first chapter		hours 2	4
		Chapter Two: Free Vibration Theory		hours 2	5
		Simple linear harmonic motion		hours 2	6
		Phase and phase difference		hours 2	7
		Energy of simple harmonic oscillator		hours 2	8
		Differential equation of harmonic motion		hours 2	9
		Applications to simple harmonic motion		hours 2	10
		Solve the questions of the second chapter		hours 2	11
		Chapter Three: Superposition of harmonic movements		hours 2	12
		The principle of superposition		hours 2	13
		Superposition of two harmonic motions in one dimension		hours 2	14
		Superposition of two perpendicular harmonic motions		hours 2	15
		Solve the questions of the third chapter		hours 2	16
		Chapter Four: Decaying Vibration		hours 2	17
		Forces causing decay		hours 2	18
		Solve the equation of decaying harmonic motion in the case of no decay		hours 2	19
		Imperfect state of decay		hours 2	20
		Critical condition		hours 2	21
		Excess state decay		hours 2	22
		Chapter Five: Forced vibration		hours 2	23
		The equation of motion for a vibrator decaying under the influence of a periodic external force		hours 2	24
		Solving the equation of forced motion (special solution)		hours 2	25
		Complementary solutions.		hours 2	26
		General solutions, resonance		hours 2	27
		Chapter Six: Wave motion		hours 2	28
		Types of wave motion		hours 2	29
		Classification of mechanical waves		hours 2	30
		The speed of a transverse wave in a stretched string			
		Standing waves			
		The theory of free vibration of a stretched string of fixed length			
		Sonometer			

		Laws of vibrating strings Solve the problems of the six semester Chapter Seven: Phenomena related to the propagation of sound			
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11. Course evaluation

Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12. Learning and teaching resources

Sound and wave motion Written by Amjad Abdel Razzaq Karjiya	Required textbooks (methodology, if any)
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

1. Course Name: Arabic Language2					
2. Course Code:					
3. Semester / Year: Year					
4. Description Preparation Date: 5/12/2025					
5. Available Attendance Forms:					
6. Number of Credit Hours (Total) / Number of Units (Total) :1 hour / 2 Unit					
7. Course administrator's name (mention all, if more than one name)					
Name: Abadhar Rahman Ahmed					
Email: abadhar.ahmed@uobasrah.edu.iq					
8. Course Objectives					
Course Objectives			1. Developing Basic Language Skills 2. Promoting Cultural Identity 3. Using the Language in Everyday Life		
9. Teaching and Learning Strategies					
Strategy		1. Providing detailed explanations of the material. 2. Involving students in sentence formation and parsing. 3. Clarifying the meanings of some Arabic vocabulary			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
30	30		Arabic Language2	Giving lectur	Exams
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)	1.Explanation of Ibn Aqil. 2.Explanation of Al-Ajrumiyyah.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Electricity and magnetism	
2. Course Code:	
3. Semester / Year:	
Year	
4. Description Preparation Date:	
2025/2026	
5. Available Attendance Forms:	
Available only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 h yearly , 3h weekly	
7. Course administrator's name (mention all, if more than one name)	
<u>Name: 1-riydh ch</u> <u>2-Hussein F</u> Email: <u>1- riydh.abalhiel@uobasrah.edu.iq</u> <u>2- Husseinfalaih@ uobasrah.edu.iq</u>	
8. Course Objectives	
Course Objectives	1-Teaching the student the basic theoretical concepts electricity and magnetism 2-Teaching the student the ideas and sciences of electrical and magnetic physics 3- Providing the student with theoretical and practical skills related to the basics of electricity and magnetism
9. Teaching and Learning Strategies	
Strategy	Teaching strategies in physics are a set of procedures, methods and techniques that are used with the aim of achieving pre-planned pedagogical and educational goals. Teaching strategies are characterized by flexibility and the ability to develop and modify because they take into account all the factors that are expected to

	occur and that could influence their application. And also to fit all the real events associated with it Principles of teaching strategies • The strategy must be comprehensive and integrated, and cover all parts of the plan to be implemented without neglecting any part of it • Determine all the goals to be achieved • To be one of the means of support for the administrative planning function • The strategy should be flexible and capable of development and modification, making it easy to implement
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		CH-1	Electricity And Magnetism	Explaining the scientific material in a smooth and coherent manner according to the semesters. 2-Write important notes on the board for each chapter. 3-Using scientific discussion. 4-Giving related assignments in each chapter.	Weekly, monthly, daily, written exams, and the end-year exam
2		Magnetic field			
3		.			
4					
5		CH-2			
6		Some measuring devices			
7					
8					
9					
10					
11					
12					
13		CH-3			
14					
15		Magnetic field of electric current			
عطلة					
16					
17					
18		CH-4			
19		Induced electromotive force			
19					
20					
21		CH-5			
22		Inductance			
23					
24					
25		CH-6			
26		Alternating current			

27					
28					
29		CH-7			
30		Magnetic properties of matter			
11.Course Evaluation					
Distribution: Distribution: 35 theoretical marks and 15 Exp marks for the monthly and daily exams for the first semester. 35 theoretical marks, 15 Exp marks, monthly and daily exams for the second semester. 35 theoretical marks , 15 Exp marks for final exams					
12.Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Electricity and magnetism FRANCIS WESTON SEARS		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites			2- https://uomustansiriyah.edu.iq › lect...		

1. Course Name:
Scientific research
2. Course Code:
3. Semester / Year:
Year
4. Description Preparation Date:
5/12/2025
5. Available Attendance Forms:
Attendance only
6. Number of Credit Hours (Total) / Number of Units (Total)
60 in year and 2 in week

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

Name: Numan Sleem Hashim

Email: hshimnuman73@yahoo.com

8. Course Objectives

- 1- Providing students with the skill of applying scientific research ideas in how to write a project.
- 2- Expanding the skill of get sources from the Internet.
- 3- Explaining the most important modern ideas in scientific research

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9. Teaching and Learning Strategies

Strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	The meaning of scientific research linguistically and scientifically	Definition of scientific research	Explaining scientific material through lectures, following up with students, and involving them in the discussion.	Weekly, monthly, daily, written exams, a final exam.
2	2 hours	What do sciences have in common?	Characteristics of science	2- Asking the students to prepare the next lecture and involving the large number of them in explaining it.	
2	2 hours	Distinguishing the most important types of scientific research	Patterns of scientific research		
3	2 hours	The importance of scientific research for the student	The importance of scientific research	3- Linking the ideas included in the lecture with the students' ideas.	
4	2 hours	The correct scientific definition			
5	2 hours	Procedures followed in the search	What is scientific research?		
6	2 hours	Characteristics of scientific research			
7	2 hours	Steps followed in scientific research			
8	2 hours				
9	2 hours				
10	2 hours				
11	2 hours				
12	2 hours				
13	2 hours				
14	2 hours				
15	2 hours				
16	2 hours				
17	2 hours				

18	2 hours	Research sources	Scientific		
19	2 hours	Writing research sources	procedure		
20	2 hours	What does the quote mean	Character		
21	2 hours	Learn the steps of writing	ics of		
22	2 hours	How to tabulate data	scientific		
23	2 hours	Qualitative and quantitative	research		
24	2 hours	data	Steps of		
25	2 hours	Know the types of statistic	scientific		
26	2 hours	measures	research		
27	2 hours	vacation	Informati		
28	2 hours	How to calculate the avera	sources		
29	2 hours	arithmetic	Document		
30		How to calculate the loom	ion of		
		How to calculate the media	informati		
		Methods of displaying data	Citation		
		Identify types of knowledge	types		
		Knowing the types of	How to		
		curricula and their feature	write a		
		Learn about the historical	research		
		method	project		
		The most important featur	Analysis o		
		of the descriptive approach	scientific		
		Learn about the survey	research		
		method	data		
		What is experimentation?	Data type		
		How to use statistics in	Measures		
		research	central		
		Identify the most important	tendency		
		concepts in research	SMA		
		The most important gener	Loom		
		concepts	Mediato		
		What characterizes a good	r		
		researcher?	Display		
		How does the research	data		
		define his problem?	Scientifi		
			c		
			knowled		
			ge		
			Types of		
			curricul		
			a		

			Historic al method Descript ive method Survey method Experim ental method Statistic al method General concepts of scientifi c research method General concepts Characte ristics of a good research er Basis for choosing the research problem		
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11.Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures on scientific research
Main references (sources)	Methodology Sources in scientific research from the internet
Recommended books and references (scientific journals, reports...)	Scientific journals
Electronic References, Websites	https://eco.nahrainuniv.edu.iq https://www.bts-academy.com

1. Course Name:

astronomy					
2. Course Code:					
3. Semester / Year:					
Year					
4. Description Preparation Date:					
2025/12/5					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours per year. 2 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: MSc Rana Azeez Abed					
Email: rana.azeez@uobasrah.edu.iq					
8. Course Objectives					
Course Objectives		1- For the student to become familiar with the concept of astronomy and the planetarium. 2- Informing students about the solar system, studying the sun and the moon, and the galaxies and planets that the universe contains, as well as learning about the impact of the cosmic spheres on the nature of life on Earth. 3- For the student to learn about the physical properties of stars and study them.			
9. Teaching and Learning Strategies					
		1- Educational strategy, collaborative concept planning. 2- Brainstorming education strategy 3- Education Strategy Notes Series			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identify the general meaning of astronomy, the universe, and the astronomical instruments used by Arabs	History astronomy	Dialog discuss	Asking and answering questions from the student
2	2	Learn about Renaissance astronomy and the planetarium	Astronomy the Renaissance	=	

3	2	Knowledge of Kepler's three laws and their mathematical relationships	Kepler's law		
4	2	Learn about Newton's laws and the law of universal gravitation	Newton's law and the law of universal gravitation		
5	2	Learn about meridians, their characteristics and benefits	Longitude line		
6	2	Learn about parallel circles, their characteristics and benefits	latitude line		
7	2	Identify the horizon and its types	the horizon		
8	2	Identify the star constellations and the characteristics of each constellation	Stellar asteroids		
9	2	Learn about the four astronomical seasons and how they occur And its times during the year	Astrological seasons		
10	2	Learn about the concept of equinox, solstice, and earth's wobbling	Astrological seasons		
11	2	Learn about the zodiac, the zodiac, and the names and locations of the signs	Zodiac		
12	2	Identify astronomical units of measurement and the relationship between them	Astronomical units measurements		
13	2	The first exam for the first course			
14	2	Learn about the solar system, the chemical composition of the sun, its layers, the sun's atmosphere, and the black holes	Solar system	==	==

15	2	Identifying the moon, its physical properties, the phenomena of eclipse and solar eclipse, and the difference between them	the moon	= =	= =
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Mid-year exams

16	2	Identifying the planets and the origin of the solar system	the planets	= =	= =
17	2	Learn about the planets Mercury and Venus and the characteristics of each planet		= =	= =
18	2	Identifying the planets Earth and Mars and comparing the two planets			
19	2	Learn about Jupiter, its internal structure, and its moons		= =	= =
20	2	Learn about the planet Saturn, its internal structure, and its rings		= =	= =
21	2	Learn about the planet Uranus, its internal structure, outer atmosphere, rings, and moons			
22	2	Learn about the planet Neptune, its internal composition, atmosphere, moons, and belts		= =	= =
23	2	Learn about the planet Pluto and its internal structure			
24	2	Identify the minor planets and their characteristics	Asteroids	= =	
25	2	Identify comets and their types	Comets		
26	2	Identify meteors and meteorites and their characteristics	Meteors and meteorites		
27	2	The first exam of the second semester			
28	2	Identify stars and their physical properties	The stars		
29	2	Identify the types of stars and their life cycle	The stars		
30	2	Learn about the meaning of black holes in the Holy Quran	The stars		

11.Course Evaluation

the distribution is as follows: 25 points for monthly and daily exams for the first semester. 25 points for monthly and daily exams for the second semester. 50 points for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Atmospheric and space physics / Part Two / Dr. Ham Majoul Al Nuaimi, Dr. Fayyad Abdel Latif Al Najm
Main references (sources)	Atmospheric and space physics / Part One / Dr. Ham Majoul Al Nuaimi, Dr. Fayyad Abdel Latif Al Najm
Recommended books and references (scientific journals, reports...)	/https://astronomynow.com
Electronic References, Websites	https://nasainarabic.net/main

Course Description Form-Year Three

1. Course Name:
Counseling and mental health
2. Course Code:
3. Semester / Year:
Year
4. Description Preparation Date:
2025/12/5
5. Available Attendance Forms:
My presence only
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours annually. 2 hours per week
7. Course administrator's name (mention all, if more than one name)
Name: Maha saddam abd
Email: maha.saddam@uobasrah.edu.i
8. Course Objectives

1- Introducing students to the concept of counseling and mental health, its origins and development 2- Introducing students to the educational guide and methods for preparing it 3- Helping the student to solve his psychological, social and educational problems 4- Helping the student improve his academic level	• • •
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9. Teaching and Learning Strategies

Strategy	1- Educational strategy, collaborative concept planning. 2- Brainstorming education strategy. 3- Education Strategy Notes Series. 4- Teaching strategy feedback at the present time.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	1- Students acquire the skill of dealing with the psychological problems they face 2- Achieving psychological compatibility among students 3- Preparing students psychologically, professionally and educationally for the teaching profession	1- Educational guidance, foundations of guidance and psychological counselling, educational guidance curricula 2- Definition of the educational advisor, the role of the advisor in the learning process, and the characteristics of educational maturity 3- Guidance methods, individual guidance and group guidance 4- Guidance methods, direct	1- Involving students in classroom activities 2- Using PowerPoint presentations to advance lessons	Weekly, monthly, daily, written exams, and the end-of-year exam.
2	2 hours				
3	2 hours				
4	2 hours				
5	2 hours				
6	2 hours				
7	2 hours				
8	2 hours				
9	2 hours				
10	2 hours				
11	2 hours				
12	2 hours				
13	2 hours				
14	2 hours				
15	2 hours				
vacation					
16	2 hours	1- Students acquire the skill of dealing with the psychological problems they face 2- Achieving psychological compatibility among students 3- Preparing students psychologically, professionally and educationally for the teaching profession	1- Educational guidance, foundations of guidance and psychological counselling, educational guidance curricula 2- Definition of the educational advisor, the role of the advisor in the learning process, and the characteristics of educational maturity 3- Guidance methods, individual guidance and group guidance 4- Guidance methods, direct	1- Involving students in classroom activities 2- Using PowerPoint presentations to advance lessons	Weekly, monthly, daily, written exams, and the end-of-year exam.
17	2 hours				
18	2 hours				
19	ours				
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

			guidance and indirect guidance 5-Foundations of guidance and psychological counselling 6- Preparing the educational guide, the role of parents' councils in the school guidance program 7- Educational guidance and its role at the university 8-The role of the teacher in the counseling process, the problems that occur in schools and the role of counseling in solving them 9- Academic delay, its causes, and the role of the teacher in reducing this phenomenon 10- Dropping out of school, the causes of this phenomenon, the role of the teacher and counselor in reducing this phenomenon 11- Cheating in exams, the reasons for the spread of this phenomenon among students, the role of the teacher and counselor in		
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			reducing this phenomenon. 12- The phenomenon of bullying among students, its causes, and the role of the teacher and counselor in reducing this phenomenon 13- Exam anxiety, its symptoms, causes, and the role of the teacher and counselor in reducing this phenomenon. 14- The concept of mental health, its goals, and signs that indicate that an individual enjoys mental health 15-The relationship of mental health with other sciences 16-The importance of mental health in life sciences 17- Psychological compatibility, its types, the most important manifestations of psychological compatibility 18- Maladjustment, its types, the most important manifestations of psychological maladjustment		
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			19-Mental health and adaptation, definitions of adaptation, its dimensions 20- Adaptation magazines, the most important factors affecting it 21-School and mental health, the school's responsibilities regarding the psychological development and mental health of the student 22-Teacher psychological burnout, its most important manifestations and causes 23-What is neuroticism, the difference between neurosis and nervous disease 24- Causes of neuroticism, symptoms, and methods of treating it 25-The most important definitions of anxiety, its types, causes, and methods of treating it 26- Pathological fear neurosis, the difference between normal and pathological fear and what are its most important causes		
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			27-The most important symptoms of fear, how to diagnose it, methods of treating it, and psychological treatment 28-Conditional behavioral therapy for fear, group therapy for fear 29 Environmental therapy, treatment of diseases that treat the main fear 30-The most important rules that parents must follow to treat fear in their children		
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11.Course Evaluation

Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1- Counseling and mental health \ Dr. Hassan Al-Sayed, Dr. Sahib Marzouk 2- Principles of guidance and psychological counseling / Jawdat Abdel Hadi and Saeed Hussein
Electronic References, Websites	

1. Course Name: complex functions	
2. Course Code:	
3. Semester / Year: year 2026-2025	
4. Description Preparation Date:5/12/2025	
5. Available Attendance Forms: Attendance only	
6. Number of Credit Hours (Total) / Number of Units (Total) 90 hours /3 unit	
7. Course administrator's name (mention all, if more than one name) Name: A.Prof. Dr. Musa Kadhim Shamer Email: musa.shamer@uobasrah.edu.iq	
8. Course Objectives	
Course Objectives	• The student gets to know the complex number system • The student gets to know the regular functions of the complex number system • Study methods of differentiating complex functions • Study the integration of complex functions
9. Teaching and Learning Strategies	
Strategy	• Cooperative Concept Mapping Teaching Strategy • Brainstorming Teaching Strategy:

- Observations Chain Teaching Strategy:

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	What is the complex number system?	Complex numbers	—	Theoretical exam, homework participation
2	3	multiplying complex numbers	Complex numbers	lecture, discussion	Theoretical exam, homework participation
3	3	De Moivre's theory	Complex numbers	lecture, discussion	Theoretical exam, homework participation
4	3	Extracting roots of complex numbers according to De Moivre's theorem	Complex numbers	lecture, discussion	Theoretical exam, homework participation
5	3	Complex conjugate of a complex number	Complex numbers	lecture, discussion	Theoretical exam, homework participation
6	3	square root of complex number	Complex numbers	lecture, discussion	Theoretical exam, homework participation
7	3	polynomial equations	Complex numbers	lecture, discussion	Theoretical exam, homework participation
8	3	Variable and complex variable functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
9	3	Curvature coordinates	Regular functions	lecture, discussion	Theoretical exam, homework participation
10	3	Simple functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
11	3	Complex logarithm function	Regular functions	lecture, discussion	Theoretical exam, homework participation
12	3	Complex Trigonometric Functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
13	3	Complex hyperbolic trigonometric functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
14	3	Complex power functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
15	3	Inverse of complex trigonometric functions	Regular functions	lecture, discussion	Theoretical exam, homework participation

16	3	Inverse Complex Hyperbolic Functions	Regular functions	lecture, discussion	Theoretical exam, homework participation
17	3	Analytical functions	Differentiation of Complex Functions and Cauchy	lecture, discussion	Theoretical exam, homework participation
18	3	Cauchy-Riemann equations	Differentiation of Complex Functions and Cauchy	lecture, discussion	Theoretical exam, homework participation
19	3	Harmonic functions	Differentiation of Complex Functions and Cauchy	lecture, discussion	Theoretical exam, homework participation
20	3	Complex integration	Integration of complex functions and Cauchy's theorem	lecture, discussion	Theoretical exam, homework participation
21	3	Integration around a closed curve	Integration of complex functions and Cauchy's theorem	lecture, discussion	Theoretical exam, homework participation
22	3	Cauchy integral formulas	Integration of complex functions and Cauchy's theorem	lecture, discussion	Theoretical exam, homework participation
23	3	Residual theory	Integration of complex functions and Cauchy's theorem	lecture, discussion	Theoretical exam, homework participation
24	3	Calculating definite integrals by the method of residues	Integration of complex functions and Cauchy's theorem	lecture, discussion	Theoretical exam, homework participation

11.Course Evaluation

"The distribution is as follows: 25% for monthly and daily exams for the first semester. 25% for monthly and daily exams for the second semester. 50% for final exams."

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway –level third.
1- Complex functions and their applications by Khafar Ahmed Al-Samarrai	
2- Complex functions by Murray Spiegel	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Meteorology					
2. Course Code:					
3. Semester / Year:					
year					
4. Description Preparation Date:					
2026-2025					
5. Available Attendance Forms:					
Attendance only					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours annually. 2 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: Alaa M.Shari			Name: Issra Mohamed Ali		
Email: alaa.shari@uobasrah.edu.iq			Email: asraa.ali@uobasrah.edu.iq		
8. Course Objectives					
Course Objectives		- Introducing students to the basic concepts of meteorology, such as the atmosphere and atmospheric pressure. - Explain the physical and chemical processes that occur			
9. Teaching and Learning Strategies					
Strategy		1-Brainstorming education strategy. 2- Education Strategy Notes Series.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to the atmosphere, its importance and divisions			-
2	2	The composition of the atmosphere and its importance to the Earth			-
3	2	The four layers of the atmosphere			-

4	2	Planets in the solar system and their features Dwarf planets and their features	-	-
5	2	Components of the air, the ozone layer, and the thermal composition of the atmosphere	-	-
6	2	Explaining diagrams of the components of the air, the chemical composition of the atmosphere, and the thermal physical composition of the atmosphere	-	-
7	2	Explaining the atmospheric elements, their measuring devices, and types of weather monitoring devices	-	-
8	2	Measuring air humidity, measuring wind speed, and measuring the amount of rain (detailed explanation)	-	-
9	2	Explaining the types of clouds, air thermodynamics, and dynamic maps	-	-
10	2	...Radiation in the atmosphere and radiation laws	-	-
11	2	The basics of weather forecasting and studying weather depressions and highs		
12	2	Atmospheric optics, its phenomena, refraction, and optical phenomena of the atmosphere		
13	2	Radar lights and definition of the radar equation		
14	2	Select radar specifications		
15	2	View radar specifications and information		
16	2	Nuclear minions		
17	2	The orbit of the affiliate and its benefits		
18	2	Electricity of the atmosphere		
19	2	Atmospheric electric field		
20	2	Thunderstorm theories		
21	2	Microscopic physics of clouds and visible cloud physics		
22	2	Refraction of light in the Earth's atmosphere and the phenomena of diffraction and scattering		
23	2	Integrated review of all chapters		
24	2	Introduction to earth science		
25	2	A simplified explanation of rock geology		

26	2	Geological processes such as earthquakes, volcanoes and erosion		
27	2	Study of minerals and fossils		
28	2			
29	2			
30	2			

11.Course Evaluation

"The distribution is as follows: 25% for monthly and daily exams for the first semester. 25% for monthly and daily exams for the second semester. 50% for final exams."

12.Learning and Teaching Resources

1- Weather forecasts, Dr. Fayyad Al-Najm, Dr. Hamid Majoul	New headway –level one.
Main references (sources)	
2-Principles of Meteorology, Saleh Al-Jitawi	

1. Course Name:

Thermodynamics

2. Course Code:

3. Semester / Year:					
Annual					
4. Description Preparation Date:					
2025/12/5					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours per year. 3 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: prof. Dr. Jassim mahdi mohammed Email: jassim.muhammed@uobasrah.edu.iq Name: Dr. Amir Hussein Ali Email: amir.ali@uobasrah.edu.iq					
8. Course Objectives					
Course Objectives			1-studying the basic concepts in thermodynamics. 2-studying the first and second law of thermodynamics. 3-studying pure materials and changing their phases. 4-studying the equations of State. 5-study the basic statistics.		
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	The system, its boundaries and surroundings..Etc.	Basic concepts	Presentation and discussion	Weekly, monthly, daily, written and end-year exams.
2	3	System Properties, power, work.	Thermodynamic processes.	Presentation and discussion	

3	3	Definition of pure matter, its phases, gas steam..Etc	Pure matter	Presentation and discussion	
4	3	The P-V-T surface of a pure substance, the three-dimensional point, the Clapeyron equation and its applications	The behavior of pure matter	Presentation and discussion	
5	3	The equation of an ideal gas, methods of derivation	The ideal gas	Presentation and discussion	
6	3	Vandervalls equation, volume correction, dietersee equations.....	Real gases	Presentation and discussion	
7	3	Critical constants, critical coefficients and symmetric States...	Discussion of the vandervalls equation	Presentation and discussion	
8	3	Molecular derivatives, complete differentials and useful identities	Status function	Presentation and discussion	
9	3	Extensibility, compressibility and Pa Function	Imperfect differential	Presentation and discussion	
10	3	Work performed during thermodynamic operations	Thermodynamic processes	Presentation and discussion	
11	3	Thermal processes, isobaric process	The first law of thermodynamics	Presentation and discussion	
12	3	Adiabatic process and isocortical process	Thermodynamic processes		

13	3	Isothermal process and various examples	Other thermodynamic processes	Presentation and discussion	
14	3	The thermal machine and its efficiency	The second law of thermodynamics	Presentation and discussion	
15	3	Freezers and thermal compressors	The second law of thermodynamics	Presentation and discussion	
16	3	Reversible operations and irreversible operations, Steam Machine.	Carnot thermal machine	Presentation and discussion	
17	3	Entropy of the universe and steam	Entropy	Presentation and discussion	
18	3	Entropy and irregularity	Irregularity	Presentation and discussion	
19	3	Maxwell's equation of entropy, the Clausius-Clapeyron equation	Equations of irregularity	Presentation and discussion	
20	3	Kinetic theory of an ideal gas	Kinetic theory	Presentation and discussion	
21	3	Collisions with moving walls, the equation of state of Clausius	Collisions with moving walls	Presentation and discussion	
22	3	Finding the values α and β , The Power Distribution Function	Particle velocity distribution	Presentation and discussion	
23	3	The principle of equality of energies, the specific heat capacity of solid bodies	Classical theory	Presentation and discussion	
24	3	Mean free path, viscosity coefficient		Presentation and discussion	

25	3	Thermal conductivity, diffusion	Distribution of tracks	Presentation and discussion	
26	3	Maxwell - Boltzmann statistics	Thermal conductivity	Presentation and discussion	
27	3	Bose - Einstein statistics	Statistics	Presentation and discussion	
28	3	Fermi-Dirac statistics	Statistics	Presentation and discussion	
29	3	Discharge and method of its measurement	Statistics	Presentation and discussion	
30	3	Concepts at low temperatures	vacuum	Presentation and discussion	
			Low temperatures	Presentation and discussion	

11.Course Evaluation

The distribution is as follows: 25 grades of monthly and daily exams for the first semester. 25 monthly and daily exam grades for the second semester. 50 grades for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Thermodynamics, authored by Sami Mazloum Saleh
Main references (sources)	College physics 9 th ED, 2012
Recommended books and references (scientific journals, reports...)	1-lectures from the International Information Network (Internet)
Electronic References, Websites	https://zlibrary-asia.se/ https://www.researchgate.net/

Course Description Form

1. Course Name:
Atomic and molecular physics
2. Course Code:

3. Semester / Year:					
4. Description Preparation Date:					
:2026/2/25					
5. Available Attendance Forms:					
My presence only					
6. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours annually. 3 hours a week theoretically.					
7. Course administrator's name (mention all, if more than one name)					
Name: Proff.Dr.Thaer Munshad Salman Email: thaer.salman@ uobasrah.edu.iq Name: Dr.Abdullaha Abdalameer Email: abdullaha.hussain68@ uobasrah.edu.iq					
8. Course Objectives					
Course Objectives 3) Realizing the differences between Newtonian and Einsteinian physics relativity and quantum physics. 4) Correct handling of physical phenomena according to modern physics			1) Students acquire skills in dealing with modern atomic and molecular physics. 2) Understanding modern concepts in this field of physics 3) Modern physics.....		
9. Teaching and Learning Strategies					
Strategy		1) Cooperative conceptual education planning strategy. 2) Brainstorming education strategy. 3) Educational notebook strategy.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
8	24	Students acquire skills in dealing with laws of modern physics at high speed compared to the speed of light and the mass	1- The theory of special relativity (1) The concept of atomic physics (2) Introduction to relativity (3) The failure of the classical concepts of space and time (4) Inertial axes (5) Newton's laws of motion		

		of small particles such as the mass electrons and other	(6) Galileo transformations (7) Michelson-Morley experiment (8) Einstein's hypotheses in special relativity (9) Lorentz transformation (10) Results of Lorentz transformations (11) Relativity of length (12) Relativity of time (13) Relativity of speed (14) Relative mass (15) Relative momentum (16) Relative energy (17) The relationship between energy and momentum (18) Electron volt 2- Electromagnetic radiation (1) Thermal radiation (2) Emission and absorption radiation (3) Black body radiation (4) Black body radiation spectrum (5) Rayleigh-Jeans formula (6) Planck's law for black body radiation (7) Photoelectric phenomenon (8) Einstein's explanation of the photoelectric phenomenon (9) Applications of photoelectric phenomenon 3- X ray 1- Discovery of X-rays 2- Production of X-rays 3- Measure the intensity of X-rays 4- The diffraction of X-rays 5- Diffraction of X-rays 6- Refraction of X-rays 7- X-ray absorption 8- X-ray absorption method 9- X-ray absorption method 10- X-ray spectra 4-Wave properties of particles 1- De Broglie's hypothesis 2- Electron diffraction 3- Electron diffraction experiments by Davisson and Germer 4- Thomson's electron diffraction experiments 5- Waves that accompany atoms and molecules 6- Speed of De Broglie waves 7- Heisenberg's rule of uncertainty 5- Hydrogen atom 1- Spectrum of the hydrogen atom	
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			2- Bohr's theory of hydrogen atom 3- Bohr's hypotheses 4- Movement of hydrogen nucleus 5- Schrodinger equation 6- Schrodinger equation for the hydrogen atom 7- Interpretation of solution to the Schrodinger equation 8- Selection rules for hydrogen atom 9- Elliptical orbitals of the hydrogen atom Multi-electron atoms (electronic structure of atom) 1- Optical spectra and sequences 2- Orbital angular momentum 3- Spin of the electron 4- The vector of total angular momentum 5- The magnetic moment of the orbital electron 6- Magnetic quantum numbers 7- Pauli's exclusion principle 8- Zeeman phenomenon 9- Distribution of electrons in the atom		
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11.Course Evaluation

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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Physics of Atoms and Molecules, B. Bransden, Charles Jean Joachain, Prentice Hall, 2003.
Main references (sources)	2- Physics 3rd Edition, by Kenneth S. Krane , John Wiley & Sons, Incorporated, 2012. 3-Modern Physics and Technology for Undergraduates, by Lorcan M Folan et al., World Scientific Book, 2003. 1- University Physics with Modern Physics, by Hugh D. Young, Pearson Education, 2021.

	4- Concepts in Modern Physics, Arthur Beiser, translation of the second edition 5- Atomic Physics, Dr. Talib Nahi Al-Khafaji, Dr. Abbas Hammadi, and Dr. Hormuz Moshi, part_1 and part_2
Recommended books and references (scientific journals, reports...)	Acta Physica Polonica, a Polish open access journal, and the link to the journal is below. http://www.actaphys.uj.edu.pl/
Electronic References, Websites	1- https://www.youtube.com/watch?v=Agu68RGaoWM https://ocw.mit.edu/search/?d=ysics

1. Course Name:
Electronics
2. Course Code:
3. Semester / Year:
Year
4. Description Preparation Date:
5. Available Attendance Forms:
Attendance only
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hours /6 unit
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Ahmed S. Al-Asadi Email: ahmed.mahdi@uobasrah.edu.iq

Name: Dr. Sundes J. Faker
 Email: sundes.fakher@uobasrah.edu.iq

8. Course Objectives

Course Objectives	1- Identifying pure and doped semiconductors, energy band theory, and material classification based on this theory. 2- Studying semiconductor diodes and their applications. 3- Studying bipolar junction transistors (BJT) and their applications, as well as field-effect transistors (FET) and their applications. 4- Identifying types of thyristors, classes of power amplifiers, positive and negative feedback, oscillators, and logic circuits.
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9. Teaching and Learning Strategies

Strategy	1- Teaching Strategy: Cooperative concept mapping. 2- Teaching Strategy: In-person lectures and practical labs for 30 weeks, including monthly and daily exams. 3- Teaching Strategy: Sequential observation method.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2	3	In-person Lectures: Theory and Practical	Unit 1: Introduction Semiconductors Classification of materials based on band theory Pure and doped semiconductors		
3 4		In-person Lectures: Theory and Practical	Unit 2: Semiconductor Diode Energy band diagram Diode characteristic curve Diode equivalent circuit Load line and operating point		

5 6		In-person Lectures: Theory and Practical	Unit 3: Applications Semiconductor Diodes Wave rectification Wave-shaping circuits		
7 8 9 10		In-person Lectures: Theory and Practical	Unit 4: Zener Diode Circuits Equivalent circuit of the Zener diode Applications of the Zener diode		
11 12 13 14		In-person Lectures: Theory and Practical	Unit 5: Bipolar Junction Transistor (BJT) Types of transistor biasing Transistor limitations		
15 16		In-person Lectures: Theory and Practical	Unit 6: Bipolar Junction Transistor Amplifiers Equivalent circuit of the amplifier using hybrid parameters Frequency response of the amplifier Multi-stage amplifiers		
17 18		In-person Lectures: Theory and Practical	Unit 7: Thyristors		
19 20		In-person Lectures: Theory and Practical	Unit 8: Types of Power Amplifiers		
21 22		In-person Lectures: Theory and Practical	Unit 9: Field-Effect Transistor (FET) Working principle of junction field-effect transistor (JFET)		

			Transistor characteristics Biasing circuits Metal-Oxide-Semiconductor Field-Effect Transistor (MOSFET)		
23 24		In-person Lectures: Theory and Practical	Unit 10: Negative Feedback and Types Connections The effect of negative feedback gain, impedance, and bandwidth		
25 26		In-person Lectures: Theory and Practical	Unit 11: Positive Feedback • Oscillators • RC oscillators • LC oscillators		
27 28		In-person Lectures: Theory and Practical	Unit 12: Logic Circuits		
29 30		In-person Lectures: Theory and Practical	Unit 13: Introduction Nanotechnology Applications Nanotechnology		

11.Course Evaluation

Distribution as follows:

- 25 marks for monthly and daily exams in the first semester.
- 25 marks for monthly and daily exams in the second semester.
- 50 marks for the final exams.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	"Electronic Devices and Circuit Theory" – Robert L. Boylestad Louis Nashelsky
Recommended books and references (scientific journals, reports...)	"Microelectronic Circuits" Adel S. Sedra & Kenneth C. Smith

Electronic References, Websites

"The Art of Electronics" – Paul
Horowitz & Winfield Hill

Course Description Form

1. Course Name:	
Curricula and teaching methods	
2. Course Code:	
3. Semester / Year:	
year	
4. Description Preparation Date:	
5/12/2025	
5. Available Attendance Forms:	
My presence only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours annually. 2 hours per week	
7. Course administrator's name (mention all, if more than one name)	
Name: M. M. Reman Jamal Jassim	
Email: lec.reman.jasim@uobasrah.edu.iq	
8. Course Objectives	
1- Providing students with good teaching skills. 2- Developing students' abilities to understand, comprehend, and assimilate the criteria upon which they choose a topic or choose methods for collecting data and information, and choose methods for analyzing this data and information in order to reach the goal.	

3 - Helping students adapt and face the changes that occur in different areas of life because it is linked to the reality that the student lives and its requirements.

9. Teaching and Learning Strategies

Strategy

- 1- Educational strategy, collaborative concept planning.
- 2- Brainstorming education strategy.
- 3- Education Strategy Notes Series.
- 4- Teaching strategy feedback at the present time.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 hours	1- Providing the student	1- Introduction, the	1- Make the	Weekly, monthly, daily, written exams, and the end-of-year exam.
2	2 hours	A teacher with knowledge	concept of science	learner active	
3	2 hours	and knowledge	technology concept,	and effective in	
4	2 hours	In everything related	Components of science.	educational	
5	2 hours	in school curricula,	2-philosophy of science	situations.	
6	2 hours	In terms of its design,	teaching,	2- Accustom	
7	2 hours	And its evaluation, and	Steps of scientific thinking,	students to	
8	2 hours	mechanisms	Characteristics of science.	respecting	
9	2 hours	Develop it.	3- The concept of the	different	
10	2 hours	2- Student gain	curriculum,	opinions and	
11	2 hours	Teacher skills	Criticisms directed at	appreciating	
12	2 hours	Teaching	Curriculum.	others.	
13	2 hours	And his strategies	4- The modern concept of	3- Benefiting	
14	2 hours	In paths	the curriculum	from the ideas	
15	2 hours	different specialization,	Facilitating factors	and information	
vacation		And develop his ability to	The emergence of the	of others	
16	2 hours	Evaluate and develop it.	modern approach.		
17	2 hours	3- Refine skills	5- Components of the		
18	2 hours	Student teacher	curriculum in its meaning		
19	2 hours	Teaching, according to	Hadith, vocabulary		
19	2 hours	For the latest guidance.	organizations		
20	2 hours		Or curriculum courses.		
21	2 hours		6- Foundations of		
22	2 hours		curriculum construction		
23	2 hours		Academic, culture and		
24	2 hours		curriculum		
25	2 hours		Culture in terms		
26	2 hours		Social.		
27	2 hours		7- components of culture,		
28	2 hours		Characteristics of culture.		
29	2 hours		8-curriculum and society,		
30	2 hours		Curriculum and social		
			change.		
			9- psychological basis,		
			The relationship between		
			the aspects		
			Psychology, learning and		
			curriculum		
			Needs, approach, and		
			inclinations		
			And the curriculum.		
			10- psychological basis,		
			Educational philosophy		
			Islamic, educational		
			philosophy		
			Progressive.		
			11- Types of curricula		

			Scholarship. Separate subjects curriculum. 12- Fields approach Broad, activity approach. 13- The core curriculum, Units curriculum, Elements of the curriculum as a system Quadrant. 14- Content and experiences Educational, teaching methods And educational technologies Calendar. 15- The importance of goals Educational, sources of derivation Educational objectives. 16- Goal levels Educational specifications Behavioral goals. 17- how We formulate behavioral goals, Classification of behavioral goals. 18- Content and experiences Educational, selection rules Curriculum content, Rules for organizing curriculum content. 19- Teaching method, teaching style, Teaching strategy. 20- Foundations of good teaching Advantages of the teaching method The good one. 21- Guided exploration Planning for science teaching With guided exploration, advantages directed exploration, Exploration problems Router. 22- Problem Solving, Steps to solve the problem, Advantages of problem solving, Difficulties in solving the problem. 23- Lecture method, Advantages of the lecture method, Weaknesses in the method lecture. 24- Programmed education,		
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			Types of educational programs, Computer, advantages of using Computer, difficulties that Having trouble using a computer. 25- cooperative learning, Steps for cooperative learning, Advantages of cooperative learning, Disadvantages of cooperative learning. 26- Discussion and dialogue, open discussion, planned discussion, Group discussion, games Educational. 27- Practical offers or display experiences, Stages of submitting an offer Practical, positives offer Practicality, cons of presentation Practical. 28- Field visits, Steps for visits Field, positives of the visit Field, cons Field visit 29- Laboratory in teaching Science, teaching philosophy Laboratory, the importance of the laboratory In teaching science, Safety rules in Physics laboratory. 30- The concept of means Educational standards that Take into account when choosing Teaching aids , Technical characteristics of the medium Good, types of means Educational.		
11. Course Evaluation					
Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams					
12. Learning and Teaching Resources					
Required textbooks (methodology, if any).					

Main references (sources)	Curricula and teaching methods/educational qualification programme
Recommended books and references (scientific journals, reports...)	General curricula and teaching methods.
Electronic References, Websites	

Course Description Form-Year Four

1. Course Name:	
Solid State Physics	
2. Course Code:	
3. Semester / Year:	
-2026-2025	
4. Description Preparation Date:	
5. Available Attendance Forms:	
Attendance only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90 hours /6 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Mohammed Fadhil Email: mohammed.al-mudhaffer@uobasrah.edu.iq Name: Assoc.-Prof.-Dr. Fatima-Hussein-Saeed Email: fatima.saeed@uobasrah.edu.iq	
8. Course Objectives	
Course Objectives	
9. Teaching and Learning Strategies	
Strategy	- Cooperative Concept Mapping Teaching Strategy - Brainstorming Teaching Strategy: - Observations Chain Teaching Strategy:
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Lecture Number	Credit Hours	Topic	Content	Assessment	
1	3	Introduction to Crystalline and Amorphous States	Unit Cell - Crystalline Structure	Lecture, Discussion - Test, Class Participation	
2	3	Bravais and Non-Bravais Lattices	Types of Lattices - Crystalline Structure	Lecture, Demonstration - Homework, Presentation	
3	3	Simple Cubic, Body-Centered Cubic, Face-Centered Cubic	Sodium Chloride, Hexagonal Close-Packed Structure - Crystalline Structure	Group Work, Laboratory Experiment - Lab Report, Theoretical Assessment	
4	3	Symmetry and Miller Indices	Incident Beams and Bragg's Law - Crystalline Structure	Interactive Session, Problem Solving - Test, Practical Exam	
5	3	X-rays, Neutrons, Electrons	Experimental Methods for Diffraction - Diffraction in Crystals	Lecture, Simulation - Test, In-Class Presentation	
6	3	Laue Method, Rotating Crystal Method, Powder Method	Reciprocal Lattice - Diffraction in Crystals	Group Discussion - Lab Report, Monitoring	
7	3	Lattice Structure Factor	Lattice Vibration: One Atom in One Dimension - Lattice Dynamics	Lecture, Demonstration - Test, Practical Evaluation	
8	3	Two Atoms in One Dimension	Specific Heat of the Lattice - Lattice Dynamics	Interactive Session, Demonstration - Test, Practical Exam	
9	3	Classical Model, Einstein Model, Debye Model	Thermal Expansion - Lattice Dynamics	Lecture, Demonstration - Lab Report, Theoretical Assessment	
30	3	Superconducting State	Transitional Magnetic Field - Superconductivity	Lecture, Discussion - Final Exam, Project Presentation	

11.Course Evaluation

"The distribution is as follows: 25% for monthly and daily exams for the first semester. 25% for monthly and daily exams for the second semester. 50% for final exams."

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Solid State Physics , authored by Dr. Yahya Al-Ja 2- Solid State Physics , authored by Dr. Moayad Gal Yousif 3- Introduction to Solid State Physics , Charles KI 1996
Main references (sources)	Solid State Physics , authored by Dr. Yahya
Recommended books and references (scientific journals, reports...)	

1. Course Name:

Measurement and evaluation

2. Course Code:**3. Semester / Year:**

Year

4. Description Preparation Date:

5 / 12/ 2025

5. Available Attendance Forms:

Only Attendance

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

90 hours Year . 2 hours weekly

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

Name: Maha saddam abd

Email: maha.saddam@uobasrah.edu.iq

8. Course Objectives

2- The student should distinguish between scientific theory and bureaucratic theory

3- That the student applies what he has learned when dealing with students

4- That the student be able to predict and explain some of the behaviors issued by students

9. Teaching and Learning Strategies**Strategy**

- 1- Educational strategy, collaborative concept planning.
- 2- Brainstorming strategy
- 3- Education Strategy Discussion Series

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2hours	1-Learn about the concept measurement and evaluation 2- Identify the types of	The concept of measurement ; evaluation	1-Explaini The Scientific Material	Weekly monthly daily,
2	2hours				
3	2hours				
4	2hours				

5	2hours	standards	Types of metrics	in detail in a lecture. 2- Writin g reports on main topics	written exams, and the end -of-year exam
6	2hours	3- Identify the general	Generalprinciples in evaluation		
7	2hours	principles of evaluation			
8	2hours	4- Get to know the calendar in			
9	2hours	Educational process	Evaluation in the		
10	2hours	4- Identify the purposes	educational process		
11	2hours	measurement and evaluation	Measurement and evaluation purposes		
12	2hours	5-Recognizing the importance			
13	2hours	measurement and evaluation			
14	2hours	6- Learn about achievement	Theimportance of measurem and evaluation		
15	2hours	tests			
		7-Learn about the oral test and.			
		And the pans	Achievement tests		
		8-Learning about tests			
		Objectivity			
		9- Getting to know the tests	Oral and essay		
		Performativity			
		10- Identify the building			
		Achievement tests	Objective tests		
		11- Identify the steps of building			
		the test			
		12- Identify the selection	Performance tests		
		function			
		13- Identify the definition			
		Teaching objectives	Building achievement tests		
		14- Identify the numbers in			
		Table A			
		Specifications	Steps to build the test		
		16-Learn about building			
		specifications table			
		17- Identify the characteristics	Determine teaching objectives		
		the test			
		18- Recognizing honesty			
Offday		19- Identify stability	Specifications table numbers		
16	2hours	20- Learn about			
17	2hours	calculation methods			
18	2hours	Consistency	Mid-year exam		
19	2hours	21- Recognizing re			
20	2hours	the test			
21	2hours	22- Image recognition			
22	2hours	Equivalent			
23	2hours	23- Identify segmentation			
24	2hours	Midterm	Build a specifications table		
25	2hours	24- Identify the influencing			
26	2hours	factors			
27	2hours	With consistency	Characteristics of a good test		
28	2hours	25-Learn about analysis			
29	2hours	specialist			
30	2hours	26- Identifying the means	Honesty and its types		
		Testing			
		27- Identify the note			
		And its types	Test stability		
		28-Learn about the rating lists			
			Methods for calculating stability		

		29-Learn about the ladders appreciation 30-Learn about the statement ladder Descriptive	exam REPETITION Equivalent images Half split method Constantly influencing factors statistical analysis Test methods Second semester exam Observation and its types Ladders of appreciation Deliver the descriptive statement End of year exams		
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11.Course Evaluation

Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Required textbooks (curriculum books, if any)	Abu Alam, please Mahmoud (1987): Measurement and evaluation of collection, Dar Al Qanq
Main references (sources)	Al-Zaher, Zakaria Mohamed and Others) 1999 : The principles of measurement and evaluation in education, i 1, Culture Library for Publishing and

	Distribution, Amman
Recommended books and references (scientific journals, reports...)	Brown ,F.G:(1976):Principles of Educational and psychological testing New York :Holt-Rinhart and Winston
Electronic References, Websites	WWW.Site.iugaza.edu.ps/omozini/2010/2/measur

1. Course Name:

Quantum Mechanics

2. Course Code:					
3. Semester / Year:					
2026-2025					
4. Description Preparation Date:					
5/122025					
5. Available Attendance Forms:					
In presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours (total)-3 hours per week / 6 units (total)					
7. Course administrator's name (mention all, if more than one name)					
Name: ¹ Assist.Prof.Dr. Haider Kassim Fadel ² Lect.Dr. Hisham Youssif Almahde Email: ¹ haider.qassim@uobasrah.edu.iq					
8. Course Objectives					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3	Informing students about the importance of quantum physics theories and their importance in relation to classical physics.	Chapter1: Physical Foundation		Weekly, monthly, daily, written exams, and the end-of-year exam.
2			Quantum Mechanics		
3			= =		
4			Chapter2: Elementary Properties		
5			and Laws of Quantum		
6			= =		
7			= =		
8			= =		
9			= =		
10			= =		
11			Chapter3: Quantum Harmonic		
12			Oscillator		
13			= =		
14			= =		
15			= =		
			Half-year holiday		
16			Chapter4: Physical Application		
17			of Schrodinger's Equation to		
18			One and Three Dimensional		
19			Problems		
20			= =		
21			= =		
22			= =		
23			= =		
24			Chapter5: The Central Potential		
25			and One Electron Atom		
26			= =		
27			= =		
28			= =		
29			= =		
30	= =				

11.	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, as following: 20 marks for the mid-year exam, 30 marks for monthly and daily exams and 50 marks for the final exam.	
12.Learning and Teaching Resources	
الميكانيك الكمي – جاسم الحسيني.	
الفيزياء الكمية – د. هاشم عبود	
Quantum Mechanics for Pedestrians 2, Applications & Extensions, Second	

Edition, 2018	
Electronic References, Websites	Not required

Course Description Form

1. Course Name:					
Laser Physics					
2. Course Code:					
3. Semester / Year:					
Yearly					
4. Description Preparation Date:					
5/12/2025					
5. Available Attendance Forms:					
Only attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
90 hours annually. 3 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: Ra'ed M. Hassan Hussain Ali Badran Email: raed.hussan @ uobasrah.edu.iq					
8. Course Objectives					
Course Objectives		1. Reaching an understanding of the basic concepts of laser physics, as it is a modern science emerging as a result of technical development in the past few decades, and what are the stages of development and applications of this science. 2. Gain a broad scientific background on the theoretical basis of laser applications in all areas of life.			
9. Teaching and Learning Strategies					
Strategy		1. Education strategy collaborative concept planning. 2. Brainstorming education strategy. 3. Education strategy notes series			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 hours	Physical once	Electromagnetic radiation Spectrum and wave roperities	Providing students in advance with summaries of the paper and electronic chapters of the subject, and explaining the scientific material in	Daily, weekly, monthly written exams and the end-of-year exam.
2	3 hours		Energy states (levels)		
3	3 hours		Laser beam characteristics		
4	3 hours	Introduction lasers	The basic components of the laser device		
5	3 hours				

6	3 hours		Emission and absorption of radiation Count at thermal equilibrium	detail in person, with reference to archaeological sources and addresses of electronic links related to each chapter or paragraph of the scientific material.	
7	3 hours	Einstein	Absorption and emission		
8	3 hours	relationships	Expansion of life span		
9	3 hours				
10	3 hours	Spectral line	The amplitude of the collision		
11	3 hours	width	Heterogeneous amplitude		
12	3 hours	Absorption	Doppler phenomenon		
13	3 hours	and small signal gain	Absorption of electromagnetic radiation		
14	3 hours	coefficient	Profit and profit factor		
15	3 hours		Visual feedback		
vacation					
16	3 hours	Resonator and optical			
17	3 hours	feedback'	Resonator patterns		
18	3 hours		Frequency range of laser action		
19	3 hours	Laser modes	Longitudinal (axial) modes		
20	3 hours		Transverse modes		
21	3 hours	population	population inversion		
22	3 hours	inversion,	Gain and loop losses.		
23	3 hours	gain and loop losses	Population inversion and threshold condition		
24	3 hours		Gain saturation in homogeneous laser		
25	3 hours	Steady state oscillation	Pulsed laser.		
26	3 hours	and adjust the laser	Types of lasers		
27	3 hours	output.	Helium-neon (He-Ne)		
28	3 hours	Types of lasers and	laser		
29	3 hours	their	Laser applications		
30	3 hours	applications	Special applications		

11.Course Evaluation

Distribution is as follows: 25 marks for monthly and daily exams for the first semester. 25 marks for monthly and daily exams for the second semester. 50 marks for final exams

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	الليزر , سهام غفيف قندلا , دار الشؤون الثقافية العامة , 1992.
Main references (sources)	Laser Physics , Peter W. Milonni and Joseph H. Eberly, 2010
Recommended books and references (scientific journals, reports...)	1. Fundamentals of Laser Physics, Kyungwon An (Seoul National University, South Korea). 2023.

	2. Basics of Laser Physics: For Students of Science and Engineering, Karl F. Renk , 2017
Electronic References, Websites	1. https://t.me/laserphysics2023 2. https://www.hazemsakeek.net/category/%D9%85%D8%AD%D8%A7%D8%B6%D8%B1%D8%A7%D8%AA-%D9%81%D9%8A%D8%B2%D9%8A%D8%A7%D8%A1/c31/

1. Course Name: Nuclear Physics
2. Course Code:
3. Semester / Year: 2026-2025
4. Description Preparation Date: 5/12/2025
5. Available Attendance Forms: Attendance only
6. Number of Credit Hours (Total) / Number of Units (Total) 120 hours / year , 5 hours / weakly , 4 units/
7. Course administrator's name (mention all, if more than one name) Name: Prof. Dr. Falih H. Al-Khudair Email: falih.khudair@uobasrah.edu.iq Lecture Dr. Ashwaq F. Jaafer Email: ashwaq.jaafer@uobasrah.edu.iq

8. Course Objectives

The student learns about the nature of the nucleus and its components.

The student learned about the nuclear structure.

The student learns about the nature of reactions and nuclear binding energy.

Study of nuclear models

Study of nuclear decays and the nature of nuclear radiation

The student learns about the uses of nuclear physics.

9. Teaching and Learning Strategies

Strategy

Cooperative Concept Mapping Teaching Strategy
Brainstorming Teaching Strategy:
Observations Chain Teaching Strategy:

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Nuclear properties-Nucleus components Measurement units for nuclear quantities	Nuclear Properties	Lecture, discussion	Test, class participation
2-3	6	Nuclear banding energy, Mass defect (excess), Separation energy, Valley of stability,	Nuclear structure	Lecture, Power Point Presentation	Homework and discussion
4-5	6	Nuclear model, Liquid drop model, Shell model, Energy levels, Nuclear magnetic dipole moment, Electric quadrupole moment	Nuclear structure	Lecture, Discussion, Experimental	Report Exam
6-7	6	Radioactive decay law, Activity, Mean life, Half-life, Production of Radioactive isotopes, Multiprocesses decay, Widths of decaying states, Dating	Radioactivity	Lecture, Discussion, Experimental	Report Experimental Exam
8-9	6	Alpha(α) Decay, decay series, Energy and range of α -decay, beta decay, Neutrino Hypothesis, Classifications of β -decays	Radioactivity	Lecture, Discussion, Experimental	Report Experimental Exam
10	3	Gamma decay, Energies of gamma decay, modes of gamma decay, Internal conversion	Radioactivity	Lecture, Power Point Presentation	Homework and discussion
11-12	6	Types of Nuclear Reaction, Threshold Energy, Nuclear reactions cross section	Nuclear Reaction	Lecture and Discussion,	Test, class participation
13-14	6	Theories of nuclear reactions, Nuclear Fission, Theory of nuclear fission, Types of nuclear fission,	Nuclear Reaction	Lecture and Discussion,	Test, class participation

		Number of emitted neutrons ,Nuclear Fusion, Basic Fusion processes			
15-16	6	Fission cascade reaction, The main components of the reactor Nuclear, Reactor operation, Uses of reactors, types Reactors, nuclear reagents	Nuclear Reactors	Lecture, Power Point Presentation	Homework and discussion
17-18	6	Types of nuclear accelerators - Cyclotron, -Electron Synchrotron, proton synchrotron, Van De Graaff accelerators, Cockcroft-walton accelerator	Nuclear Accelerators	Lecture, Power Point Presentation	Test, class participation
19-24	6	Training in Schools	Teaching training	Direct evaluation of teaching	Scientific and educational evaluation
25-26	6	Radiation interaction with matter, Biological effects of ionizing radiation	Nuclear Radiation	Lecture and Discussion	Homework and discussion
27-28	6	Ionization energy rate, Interaction of neutrons with matter, reaction Heavy charged particles reaction with matter	Nuclear Radiation	Lecture and Discussion	Test, class participation
29-30	6	Comprehensive review, Solve the questions	Comprehensive review	Lecture and Discussion	Test and Discussion

11.Course Evaluation

"The distribution is as follows: 25% for monthly and daily exams for the first semester. 25% for monthly and daily exams for the second semester. 50% for final exams."

12.Learning and Teaching Resources

1. Nuclear Physics : Dr Asiad Jalal
2. Introduction to Nuclear Physics : Dr. Inka

Main references (sources)

Nuclear and Particle Physics/ B. R. Martin

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

Electronic References, Websites

<https://www.nndc.bnl.gov/ensdf/>

National Nuclear Data Center