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

٢٠٢٥

The Introduction:

The educational program is considered a coordinated and organized package of academic courses that includes procedures and experiences organized in the form of academic vocabulary, the main purpose of which is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that students are working to acquire based on the objectives of the academic program. The importance of this description is evident because it represents the cornerstone of obtaining program accreditation, and the teaching staff participates in writing it under the supervision of the scientific committees in the scientific departments.

This guide, in its second edition, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the latest developments in the educational system in Iraq, which included a description of the academic program in its traditional form (annual, quarterly), in addition to adopting the description of the academic program circulated according to the book of the Department of Studies 3/2906. On 5/3/2023 with regard to programs that adopt the Bologna Process as a basis for their work.

In this area, we can only emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth conduct of the educational process.

Concepts and terminology:

Description of the academic program: The description of the academic program 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 necessary summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has 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 a developed, inspiring, motivating, realistic and applicable program.

The program's mission: It briefly explains the goals and activities necessary to achieve them, and also defines the program's development paths and directions.

Program objectives: These 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/study subjects included in the academic program according to the approved learning system (semester, annual, Bologna track), whether it is a requirement (ministry, university, college, or scientific department), along with the number of study units.

Learning outcomes: A consistent set of knowledge, skills, and values that the student has acquired after the successful completion of the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

Teaching and learning strategies: They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. That is, it describes all curricular and extracurricular activities to achieve the learning outcomes of the programe.

Academic Program Description Form

University Name: Samarra
Faculty/Institute: College of Education
Scientific Department: Physics

Academic or Professional Program Name: Bachelor's program in Physics
Final Certificate Name: Bachelor's in Physics

Academic System: Annual
Description Preparation Date: 19/3/2025
File Completion Date: 19/3/2025

Signature:
Head of Department Name:
Asst. Prof. Dr. Ahmed I. Turki
Date: 19/ 3/ 2025

Signature:
Scientific Associate Name:
Asst. Prof. Hossam Abdel Hamid Hussein
Date: 19/ 3/ 2025

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance
Department: Asst. Lec. Mohammed Daham Hamidi
Date: / 3/ 202
Signature:

Approval of the Dean

Asst. Prof. Dr. Abdul Hamid Muzahim Shaker

1. Program vision

The Department of Physical Sciences seeks to improve itself to ensure its compatibility with international standards, so that the department becomes a model in providing students with a high level of knowledge, scientific and academic knowledge, which makes it distinctive at the level of physics departments in local, regional and international universities.

2. Program mission

Providing the appropriate educational and academic environment to provide students with the necessary experience and skills to provide society with specialized competencies in physics and in the field of education and scientific research, as well as developing their scientific abilities and using them in life phenomena, analyzing them, and finding appropriate scientific solutions to them.

3. Program objectives

1. Providing students with knowledge and skills in the field of physics to keep pace with scientific progress.
2. Providing scientifically qualified expertise and competencies to meet the needs of development plans in Iraq and serve the labor market.
3. Serving society and the environment by spreading awareness in the field of physics, providing scientific consultations, and conducting academic and applied research.
4. Encouraging scientific research by strengthening communication

with research institutions inside and outside the country.
5. Developing students' ability to confront various scientific and practical problems, trying to find appropriate solutions to them, and improving undergraduate research.

4. Program Accreditation

Does the program have program accreditation? From which side?
No

5. Other external influences

Is there a sponsor for the program?
Yes, the Ministry of Higher Education and Scientific Research.

6. Program structure

Program structure	Number of courses	Study unit	percentage	Notes *
Institution Requirement	8	١٦	%٩	Support or related learning activity
College Requirement	١١	٣٦	%٢١	Basic and Core learning activities

Department Requirement	٢١	١١٦	%٧٠	Major
Summer Training	Not Found			
Other				

* Notes may include whether the course is core or elective.

7. Program Description

Year/ level	Name of Course	Course Code	Credit hours	
٢٠٢٥/٢٠٢٤			Theoretical	Practical
The first stage				
The first stage	**Mechanics**		٣	٢
The first stage	**Heat and properties of material**		٢	
The first stage	**Electricity and Magnetism 1**		٣	٢
The first stage	**Mathematics 1**		٣	
The first stage	**Computer 1**		١	
The first stage	**Developmental and Educational psychology**		٢	
The first stage	**Fundamentals of Education**		١	
The first stage	**Arabic language**		١	
The first stage	**Democracy and Human rights**		١	
The first stage	**English language**		١	

The second stage				
The second stage	Optics		٣	٣
The second stage	Astronomy		٢	
The second stage	Electric and Magnetism 2		٢	٣
The second stage	Mathematics 2		٣	
The second stage	Sound and wave motion		٢	
The second stage	Computer 2			٢
The second stage	Educational Administration and secondary Education		٢	
The second stage	Developmental psychology		٢	
The second stage	Fundamentals of scientific research		١	
The second stage	English language		١	
The second stage	The crimes of the Baath regime in Iraq		١	
The third stage				
The third stage	Atomic and molecular		٣	٣
The third stage	Thermodynamic		٢	١
The third stage	Electronics		٣	٣
The third stage	Analytical Mechanics		٢	١
The third stage	Complex functions		٢	
The third stage	Psychological Guidance and Psychological health		٢	
The third stage	Curriculum and methods of teaching		١	٢
The third stage	Optional		٢	

The third stage	English language		١	
The fourth stage				
The fourth stage	Nuclear physics		٣	٣
The fourth stage	Laser		٢	
The fourth stage	Electromagnetic theory		٢	١
The fourth stage	Quantum mechanics		٢	١
The fourth stage	Solid state physics		٢	١
The fourth stage	Measurement and evaluation B		٢	
The fourth stage	Practical education		١	٢
The fourth stage	Research project		٢	
The fourth stage	Demonstration instruments Lab			٢
The fourth stage	English language		١	

8. Expected learning outcomes of the program

Knowledge	
Defining physics terms with outputs that are linked to the characteristics of learners by the institution.	- Explains the most important laws established by physical philosophers. - Explains the physical issues that occur in the universe. - Classifies physical approaches formulated by physical scientists.
Skills	
Enabling students to know what physics is and to communicate with the main source of physics	- The physical approach deals with the study of physics concepts in their general form. - Applies the laws of physics in daily life. - Asks research questions in the field of physics.

Value	
A work ethic linking physics and other sciences must be established.	- The student's ability to discuss and form an opinion about physics issues. - The student's ability to extract different physics approaches in developing an understanding of physics.

9. Teaching and learning strategies

1- Giving lectures.

2- Research and information.

3- Discussion sessions.

10. Evaluation methods

1- Oral exams and daily attendance. 2- Daily written tests. 3_ Monthly tests.

4_ Extracurricular activities.

11. Faculty

Faculty Members

Academic rank	Specialization		Faculty	
	general	private	Internal staff	External staff
Asst. Prof (no. 4)	physics	Solidity	*	
Asst. Prof (no. 1)	physics	Atomic and Molecular	*	
Asst. Prof (no. 2)	Computer science	IT	*	
Asst. Prof (no. 1)	Comm.	Comm.	*	

Asst. Prof (no. 2)	Math.	Differential Equations + Dynamic Systems	*	
Asst. Prof (no. 1)	English Language	Language		*
Lec. (no. 2)	physics	Solidity	*	
Lec. (no. 1)	physics	Plasma	*	
Lec. (no. 1)	physics	Nuclear		
Lec. (no. 1)	Math.	Algebra	*	
Lec. (no. 1)	Psychology	Psychology	*	
Lec. (no. 1)	Computer science	Artificial Intelligence	*	
Lec. (no. 1)	History	Islamic		*
Asst. Lec. (no. 3)	physics	Nuclear	*	
Asst. Lec. (no. 1)	physics	Electronics	*	
Asst. Lec. (no. 1)	physics	Renewable Energy	*	
Asst. Lec. (no. 1)	Computer science	Information Security	*	
Asst. Lec. (no. 1)	Arabic language	Literature	*	
Asst. Lec. (no. 2)	Law	Public Law		*

Professional development

Orienting new faculty members

- Directing the teaching staff to follow the applicable contexts in the Ministry of Higher Education and Scientific Research.

- Directing them to refer to one of the old faculty members when necessary.

- Follow the website of the Ministry of Higher Education and Scientific Research to review the applicable contexts and laws to be a basis for dealing with professors and students.

Professional development for faculty members

- Conducting seminars and training workshops for teachers.

- Identifying old professors to follow up on new teachers in order to guide them according to the correct academic methods followed in the learning environment.

- Teamwork with senior teachers to write and publish scientific research.

12. Acceptance criterion

According to central controls.

13. The most important sources of information about the program

https://courses-lectures.com/٢٠١٦/١٢/feynman-lectures-on-physics -

https://courses-lectures.com/٢٠١٦/١٢/for-dummies-books-collection -

http://www.mediafire.com/file/i-٤xq١٥qrqh٩br٦٦/Principles+of+Physics.rar

14. Program development plan

-Writing a book for the course in the future, or writing research papers on its content.

- Using new concepts in physics and mathematics and using electronic devices to present information and problems.

Program skills chart

Learning outcomes required from the program															
Value				Skills				Knowledge				Essential or optional	Course Code	Name of Course	Year/level
4 C	3 C	٢ C	1 C	٤ B	3 B	2 B	1 B	٤ A	٣ A	2 A	A ١				
*	*	*	*	*	*	*	*	*	*	*	*				/٢٠٢٤ - ٢٠٢٥
			*		*						*	Essential		Mechanics	The first stage
			*		*						*	Essential		Heat and properties of material	The first stage
			*		*						*	Essential		Electricity and Magnetism 1	The first stage
		*					*			*		Essential		Mathematics 1	The first stage
		*					*			*		Essential		Computer 1	The first stage
			*			*					*	Essential		Developmental and Educational psychology	The first stage
			*		*				*			Essential		Fundamentals of Education	The first stage
			*		*				*			Essential		Arabic language	The first stage
			*		*				*			Essential		Democracy and Human	The first stage

													rights	
			*		*				*			Essential		English language	The first stage
		*					*			*		Essential		Optics	The Second stage
		*				*				*		Essential		Astronomy	The Second stage
			*		*					*		Essential		Electric and Magnetism 2	The Second stage
			*		*				*			Essential		Mathematics 2	The Second stage
			*		*				*			Essential		Sound and wave motion	The Second stage
		*				*					*	Essential		Computer 2	The Second stage
		*				*					*	Essential		Educational Administration and secondary Education	The Second stage
			*			*				*		Essential		Developmental psychology	The Second stage
			*				*			*		Essential		Fundamentals of scientific research	The Second stage
			*				*			*		Essential		English language	The Second stage
			*				*			*		Essential		The crimes of the Baath regime in Iraq	The Second stage
			*				*			*		Essential		Atomic and molecular	The Third stage
			*				*			*		Essential		Thermodynamic	The Third stage

			*				*		*			Essential		Electronics	The Third stage
			*				*		*			Essential		Analytical Mechanics	The Third stage
		*				*			*			Essential		Complex functions	The Third stage
		*			*					*		Essential		Psychological Guidance and Psychological health	The Third stage
			*			*					*	Essential		Curriculum and methods of teaching	The Third stage
			*				*			*		optional		Optional	The Third stage
			*			*				*		Essential		English language	The Third stage
		*				*				*		Essential		Nuclear physics	The fourth stage
			*			*					*	Essential		Laser	The fourth stage
		*					*				*	Essential		Electromagnetic theory	The fourth stage
		*					*			*		Essential		Quantum mechanics	The fourth stage
		*					*			*		Essential		Solid state physics	The fourth stage
		*					*			*		Essential		Measurement and evaluation B	The fourth stage
			*					*		*		Essential		Practical education	The fourth stage
			*			*				*		Essential		Research project	The fourth stage
			*				*			*		Essential		Demonstration	The fourth

														instruments Lab	stage
		*					*				*	Essential		English language	The fourth stage

First stage courses

Course Description Form

1. Course Name:
English language
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Ahmed Abdel Razzaq
7. Course Objectives

Course Objectives	**1. In this course, the student studies an introduction to the basis of learning the Englis language** **2. The student studies the linguistic levels of phonetic, morphological, grammatical, and semantic levels** **3. Review the most prominent linguistic trends** **4. Familiarity with the semantic level in terms of its manifestations and characteristics**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1. Teaching simple conversation in English

2. Use English grammar

3. Use English meanings and vocabulary

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1. Discussion and dialogue in presenting the topic.

2. Using modern illustrative methods, such as data shows, to clarify the important points of the lesson.

3. Preparing monthly and annual research and articles to clarify scientific material.

4. . Explaining the material in a simplified manner and using modern technology in education

5. Raising questions and extracting answers from them

6. Emphasis on the research and conclusion method.

7. Linking the scientific material with relevant external scientific materials to reach the goal and purpose of the lesson

C – The skills objectives of the course

1. Mastering the use of English grammar

2. Mastering the use of Arabic vocabulary in English

Evaluation methods:

1. Weekly, monthly and quarterly exams

2. Preparing discussion circles *within the class to discuss the lesson material to overcome the difficulties faced by some students*

3. Testing students during the application phase

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	The lecture is presented and live video	**The Sentence**	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	The lecture is presented and live video	**Tenses**	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	The lecture is presented and live video	**Tenses+ Quiz**	The students understanding of the vocabulary presented in the lecture	1	**3**
Weekly and monthly	The lecture is	**articles**	The students understanding of the	1	**4**

exams	presented and live video		vocabulary presented in the lecture		
Weekly and monthly exams	The lecture is presented and live video	**demonstratives**	The students understanding of the vocabulary presented in the lecture	1	**5**
Weekly and monthly exams	The lecture is presented and live video	**How to translate the Sentence into English text?**	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	The lecture is presented and live video	**Arabic text translation +Quiz**	The students understanding of the vocabulary presented in the lecture	1	**7**
Monthly Exam					**8**
Weekly and monthly exams	The lecture is presented and live video	**Passive voice and active voice**	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	The lecture is presented and live video	**Question–tags +interrogative**	The students understanding of the vocabulary presented in the lecture	1	**10**
Weekly and monthly exams	The lecture is presented and live video	**Passage and questions**	The students understanding of the vocabulary presented in the lecture	1	**11**
Weekly and monthly	The lecture is	**Parts of speech**	The students understanding of the	1	**12**

exams	presented and live video		vocabulary presented in the lecture		
Weekly and monthly exams	The lecture is presented and live video	**Appropriate academic writing**	The students understanding of the vocabulary presented in the lecture	1	**13**
Weekly and monthly exams	The lecture is presented and live video	**What qualification dose the student Need to write a good paragraph? +Quiz**	The students understanding of the vocabulary presented in the lecture	1	**14**
Monthly exam					**15**
	The lecture is presented and live video	**How to replace the phrasal verbs in the sentence with more appropriate verb**	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	The lecture is presented and live video	**Auxiliary verbs**	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	The lecture is presented and live video	**Present tenses**	The students understanding of the vocabulary presented in the lecture	1	**18**
Weekly and monthly exams	The lecture is presented and live video	**Past tenses**	The students understanding of the vocabulary presented in the lecture	1	**19**
Weekly and monthly	The lecture is	**Modal verbs**	The students understanding of the	1	**20**

exams	presented and live video		vocabulary presented in the lecture		
Weekly and monthly exams	The lecture is presented and live video	**Time expressions**	The students understanding of the vocabulary presented in the lecture	1	**21**
Weekly and monthly exams	The lecture is presented and live video	**reported speech**	The students understanding of the vocabulary presented in the lecture	1	**22**
	The lecture is presented and live video	**Conditionals**	The students understanding of the vocabulary presented in the lecture	1	٢٣
Weekly and monthly exams	The lecture is presented and live video	**Future forms**	The students understanding of the vocabulary presented in the lecture	1	٢٤
Weekly and monthly exams	The lecture is presented and live video	**As, like**	The students understanding of the vocabulary presented in the lecture	1	٢٥
Monthly exam					٢٦
Weekly and monthly exams	The lecture is presented and live video	adjectives	The students understanding of the vocabulary presented in the lecture	1	**27**

Weekly and monthly exams	The lecture is presented and live video	Oral exam	The students understanding of the vocabulary presented in the lecture	1	**28**
Weekly and monthly exams	The lecture is presented and live video	Review the material and prepare for final exams	The students understanding of the vocabulary presented in the lecture	1	**29**
Weekly and monthly exams	The lecture is presented and live video	Review the material and prepare for final exams	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	new headway plus john soars 2012
Main references:	
Recommended books and references (scientific journals, reports…)	Oxford Modern English Grammar
Electronic References, Websites	1)https://learnenglish.britishcouncil.org/grammar/english-grammar-reference 2)https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en

Course Description Form

1. Course Name:
Fundamentals of education
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Ansam Abdel Hamid Hussein
7. Course Objectives

Course Objectives	**- Knowledge of the Arab-Islamic civilization and the resulting emergence of many Arab philosophers such as Ibn Khaldun, Al-Ghazali, etc.** **- To know the foundations of the Mesopotamian civilization and the resulting knowledge the invention of writing on clay tablets and the emergence of the constitutional laws civilization.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts (foundations of education) in the educational process.

٢- That the student understands the basic concepts in (the foundations of education) , especially the recent developments that occur in these sciences.

٣- To know the ancient civilizations in Mesopotamia, the Roman and Greek civilizations, and other civilizations such as the Egyptian (Pharaonic) civilizations.

٤- To know the opinions of Arab philosophers, such as Ibn Sina, Imam Al-Ghazali, etc.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Education - its concept - its purposes - its goals.	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational theories.	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational goals	The students understanding of the vocabulary presented in the lecture	2	**3**

Weekly and monthly exams	Lecture with dialogue and discussion	The historical basis of education	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Education in Mesopotamia civilization	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Education among the ancient Egyptians	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Factors affecting the educational system	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Indian education	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	School education in India	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and	Lecture	Chinese education	The students	2	**11**

monthly exams	with dialogue and discussion		understanding of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	School system in Chinese education	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Greek education	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Flags of Greek educational thought	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Education before Islam	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Education in Islam	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly	Lecture with	Objectives of Islamic education	The students understanding of the vocabulary presented in	2	**18**

exams	dialogue and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Media of Arab-Islamic educational thought	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Ibn Khaldun, his educational views	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Imam Al-Ghazali and his educational views	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Ethics according to Imam Al-Ghazali	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Al-Ghazali's approach to raising a child	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**٢٤**

Weekly and monthly exams	Lecture with dialogue and discussion	Ibn Sina's birth and upbringing	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Reasons for choosing Ibn Sina as a representative of Islamic philosophy	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Second month exam	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Flags of Western educational thought	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Jean-Jacques Rousseau	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	John Dewey	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	**Fundamentals of Education book**
Main references: Book » Psychology, Education and Sociology » Foundations of Education – D	

Attia Khalil Attia. Foundations of Education – Dr. Attia Khalil Attia.	
Recommended books and references (scientific journals, reports…)	Foundations of Education, written by the writer Hamouda and Attia Khalil, is a book in the field of education containing 371 pages.
Electronic References, Websites	https://puresci.uodiyala.edu.iq/%D9%85%D8%AD%D8%A7%D8%B6%D8%B1%D8%A7%D8%AA-%D8%A7%D8%B3%D8%B3-%D8%AA%D8%B1%D8%A8%D9%8A%D8%A9/

Course Description Form

1. Course Name:
Computer 1
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Hossam Abdel Hamid Hussein
7. Course Objectives

Course Objectives	**Enabling the student to become familiar with computer parts and ready-made progra in addition to enabling him to use the Windows 10 operating system.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of (computer) concepts in the educational process.

٢- That the student understands the basic concepts in (computer), especially the recent developments occurring in these sciences.

٣- Identify the parts of the computer.

٤- Use basic computer operating systems.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Computer	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Physical parts	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Computer memories	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and	Main memories	The students understanding of the vocabulary presented in	2	**4**

	discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Secondary memories	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Representing data in a computer	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Mother Board unit	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Ports on the motherboard	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	INPUT UNITS	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	OUTPUT UNITS	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	OUTPUT UNITS	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly	Lecture with	Types of printers	The students understanding of the	2	**12**

exams	dialogue and discussion		vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Types of screens	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Monthly exam	The students understanding of the vocabulary presented in the lecture	2	**14**
	Lecture with dialogue and discussion	POWER UNIT	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Cards added to the computer HARD WARE CARDS	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Factors affecting computer performance speed	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Software	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Operating System	The students understanding of the vocabulary presented in the lecture	2	**19**

Weekly and monthly exams	Lecture with dialogue and discussion	Application programs	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Desktop icons	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Stop running unresponsive programs	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Learn about the contents of the control panel	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	How to arrange and control interfaces (windows).	The students understanding of the vocabulary presented in the lecture	2	**٢٥**
	Lecture with dialogue and discussion	Learn about the effectiveness of screen saver	The students understanding of the vocabulary presented in the lecture	2	**٢٦**

Weekly and monthly exams	Lecture with dialogue and discussion	Practical exam	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Identify the contents of the programs file	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Learn about programming languages	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Monthly exam	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	Basics of using a computer/Part One
Main references:	
Recommended books and references (scientific journals, reports…)	https://www.scopus.com/sourceid/#١١١٠٠١٥٣٣١٣tabs=٢
Electronic References, Websites	**https://www.uobabylon.edu.iq/eprints/publication_٣_١٤٥٤_٦٠٣٢.pdf**

Course Description Form

1. Course Name:
Heat and properties of material
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Asst. prof. Dr. Omar Fadel Abdullah
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- Developing students' skills to understand and recognize basic thermal concepts that enable a general understanding of the most important facts, laws, theories and general principles of thermal science.

٢- Highlighting the role of heat science and its fundamental role in the branches of physics as a whole, with the most important theories and laws that have depth

٣- Providing students with knowledge of the main principles of heat and the properties of matter.

٤- Introducing students to how to reach mathematical facts and laws using induction, logical deduction, and mathematical calculations that do not accept error.

٥- Discussing scientific theories and their conclusions.

٦- Providing the student with high scientific skills through interpretation, discussion, and deduction of physical concepts.

B- Teaching and learning methods

1- Identify the general principles of heat, methods of measuring it, and its role in the behavior of materials.

2- Identifying some thermodynamic laws and explaining them in a simplified way in preparation for taking them in depth in the third stage within the subject of thermodynamics.

3- The optimal use of mathematical equations and how to coordinate them to reach the final result.

4- Giving a clear idea of the general differences between types of materials and the role of heat in each of these types.

5- Identify the mechanical properties of solid materials.

C - The skills objectives of the course

1- The student applies the concepts and laws he has learned in the classroom.

2- Using modern means of illustration when teaching in order to give a complete idea of the subject.

3- Perfect classroom management.

4- Enhancing the student's awareness, understanding, and conclusion of all the mathematical concep conclusions, facts, and laws learned in the lecture.

Evaluation methods:

- Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and	Thermal scale	The students understanding of the vocabulary	2	**2**

	discussion		presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Shells and some types	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Resistance and dual thermometers	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Freezing and boiling points	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Thermal expansion	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Heat is a form of energy	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Quantitative heat and specific heat	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Heat and work	The students understanding of the vocabulary presented in the lecture1	2	**9**

Weekly and monthly exams	Lecture with dialogue and discussion	Calculating work and heat	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	The first law of thermostat and some of its applications	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Gases	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Some gas laws	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	General equation of gases	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Internal energy of gas	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Compressibility with some arithmetic problems	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and	Density and specific gravity	The students understanding of the vocabulary presented in the	2	**17**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Pressure in fluids and their medium	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	the poetic property	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Cohesion angle	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Stress, flexibility and flexibility	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Modulus of elasticity and types of elasticity	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Hooke's law and its applications	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Elle and its applications	The students understanding of the vocabulary presented in the lecture	2	**٢٤**

Weekly and monthly exams	Lecture with dialogue and discussion	Arithmetic problems	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Classification of materials according to their electrical conductivity	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Excessive conductivity	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetism, its origin and effects	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic induction	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Classification of materials magnetically	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	Heat and the properties of matter / written by Dr Kazem Ahmed Muhammad, University of Mosul.
Main references:	

Recommended books and references (scientific journals, reports…)	Mechanics, Heat and Sound, by Francis W. S., U.S. A
Electronic References, Websites	

Course Description Form

1. Course Name:
Democracy and human rights
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
٣٠
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Adnan Hamid Hamada
7. Course Objectives

Course Objectives	Understanding the principles of human rights and introducing students to the concepts of huma rights and their importance in democratic societies. – Learning about international instruments and laws: studying international documents related t human rights, such as the Universal Declaration of Human Rights and conventions such as the Children's Convention. – Analyze current issues: Discuss current issues related to human rights and democracy aroun the world, helping students understand challenges and possible solutions. – Promoting civic participation: Encouraging students to participate in political and social life as active and responsible citizens.

9. Learning outcomes and methods of teaching, learning and evaluation

A– Knowledge and understanding:

The topic of human rights and democracy is an important topic that requires the development of specific learning outcomes and the use of effective teaching and learning methods as well as appropriate assessment methods.

Here are some points that can help you determine these outcomes and choose appropriate methods for teaching and learning these subjects:

Learning Outcomes:

Understand basic concepts: Enable students to understand the concepts of human rights and democracy, such as basic human rights and the importance of political participation.

Application of knowledge: Students' ability to apply learned concepts to real-life situations, such as resolving conflicts democratically or identifying human rights violations and ways to address them.

Evaluating issues: The ability to critically and constructively evaluate and analyze issues related to human rights and democracy.

B- Teaching and learning methods

1. Knowledge transfer: Using lectures and video lessons to convey basic concepts and information.

2. Discussions and dialogues: Encourage students to participate in discussions and dialogues on issues related to human rights and democracy.

3. Current studies: Using case studies and real-life examples to illustrate applications of human rights and democratic principles.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week

Weekly and monthly exams	Lecture with dialogue and discussion	Human rights in ancient civilizations	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights in heavenly religions	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	International human rights sources	The students understanding of the vocabulary presented in the lecture	1	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights in Islam	The students understanding of the vocabulary presented in the lecture	1	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights at the internal level	The students understanding of the vocabulary presented in the lecture	1	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights guarantee at the international level	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights guarantee at the level of regional organizations	The students understanding of the vocabulary presented in the lecture	1	**7**
Weekly and monthly	Lecture with	Human rights between	The students understanding of the	1	**8**

exams	dialogue and discussion	universality and privacy	vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The future of human rights	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Written exam	The students understanding of the vocabulary presented in the lecture	1	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Children's rights in ancient civilizations	The students understanding of the vocabulary presented in the lecture	1	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Human rights in heavenly religions	The students understanding of the vocabulary presented in the lecture	1	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	International and regional agreements related to children	The students understanding of the vocabulary presented in the lecture	1	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Definitions of democracy	The students understanding of the vocabulary presented in the lecture	1	**14**
Weekly and monthly exams	Lecture with dialogue	Types of democracy 1	The students understanding of the vocabulary presented in	1	**15**

	and discussion		the lecture		
	Lecture with dialogue and discussion	Types of democracy 2	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Forms of democracy	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Requirements and disadvantages of democracy	The students understanding of the vocabulary presented in the lecture	1	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Parliament	The students understanding of the vocabulary presented in the lecture	1	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Electoral system	The students understanding of the vocabulary presented in the lecture	1	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Electoral process	The students understanding of the vocabulary presented in the lecture	1	**21**
Weekly and monthly exams	Lecture with dialogue and	Women and election	The students understanding of the vocabulary presented in the lecture	1	**22**

	discussion				
	Lecture with dialogue and discussion	Interest representation system	The students understanding of the vocabulary presented in the lecture	1	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	People's participation in legislative work	The students understanding of the vocabulary presented in the lecture	1	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	The electorate	The students understanding of the vocabulary presented in the lecture	1	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Conditions that must be met by voters	The students understanding of the vocabulary presented in the lecture	1	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Types of electoral systems 1	The students understanding of the vocabulary presented in the lecture	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of electoral systems 2	The students understanding of the vocabulary presented in the lecture	1	**28**
Weekly and monthly exams	Lecture with dialogue and	review	The students understanding of the vocabulary presented in the lecture	1	**29**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Human rights, children and democracy / authored Prof. Dr. Maher Saleh Allawi and others
Main references: International Politics / Prof. Dr. Boutros Boutros Ghali and others	
Recommended books and references (scientific journals, reports…)	Reports and assignments
Electronic References, Websites	www.un.org

Course Description Form

1. Course Name:
Mathematics 1
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
٩٠
6. Course administrator's name (mention all, if more than one name)
Name: Asst Prof. Dr. Maamoun Fattah Khalaf
7. Course Objectives

Course Objectives	**1- Learn the basic concepts, principles, and theories of differential calculus.** **2- Knowledge of data analysis and curve drawing skills.** **3- Knowing how to reach the goal of functions and their continuity.** **4- The slope of the curves can be calculated.** **5- It is possible to know the calculation of the area under the curve.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (differentiation and integration) in the educational process.

2- That the student understands the basic concepts in (differentiation and integration), especially the recent developments occurring in these sciences.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Real numbers	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Inequalities	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Inequalities	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Solutions to inequalities exercises (inequalities)	The students understanding of the vocabulary presented in the lecture	3	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Function	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of functions	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	The broadest scope for each function	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	The broadest scope for each function	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The broadest scope for each function	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Solutions to exercises on the widest domain of each function	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Drawing functions	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and	Lecture	Applications about	The students	3	**12**

monthly exams	with dialogue and discussion	function graphing	understanding of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Basic concepts about purpose and continuity	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Purpose and basic theories	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions about the purpose	The students understanding of the vocabulary presented in the lecture	3	**15**
	Lecture with dialogue and discussion	Continuity and its conditions	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions about continuity	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Solutions to exercises about purpose and continuity	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and monthly	Lecture with	Derivatives	The students understanding of the vocabulary presented in	3	**19**

exams	dialogue and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	the basic Concepts	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivatives of regular functions	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivative of trigonometric functions and inverse trigonometric functions	The students understanding of the vocabulary presented in the lecture	3	**22**
	Lecture with dialogue and discussion	Implicit derivation And the chain rule	The students understanding of the vocabulary presented in the lecture	3	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Lobital base	The students understanding of the vocabulary presented in the lecture	3	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Integration And basic theories	The students understanding of the vocabulary presented in the lecture	3	٢٥
Weekly and monthly	Lecture with	Integration of regular, rational and radical	The students understanding of the	3	٢٦

exams	dialogue and discussion	functions	vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Integration of trigonometric and inverse trigonometric functions	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Integration methods	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Integration methods	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Integration methods	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curric books, if any)	Calculus
Main references: The Book of Calculation of Virtue and Integration	
Recommended books and references (scientific journals, reports…)	- Thomas' Calculus: Early Transcendentals. - Schaum's Outline of Calculus, 5ed

Electronic References, Websites	https://ar.khanacademy.org

Course Description Form

1. Course Name:
Arabic language
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Marwah Hamid
7. Course Objectives

Course Objectives	The course aims to teach students how to speak classical Arabic and know the basic concepts the language, as well as employ this skill and learn how to teach in Arabic for the subject physics.

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts of (the Arabic language) in the educational process.

٢- That the student understands the basic concepts in (the Arabic language)، especially the recent developments that occur in these sciences.

٣- Enabling the student to obtain knowledge of the Arabic language subject

٤- The student's knowledge of how to use language with physics

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Sections of speech	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Actions	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Past tense	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and	present tense	The students understanding of the vocabulary	2	**4**

	discussion		presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Do the thing	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	The Arabized and the built	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	The singular noun and its parsing	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	The dual name and its Arabic	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Sound masculine plural	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Sound feminine plural	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Collect crushing	The students understanding of the vocabulary presented in the lecture	2	**11**

Weekly and monthly exams	Lecture with dialogue and discussion	The five names	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	The five actions	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Poetry, prose and the difference between them	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Poet's types	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Pendants	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Poets of the Ten Commentaries	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Omar bin Abi Rabia and his poetry	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and	The subject and its forms	The students understanding of the vocabulary presented in the	2	**19**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	object	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	The subject and the predicate	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Imperfect verbs	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	was and her sisters	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	And her sisters	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	adverb	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Memorization from Surat Al-Kahf	The students understanding of the vocabulary presented in the lecture	2	٢٦

Weekly and monthly exams	Lecture with dialogue and discussion	punctuation marks	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	The link	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	The hamza of cutting	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Alphabets and alphabets	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	A book on the Arabic language and some journals related to the subject
Main references: Qatar Al-Nada, the text of Al-Ajrumiya	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	المجلات الاكاديمية العراقية

Course Description Form

1. Course Name:
Developmental and Educational psychology
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Azhar Yousef Khalaf
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts of (educational psychology) in the educational process.

٢- That the student understands the basic concepts in (educational psychology)، especially the recent developments occurring in these sciences.

٣- The student's awareness of mental processes and their role in the learning process

٤- How to take into account individual differences between low-achieving and outstanding students

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Historical development of educational psychology	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Psychology in the Arab-Islamic heritage	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Arab Muslim scholars	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and	Definition of educational psychology	The students understanding of the vocabulary presented in the	2	**4**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Topics in educational psychology	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Psychology schools	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Branches of theoretical psychology	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Branches of applied psychology	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The educational process and educational psychology	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational goals	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Sources for deriving educational objectives	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and	Lecture with dialogue	Formulating educational	The students understanding of	2	**12**

monthly exams	and discussion	goals	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Classification of educational objectives	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Research methods in educational psychology	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Information gathering tools	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Attention	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Attention grabbing factors	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Distractions	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	perception	The students understanding of the vocabulary presented in the lecture	2	**19**

Weekly and monthly exams	Lecture with dialogue and discussion	Motivation in learning	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Motivation classification	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Thinking	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	memory	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational applications of the remembering strategy	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Factors that help in the remembering process	The students understanding of the vocabulary presented in the lecture	2	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Theories of memory interpretation	The students understanding of the vocabulary presented in the lecture	2	**٢٦**

Weekly and monthly exams	Lecture with dialogue and discussion	Forgetting and its theories	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Transfer learning effect	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Feedback	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Learning and its theories	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	Basics of educational psychology
Main references: educational psychology Cognitive psychology	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Electricity and magnetism 1
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
١٨٠
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Sarah Sajid Tawfiq
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts (electricity and magnetism) in the educational process.

٢- That the student understands the basic concepts in (electricity and magnetism)، especially the recent developments occurring in these sciences.

٣- The student's awareness of electrical charges

٤- The student's knowledge of how to connect electrical devices and the different ways of connecting them

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	electric charges	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Material and shipment	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Coulomb's law	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Electric field	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Field effect on charged particles	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical flux	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Chaos' law	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Calculate the electric field strength using Gauss's law	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Relationship between Chaos' law and Coulomb's law	The students understanding of the vocabulary presented in the lecture1	3 Lab. 3 Theoretical	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical voltage	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Applications on how to calculate electrical voltage	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**11**
Weekly and monthly exams	Lecture with dialogue and	Voltage gradient	The students understanding of the vocabulary presented in the	3 Lab. 3	**12**

	discussion		lecture	Theoretical	
Weekly and monthly exams	Lecture with dialogue and discussion	Electric potential energy	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Van de Kraaf generator	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Dilatans	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**15**
	Lecture with dialogue and discussion	How to calculate capacity	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of using insulators in capacitors	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Connecting expanders	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Energy stored in capacitors	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**19**
Weekly and	Lecture with dialogue	electric current	The students understanding of	3 Lab.	**20**

monthly exams	and discussion		the vocabulary presented in the lecture	3 Theoretical	
Weekly and monthly exams	Lecture with dialogue and discussion	electrical resistance	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Resistors used in practice	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**22**
	Lecture with dialogue and discussion	Thermal coefficient of specific resistance	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Ohm's law	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Electromotive force	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Connecting resistors	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Calculating electric current in electrical circuits	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	Calculating potential difference in electrical circuits	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Kirchhoff's law	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Node equations	The students understanding of the vocabulary presented in the lecture	3 Lab. 3 Theoretical	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basics of electricity and magnetism
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	**موقع الفريد في الفيزياء**

Course Description Form

1. Course Name:
Mechanics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Asst. prof. Dr. Bakr Fayyad Hassan
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (classical mechanics) in the educational process.

2- That the student understands the basic concepts in (classical mechanics), especially the modern developments that occur in these sciences.

3- It is an essential element in establishing solid knowledge, serving society, and forming a society based on an investigative and critical outlook.

4- It describes the movement of small and large bodies and astronomical bodies and deals with solid, gaseous and liquid materials.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to measurable objects and measurement systems (length time mass)	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Instantaneous velocity and acceleration, constant acceleration, and free fall	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Numerical and vector quantities, addition, subtraction and multiplication of vectors	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly	Lecture with dialogue	Scalar unit vector, multiplication vectors, vectors and laws of	The students understanding of the vocabulary presented in	3	**4**

exams	and discussion	physics	the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Two- and three-dimensional movement and projectile movement	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Analysis of projectile movement and relative speed	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Force and Newton's laws	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's first law	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Force, mass, and Newton's second law	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's third law of mass and weight	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and	Application of Newton's laws of motion and the law of	The students understanding of the vocabulary presented in	3	**11**

	discussion	friction	the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Work and energy, work with a constant and variable force, work done	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Kinetic energy, force Kinetic energy at high speeds	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws of conservation of energy overview	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	The force of gravity, the force of friction, and the conservation of energy and mass	The students understanding of the vocabulary presented in the lecture	3	**15**
	Lecture with dialogue and discussion	Body systems center of mass	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's law of momentum and conservation of momentum	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Collisions: The meaning of collision and its relationship to momentum	The students understanding of the vocabulary presented in the lecture	3	**18**

Weekly and monthly exams	Lecture with dialogue and discussion	Collisions in one-dimension (elastic or inelastic) Collisions in two dimensions	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Rotary motion Angular velocity	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Angular acceleration: Rotation at a constant angular velocity. Variations between angular and linear velocity	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Energy, rotational motion, moment of inertia	The students understanding of the vocabulary presented in the lecture	3	**22**
	Lecture with dialogue and discussion	Position, oscillation time, oscillation amplitude, and phase amplitude	The students understanding of the vocabulary presented in the lecture	3	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Circular motion, movement in a circular path	The students understanding of the vocabulary presented in the lecture	3	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Linear acceleration, centripetal acceleration, and centripetal force	The students understanding of the vocabulary presented in the lecture	3	٢٥

Weekly and monthly exams	Lecture with dialogue and discussion	Angular rotational motion Newton's second law	The students understanding of the vocabulary presented in the lecture	3	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	The angular momentum of a rigid body rotating about a fixed axis	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Gravity and an overview of Earth's gravity	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's law of gravity and the gravitational constant	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	The Moon's gravity and its relationship to Earth's gravity and gravity on the Earth's surface	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any	Physics for first-year students at the University Mechanics and Properties of Matter (Dr. Talib Nahi Al-Khafaji)
Main references: 1-Principles of mechanics 1959,3rded, john. Synge, B,A.Griffith. 2- mechanics by ray skinner 1969.	

3- physics for scientists and engineers, by R.A Serway and J. Jewett 2004.	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Second stage courses

Course Description Form

1. Course Name:
Mathematics-2
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Abdul Sattar Abdullah Hamad
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of (Mathematics-2) concepts in the educational process.

٢- That the student understands the basic concepts in (Mathematics-2)، especially the recent developments occurring in these sciences.

٣- Mathematics also includes many practical applications used in multiple fields such as engineering, physics, economics, and computer science.

٤- Among the benefits of mathematics in medicine and medical engineering is also: Integration and differentiation are used in medicine to understand changes in organs and systems in the human body, and in developing medical imaging techniques such as magnetic resonance imaging and radiography.

٥- Data science and artificial intelligence: Calculus is used in developing mathematical models and algorithms that are used in big data analysis, machine learning, and intelligence applications.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Infinite series	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Finite and infinite sequence	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly	Lecture	Convergence of Series-	The students understanding of the	3	**3**

exams	with dialogue and discussion	ratio and tests	vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Power series Expansion of Functions	The students understanding of the vocabulary presented in the lecture	3	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Taylor Series Expansion and Remainder term	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Convergence of power Serie	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Computation of Logarithms	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Vectors	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Vector component and the unitvector (i and j)	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly	Lecture with	Addition and Subtraction of Vectors	The students understanding of the vocabulary presented in	3	**10**

exams	dialogue and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Space Coordinates Cortisone coordinates	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Cylindrical coordinates	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Spherical coordinates	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Vector product of two Vectors	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Equation of lines and planes	The students understanding of the vocabulary presented in the lecture	3	**15**
	Lecture with dialogue and discussion	Partial Differentiation	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue	functions of two or more variables	The students understanding of the vocabulary presented in	3	**17**

	and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The gradient	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	The chain Rule for Partial Derivatives The Total Differential	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Higher-Order Derivatives	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivatives of Integrals	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	First Order Differential Equation	The students understanding of the vocabulary presented in the lecture	3	**22**
	Lecture with dialogue and discussion	Equation with Variables Separable	The students understanding of the vocabulary presented in the lecture	3	**٢٣**
Weekly and monthly exams	Lecture with dialogue	Homogeneous Equation	The students understanding of the vocabulary presented in	3	**٢٤**

	and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Nonhomogeneous Equation	The students understanding of the vocabulary presented in the lecture	3	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Linear Equation	The students understanding of the vocabulary presented in the lecture	3	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Equation with Exact Differentials	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Special Types of Second Order Equations	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Differentials Operators	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Solution of Laplace Equation Vsing Hu separation of Variables method	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	- Calculus and Analytic geometry by George by Thomas. 7th edition 1988. - Partial differential equations for scientific and engineering colleges Written by S. J. Farlow
Main references: Thomas' Calculus	
Recommended books and references (scientific journals, reports…)	Foundations of Education, written by the writer Hamouda and Attia Khalil, is a book in the field of education containing 371 pages.
Electronic References, Websites	

Course Description Form

1. Course Name:
Educational administration and secondary education
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
٦٠
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Ansam Abdel Hamid Hussein
7. Course Objectives

Course Objectives	- Education is the driving factor and activity for the movement of change required in societies. Education is necessary for all generations and for all societies to emerge from darkness into lig - Education is witnessing a tremendous revolution in technology, information, scientific presentation, and competition between countries of the world.

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (educational administration) in the educational process.

2- That the student understands the basic concepts in (educational administration), especially the recent developments occurring in these sciences.

3- Other benefits of the course are knowledge of educational administration correctly on the basis of central and decentralized authority.

4- Other benefits of the course are that through studying educational administration, the factors for the success of school planning and complete management are achieved.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	The concept of secondary education	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of secondary education	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to educational administration	The students understanding of the vocabulary presented in the lecture	2	**3**

Weekly and monthly exams	Lecture with dialogue and discussion	Scientific management theory	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	The concept of educational administration	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Centralization and decentralization in educational administration	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Factors affecting educational administration in terms of centralization and decentralization.	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The concept of educational administration	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	First month exam	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and	Lecture	The concept of school	The students	2	**11**

monthly exams	with dialogue and discussion	administration	understanding of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of school administration	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	School administration goals	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Components of school administration	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Factors for the success of school planning	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Characteristics of successful school administration	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Characteristics of school administration	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with	School principal skills	The students understanding of the vocabulary presented	2	**18**

	dialogue and discussion		in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Ethical rules for the school administration profession	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Administrative duties of the school principal	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Technical duties of the school principal	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Leadership concept	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	The difference between management and leadership	The students understanding of the vocabulary presented in the lecture	2	**٢٤**

Weekly and monthly exams	Lecture with dialogue and discussion	The importance of administrative leadership	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Daily exam	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Sources of leadership power and influence	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Skills and methods for selecting administrative leadership	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Second month exam	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational Supervision	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books any)	Secondary education (educational administration) b author Dr. Youssef Yacoub.

Main references:	
Recommended books and references (scientific journals, reports…)	https://www.uobabylon.edu.iq/eprints/paper_١_٢٥٤٤١_٩١٣.pdf
Electronic References, Websites	

Course Description Form

1. Course Name:
Astronomy
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Fares Maher Ahmed
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of astronomy concepts in the educational process.

2- That the student understands the basic concepts in astronomy, especially the recent developments occurring in these sciences.

3- Through this material, the student's knowledge and understanding of cosmic phenomena such as eclipses and eclipses

4- The student's knowledge of galaxies and planets in this universe

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Kepler's laws	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Planetarium	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	The coordinate system on the planetarium	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	The four astronomical seasons	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and	Astronomical units of measurement	The students understanding of the vocabulary	2	**5**

	discussion		presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Solar system	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	the sun	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Planck's law	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Sun phone	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Sunspots	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Solar radiation and wind	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	the moon	The students understanding of the vocabulary presented in the lecture	2	**12**

Weekly and monthly exams	Lecture with dialogue and discussion	Physical properties of the moon	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	The phenomena of eclipse and eclipse	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Astronomical studies of the planets	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Moving planets	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Mars	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Jupiter	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Saturn	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and	Planet Uranus	The students understanding of the vocabulary presented in the	2	**20**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Neptune	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Pluto	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Pod base	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Small asteroids	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Zodiacal light	The students understanding of the vocabulary presented in the lecture	2	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Meteors and meteors	The students understanding of the vocabulary presented in the lecture	2	**٢٦**
Weekly and monthly exams	Lecture with dialogue and discussion	Comets	The students understanding of the vocabulary presented in the lecture	2	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	stars	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Movement of stars	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Galaxies	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	Astronomy and space physics
Main references	
Recommended books and references (scientific journals, reports…)	Astrophysics and space physics book
Electronic References, Websites	

Course Description Form

1. Course Name:
English language
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Ahmed Abdel Razzaq
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts of (the English language) in the educational process.

٢- That the student understands the basic concepts in (the English language)، especially the recent developments occurring in these sciences.

٣- Enabling students to obtain the theoretical foundations of the English language.

٤- Students' knowledge of ways to formulate sentences and how to pronounce them

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Getting to know you	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Present simple Have/Have got	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Past simple	The students understanding of the vocabulary presented in the lecture	1	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Past continuous	The students understanding of the vocabulary presented in the lecture	1	**4**
Weekly and monthly	Lecture with	Much and many	The students understanding of the	1	**5**

exams	dialogue and discussion	Some and any	vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	A few and little A lot and lots of	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	a/an/the verb patterns	The students understanding of the vocabulary presented in the lecture	1	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Will Going to	The students understanding of the vocabulary presented in the lecture	1	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Comparative and superlative	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Present perfect Present perfect and past simple	The students understanding of the vocabulary presented in the lecture	1	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Have to Should Must	The students understanding of the vocabulary presented in the lecture	1	**11**
Weekly and monthly exams	Lecture with dialogue	Used to	The students understanding of the vocabulary presented in	1	**12**

	and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Used to and the past simple	The students understanding of the vocabulary presented in the lecture	1	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	The passive	The students understanding of the vocabulary presented in the lecture	1	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Might	The students understanding of the vocabulary presented in the lecture	1	**15**
	Lecture with dialogue and discussion	Past perfect	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Present perfect continuous	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Word formation	The students understanding of the vocabulary presented in the lecture	1	**18**
Weekly and monthly exams	Lecture with dialogue and	Second conditional	The students understanding of the vocabulary presented in the lecture	1	**19**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Verb and noun that go together	The students understanding of the vocabulary presented in the lecture	1	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Manage to and used to	The students understanding of the vocabulary presented in the lecture	1	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	-ed/-ing adjectives	The students understanding of the vocabulary presented in the lecture	1	**22**
	Lecture with dialogue and discussion	Time clauses	The students understanding of the vocabulary presented in the lecture	1	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	If /hot verbs	The students understanding of the vocabulary presented in the lecture	1	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Expressions of quantity	The students understanding of the vocabulary presented in the lecture	1	٢٥
Weekly and monthly exams	Lecture with dialogue and	What ….like	The students understanding of the vocabulary presented in the lecture	1	٢٦

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Like doing and would like to do	The students understanding of the vocabulary presented in the lecture	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Infinitives	The students understanding of the vocabulary presented in the lecture	1	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Verb patterns2	The students understanding of the vocabulary presented in the lecture	1	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	First conditional	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	new headway plus john soars 2012
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://elt.oup.com/student/headway/elementary4/?cc=global&selLanguage=en

Course Description Form

1. Course Name:
Computer 2
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Instructor. Raed Ashraf Kamel
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of (computers) concepts in the educational process.

٢- That the student understands the basic concepts in (computers), especially the recent developments occurring in these sciences.

٣- Enabling students to deal with computers smoothly to serve the labor market

٤- Enabling the student to know the applied programs to benefit from them in printing, making advertisements, accounts, etc.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C – The skills objectives of the course

١– The student applies educational and scientific concepts within the classroom.

٢– Using strategies and means of explanation when teaching.

٣– Perfect classroom management.

٤– Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

– Monthly exams

– Annual exams.

– Daily participation during the lecture.

10– Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to Microsoft Excel 2019	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	The basic elements that make up the Microsoft Excel window (Excel 2019):	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Customize the Quick Access Toolbar	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Work sheet	The students understanding of the vocabulary presented in the lecture	2	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	cells range	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Enter data into excel 2019 workbook	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	cells selection	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Find and replace	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Function equations	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Insert a new worksheet	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Delete the worksheet	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and	Lecture	Renaming worksheet	The students	2	**12**

monthly exams	with dialogue and discussion		understanding of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	hiding worksheet	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	copying or moving worksheet	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Changing the colors of worksheets name	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	A practical example of student grades	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	A practical example of student grades to find the GPA equation	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	A practical example of student grades to find the average equation and its graph	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly	Lecture with	Create large charts using excel	The students understanding of the vocabulary presented in	2	**19**

exams	dialogue and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Use conditional formatting	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Help identify trends	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Bring data together	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Internet connection	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Human resources planning	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of Excel in accounting applications	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue	The importance of Excel in education	The students understanding of the vocabulary presented in	2	٢٦

	and discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	My work on subjunctive tools	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	My work on the important Excel equation	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Review basic vocabulary	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	My work in general	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curric books, if any)	Principles of computer use, part two
Main references: https://www.uobabylon.edu.iq/eprints/publication ٣ ١٤٥٤ ٦٠٣٢.pdf	
Recommended books and references (scientific journals, reports…)	

Electronic References, Websites	

Course Description Form

1. Course Name:
Optics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
180
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Marwan Abdel Karim Abdel Baqi
7. Course Objectives

Course Objectives	**The student is introduced to the science of geometric optics and understands all the theoretical laws related to the mechanism of operation of lenses and mirrors in particular.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts of (optics) in the educational process.

٢- That the student understands the basic concepts in (optics), especially the recent developments occurring in these sciences.

٣- That the student understands the theoretical laws used in calculating visual dimensions

٤- The student's knowledge of many applications related to the use of various optical devices

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C – The skills objectives of the course

١– The student applies educational and scientific concepts within the classroom.

٢– Using strategies and means of explanation when teaching.

٣– Perfect classroom management.

٤– Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

– Monthly exams

– Annual exams.

– Daily participation during the lecture.

10– Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	The nature of light	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Refraction and reflection	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Total reflection and critical angle	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Applications of total reflection and critical angle	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Refraction in spherical surfaces	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Creating images by drawing	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical method and signals	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Thin lenses	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Creating images by drawing	The students understanding of the vocabulary presented in the lecture1	3 Theoretical 3 lab	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Chaos arithmetic method	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's arithmetic method	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**11**
Weekly and	Lecture	Lens makers formula	The students	3 Theoretical	**12**

monthly exams	with dialogue and discussion		understanding of the vocabulary presented in the lecture	3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Compound lens	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Thick lenses	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Mirrors and their types	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**15**
	Lecture with dialogue and discussion	Mirror geometry	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Kauss formula for mirrors	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Thick mirrors	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**18**
Weekly and monthly	Lecture with	Aberration and its types	The students understanding of the vocabulary presented	3 Theoretical	**19**

exams	dialogue and discussion		in the lecture	3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Achromatic aberration	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Chromatic aberration	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Methods of removing aberration	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Electromagnetic waves	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Interference	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Leonc's double slit	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	٢٥
Weekly and monthly exams	Lecture with dialogue	diffraction	The students understanding of the vocabulary presented	3 Theoretical 3 lab	٢٦

	and discussion		in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Diffraction grating	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	polarization	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Forms and types of polarization	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Methods of producing polarization	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**30**

11- Learning and Teaching Resources

Required textbooks (curric books, if any)	Optics (Dr. Abbas Muhammad Al-Hassoun) Curriculum book for the second stage - College of Education - Samarr University
Main references:	
Recommended books and references (scientific journals, reports…)	Greivenkamp, John E. "Field guide to geometrical optics." Bellingham, WA: SPIE, 2004.
Electronic References, Websites	Katz, Milton. *Introduction to geometrical optics*. World scientific,

	2002.

Course Description Form

1. Course Name:
The crimes of the Baath regime in Iraq
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
٣٠
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Sajjad Muhammad Aziz
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts (crimes of the Baath regime in Iraq) in the educational process.

2- That the student understands the basic concepts in (the crimes of the Baath regime in Iraq), especially the recent developments that occur in these sciences.

3- Ensuring the highest understanding and explanation of the most prominent crimes committed by the former regime in Iraq

4- Explaining the extent of the danger of crimes to the environment, such as burning orchards and draining marshes

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Concept of crimes	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Crime departments	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of international crimes	The students understanding of the vocabulary presented in the lecture	1	**3**
Weekly and monthly	Lecture with dialogue	Decisions issued by the Iraqi Supreme Criminal	The students understanding of the vocabulary presented in	1	**4**

exams	and discussion	Court	the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Psychological and social crimes	The students understanding of the vocabulary presented in the lecture	1	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Mechanisms of psychological crimes	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Social crimes	The students understanding of the vocabulary presented in the lecture	1	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Militarization of society	The students understanding of the vocabulary presented in the lecture	1	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Violations of Iraqi laws	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Prison and detention places of the Baath regime	The students understanding of the vocabulary presented in the lecture	1	**10**
Weekly and monthly exams	Lecture with dialogue and	Environmental crimes of the Baath regime in Iraq	The students understanding of the vocabulary presented in	1	**11**

	discussion		the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Contamination with radioactive materials	The students understanding of the vocabulary presented in the lecture	1	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Destruction of cities and villages, scorched earth policy	The students understanding of the vocabulary presented in the lecture	1	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Drying the marshes	The students understanding of the vocabulary presented in the lecture	1	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Razing palm groves, trees and crops	The students understanding of the vocabulary presented in the lecture	1	**15**
	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Mass grave crimes	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	The events of the Iran-Iraq war from 1979/2003 and their relationship to mass graves	The students understanding of the vocabulary presented in the lecture	1	**18**

Weekly and monthly exams	Lecture with dialogue and discussion	The events of 1987/1988 and their relationship to mass graves	The students understanding of the vocabulary presented in the lecture	1	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Chronological classification of genocide graves in Iraq for the period from 1963/2003	The students understanding of the vocabulary presented in the lecture	1	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Graves of genocide committed by the defunct Baath regime 1979/2003	The students understanding of the vocabulary presented in the lecture	1	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Graves of the 1983 Barzanian Kurdish genocide	The students understanding of the vocabulary presented in the lecture	1	**22**
	Lecture with dialogue and discussion	Genocide graves for the victims of the Anfal massacre	The students understanding of the vocabulary presented in the lecture	1	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Genocide graves for victims of the 1991 Shaabaniya uprising	The students understanding of the vocabulary presented in the lecture	1	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Show photographic documents of crimes	The students understanding of the vocabulary presented in the lecture	1	٢٥

Weekly and monthly exams	Lecture with dialogue and discussion	Imam Bakr Cemetery and Hattin Martyrs Cemetery	The students understanding of the vocabulary presented in the lecture	1	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Show photographic documents of crimes	The students understanding of the vocabulary presented in the lecture	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Khanaqin Bakhtiari Cemetery	The students understanding of the vocabulary presented in the lecture	1	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Show photographic documents of crimes	The students understanding of the vocabulary presented in the lecture	1	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricu books, if any)	Book of crimes of the Baath regime in Iraq
Main references:	
Recommended books and references (scientific journals, reports…)	Archives of the Political Prisoners Foundation

Electronic References, Websites	Official website of the United Nations

Course Description Form

1. Course Name:
Sound and wave motion
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Asst. prof. Dr. Omar Fadel Abdullah
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- Developing students' skills to understand and recognize basic thermal concepts that enable a general understanding of the most important facts, laws, theories, and general principles of sound and wave motion.

٢- Highlighting the role of sound science and wave motion and their fundamental role in the branches of physics as a whole, with their most important equations, whether in one dimension, two dimensions, or three dimensions.

٣- Providing students with knowledge of the main principles of sound and wave motion.

٤- Introducing students to how to arrive at laws using mathematical induction, logical deduction, and mathematical calculations that do not accept error.

٥- Discussing scientific theories and their conclusions.

٦- Providing the student with high mathematical skills through derivations, their boundary conditions, and hypotheses for solutions with equations that suit the type of motion.

B- Teaching and learning methods

1- Identify the general principles of sound and wave motion and their role in understanding many different physical facts

2- Identify the laws of sound and simple harmonic motion and discuss them in some detail as they are the basis fo the subject of sound and wave motion.

3- The optimal use of mathematical equations and how to coordinate them to reach the final result.

4- Giving a clear idea of the general differences between types of movement and finding the basic differences between them by imposing an appropriate equation for them.

5- Identify the general characteristics of mechanical wave vibration.

C - The skills objectives of the course

١- The student applies the concepts and laws he has learned in the classroom.

٢- Using modern means of illustration when teaching in order to give a complete idea of the subject.

٣- Perfect classroom management.

٤- Enhancing the student's awareness, understanding, and conclusion of all the mathematical concepts, conclusio facts, and laws learned in the lecture.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	The science of sound, its origin and transmission	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Free vibration theory	The students understanding of the vocabulary presented in the lecture	2	**2**

Weekly and monthly exams	Lecture with dialogue and discussion	Simple harmonic motion, its derivation and cases	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical examples of simple harmonic motion	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Superposition of harmonic movements	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Lissajous figures	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Various examples of superposition	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Decay vibration and its conditions	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Cases of decaying motion	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and	Forced vibration and its conditions	The students understanding of the vocabulary presented in the	2	**10**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Forced vibration situations	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Wave motion and its types	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical representation of wave motion	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical examples of wave motion	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	One-dimensional wave motion equation and its solution	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	Mathematical examples of wave motion in one dimension	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Wave motion equation in two dimensions and its solution	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and	Lecture with dialogue	Mathematical examples of wave motion in two	The students understanding of	2	**18**

monthly exams	and discussion	dimensions	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Wave motion equation in three dimensions and its solution	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical examples of wave motion in three dimensions	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Interference of different sound waves	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Speed of string waves and their reflection	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Mathematical examples	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	String vibration applications	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	The power and intensity of different sounds	The students understanding of the vocabulary presented in the lecture	2	**٢٥**

Weekly and monthly exams	Lecture with dialogue and discussion	Concepts of musical scale and basic tones	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical examples	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Doppler phenomenon and its applications	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	The phenomenon of diffraction and reflection in sound	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical examples	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	The Physics of Sound and Wave Motion / Written by Dr. Amjad Abdel Razzaq Karjieh, University of Mosul.
Main references: Mechanics, Heat and Sound , by Francis W. S. , U.S.A	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Developmental psychology
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Souad Sabah Hussein
7. Course Objectives

Course Objectives	**a. The student learns in detail about the meaning of developmental psychology** **b. Leading developmental psychologists** **c. Glands, their location and importance in the psychological aspect** **d. Giving the student insight into the concept of developmental psychology, its importar and goals** **e. For the student to distinguish between theories of psychological development.** **f. For the student to realize the importance of adolescence and its characteristics.** **g. Increasing the student's awareness of the greatness of the Creator and the stages of growth in the Holy Qur'an.** **h. Identify the demands of growth and the characteristics of each developmental stage**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1. That the student knows the meaning of growth, maturity and development and compares them.

2. The student understands: the meaning of language and the importance of linguistic psychology.

B- Teaching and learning methods

1. The lecture

2. Brainstorming

3. Discussion

4. Other methods

C – The skills objectives of the course

a. Teaching the student speaking skills through dialogue between the student and the professor.

b. Active participation of the student in asking questions or how to answer them.

c. Attention and perception.

Evaluation methods:

Daily exams and assignments

– Monthly exams

– Annual exams.

– Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Developmental psychology (overview)	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	The origins and development of developmental psychology	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	The origins and development of developmental psychology	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and	Some basic concepts in growth	The students understanding of the vocabulary	2	**4**

	discussion		presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Some basic concepts in growth	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws and principles of growth	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws and principles of growth	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws and principles of growth	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of studying developmental psychology	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws of growth principles	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws of growth principles	The students understanding of the vocabulary presented in the lecture	2	**11**

Weekly and monthly exams	Lecture with dialogue and discussion	Laws of growth principles	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Fertilization	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Cell division	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	2	**15**
	Lecture with dialogue and discussion	The goal of genetics	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	The goal of genetics	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Genetic factors and problems affecting the fetus	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and	Glands	The students understanding of the vocabulary presented in the	2	**19**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Environmental factors	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Growth demands	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Manifestations of growth	The students understanding of the vocabulary presented in the lecture	2	**22**
	Lecture with dialogue and discussion	Methods of collecting information	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Methods of collecting information	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Research methods	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Research methods	The students understanding of the vocabulary presented in the lecture	2	٢٦

Weekly and monthly exams	Lecture with dialogue and discussion	Childhood	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Childhood	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Adolescence	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	Developmental psychology and its theories (2013 Abdul Aziz Haider Hussein Al Musawi · Dar Al-Radwan for Publishing and Distribution
Main references: Developmental Psychology (2002), Dr. Maryam Selim. Arab Renaissance Publishing House	
Recommended books and references (scientific journals, reports…)	Developmental Psychology (2008 AD) Fadia Kamel Hamam, Nafisa Ibrahim Al-Adl, Taghreed Malik Julaidan, Riyadh, Al Rushd Library
Electronic References, Websites	Psychological Science Network

	http://www.arabpsynet.com/

Course Description Form

1. Course Name:
Electric and magnetism
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
150
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate Sarah Sajid Tawfiq
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

١- How to employ the theoretical or practical side of the concepts of (electricity and magnetism) in the educational process.

٢- That the student understands the basic concepts in (electricity and magnetism), especially the recent developments occurring in these sciences.

٣- That the student understands the meaning of magnetism and what are the reasons that make materials differ magnetically

٤- Know how electric currents are generated from magnetic fields

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

١- The student applies educational and scientific concepts within the classroom.

٢- Using strategies and means of explanation when teaching.

٣- Perfect classroom management.

٤- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetism	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Similarities and differences between electricity and magnetism	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic flux	The students understanding of the vocabulary presented in the	2 Theoretical 3 lab	**3**

			lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The magnetic force affecting electric current	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	The torque acting on a current-carrying coil	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Constant current measuring devices	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Biot and Savart law	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Ampère's law	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The force exchanged between two parallel wires	The students understanding of the vocabulary presented in the lecture1	2 Theoretical 3 lab	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Cyclotron	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**10**
Weekly and	Lecture with dialogue	Generator	The students understanding of	2	**11**

monthly exams	and discussion		the vocabulary presented in the lecture	Theoretical 3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Induced electromotive force	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Faraday's law	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Lenz's law	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Self-induction and mutual induction	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Energy stored in a magnetic field	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetization	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic features of materials	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**18**

Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic materials	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic retardation	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Ferromagnetic materials	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic floatation of permanent magnets	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic energy density	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Sinusoidal voltages	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Represent sinusoidal voltages with a rotating vector	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	٢٥
Weekly and monthly exams	Lecture with dialogue and	Applying a sinusoidal voltage to a pure resistance	The students understanding of the vocabulary	2 Theoretical	٢٦

	discussion		presented in the lecture	3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Applying a sinusoidal voltage to the capacitor	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Applying a sinusoidal voltage to a pure inductor	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Effective value of alternating current	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical capacity	The students understanding of the vocabulary presented in the lecture	2 Theoretical 3 lab	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, any)	Electric and magnetic
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Alfarid website in physics

Course Description Form

1. Course Name:
Fundamental of Scientific Research
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Ahmed I. Turki
7. Course Objectives

Course Objectives	**Make the student able to:** **1. – He knows how to write sound scientific research according to the principles of the scientific method.** **2. – The student acquaints himself with a number of sources in his field of specializatio** **3. – He learns how to search sources and extract what he needs in his research.** **4. – Understands the foundations of scientific research in terms of concept, steps and methods.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1. Understanding the principles of scientific research and the student's acquisition of the necessary skills in reading books and absorbing information.

2. Anyone who wants to understand the foundations, rules and principles necessary for scientific research must learn the principles of the scientific method.

3. By learning the principles necessary for scientific research, we will have understood most of the vocabulary and concepts that we need in writing research.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1. **Discussion and asking questions**
2. **The lecture.**
3. **Working papers**
4. **Allow the student to ask questions and inquire**

C - The skills objectives of the course

1. **Analysis skill.**
2. **The skill of predicting events.**
3. **The skill of detecting the future.**
4. **The skill of evaluating events.**

Evaluation methods:

1. *Questions at the end of the lecture.*
2. *Questions asked by students.*
3. *Assigning students to weekly assignments and correcting them.*
4. *Exams and work papers.*

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Definition of scientific methodology	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Steps of scientific research	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Description and analysis	The students understanding of the vocabulary presented in the	1	**3**

			lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Foresight (prediction)	The students understanding of the vocabulary presented in the lecture	1	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Scientific research tools (observation, interview, questionnaire, and content analysis)	The students understanding of the vocabulary presented in the lecture	1	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Scientific research tools (observation, interview, questionnaire, and content analysis)	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Procedures for preparing and documenting scientific material	The students understanding of the vocabulary presented in the lecture	1	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Procedures for preparing and documenting scientific material	The students understanding of the vocabulary presented in the lecture	1	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Documentation of citation	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Documentation of citation	The students understanding of the vocabulary presented in the lecture	1	**10**

Weekly and monthly exams	Lecture with dialogue and discussion	Physics study methods	The students understanding of the vocabulary presented in the lecture	1	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Physics study methods	The students understanding of the vocabulary presented in the lecture	1	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Physics study methods	The students understanding of the vocabulary presented in the lecture	1	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Physics study methods	The students understanding of the vocabulary presented in the lecture	1	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	1	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	General matters about the language of scientific research	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Basics of writing scientific research	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	Lecture with dialogue and	Basics of writing scientific research	The students understanding of the vocabulary presented in the	1	**18**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Arrange the search components	The students understanding of the vocabulary presented in the lecture	1	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Arrange the search components	The students understanding of the vocabulary presented in the lecture	1	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Information tab	The students understanding of the vocabulary presented in the lecture	1	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Information tab	The students understanding of the vocabulary presented in the lecture	1	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	information analysis	The students understanding of the vocabulary presented in the lecture	1	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	information analysis	The students understanding of the vocabulary presented in the lecture	1	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Documentation of footnotes	The students understanding of the vocabulary presented in the lecture	1	٢٥
Weekly and	Lecture with	Documentation of	The students understanding of	1	٢٦

monthly exams	dialogue and discussion	footnotes	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Preparing a list of sources and references	The students understanding of the vocabulary presented in the lecture	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparing a list of sources and references	The students understanding of the vocabulary presented in the lecture	1	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Exam	The students understanding of the vocabulary presented in the lecture	1	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Review the course before the final exam	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	The prescribed curriculum consists of comprehensive material selected from valuable a extensive sources
Main references:	
Recommended books and references (scientific journals, reports…)	There are several classic books and references that are commonly recommended: 1) "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches" by John W. Cresswell - This book provides a comprehensive overview of research design across different methodologies.

	2) “Research Methodology: A Step-by-Step Guide for Beginners” by Ranjit Kumar - This book provides a practical approach to conducting research and covers various research methods and techniques. 3) “The Craft of Research” by Wayne C. Booth, Gregory G. Coulomb, and Joseph M. Williams - This book focuses on the practical aspects of writing research, including formulating research questions, conducting literature reviews, and writing research papers. 4) “Research Methods in Psychology: Evaluating the World of Information” by Beth Morling – This book focuses specifically on research methods used in psychology but offers valuable insights into experimental design, data analysis, and interpretation that can be applied across disciplines. 5) “The Basics of Writing Research Papers” by James D. Lester and James D. Lester Jr. - This book covers the basic aspects of writing research papers, including finding and evaluating sources, organizing information, and formatting citations.
Electronic References, Websites	For the Scientific Research Methodology course, there are many references and websites that are valuable resources for students: i. PubMed: A free search engine that primarily accesses the MEDLINE database for references and abstracts related to life sciences and biomedical topics. It is an excellent resource for finding peer-reviewed scientific articles. ii. Google Scholar: A freely accessible web search engine that indexes full-text or metadata scientific literature across a range of publication formats and disciplines. It is useful to find scientific articles, dissertations, books and conference papers. iii. Web of Science: A subscription-based scientific citation indexing service that provides comprehensive citation searches across disciplines. It is useful for tracking citations, identifying key researchers, and finding related articles. iv. Scopus: Another subscription-based abstract and citation database covering a wide range of disciplines. It offers features such as citation

	analysis, author profiles, and journal metrics. v. ResearchGate: A social networking site for researchers to share research, ask and answer questions, and find collaborators. It is a good platform to connect with other researchers and access full texts of research articles. vi. arXiv: A preprint repository for research papers in physics, mathematics, computer science, quantitative biology, quantitative finance, statistics, electrical engineering, systems science, and economics. It is useful for accessing the latest research before it is officially published. vii. SSRN (Social Science Research Network): A repository dedicated to the rapid dissemination of scientific research in the social sciences and humanities. It provides working papers and preliminary publications in various specializations. viii. PLOS (Public Library of Science): A non-profit publisher and advocacy organization that provides open access journals covering a wide range of scientific disciplines. It is useful for accessing high-quality, peer-reviewed research articles without a paywall. ix. IEEE Xplore: A digital library that provides access to journals, conference proceedings, and standards in the fields of electrical engineering, computer science, and electronics. It is a valuable resource for students interested in these disciplines. x. Google Books: A service from Google that allows users to search the full text of books and magazines that Google has scanned and converted into text using optical character recognition (OCR). It is useful to find specific sections of books related to research methodology.

Third stage courses

Course Description Form

1. Course Name:
Psychological Guidance and psychological health
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Souad Sabah Hussein
7. Course Objectives

Course Objectives	**1- Introducing students to the concept of counselling, its origins, development and methods** **2- Introducing students to the educational guide and methods for preparing it** **3- Introducing students to how to achieve personal harmony with oneself, be satisfied with oneself, and satisfy internal, primary, and innate motivations and needs.** **4- Helping students adapt to themselves and their environment and choose the appropriate academic major for them** **5- Developing positive attitudes and inclinations among students to pursue the professi of educational counselor**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- Enabling students to know the principles of counselling, guidance and mental health

2- Preparing students psychologically and educationally for the teaching profession

3- Preventing students from getting into problems and helping them make their own decisions

4- Helping students achieve self-realization

5- Making students capable of self-expression and their social and school problems

6- Helping students get rid of stress, anxiety, and fear and adapt to different age stages

B- Teaching and learning methods

1- Lecture method

2- Discussion method

3- Dialogue method

4- Asking questions

C - The skills objectives of the course

1- Creating motivation among students to carry out the duties of an educational advisor

2- Developing students' attitudes towards forming positive relationships in society

3- Developing students' guidance skills and training them on it

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Chapter One: An introduction to the study of psychological counselling	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	What is psychology?	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Fields of psychology and its branches	The students understanding of the vocabulary presented in the lecture	2	**3**

Weekly and monthly exams	Lecture with dialogue and discussion	A brief overview of the development of psychological counselling	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of psychological guidance	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of psychological counseling and educational guidance	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Justifications for psychological counselling	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	A historical overview of the student psychological counselor	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Guide preparation and training	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Counselor ethics	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and	Student advisor tasks	The students understanding of the vocabulary	2	**11**

	discussion		presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Chapter Two: Guidance methods	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Direct guidance	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Guidance is indirect	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Individual guidance	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Group counseling	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Guidance through play for children	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Behavioral counseling	The students understanding of the vocabulary presented in the lecture	2	**18**

Weekly and monthly exams	Lecture with dialogue and discussion	Chapter Three: The relationship of psychological counseling to other sciences	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Scientific foundations of psychological and educational counseling	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Chapter Four: Theories of psychological counseling	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Self-theory	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	The theory of rational guidance	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Behavioral theory psychoanalytic theory	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Chapter Five: Methods of collecting information	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and	Lecture with dialogue	Tests and standards	The students understanding of	2	٢٦

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Questionnaire	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Guidance interview	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Case Study	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Combined cumulative record	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Counseling and mental health / Dr. Hassan Al-Say Dr. Marzuk's owner
Main references: Book of mental health and psychotherapy/Dr. Hamed Abdel Salam Zahran	
Recommended books and references (scientific journals, reports…)	Journal of psychological counseling
Electronic References, Websites	Academy of Psychology / Wikipedia / The Arab Encyclopedia of Counseling and Psychotherapy / Website of the Psychological Counseling Center at

	the Institute of Educational Studies, Cairo University / Arab Psychological Sciences Network / Center for Educational Studies Psychological Research / Center for Psychological Research and Studies/

Course Description Form

1. Course Name:
Electronics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
180
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Thaer Khalil Saleh
7. Course Objectives

Course Objectives	**In order for us to achieve our goal, which is for students to learn how to make electron devices and design electronic circuits, we need to understand the main basics of electronics and how they work so that we can make scientific and practical progress in t field of manufacturing that serves us in our daily lives.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of (electronics) concepts in the educational process.

2- That the student understands the basic concepts in (electronics), especially the recent developments occurring in these sciences.

3- That the student understands the methods of connecting electronic circuits and the basis of their manufacture

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field

study.
C – The skills objectives of the course
1- The student applies educational and scientific concepts within the classroom.
2- Using strategies and means of explanation when teaching.
3- Perfect classroom management.
4- Understanding the developmental and developmental aspect of the student.
Evaluation methods:
Daily exams and assignments
- Monthly exams
- Annual exams.
- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Basic concepts in electrical and electronics	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Semiconductors and electronic emission	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Fuses and energy pack theory	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Pn junction configuration	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Voltage calculation for pn junction	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Circuit analysis of pn junction	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Applications pn link calendar	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Filter circuits in the link	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Determination and commitment circuits using pn junction operations	The students understanding of the vocabulary presented in the lecture1	3 theoretical 3 lab	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Dual zener combination	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Binary zener applications	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**11**
Weekly and monthly exams	Lecture with dialogue and	Test for the first semester	The students understanding of the vocabulary	3 theoretical	**12**

	discussion		presented in the lecture	3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Basic characteristics of a transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Bipolar transistor BjT	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Methods of connecting the BJT transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Effect of temperature on transistor operation	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Signal amplifiers and amplifiers	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Common emitter amplifier and common base amplifier	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	FET field effect transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**19**

Weekly and monthly exams	Lecture with dialogue and discussion	Transition properties of a field effect transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	FET transistor biasing methods	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Mosfet metal oxide field effect transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	High power field effect transistor	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to integrated circuits (IC).	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Manufacturing integrated circuit components and their methods	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Test for the second semester	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	٢٦

Weekly and monthly exams	Lecture with dialogue and discussion	A lecture on nanotechnology and its importance in electronics	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to digital logic circuits	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Basic logic gates	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Boolean algebra and theorems	The students understanding of the vocabulary presented in the lecture	3 theoretical 3 lab	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Electron physics
Main references: Electronics basics	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	**https://www.alfreed-ph.com**

Course Description Form

1. Course Name:
Complex Functions
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Donia Abdel Hamid Hassan
7. Course Objectives

Course Objectives	**1. That the student be able to know how to deal with complex numbers** **2. Understand the nature of complex functions** **3. Understanding the basic concepts: analyticity, holomorphism, branches, combinatoriality, representation of complex functions with Laurent series, complex integrals, Cauchy's theorems (Cauchy's integral formula), and the principle of the maximum value of the measure.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical aspect of (nodal numbers) in the educational process.

2- That the student understands the basic concepts in (complex functions), especially the recent developments occurring in these sciences.

3- Providing live examples of the usefulness of scientific material in practical applications.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills. **3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.**
C - The skills objectives of the course **1- The student applies educational and scientific concepts within the classroom.** **2- Using strategies and means of explanation when teaching.** **3- Perfect classroom management.** **4- Understanding the developmental and developmental aspect of the student.**
Evaluation methods: *Daily exams and assignments* *- Monthly exams* *- Annual exams.* *- Daily participation during the lecture.*

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Define the concept of complex number	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Algebraic properties of complex numbers	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Arithmetic operations on complex numbers	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Complex number conjugates	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and	Lecture with dialogue and	The absolute value of a	The students understanding of the	2	**5**

monthly exams	discussion	complex number	vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Geometric representation of a complex number	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Polar coordinates	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Euler's formula for representing a complex number	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Forces and roots	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	First semester exam	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	De Movier formula	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	The result of de movera and its applications in nodular roots	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Solving complex equations	The students understanding of the vocabulary presented in the lecture	2	**13**

Weekly and monthly exams	Lecture with dialogue and discussion	Using de Mauvier's theory and results in solving complex equations	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Analytical functions	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Domain and corresponding domain of complex functions	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	The inverse of the nodal function	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of complex functions	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	The goal of the complex functions is in the limits	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Continuity	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivative of complex functions by definition	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Laws of derivation	The students understanding of the vocabulary presented in	2	**22**

			the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Writing complex functions using analysis method	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Elementary complex functions	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Second semester exam	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Exponential function/logarithmic function	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Trigonometric functions	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Integration of complex functions	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Sequences and series	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	final exam	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Complex Functions, written by Samir Bashir Haddad
Main references: Complex Number From A to Z Titu Andreescu Dorin Andrica	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	**https://www.symbolab.com/solver/complex-numbers-calculator**

Course Description Form

1. Course Name:
English language
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Gabriel al-Samarra'i
7. Course Objectives

Course Objectives	**Introducing students to the basics and pronunciation of English vocabulary**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- Enabling students to obtain the theoretical foundations of the English language.

2- Introducing students to the basic concepts of English language outcomes.

3- Students' knowledge of the basic concepts of English language outcomes.

4- Students' knowledge of ways to formulate sentences and how to pronounce them.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- Lectures.

2- Means of illustration, such as: the smart board.

3- Use colorful pictures and diagrams taken from Internet sites.

C - The skills objectives of the course

1- The student applies the concepts related to the four skills.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.
Evaluation methods:
Daily exams and assignments
- Monthly exams
- Annual exams.
- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	It's a wonderful world	The students understanding of the vocabulary presented in the lecture	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Get happy	The students understanding of the vocabulary presented in the lecture	1	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Telling tales	The students understanding of the vocabulary presented in the lecture	1	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Doing the right thing	The students understanding of the vocabulary presented in the lecture	1	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	On the move	The students understanding of the vocabulary presented in the lecture	1	**5**

Weekly and monthly exams	Lecture with dialogue and discussion	I just love it	The students understanding of the vocabulary presented in the lecture	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	The world of work	The students understanding of the vocabulary presented in the lecture	1	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Just imagine	The students understanding of the vocabulary presented in the lecture	1	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Relationships	The students understanding of the vocabulary presented in the lecture1	1	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Obsessions	The students understanding of the vocabulary presented in the lecture	1	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Tell me about it	The students understanding of the vocabulary presented in the lecture	1	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Life's great events	The students understanding of the vocabulary presented in the lecture	1	**12**
Weekly and monthly exams	Lecture with dialogue and	Repeating of tenses	The students understanding of the vocabulary presented in the	1	**13**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Past tense	The students understanding of the vocabulary presented in the lecture	1	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Present tense	The students understanding of the vocabulary presented in the lecture	1	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Future tense	The students understanding of the vocabulary presented in the lecture	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Verb to do	The students understanding of the vocabulary presented in the lecture	1	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Verb to be	The students understanding of the vocabulary presented in the lecture	1	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Verb to have	The students understanding of the vocabulary presented in the lecture	1	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Reading passage	The students understanding of the vocabulary presented in the lecture	1	**20**
Weekly and	Lecture with dialogue	Past continues	The students understanding of	1	**21**

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Past perfect	The students understanding of the vocabulary presented in the lecture	1	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Past perfect continuous	The students understanding of the vocabulary presented in the lecture	1	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Present simple	The students understanding of the vocabulary presented in the lecture	1	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Present continuous	The students understanding of the vocabulary presented in the lecture	1	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Present P. con.	The students understanding of the vocabulary presented in the lecture	1	**٢٦**
Weekly and monthly exams	Lecture with dialogue and discussion	Simple future	The students understanding of the vocabulary presented in the lecture	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Future con.	The students understanding of the vocabulary presented in the lecture	1	**28**

Weekly and monthly exams	Lecture with dialogue and discussion	Future perfect	The students understanding of the vocabulary presented in the lecture	1	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Future P.Con.	The students understanding of the vocabulary presented in the lecture	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Headway intermediate**
Main references: English grammar in use	
Recommended books and references (scientific journals, reports…)	journals
Electronic References, Websites	Websites

Course Description Form

1. Course Name:
Optional (plasma)
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Nofal Abdul Rahman Hammoud
7. Course Objectives

Course Objectives	**Empowering and training students on the concepts and basics of plasma physics, laws principles, devices, and important applications that students use in studying plasma physics, astronomy, and materials science.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical and practical aspects of the concepts of (plasma physics) in the educational process.

2- That the student understands the basic concepts in (plasma physics), especially the recent developments occurring in these sciences.

3- Other benefits of the material: many uses in physics, astronomy, materials science, and some applications in electronic devices.

4- Other benefits of the substance: many uses in the medical aspect

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop: speaking and

presentation skills through the use of mini-presentations in which the students participate with the teache

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills: presenting a live lecture, showing explanatory videos, and exchanging roles.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field study. Through written and oral tests, presentations, dialogues, mutual discussions, and mini-research.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.: Yes, the student is allov to apply educational and practical concepts correctly.

2- Using strategies and means of explanation when teaching: display screen, videos, and presentations.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student: Yes, and constantly follow up on the students and evaluating them for the better.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	week
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction and introduction to plasma physics	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Collective behavior of plasma	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Mathematical equations for temperature	The students understanding of the vocabulary presented in the lecture	2	**3**

Weekly and monthly exams	Lecture with dialogue and discussion	Derivation of Debye thickness calculation	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Plasma pressure	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical discharge	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear fission and fusion	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Lawson's rule and inventory methods	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Plasma in space	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	First exam	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Plasma screen	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and	Motion of single particles	The students understanding of the vocabulary presented in the lecture	2	**12**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Larmer radius	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivation of the drift velocity of the electric field	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussions, issues and solutions	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetiodynamic systems for energy conversion and ion ejection	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Second exam	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Drift resulting from the influence of an external force	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Drift resulting from the gradient of the magnetic field	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Tocomac plasma confinement system	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and	Lecture with	Magnetic mirrors	The students understanding	2	**21**

monthly exams	dialogue and discussion		of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Adiabatic compression	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	The magnetic field changes with time	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Issues, solutions and discussions	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Introduction to plasma applications	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear fusion devices	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Paint and films	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Medical applications, waste treatment and sterilization	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and	Plasma electronics and new technology	The students understanding of the vocabulary presented in the lecture	2	**29**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Plasma laser device and shock wave device	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Basics of plasma physics
Main references: Principles of plasma physics	
Recommended books and references (scientific journals, reports…)	Introduction to plasma physics
Electronic References, Websites	Many foreign and Arab speaking lectures (YouTube).

Course Description Form

1. Course Name:
Thermodynamic
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Abdullah Mahmoud Husain
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- Developing students' skills to understand and understand thermodynamic concepts that enable them to have a general understanding of the most important facts, laws, theories and general principles of thermodynamics.

2- Highlighting the role of thermodynamics and its fundamental role in the branches of physics with the most important theories and laws that have depth in explaining the behavior of materials and their thermal influence and electrical behavior accordingly and according to the nature of the basic material.

3- Providing students with knowledge of the main principles of thermodynamics.

4- Introducing students to how to reach mathematical facts and laws using induction, logical deduction, and mathematical calculations that do not accept error.

5- Discussing scientific theories and their conclusions.

6- Providing the student with high scientific skills through interpretation, discussion, and deduction of physical

concepts.

B- Teaching and learning methods

1- Identify the general principles of thermodynamics and methods of calculating and deriving them.

2- Identify the thermodynamic laws and discuss them in detail because of their importance in enhancing th general understanding of the behavior of materials.

3- The optimal use of mathematical equations and how to derive them to reach the final result.

4- Giving a clear idea of the general differences between the laws of thermodynamics and the basis on wh each law is based and its starting point.

C - The skills objectives of the course

1- The student applies the concepts and laws he has learned in the classroom.

2- Using modern means of illustration when teaching in order to give a complete idea of the subject.

3- Perfect classroom management.

4- Enhancing the student's awareness, understanding, and conclusion of all the mathematical concep conclusions, facts, and laws learned in the lecture.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Meaning of thermodynamics Entity, environment, system and the types of each	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Thermodynamic processes and their types	The students understanding of the vocabulary presented in the lecture	3	**2**

Weekly and monthly exams	Lecture with dialogue and discussion	Equation of state	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Real gases and their equation of state	The students understanding of the vocabulary presented in the lecture	3	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Useful mathematical theories	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	State function and its conditions	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Properties of pure matter	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Phases of pure matter	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Fumes and their types	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and	Clapeyron's equation and its applications	The students understanding of the vocabulary presented in the	3	**10**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The first law of thermodynamics, its formula and derivation	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Results of the first law	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Work done for different thermodynamic processes	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Heat capacity and its types	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	The second law of thermodynamics, its formula and derivation	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Results of the second law of thermostat	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Heat machines and heat pumps, their cycles and efficiency	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and	Lecture with dialogue	Entropy and derivation	The students understanding of	3	**18**

monthly exams	and discussion	of its equation	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The relationship between temperature and entropy	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Various thermodynamic functions	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Modulus of elasticity and types of elasticity	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Kinetic theory of gases	The students understanding of the vocabulary presented in the lecture	3	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Collision and its types according to the type of wall	The students understanding of the vocabulary presented in the lecture	3	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Arithmetic problems	The students understanding of the vocabulary presented in the lecture	3	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Various thermodynamic phenomena	The students understanding of the vocabulary presented in the lecture	3	**٢٥**

Weekly and monthly exams	Lecture with dialogue and discussion	Statistical thermodynamics	The students understanding of the vocabulary presented in the lecture	3	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Energy states and levels	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	The three main statistics	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Various statistical problems	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Various statistical problems	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Thermodynamics / Written by Dr. Amjad Abdel Razzaq Karjieh and Dr. Abdul Majeed Al-Abd, University of Mosul.
Main references: Mechanics, Heat and Sound, by Francis W. S., U.S. A	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Atomic and molecular	
2. Semester / Year:	
annually for the year 2024/2025	
3. Description Preparation Date:	
19/3/2025	
4. Available Attendance Forms:	
Daily	
5. Number of Credit Hours (Total) /	
180	
6. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Dr. Oras Abdul Hadi Hussein	
7. Course Objectives	
Course Objectives	**Providing the student with general information about:** **1. To enable students to understand the chronological development of atomic theories.** **2. To help students describe the Dalton and Thompson models.** **3. To enable students to solve atomic problems using the Bohr model.** **4. Recovering information about Bohr's hypotheses and harnessing them to calculate th spectrum of the hydrogen atom and the atomic atom Hydrogen.** **5. To know the equation of energy levels and the origin of its solution from the Schrödinger equation and the form of the level wave functions Ground and irritated levels.** **6. Explain the importance of quantum numbers. andms ml, l, n.** **7. Explaining the results of the Stern–Gerlach experiment with the concept of electron spin.** **8. To explain the Zeeman phenomenon, the precise structure and interconnection of the Permian–tropical.** **9. To explain how the Pauli Exclusion Principle enables us to understand the periodic table.** **10. Explain the origin of X–ray spectra.** **11. Enable students to distinguish between characteristic radiation and suppression or stopping radiation for X–rays.**

	12. Solve problems related to x-rays using Moseley's law. **13. Teach students how to use Bragg's law to solve problems.** **14. Enable students to understand the basics of Einstein's theory of relativity.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (atomic and molecular physics) in the educational process.

2- That the student understands the basic concepts in (atomic and molecular physics), especially the recent developments occurring in these sciences.

3- The student can remember atomic models and how they develop.

4- The student can mention black body radiation and the classical radiation laws.

5- The student can understand the nature of particle-wave duality and its applications.

6- The student can explain atomic spectra and the regions in which they are located in the hydrogen atom.

7- The student can determine the shapes of atomic orbitals, how they are formed, and atomic transitions.

8- The student can explain how X-rays and their spectra are generated.

9- The student can explain the concepts of special relativity, Lorenz transformations, momentum and relative energy.

B- Teaching and learning methods

1- Discussion
2- Student groups
3- Workshops
4- E-learning on campus.
5- Display experiences

C - The skills objectives of the course

1- The student can conduct the Rutherford scattering experiment.
2- The student can conduct a black body radiation experiment.

3- The student can conduct the photoelectric phenomenon experiment.
4- The student can conduct X-ray diffraction and scattering experiments.
5- The student can conduct an experiment on the spectra of a hydrogen atom.
Evaluation methods:
Daily exams and assignments
- Monthly exams
- Annual exams.
- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Chapter One: The Special Theory of Relativity,	The students understanding of the vocabulary presented in the lecture	3 Theoretical 3 lab	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Galileo Transformations, and the Michelson-Morley Experiment	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Lorenz transformations	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Assumptions of the special theory of relativity	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Time slowed down and length decreased	The students understanding of the vocabulary presented in the	3 Theoretical + 3 lab	**5**

			lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Relative momentum and relative energy	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions and review all topics	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Electromagnetic radiation and theories of light	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Black body radiation, Rayleigh-Jeans law, Wayne's displacement law, and Planck's law	The students understanding of the vocabulary presented in the lecture1	3 Theoretical + 3 lab	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Photoelectric phenomenon	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Compton scattering	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Dual behavior (particle-wave) de Broglie hypothesis	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**12**
Weekly and	Lecture with dialogue	Heisenberg's inaccuracy	The students understanding of	3 Theoretical	**13**

monthly exams	and discussion	principle	the vocabulary presented in the lecture	+ 3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Group speed and phase speed	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	X-rays, discovery of x-rays, production of x-rays	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	First semester exam	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	X-ray spectra	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	X-ray diffraction, X-ray absorption	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Atomic models 1-Dalton model 2-Thompson model 3-Rutherford model	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	4-Bohr model of the hydrogen atom	The students understanding of the vocabulary presented in the	3 Theoretical + 3 lab	**20**

			lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	5-Rutherford-Sommerfield model	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	The time-dependent Schrodenker equation in one dimension and three dimensions	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	The time-independent Schrodenker equation in one dimension and three dimensions	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Solution of the Schrödinger equation for the hydrogen atom	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Multi-electron atom, electron magnetic moment (Stern-Gerlach experiment)	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Quantum numbers	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**٢٦**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions about quantum numbers	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	Pauli's Exclusion Principle, Dahira Zeman	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Molecular spectra	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions and review all topics	The students understanding of the vocabulary presented in the lecture	3 Theoretical + 3 lab	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Atomic Physics, Dr. Talib Nahi Al-Khafaji, Dr. Abbas Hammadi, and Dr. Hormuz Moshi 1980.
Main references: 1- Concepts in Modern Physics, Arthur Beiser, translation of the second edition. 2- Besier: 'A Concepts of Modern Physics', Tata McGraw Hills, New York (1987). 3- Bransden, B.H.; C.J. Joachain (1983). Physics of Atoms and Molecules. London: Longman. 4- Christopher J. Foot, Atomic Physics, Oxford, 2005. 5- Griffiths, David J. (1995). Introduction to Quantum Mechanics. Upper Saddle River, NJ: Prentice Hal 6- Thornton, Stephen T., Andrew Rex (2002). Modern Physics. USA 5- C. A. Kiwanga, Atomic Physics, 20	
Recommended books and references (scientific journals, reports…)	1- Concepts in Modern Physics, Arthur Beiser, translation of the second edition. 2- Besier: 'A Concepts of Modern Physics', Tata McGraw Hills, New York (1987). Bransden, B.H.; C.J. Joachain (1983). Physics of Atoms and Molecules. London: Longman

Electronic References, Websites	**مكتبة الفيزياء الالكترونية**

Course Description Form

1. Course Name:
Curriculum and methods of Teaching
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Asst. prof. Dr. Adnan Talfah Muhammad
7. Course Objectives

Course Objectives	– Developing the ability to design curricula: Providing teachers with the necessary skills to des and develop interactive educational curricula that take into account the diverse needs of studer – Promoting effective teaching strategies: Preparing teachers to use a variety of teach methods to promote active learning and help students succeed. – Assessment and Evaluation: Qualifying teachers to conduct a fair and comprehens assessment of students' performance and provide constructive feedback. – Use of technology: Encouraging teachers to adopt and integrate modern technologies teaching to enhance learning and make it more attractive and interactive. – Identifying educational problems: enabling teachers to analyze and understand curr educational problems and the challenges they face in the classroom. – Professional development: Helping teachers develop their educational practices continuously improve their professional skills. – Increase awareness of the importance of lesson planning: Encourage teachers to plan less in advance in a systematic manner to ensure that educational objectives are implemer effectively. – Understanding how students respond to learning: Learn how to deliver content that matc students' abilities, educational and cultural needs. – Developing the spirit of innovation and creativity: Motivating teachers to innovate new teach methods and activities that arouse students' interest and encourage critical thinking.

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts (curricula and teaching methods) in the educational process.

2- That the student understands the basic concepts in (teaching curricula and methods), especially the recent developments occurring in these sciences.

3- Understanding the contemporary educational environment and studying the challenges of modern education and how to deal with them in a creative and responsible manner.

4 Continuous professional development, motivating teachers to continuously search for the best educational practices and the latest strategies in the field of education.

5- Keeping pace with technological progress, providing teachers with the necessary skills to use modern technologies in teaching, which raises the quality of education and makes it more interactive.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Concepts/learning, science, technology	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Components of science and its characteristics	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Characteristics of science	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Creative thinking skills	The students understanding of the vocabulary presented in the lecture	3	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Basic vocabulary and concepts in the curriculum	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparation of natural sciences teacher	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and	Teacher preparation (physics, chemistry, life sciences, mathematics)	The students understanding of the vocabulary presented in the	3	**7**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The scientific method (its concept, development, requirements)	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Curriculum requirements / specifications of a good curriculum	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of scientific education for the curriculum	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of scientific curricula	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Psychological factors that must be taken into account in any curriculum	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Educational and teaching objectives	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of teaching science in general education stages	The students understanding of the vocabulary presented in the lecture	3	**14**

Weekly and monthly exams	Lecture with dialogue and discussion	The meaning of teaching and its elements	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Learning theories	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Teaching theories	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Some concepts about teaching methods and their importance	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	The foundations of good teaching and the things that must be taken into account in good teaching	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	-The method of teaching between art and science - the conditions that must be met by the teacher for his teaching to be successful	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Method of delivery (lecture)	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue	Collective discussion method/interrogation	The students understanding of the vocabulary	3	**22**

	and discussion	method	presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Method of solving problems	The students understanding of the vocabulary presented in the lecture	3	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Project method	The students understanding of the vocabulary presented in the lecture	3	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Cooperative learning	The students understanding of the vocabulary presented in the lecture	3	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Programmed learning/computer-based learning	The students understanding of the vocabulary presented in the lecture	3	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Guided exploration method	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Live demonstration (practical demonstrations)	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Method of educational games / field trips / method of preparing reports	The students understanding of the vocabulary presented in the lecture	3	**29**

Weekly and monthly exams	Lecture with dialogue and discussion	Teaching planning, its importance, and its forms	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Curricula and teaching methods/Dr. Majed Ayoub Al-Qaisi Modern curricula and teaching methods/Dr. Mohsen Ali Attia
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Analytical mechanics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohamed Sharif Mohamed
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (analytical mechanics) in the educational process.

2- That the student understands the basic concepts in (analytical mechanics), especially the recent developments occurring in these sciences.

3- The student was able to describe the movement of objects in cartesian, spherical and cylindrical coordinates

4- Using some laws to solve some complex issues that were not studied in previous stages

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C – The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Vector quantities and scalar quantities	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Numerical multiplication and some of its applications + solving a group of examples	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Cross multiplication and some of its applications + solving a set of examples	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and	Vector differentiation (displacement, velocity, and acceleration) and	The students understanding of the vocabulary presented in the lecture	3	**4**

	discussion	solving a set of examples			
Weekly and monthly exams	Lecture with dialogue and discussion	Vector differentiation + vector integration, solving examples, and relative speed	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Tangential and perpendicular components of acceleration and solving examples	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Speed and acceleration in plane polar coordinates and solving examples	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Velocity and acceleration in spherical polar coordinates	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Newton's laws, derivation of the laws of motion, and solving examples	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	The concept of kinetic energy and potential energy and solving examples	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and	Simple converging motion and solving an example	The students understanding of the vocabulary presented in the lecture	3	**11**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Simple diminishing motion and an example solution	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	General dynamics of particle motion + conservative force and force field	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Conservative force and non-conservative force and solve examples	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Motion of a projectile in an irregular gravitational field	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	The movement of a projectile in the air with linear air resistance	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Harmonic motion in two or three dimensions	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Simple pendulum	The students understanding of the vocabulary presented in the lecture	3	**18**

Weekly and monthly exams	Lecture with dialogue and discussion	Translational movement of axial systems	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Rigid body mechanics and moment of inertia	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Calculating the moment of inertia for some geometric shapes	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Angular momentum in a central field and calculate the angular momentum per unit mass	The students understanding of the vocabulary presented in the lecture	3	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Centripetal force and celestial mechanics	The students understanding of the vocabulary presented in the lecture	3	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Kepler's laws	The students understanding of the vocabulary presented in the lecture	3	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve problems about Kepler's laws	The students understanding of the vocabulary presented in the lecture	3	**٢٥**
Weekly and	Lecture	Newton's equations	The students understanding of	3	**٢٦**

monthly exams	with dialogue and discussion	and generalized coordinates	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Lacrange equations and solving examples	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Hamilton equations and solving examples	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Use the Lacrange equation to find the equation of motion for a simple pendulum	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Use Hamilton's equation of motion to find the equation of motion for a simple pendulum	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Analytical Mechanics, Second Edition
Main references: General mechanics	
Recommended books and references (scientific journals, reports…)	Mechanics for university students

Electronic References, Websites	Google + Wikipedia

Forth stage courses

Course Description Form

1. Course Name:
Electromagnetic theory
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Bakr Fayyad Hassan
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts (electromagnetic theories) in the educational process.

2- That the student understands the basic concepts in (electromagnetic theories), especially the recent developments occurring in these sciences.

3- It is an essential element in establishing solid knowledge, serving society, and forming a society based on an investigative and critical outlook.

4- It has a great ability to find solutions to many problems and provide alternatives to those obstacles related to electromagnetism.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop. **2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.** **3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.**
C - The skills objectives of the course **1- The student applies educational and scientific concepts within the classroom.** **2- Using strategies and means of explanation when teaching.** **3- Perfect classroom management.** **4- Understanding the developmental and developmental aspect of the student.**
Evaluation methods: *Daily exams and assignments* *- Monthly exams* *- Annual exams.* *- Daily participation during the lecture.*

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Vector analysis, regression, vector calculus	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Divergence and convergence of vectors and Stoke's theorem	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Static electricity, electric charge and Coulomb's law	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue	Charge density, electric field, flux and law	The students understanding of	2	**4**

	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Form of integration and differentiation of Gauss's law, applications of Gauss's law, conductors and insulators, multipolar electricity.	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrostatic limit value problems	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Poisson equation and Laplace equation, singularities in solving static electricity problems	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Dielectric medium in a static electric field, polarization and dipole moment density	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	The external field of a dielectric medium, the electric field inside the dielectric, electrical displacement	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical conductivity and electrical insulation, point charge in the insulating medium	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and	The force in a point charge implanted in an insulator	The students understanding of the vocabulary presented in the	2	**11**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Microscopic theory of the dielectric, molecular field in the dielectric	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Induced dipole (simple model) Polar molecules (Langevin-Debye) Polarization and boundary force	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Electromagnetic energy, the potential energy of a group of point charges	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Electrical energy of charge distribution, energy density of the electrostatic field.	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Power system for charge conductors.	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Capacitors (capacitors), conductive capacitors, energy storage in capacitors.	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Energy density in a magnetic field	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and	Lecture with dialogue	Magnetic properties of materials,	The students understanding of	2	**19**

monthly exams	and discussion	magnetization,	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Magnetic field in magnetized matter	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Electric field sources. Magnetic density. Field rates.	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Permeability and magnetic susceptibility, terms of boundary conditions on the vector field	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Boundary value problems related to materials.	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Microscopic theory of magnetization, molecular field within materials.	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	The origin of magnetic permeability, the origin of paramagnetic.	The students understanding of the vocabulary presented in the lecture	2	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Ferromagnetic theory, magnetic journals	The students understanding of the vocabulary presented in the lecture	2	**٢٦**

Weekly and monthly exams	Lecture with dialogue and discussion	Antimagnetic and ferromagnetism, issues	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Maxwell's equation, generalization of Ampere's law in displacement.	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Maxwell's equations and their experimental basis, electromagnetic energy	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Boundary conditions, the wave equation, sources of the wave equation.	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Foundations of Electromagnetic theory** **By : John R. Reitz** **Frederick J. Milford** **Robert W. Christy**
Main references: Electromagnetic theory By: Oliver Heaviside النظرية الكهرومغناطيسية مقدمة واساسيات (عيسى الطائي)	
Recommended books and references (scientific journals, reports…)	Elements Electromagnetic theory By: S. J. Barnett مدخل الى النظرية المغناطيسية (عبد المجيد معيرش)

	اسس النظرية الكهرومغناطيسية (ا.د. عبد المجيد طه يونس)
Electronic References, Websites	www.noor-book.com

Course Description Form

1. Course Name:
Nuclear Physics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
180
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Marwan Abdel Karim Abdel Baqi
7. Course Objectives

Course Objectives	**Introducing the student to nuclear physics and its basics in some detail and understand the mechanism of behavior of the components of the nucleus and the force that governs**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of (nuclear) concepts in the educational process.

2- That the student understands the basic concepts in (nuclear), especially the recent developments occurring in these sciences.

3- That the student understands the basics of the properties of the nucleus in general, such as mass, volume, and charge

4- The student's knowledge of a number of ancient and modern theories that explain the behavior of the components of the nucleus

5- The student's knowledge of many important applications in various medical and industrial fields

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	An overview of nuclear physics, Nuclear properties	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Some basic concepts in nuclear	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear binding energy	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**3**

Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear separation energy	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	nuclear power	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear models	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Liquid drop model	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Mass parabola	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear cortex model	The students understanding of the vocabulary presented in the lecture1	3 theoretical+ 3 lab	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Spinning and nuclear symmetry	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**10**
Weekly and monthly exams	Lecture with dialogue and	Other nuclear models	The students understanding of the vocabulary presented in the	3 theoretical+ 3 lab	**11**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The phenomenon of radioactivity	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Radioactivity units	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Production of a radioactive isotope by nuclear bombing	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Production of a radioactive isotope by the decay of a nucleus	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Decay patterns	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Alpha decay	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Beta decay	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**18**
Weekly and	Lecture with dialogue	Dissolution of kama	The students understanding of	3 theoretical+	**19**

monthly exams	and discussion		the vocabulary presented in the lecture	3 lab	
Weekly and monthly exams	Lecture with dialogue and discussion	Interaction of nuclear rays with matter	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Stopping capacity	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Interaction of charged particles with matter	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Photoelectric phenomenon	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Compton scattering	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Pair production	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Attenuation	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**٢٦**

Weekly and monthly exams	Lecture with dialogue and discussion	Nuclear reactions	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Reaction products	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Threshold energy	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Interaction cross-sectional area	The students understanding of the vocabulary presented in the lecture	3 theoretical+ 3 lab	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nuclear Physics (Dr. Muneeb Adel Khalil) Methodical Book, Tikrit University - College of Science
Main references:	
Recommended books and references (scientific journals, reports…)	Burcham, William Ernest, Melvyn Jobes, and Ernest M. Henley. Nuclear and particle physics. Burnt Mill: Longman, 1995.
Electronic References, Websites	Tavernier, Stefaan. Experimental techniques in nuclear and particle physics. Springer Nature, 2010.

Course Description Form

1. Course Name:
English language
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
30
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lec. Gabriel al-Samarra'i
7. Course Objectives

Course Objectives	**Introducing students to the principles and basics of the English language, includ reading, writing, and pronouncing vocabulary and how to use them in the future.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (the English language) in the educational process.

2- That the student understands the basic concepts in the English language, especially the recent developments occurring in these sciences.

3- Enabling students to obtain the theoretical foundations of the English language.

4- Introducing students to the basic concepts of English language outcomes.

5- Students' knowledge of ways to formulate sentences, how to pronounce them, and how to use them.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- Lectures.

2- Means of illustration, such as: the smart board. **3- Use colorful pictures and diagrams taken from Internet sites.**
C - The skills objectives of the course **1- The student applies educational and scientific concepts within the classroom.** **2- Using strategies and means of explanation when teaching.** **3- Perfect classroom management.** **4- Understanding the developmental and developmental aspect of the student.**
Evaluation methods: *Daily exams and assignments* *- Monthly exams* *- Annual exams.* *- Daily participation during the lecture.*

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	**Home and away** The tense system Simple, continuous, perfect, active and passive, Present Perfect Simple and Continuous	Correct reading and pronunciation	1	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	**Been there, got the T-shirt!** Present Perfect Simple and Continuous Spoken English	Correct reading and pronunciation	1	**2**

Weekly and monthly exams	Lecture with dialogue and discussion	**News and views** Past Simple, Past Continuous, Past Perfect, active and passive	Correct reading and pronunciation	1	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	**The naked truth** Question and negative forms Spoken language	Correct reading and pronunciation	1	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	**Looking ahead** Future forms. Will, going to. Spoken language	Correct reading and pronunciation	1	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	**Hitting the big time** Expressions of quantity(a few, little, plenty of , hardly any)	Correct reading and pronunciation	1	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Getting along Models and related verbs. (can , could…..	Correct reading and pronunciation	1	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	**How remarkable** **Relative clauses**	Correct reading and pronunciation	1	**8**
Weekly and monthly exams	Lecture with dialogue and	The way we were. expressing habits	Correct reading and pronunciation1	1	**9**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	**Over my dead baby** Model auxiliary verbs in the past	Correct reading and pronunciation	1	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	**It's all hypothetical** Hypothesizing I wish I know the news	Correct reading and pronunciation	1	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	**Time files** Articles	Correct reading and pronunciation	1	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Review	Correct reading and pronunciation	1	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Review	Correct reading and pronunciation	1	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Review	Correct reading and pronunciation	1	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**17**

Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**٢٥**
Weekly and monthly exams	Lecture with dialogue and	Lecture title	Correct reading and pronunciation	1	**٢٦**

	discussion				
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Lecture title	Correct reading and pronunciation	1	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Headway upper intermediate**
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Solid state physics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Fares Maher Ahmed
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (solid state physics) in the educational process.

2- That the student understands the basic concepts in (solid state physics), especially the recent developments occurring in these sciences.

3- The student understands the atomic and molecular structure of materials

4- The student's understanding of the physical properties of each substance

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field (

study.
C – The skills objectives of the course
1- The student applies educational and scientific concepts within the classroom.
2- Using strategies and means of explanation when teaching.
3- Perfect classroom management.
4- Understanding the developmental and developmental aspect of the student.
Evaluation methods:
Daily exams and assignments
- Monthly exams
- Annual exams.
- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Atomic structure	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Crystal structure	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of cubic crystal system	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Miller coefficients for the faces of a cubic crystal	The students understanding of the vocabulary presented in the lecture	3	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Allotropy and classification of solids	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Calculate the value of Madelonk's constant	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Ionic crystals	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Diffraction in crystals	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Experimental methods of diffraction	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Inverse lattice vectors	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	The phonon	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and monthly exams	Lecture with dialogue and	Electronic thermal conductivity in metals	The students understanding of the vocabulary presented in the	3	**12**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Free electron gas energy in metals	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Summerfield theory of electrical conductivity	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Lattice vibrations and thermal properties of solids	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Diatomic lattice vibrations in one dimension	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Thermal properties of solids	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Theory of beams in solids	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Effective mass of an electron	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and	Lecture with dialogue	Connectors	The students understanding of	3	**20**

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Insulators	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Mobility of a self-conducting semiconductor	The students understanding of the vocabulary presented in the lecture	3	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Doped doped semiconductors	The students understanding of the vocabulary presented in the lecture	3	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Crystal defects	The students understanding of the vocabulary presented in the lecture	3	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Crystal defects are classified	The students understanding of the vocabulary presented in the lecture	3	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Twins	The students understanding of the vocabulary presented in the lecture	3	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	Superconductivity	The students understanding of the vocabulary presented in the lecture	3	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	Critical temperature	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Critical magnetic field	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Mizner phenomenon	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Solid state physics
Main references: Solid state physics book	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Measurement and evaluation
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Dr. Azhar Yousef Khalaf
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts (evaluation and measurement) in the educational process.

2- That the student understands the basic concepts in (evaluation and measurement), especially the recent developments that occur in these sciences.

3- Explaining the importance of educational evaluation in the teaching and learning system

4- Introducing the student to how to prepare a model for psychological self-evaluation (student - teacher)

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field (

study.
C – The skills objectives of the course
1- The student applies educational and scientific concepts within the classroom.
2- Using strategies and means of explanation when teaching.
3- Perfect classroom management.
4- Understanding the developmental and developmental aspect of the student.
Evaluation methods:
Daily exams and assignments
- Monthly exams
- Annual exams.
- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Overview of measurement and evaluation	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	The concept of measurement, evaluation, testing and the relationship between them	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	The importance of evaluation and measurement in the educational process	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	The relationship between assessment and curriculum	The students understanding of the vocabulary presented in the lecture	2	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Types of calendars	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Determine students' mental levels	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Formulating educational objectives	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Analysis of the content of the study material	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparing a table of specifications	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of achievement tests	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Oral exams	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and	Performance tests	The students understanding of the vocabulary presented in the	2	**12**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Written tests	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Essay test	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Quizzes	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Completion tests	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Fill in the blanks test	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Choice-based tests	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	True and false test	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and	Lecture with dialogue	Multiple choice test	The students understanding of	2	**20**

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Conformity testing	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Rules for correcting tests based on selection	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Correcting objective tests from the effect of guesswork	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Building standardized achievement tests	The students understanding of the vocabulary presented in the lecture	2	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparing and assembling test items	The students understanding of the vocabulary presented in the lecture	2	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Start the test application	The students understanding of the vocabulary presented in the lecture	2	**٢٦**
Weekly and monthly exams	Lecture with dialogue and discussion	Statistical analysis of test items	The students understanding of the vocabulary presented in the lecture	2	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	Find the difficulty and ease factor	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Find the coefficient of discrimination	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Conditions and specifications for good standardized testing	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Educational evaluation: its concept - methods - fields. Kamal Al-Din Muhammad Hashem, Hassan Jaafar Al-Khalifa
Main references: educational evaluation and psychological measurement/Jaber Abdel Hamid	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Quantum mechanics
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
90
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Saadoun Mutaib Abdul Karim
7. Course Objectives

Course Objectives	**Understanding the wave and quantum nature of all particles and deriving a mathemat equation that enables us to study the two behaviors, which is the Schrodenker equat similar to Newton's equation in linear motion.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts of (quantum mechanics) in the educational process.

2- That the student understands the basic concepts in (quantum mechanics), especially the recent developments occurring in these sciences.

3 Understand the meaning of precaution and its role in solving problems, as well as the expected value

4- Use the principle of probability density to find the particle's location, momentum, and expected value.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	The physical foundations of quantum mechanics + classical theory	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Radiation and absorption + Niels Bohr's hypotheses	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Derivation of the equation for the radii of the allowed orbits of the hydrogen atom + the equation of the energy levels of the hydrogen atom	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and	Lecture with	Derivation of the wave	The students	3	**4**

monthly exams	dialogue and discussion	number equation + the photochemical phenomenon	understanding of the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	X-rays and the Compton effect and solve examples	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Formation of an electron-positron pair + coupled behavior of radiation + solving examples	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Heisenberg's principle of accuracy + solving questions and problems	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Elementary properties of quantum mechanics + the wave function and its interpretation	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Derive the time-independent + time-dependent Schrödenker equation	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Effects and solving examples	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and	Eigenvalue equation and solving examples	The students understanding of the vocabulary presented in the	3	**11**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Characteristics of effects (linearity + exchange) and solving examples	The students understanding of the vocabulary presented in the lecture	3	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	The Hermitian operator and solve examples	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Expected value (for impact, linear momentum, total and kinetic energy)	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Inequality and solving examples	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Applications of the Schrodenker equation to motion in one dimension (free particle).	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Particle in potential box Find its total energy	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Finding the calibration constant for a particle inside the potential	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and	Lecture with dialogue	density of states box	The students understanding of	3	**19**

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	step effort	The students understanding of the vocabulary presented in the lecture	3	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Breaking through the voltage barrier	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Harmonic motion according to classical theory	The students understanding of the vocabulary presented in the lecture	3	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Harmonic motion according to quantum theory	The students understanding of the vocabulary presented in the lecture	3	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Derivation of the energy level equation for the harmonic oscillator with a comparison between quantum and classical theory	The students understanding of the vocabulary presented in the lecture	3	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Find the expected value of position, momentum and energy	The students understanding of the vocabulary presented in the lecture	3	٢٥
Weekly and monthly exams	Lecture with dialogue and	Angular momentum	The students understanding of the vocabulary presented in the	3	٢٦

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Spherically symmetrical systems	The students understanding of the vocabulary presented in the lecture	3	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Diagonal function and spherical convolution	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	The wave function of a hydrogen atom in polar coordinates	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Perturbation theory	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Quantum mechanics
Main references: Fundamentals of quantum mechanics	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Google + Wikipedia

Course Description Form

1. Course Name:
Laser
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Oras Abdul Hadi Hussein
7. Course Objectives

Course Objectives	**• Students learned about the topic of lasers and their role in understanding the principle of modern physics, their daily uses, and ways to deal with laser light and avoid its harm** **• How to use this knowledge in daily life and link it to other scientific phenomena** **• It makes the students of the Physics Department feel the value and importance of the physics subject, the role of lasers in science and technology, and how to interact with them** **• With school students after graduation and practicing their specialties as teachers in middle and middle schools and some research laboratories in state departments related industry and in the field of research and development.**

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1. Learn about lasers and how this science arose and developed to become one of the most important branches of physics and its direct connection to modern scientific applications.

2. Learn about the basic concepts of lasers and how to benefit from them and link them to daily phenomena.

3. The optimal use of information and how to employ it to reach the correct understanding of the material

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

C - The skills objectives of the course

1- Adopting educational discussion, which depends on exchanging ideas to reach an understanding of lecture.

2-The most important means available are the blackboard, colored pencils, and illustration materials

-3 electronic lectures with video.

4-Some classroom activities.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Some concepts Electromagnetic rays Atomic spectra	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Molecular spectra Molecular energy levels Boltzmann distribution	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and	Radiation interaction with matter Absorption and	The students understanding of the vocabulary presented in the	2	**3**

	discussion	emission	lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	1. Calculating Einstein's coefficients 2. Spontaneous emission rate to stimulated emission rate	The students understanding of the vocabulary presented in the lecture	2	**4**
Weekly and monthly exams	Lecture with dialogue and discussion	Spectral line exposure mechanics Types of exposure and its causes	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Basics of laser work Threshold condition Losses in laser	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Small signal gain coefficient Inverse distribution Optical feedback	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Pumping plans Pumping levels Pumping methods • Optical pumping • Electrical pumping • Chemical pumping	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Optical resonator	The students understanding of the vocabulary presented in the	2	**9**

			lecture1		
Weekly and monthly exams	Lecture with dialogue and discussion	Types of optical resonators	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Resonator stability and stability diagram	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and monthly exams	Lecture with dialogue and discussion	Oscillation modes (resonator modes)	The students understanding of the vocabulary presented in the lecture	2	**12**
Weekly and monthly exams	Lecture with dialogue and discussion	Solve questions about previous topics	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Quality factor of the resonator	The students understanding of the vocabulary presented in the lecture	2	**14**
Exam				2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Laser products and their modifications - Selection of the lines of the laser emission spectrum - Single oscillation mode operation	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue	Methods for determining the quality	The students understanding of	2	**17**

	and discussion	factor - Mechanical method - Photoelectric method	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	- Audio-visual method - Negative interceptor method	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Close the formula	The students understanding of the vocabulary presented in the lecture	2	**19**
Weekly and monthly exams	Lecture with dialogue and discussion	Types of lasers - Solid state laser	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	- Gas phase laser	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	- Liquid state laser - Semiconductor laser	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Properties of laser light	The students understanding of the vocabulary presented in the lecture	2	**٢٣**
Weekly and monthly exams	Lecture with dialogue and	Laser light applications - Isotope separation	The students understanding of the vocabulary presented in the	2	**٢٤**

	discussion	- Industry field	lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	- Military field	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	- Communications	The students understanding of the vocabulary presented in the lecture	2	٢٦
Weekly and monthly exams	Lecture with dialogue and discussion	- medicine field	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Laser risks	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Laser safety instructions and conditions	The students understanding of the vocabulary presented in the lecture	2	**29**
Exam				2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Laser physics and some practical applicatior – Dr. Qandala Siham • Principles of Lasers Orazio Svelto

Main references:	
Recommended books and references (scientific journals, reports…)	• Lasers and their applications. Dr. Saud Al-Lahyani • Lasers - Bella Linkel
Electronic References, Websites	Electronic physics library

Course Description Form

1. Course Name:
Demonstration instruments lab
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
60
6. Course administrator's name (mention all, if more than one name)
Name: Teaching Associate. Omar Farouk Fouad
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

1- How to employ the theoretical or practical side of the concepts (means of illustration) in the educational process.

2- That the student understands the basic concepts in (media of illustration), especially the recent developments occurring in these sciences.

3- Developing modern methods of physics in this subject, and moving away from old methods.

4- Explaining and clarifying all the devices that can be used, and clearly establishing the theoretical material within the student's mind.

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field study.
C - The skills objectives of the course **1- The student applies educational and scientific concepts within the classroom.** **2- Using strategies and means of explanation when teaching.** **3- Perfect classroom management.** **4- Understanding the developmental and developmental aspect of the student.**
Evaluation methods: *Daily exams and assignments* *- Monthly exams* *- Annual exams.* *- Daily participation during the lecture.*

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Plumbing method	The students understanding of the vocabulary presented in the lecture	2	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparing physical models	The students understanding of the vocabulary presented in the lecture	2	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Hardness test	The students understanding of the vocabulary presented in the lecture	2	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Wash samples	The students understanding of the vocabulary presented in the	2	**4**

			lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Mechanical tests	The students understanding of the vocabulary presented in the lecture	2	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Brinell prayer test	The students understanding of the vocabulary presented in the lecture	2	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Plumbing methods	The students understanding of the vocabulary presented in the lecture	2	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Plumbing in metal molds	The students understanding of the vocabulary presented in the lecture	2	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Centrifugal plumbing	The students understanding of the vocabulary presented in the lecture1	2	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Advantages and disadvantages of plumbing methods	The students understanding of the vocabulary presented in the lecture	2	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Comparisons between different plumbing methods	The students understanding of the vocabulary presented in the lecture	2	**11**
Weekly and	Lecture with dialogue	Melting furnaces	The students understanding of	2	**12**

monthly exams	and discussion		the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	The cost of the smelting process	The students understanding of the vocabulary presented in the lecture	2	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Methods of dealing with different smelting furnaces	The students understanding of the vocabulary presented in the lecture	2	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Introducing programming and computer techniques into metal casting production plants	The students understanding of the vocabulary presented in the lecture	2	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Granules and granular size	The students understanding of the vocabulary presented in the lecture	2	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Crystallization of minerals	The students understanding of the vocabulary presented in the lecture	2	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	The most important factors affecting particle size	The students understanding of the vocabulary presented in the lecture	2	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Thermal transactions	The students understanding of the vocabulary presented in the lecture	2	**19**

Weekly and monthly exams	Lecture with dialogue and discussion	Methods for measuring particle size	The students understanding of the vocabulary presented in the lecture	2	**20**
Weekly and monthly exams	Lecture with dialogue and discussion	Copper and its alloys	The students understanding of the vocabulary presented in the lecture	2	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Uses of copper	The students understanding of the vocabulary presented in the lecture	2	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Gecko	The students understanding of the vocabulary presented in the lecture	2	٢٣
Weekly and monthly exams	Lecture with dialogue and discussion	Bronze	The students understanding of the vocabulary presented in the lecture	2	٢٤
Weekly and monthly exams	Lecture with dialogue and discussion	Copper-nickel alloy	The students understanding of the vocabulary presented in the lecture	2	٢٥
Weekly and monthly exams	Lecture with dialogue and discussion	Heat equilibrium diagram of the alloy	The students understanding of the vocabulary presented in the lecture	2	٢٦

Weekly and monthly exams	Lecture with dialogue and discussion	Ferrite materials, their classification, and methods of preparation	The students understanding of the vocabulary presented in the lecture	2	**27**
Weekly and monthly exams	Lecture with dialogue and discussion	Preparation techniques	The students understanding of the vocabulary presented in the lecture	2	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Chemical precipitation	The students understanding of the vocabulary presented in the lecture	2	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Calcining, pressing, sintering	The students understanding of the vocabulary presented in the lecture	2	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basics of Illustration (Educational Laboratory).
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Practical education
2. Semester / Year:
annually for the year 2024/2025
3. Description Preparation Date:
19/3/2025
4. Available Attendance Forms:
Daily
5. Number of Credit Hours (Total) /
٩٠
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Adnan Talfah Muhammad
7. Course Objectives

Course Objectives	

9. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding:

- How to employ the theoretical or practical side of the concepts of (the name of the subject) in the educational process.

2- That the student understands the basic concepts in (the name of the subject), especially the recent developments occurring in these sciences.

3- Other benefits of the substance

4- Other benefits of the substance

B- Teaching and learning methods

Developing learning outcomes in the various areas of learning shown below:

1- It provides a quick summary of the knowledge or skills that the course seeks to develop.

2- A description of the teaching strategies used in the course in order to develop that knowledge or skills.

3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study

C - The skills objectives of the course

1- The student applies educational and scientific concepts within the classroom.

2- Using strategies and means of explanation when teaching.

3- Perfect classroom management.

4- Understanding the developmental and developmental aspect of the student.

Evaluation methods:

Daily exams and assignments

- Monthly exams

- Annual exams.

- Daily participation during the lecture.

10- Course Structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	Hours	The week
Weekly and monthly exams	Lecture with dialogue and discussion	Objectives of practical education. Major in practical education. Lesson plan.	The students understanding of the vocabulary presented in the lecture	3	**1**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**2**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**3**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**4**

Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**5**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**6**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications	The students understanding of the vocabulary presented in the lecture	3	**7**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**8**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture1	3	**9**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**10**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**11**
Weekly and monthly exams	Lecture with dialogue and	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the	3	**12**

	discussion		lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**13**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**14**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical applications and field visits to schools	The students understanding of the vocabulary presented in the lecture	3	**15**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical application in schools	The students understanding of the vocabulary presented in the lecture	3	**16**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical application in schools	The students understanding of the vocabulary presented in the lecture	3	**17**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical application in schools	The students understanding of the vocabulary presented in the lecture	3	**18**
Weekly and monthly exams	Lecture with dialogue and discussion	Practical application in schools	The students understanding of the vocabulary presented in the lecture	3	**19**
Weekly and	Lecture with dialogue	Practical application in	The students understanding of	3	**20**

monthly exams	and discussion	schools	the vocabulary presented in the lecture		
Weekly and monthly exams	Lecture with dialogue and discussion	Practical application in schools	The students understanding of the vocabulary presented in the lecture	3	**21**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**22**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**٢٣**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**٢٤**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**٢٥**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**٢٦**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**27**

Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**28**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**29**
Weekly and monthly exams	Lecture with dialogue and discussion	Discussing practical experiences in light of application reports	The students understanding of the vocabulary presented in the lecture	3	**30**

11- Learning and Teaching Resources

Required textbooks (curricular books, if any)	- Practical education/Dr. Tawfiq Marei - Dr. Sherif Mostafa 2014. - Practical education and the foundations of teaching methods/Dr. Ibrahim Ismat Mutawa - Dr. Wassef Aziz Wassef 1986.
Main references:	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	