Academic Program Description Form

University Name: Tikrit University Faculty/Institute: College of Education –Tuz khurmatu Scientific Department: Department of Physics Academic or Professional Program Name: Bachelor's degree Final Certificate Name: Bachelor of Physics Academic System: Annual Description Preparation Date: 26/1/2025 File Completion Date Date: 29/1/2025

Signature Head of Department Name:

Lec. Dr. Hassan Jalal Akber Date: <u>2</u> / <u>2</u> / 2025

Signature

Scientific Associate Name: Lec. Dr. Ali Akram Mousa Date: 2/2 / 2025

The file is checked by:

Department of Quality Assurance and University Performance Name of the Director of the Quality Assurance and University Performance Department: Assis. Lec. Ali Salah ZaynlAbdein Date: 2 / 2 / 2025

Signature:

Signature: Approval of the Dean : Prof, Dr, Nihad Ali Shafeek

1. Program Vision

The vision of the Department of Physics is to prepare an aware generation capable of keeping pace with scientific developments in all areas of life in general and physics in particular. Since its establishment, this department has worked to graduate educational and teaching staff with a high level of efficiency and practical experience.

2. Program Mission

The mission of the Physics Department is educational and scientific, working to raise scientific generations capable of keeping pace with scientific developments in various cultural fields. Its highest mission is to provide the competent professor who keeps pace with his reality and keeps pace with it with a spirit keen on knowledge and learning.

3. Program Objectives

• Preparing highly skilled male and female teachers.

• Preparing a generation of distinguished researchers in physics.

· Serving the community by providing physics information.

Developing faculty members scientifically and culturally.

• Explaining the great importance of physics and its role in society.

1

4. Program Accreditation

Nothing

5. Other external influences

Many holidays in the school year

6. Program Structure								
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•				
Institution Requirements	8	16	9%					
College Requirements	9	34	20%					
Department Requirements	22	121	71%					
Summer Training								
Other								

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

		0	Cree	dit Hours practical 2 - 2 - 2 -	
Year/Level	Course Code	Course Name	theoretical	practical	
	MEP011	Mechanics	3	Adit Hours practica 2 - 2 - 2 - 2 -	
	THP041	Heat and Propertise of the Material	2	-	
First	ELP021	Electricity and Magnetism I	3	2	
	MAP011	Mathematics I	3	-	
	016ح	Computer I	Credit Hourstheoreticalpractical32the212nd32s I3-I11-ttal2nal2y-s of11-tage1uage1y2tal2uage1y2uage1uage1uage11-122-uage11-13		
First	017 عنت	Developmental and Educational Psychology	2	_	
	016اص ت	Fundamentals of Edcation	1	_	
	017لغعرب	Arabic Language	1	-	
	013ح ق	Democracy and Human Rights	1	-	
	017لغنك	English Language	Credit Hour theoretical pra 3 2 3 3 3 3 1 2 1 1 1 1 1 1 1 2 2 2 1 2 2 1 1 2 2 2 1 2 3 3	-	
	WMP042	Sound and Wave Motion	2	practical 2 - 2 - 2 - 2 - 2 - 2 - 2 - -	
	017ع ن	Developmental Psychology	2	-	
Second	SSP052	Astronomy	2	-	
2000114	017لغنك	English Language	1	-	
	ELP032	Electricity and Magnetism II	Iathematics I 3 Computer I 1 evelopmental 2 Psychology 2 ndamentals of 1 Edcation 1 abic Language 1 emocracy and 1 glish Language 1 und and Wave 2 Motion 2 Psychology 2 glish Language 1 und and Wave 2 Motion 2 Psychology 2 glish Language 1 lectricity and 2 Astronomy 2 glish Language 1 Identifier II 3	2	
	MAP022	Mathematics II	3	2 2 	

	015 ت	Secondary education and educational Administration	2	-
	من ب 015	Fundamentals of scientific research	2	-
	OPP012	Optics	3	2
	016ح	Computer II	1	-
	017ج	Crimes of the baath regime in Iraq	1	-
	017لغعرب	Arabic Language	1	-
	ATP023	Atomic and molecular Physics	3	2
	THP033	Thermodynamic	3	-
	ELP013	Electronics	3	2
	AMP043	Analytical Mechanics	3	_
Third	د م	Complex Functions	2	_
	019 ص ن	Psychological Guidance and Psychological heath	2	-
	ط ت 018	Curriculum and methods of teaching	2	_
	EP 053	Optional	2	_
	NUP014	Nuclear Physics	3	2
	LAP044	Laser	2	-
	EMR46	Electromagnetic theory	3	-
	QUP034	Quantum mechanics	3	-
Fourth	SOP024	Solid state physics	3	-
	018ق ت	Measurment and evaluation	2	-
	019م ت	Practical education	1	2
	-	Research Project	2	-
	-	Demonstration instruments Lab	-	2

8. Expected learning outcomes of the program

Knowledge

A- The student is able to understand the various branches of physics.

B- Preparing physics teachers at levels that keep pace with the development taking place.

C- The student understands the individual differences between students.

D- The student understands the correct foundations of scientific research.

Skills

A- The student acquires the skills of describing physics.

B- The student acquires the skills of working in laboratories.

- C- The student is able to work on qualifying himself to become a successful educational and scientific leader.
- D- The student learns the correct foundations to become a successful physics teacher.

Ethics

- A- Loves his assigned work.
- B- Loves knowledge.
- C- Adopts the dialogue method between the student and the teacher.
- D- Ability to work in a multidisciplinary team.

9. Teaching and Learning Strategies

- Classroom education through scientific lectures.
- · Preparing reports and research.
- · Practical learning in scientific laboratories

10. Evaluation methods

- Processing method using final grades.
- · Random and surprise tests.
- · Monthly theoretical tests and practical reports on the curriculum taught.

11. Faculty Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff		
	General	Special		Staff	Lecturer	
Prof. Dr.	Physics	Superconductivity		1		
Assis. Prof	Physics	Nuclear Physics		7		
Assis. Prof.	Chemical Engineering	Chemical Engineering		7		
Lec. Dr.	Physics	Solid State Physics		7		
Lec. Dr.	Physics	Solid State Physics		7		
Lec. Dr.	Curricula and teaching methods	Curricula and Methods of Teaching Arabic Language		7		
Assis. Lec.	English language Linguistics	Semantics		7		
Assis. Lec.	Physics	Plasma Physics		7		
Assis. Lec.	Physics	Solid State Physics		7		
Assis. Lec.	Management and economics	Business Administration		7		
Assis. Lec.	Management and economics	International Economics		7		
Assis. Lec.	Physics	Atomic Physics		7		
Assis. Lec.	Physics	Material Physics		1		
Lec. Dr.	Geography	Human Geography		7		
Lec. Dr.	Educational and	General Curricula and		~		

Psychological Teaching Sciences Methods Islamic 1 **Islamic Sciences** Assis. Lec. Sciences Human 1 Assis. Lec. Geography Geography Teaching Methods of 1 Assis. Lec. Methods **Teaching Arabic** Curricula Physical Physical 1 Assis. Lec. Education Education **Business Business** 1 Assis. Lec. Administration Administration

Professional Development

Mentoring new faculty members

The head of the department directs new faculty members to adhere to working hours and lecture times and urges them to develop their academic abilities in order to provide the correct delivery to the student.

Professional development of faculty members

The head of the department develops a plan for faculty members that includes classroom and extracurricular activities for students in order to improve the level of the educational process. He also urges them to adhere to lecture times, record absences, and pay attention to all exams.

12. Acceptance Criterion

(Central admission

13. The most important sources of information about the program

- · Books prescribed by the Ministry of Higher Education and Scientific Research.
- External scientific confiscations.
- · Use of central libraries and the Internet.

14. Program Development Plan

Striving to make the physics specialization have a tangible practical application, through applying physical concepts, phenomena and principles to reality and contemporary society, in addition to courses and seminars that give the teaching staff the ability to keep pace with similar programs in countries around the world in order to obtain accreditation through developing curricula and thus developing the academic program and working on it in the correct manner.

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						Requ	ired	prog	ram	Leari	ning	outco	omes		
Year/	Course	Course I Name o	Basic or	Knowledge			Skills			Ethics					
Level	Code		optional	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	MEP011	Mechanics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	THP041	Heat and Propertise of the Material	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ELP021	Electricity and Magnetism I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MAP011	Mathematics I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	016ح	Computer I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
First	ع ن ت 017	Developmental and Educational Psychology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	اص ت 016	Fundamentals of Edcation	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	لغعرب 017	Arabic Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	013ح ق	Democracy and Human Rights	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	017لغنك	English Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	WMP042	Sound and Wave Motion	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	017عن	Developmental Psychology	Basic	* 3	*	*		*	*	*	*	*	*	*	*
	SSP052	Astronomy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
•	017لغنك	English Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Secona	ELP032	Electricity and Magnetism II	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MAP022	Mathematics II	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	015 ت	Secondary education and educational Administration	Basic	*	*		*	*	*	***	*	*	*	*	*

	من ب 015	Fundamentals of scientific research	Basic	*	*	*	*	*	*	*	*		*	*	
	OPP012	Optics	Basic	*	*	*	*	*	*	*	*	*		*	
	016ح	Computer II	Basic	*	*	*	*	*	*	*	*	*	•	*	1
	017ج	Crimes of the baath regime in Iraq	Basic	*	*	*	*	*		*	*	•			
	لغعرب 017	Arabic Language	Basic	*	*	*	*	*	*	*	*	*	*	•	
	ATP023	Atomic and molecular Physics	Basic	*	*	*	*	*	*	*	*	*	*	•	
	THP033	Thermodynamic	Basic	*	*	*	*	*	*	*	*	*	*	*	
	ELP013	Electronics	Basic	*	*	*	*	*	*	*	*	*	*	*	
	AMP043	Analytical Mechanics	Basic	*	*	*	*	*	*	*	*	*	*	*	
Third	د م	Complex Functions	Basic	*	*	*	*	*	*	*	*	*	*	*	
	ا ص ن 019	Psychological Guidance and Psychological heath	Basic	*	*	*	*	*	*	*	*	*	*	*	
	ط ت 018	Curriculum and methods of teaching	Basic	*	*	*	*	*	*	*	*	*	*	*	
	EP 053	Optional	optional	*	*	*	*	*	*	*	*	*	*	*	
	NUP014	Nuclear Physics	Basic	*	*	*	*	*	*	*	*	*	*	*	134
	LAP044	Laser	Basic	*	*	*	*	*	*	*	*	*	*	*	
	EMR46	Electromagnetic theory	Basic	*	*	*	*	*	*	*	*	*	*	*	
	QUP034	Quantum mechanics	Basic	*	*	*	*	*	*	*	*	*	*	*	100
Fourth	SOP024	Solid state physics	Basic	*	*	*	*	*	*	*	*	*	*	*	
	018ق ت	Measurment and evaluation	Basic	*	*	*	*	*	*	*	*	*	*	*	
	019م ت	Practical education	Basic	*	*	*	*	*	*	*	*	*	*	*	1.1
	-	Research Project	Basic	*	*	*	*	*	*	*	*	*	*	*	
	Care and Care and Care	Demonstration				ST FOR BOARD	1000000000	-	10.000	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	100000		1000		

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

		Course	Description	01 III						
1. (Course	Name:								
calculu	IS									
2. (Course	Code:								
MAP03	81									
3. 9	Semeste	er / Year:								
2024-2025										
4. I	4. Description Preparation Date:									
12-11-	-2023									
5. 4	Availabl	e Attendance Forms	:							
(Classroo	m and Google class	room							
6. I	Number	of Credit Hours (To	tal) / Number of U	Units (Total)						
(84 hour per year) / Number of Units (6 units)										
7. Course administrator's name (mention all, if more than one name)										
Name: Samah H. Asaad										
Email: samah1989@tu.edu.iq										
8. (Course	Objectives								
Course Objectives Identify the concept of calculus, set and interval define the function and the types of function, domain and range the graph of the function, limit ,continuity, derivative integral, method of find the integral, area under graph										
9. 1	Feaching	g and Learning Strat	egies							
Strategy	Strategy Brainstorming Feedback at lecture time Collaboration and feedback series									
10. Co	ourse St	ructure								
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation					
		Outcomes	name	method	method					
1	3		introduction to sets and interval define the function	Explanation by using the board	Quick test Homework					

r	1			
2	3	Absoluate value	=	=
2	2	Domain and range of		
5	3	the function	=	=
4	=	Types of function and		
		its operation	=	=
5	=	Graph of the function		
6	=	Trigonometric functions		
		and its inverse	=	=
7	=	Hyporbilic and the		
		invers hyporbilic	=	=
		tunction		
8	=	Limit of function		
0		Theorem of limits	=	=
9	=		_	_
10	_	Continuous		
10	-	Continuous	=	=
11	=	Definition of		
		Derivative	=	=
12	=	Derivative of		
		Trigonometric	=	=
		Functions		
13	=	Derivative of		
		Inverse of Trigonometric Functions	=	=
14	=	Exponential Function		
			=	=
15	=	Application of		
		Derivative	=	=
16	=	Area under curve		
			=	=
17	=	Indefinite integral		_
		indefinite integral	=	_
18	_	Theorem of		
10	-	Indefinite integral	=	=
19	=	definite integral		
			=	=
20	=	Fundamental theorem of		
21		Droparties of definite	=	=
21	=	integral	_	_
22	_	Methods of integral	_	
	-		=	=
23	=	Integral of exponential		
		function	=	=
24	=	Integral of		
		Trigonometric	=	=

			-	
		functions		
25	=	Integral of Hyperbolic		
20		functions	=	=
26	=	Area an volume		
			=	=
27	=	Polar coordinate		
			=	=
28	=	Types of function in		
		polar coordinate	=	=
29	=	Graph of function in		
		polar coordinate	=	=
30	=	Area in polar coordinate		
			=	=

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports etc (50) and (50) final exam.

12. Learning and Teaching Re	esources	
Required textbooks (curricular books,	if any)	Thomas calculus
Main references (sources)		
Recommended books and re	eferences	
(scientific journals, reports)		
Electronic References, Websites		

1. Course Name:

Foundations of education

2. Course Code: 1 Rating: 016 A S T

3. Semester / Year:yearly

4. Description Preparation Date: 10/10/2024

5. Available Attendance Forms: Basic attendance

6. Number of Credit Hours (Total) / Number of Units (Total)60 hour

7. Course administrator's name (mention all, if more than one name) Name: Ayoob Ali Jaafar Email: ayoob.a.jaafar@tu.edu.iq

8. Course Objectives	
General Objectives	B – Program specific skill objectives
	B1– Developing the student's skill towards
•Increase the student's understanding of the	increasing the research skill and scientific
educational and social reality throughout the	achievement
ages	B2– Developing the student's skill towards
•Realize the educational process in its most	increasing the effectiveness of scientific
essential necessities	achievement
	B3 Developing the student's skill towards
•Understand educational theories of various	increasing interaction with others
peoples, ancient and modern	B4 Developing the student's skill towards
	increasing understanding of the foundations and
A-Cognitive Objectives	principles of general education in the past ar d
A1- The student should possess the	present
knowledge and information that help achieve	C- Emotional and value objectives.
psychological adaptation to solve life and	C1– The student adheres to professional eth cs.
daily problems	

A2- The s meaning	student sl of the fou I theories	nould learn about Indations of educ	the ation, its	C2- The stud thinking skills C3- The stud	ent possesses litera s. ent possesses critic	ry and hum al thinking	ın kills.
A3- Unde foundationstudent to	erstand th ons of edu o apply tl	ne basic principles acation and enabl nem in life	s of the e the	skills. C5- The student listens well to the lesson to C6- The student responds to questions rela			
A4- The s historical understa scholars	student sl l educatio nd the ma and think	nould learn about onal foundation ar ain ideas put forw ærs	the nd vard by	C7- The student accepts the subject of educ and its foundations C8- The student compares between the field education in societies			
A5- Provi informati analyze a	ide the st ion and k nd evalu	udent with suffici nowledge to enab ate them	ent de him to	C9– The stuc	dent evaluates the fi IS	elds of edı	catio
A6- The s meaning to achiev	student sl of intelle e scientif	nould learn about ctual developmen ic gains	the it and how				
9. Tea	aching an	d Learning Strateg	ies				
Strategy	B) - (ex - (rainstorming, dial Jsing educational cchanging ideas to Group memo to in	logue, discu discussion reach the f wolve all stu	ssion and so (educationa acts. Idents in the	ome classroom ac Il dialogue) whic e classroom activ	ctivities. h depend ⁄ity	s on
10. Cours	se Structu	ıre					
Week	Hours	Required Learning Outcomes	Unit or subj	ect name	Learning method	Evaluatio method	ו
1	2	Meaning and goals of education Meaning and goals of education	e meaning als of educ funct characteri	and ation tions, stics	Dialogue, discussion and brainstorming	O: w te	al 'itte st
2		Its functions, characteristics	storical bas educ	sis of ation			

	Its functions,	e economic	
	characteristics	isis of education	
3			
	Historical	tional and	
	basis of	cial foundations	
	education		
	Historical	tional and	
	basis of	cial foundations	
	education		
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	Historical	cial foundations	
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	through the		
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5	Education in		
	Mesonotamia		
	and Chinese		
	education		
	Historical		
	basis of		
	education		
6			
	Greek		
	education		
	Historical		
	basis of		
	education		
	Dialogue.		
7			
	Pre-Islamic		
	Arab		
	education		
	Historical		
	basis of		
	education		
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	Education	
	after Islam, its	
	goals,	
	curricula,	
	centers,	
	institutions.	
	characteristics	
	The historical	
	hasis of	
	education	
Q		
9	Londona of	
	Arch Islamia	
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	Chanali Jhr	
	Gliazall, IDN	
	Knaldun and	
	Ibn Sinaj	
	The historical	
	basis of	
	education	
10		
	The	
	educational	
	role of the	
	family	
	The social	
	basis of	
	education	
11		
	The	
	educational	
	role of society	
	The social	
	basis of	
	education	
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10	Equal	
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	onnortunities	
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13			
	Media and		
	education		
	The social		
	basis of		
	education		
14			
	Education and		
	its impact on		
	National		
	Development		
	The Economic		
	Basis of		
	Education		
15			
	Education and		
	its Impact on		
	Human		
	Resources		
	Development		
	The Economic		
	Basis of		
	Education		
16			
	Economic		
	Factors in		
	Education		
	The Economic		
	Basis of		
	Education		
17			
	Education and		
	Research		
	Methodology		
	The Scientific		
	Basis of		
	Education		
18			
	Education and		
	Scientific and		

20 Technological Progress The Scientific Basis of Education 19 National and Social Foundations National and Social Foundations 20 Modern Education 20 Modern Education 21 Features and objectives Modern education 21 Features and objectives Modern education 22 Functions of contemporary education 23 Modern education 23 Modern education 24 Page A			
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22 22 5 5 5 5 5 5 5 5 5 5 5 5 5		Features and	
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24Modern thought figures (Pestalozzi) Modern education	23		
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figures (Pestalozzi) Modern education		thought	
24 (Pestalozzi) Modern education		figures	
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24 Provention		Modorn	
24 education		Mouer II	
		education	
	24		
Rousseau and		Rousseau and	
John Dewey		John Dewey	
Modern		Modern	
education		education	
,		,	

25	That the individual has a specific social need. Educational Administration		
26	The Concept of Educational Administration Educational Administration		
27	Management Styles Educational Administration		
28	Duties of the School Principal and Characteristics of a Successful Principal Educational Administration		
29	Factors Influencing Administration Educational Administration		
30	Parent- Teacher Councils (Objectives and Role) Educational Administration		

11.						
Theoretical exams • Out of the box questions						
Oral tests						
12. Learning and Teaching Resources						
Required te	xtbooks (cu	irricular books, if any)	method	ical book	

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

1. Course name:

Human rights and democracy

2. Course code:

107

3. Semester/Year: Annual

2024-2025

4. Date this description was prepared

2024-11-20

5. Available forms of attendance:

My presence

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

60 / 2

7. Name of the course supervisor (if more than one name is mentioned) Email:haifafarouk@tu.edu.iq

8. Course objectives

5. Subject objectives

Preparing a generation aware of human rights and public freedoms

* Developing the cultural level and increasing awareness among students by keeping up with the experiences of other nations in the field of human rights.

* Informing students about the most important international charters, treaties and instruments related to human rights.

* Informing students of the constitutional articles guaranteeing public rights and freedoms. Educating students about their rights and freedoms, the means of guaranteeing and protecting them, and the limits of these rights.

* Enabling students to understand the importance of education and its role in spreading the culture of human rights and democracy in building a civilized

society based on good governance, one of the most important components of which is belief in human rights and education on them.

* And effective participation in governance through free and fair elections.

* Developing the student's analytical and critical skills regarding the reality and future of human rights and democracy.

Teaching and learning strategies

Lecture method	Strategy
- 2 Student groups	
۳workshops	
ξ -Reports and studies	
° -Use available means of clarification in topics that require it –	
6 – Attendance	
7 Use the role-playing method in the classroom (or in person only) to	
address and explain some of the material's vocabulary.	
- 8 Writing analytical papers on the vocabulary of the subject or outsi	
it that are directly related to the topics of human rights and democrac	

ourse sti	ructure				
10.	Course structure				
The week	Watches	Learning outcomes Required	Name of the unit or topic	Learning method	Evaluation method
1	2	Concept and importance	1. Human rights in ancient civilizations	Questions and answers	Questions and answers
2	2	Concept and importance	2. Human rights in divine laws and religions	Oral questions	Oral questions
3	2	Concept and importance	3. Human rights in Islam	Daily test	Daily test
4	2	Concept and importance	4. Human rights sources	Questions and answers	Questions and answers
5	2	Concept and importance	5. Principles governing human rights	Written exam	Written exam
6	2	Concept and importance	6. Human rights classifications	Questions and	Questions and answers

				answers	
7	2	Concept and importance	7. Characteristics of human rights	interrogatio n	interrogation
8	2	Concept and importance	8 Constitutions that followed the French Declaration	Discussion	Discussion
9	2	Concept and importance	9. The principle of the rule of law	interrogatio n	interrogation
10	2	Concept and importance	10. Regional protection of human rights	Questions and answers	Questions and answers
11.2	2	Concept and importance	11. African system for the protection of human rights	Questions and answers	Questions and answers

		Concept and importance	12. Mechanisms for protecting human	Oral avaations
12.				Oral questions
	2		rights at the American level	
13.				
	2	Concept and importance	13. Arab Charter on Human Rights	Daily test
14				Questions and
	2	Concept and importance	14 Arab Charter on Human Rights	answers
15				
10				Written exam
16.	2	Concept and importance	15 Principles of Human Rights	
16.		Concept and importance	16. Roots of the concept of democracy and its development	Questions and
	2			answers
17.	2	Concept and importance	17. Definition of the concept of democracy	
	_			interrogation
18	2			
10.		Concept and importance	18. Forms of direct democracy	Discussion
10	2			
19.		Concept and importance	19. Indirect democracy	interrogation
	2			
20.		Concept and importance	20. Representative democracy	Questions and answers
	2			
21.		Concept and importance	21. The Prosecution Council	Questions and answers
	2			
22		Concept and importance	22. The concept of election and its legal adaptation	
22.	2			Oral questions
23				
		Concept and importance	23. Majority system and proportional representation system	Daily test
	2			
24.	۷.	Concept and importance	24 Interest Representation System -	Questions and
			Optional and Compulsory Voting	answers
	2			
25.	2	Concept and importance	25.Monthly exam	Written exam

1. Course Evaluation

1 First semester exam, divided into a monthly exam + a daily exam (25 points)

- 2 second semester exams, divided into a monthly exam + a daily exam (25 points)

- 3 Final Exam (25 marks)

2. Learning and teaching resources

Required textbooks (methodology if any)	Human Rights, Children and Democracy Maher Saleh Allawi and others 2009	
Main References (Sources)	Guarantees of the actual protection of human rights Professor Maher Saleh Alawi 2018 Human Rights Written by Hafez Alwan Hammadi Al- Dulaimi	
Recommended supporting books and references (scientific journals, reports, etc.)	Protection of human rights during the implementation of criminal sentences: A comparative study. Dr. Abd Al-Aaliyah, Human Rights Authored by Lynn Hunt Translated by Faika Gerges Hanna	Mohamed D Mohsana
Electronic references, websites	Websites specialized in the field of human rights	

1. Course Name: Mechanics	
2. Course Code: MEP011	
3. Semester / Year: Annual	
4. Description Preparation Date:	2024-2025
	2021 2020
5. Available Attendance Forms: we the laboratory according to the s	eekly\ Conducting in-person experiments in chedule of the Physics Department
6. Number of Credit Hours (Total)	/ Number of Units (Total) 60 hours 3 units
7. Course administrator's name Name: Dr. Essam Samin Ali Assistant lecturer, Sajjad Abdu Email: sajjad.a.Hussein@tu.ed Assistant lecturer , Ayoub Ali J Assistant lecturer: Hisham Sab 8. Course Objectives	(mention all, if more than one name) Illah Hussein I.eq aafar ber Qadri
Course Objectives	 Providing the student with knowled
	of practical experimental equipm
	 2- Identify the physical principle
	each experiment
	 3- To learn about the applications nbysics and how to treat them
	• 4– Identify errors and how to addr
	them
	• 5- Providing the student v
	acceleration
	•
9. Teaching and Learning Strategie	es

Strateg	у	Conduct experiments practically -Building mental capabilities to link theoretical and practical aspects -Emphasizing feedback - Asking questions of a motivational nature for research a scientific competition			
10. 0	ourse	Structure			
Week	Hours	Required	Unit or subject	Learning method	Evaluation
		Learning	name		method
		Outcomes			
1	2	- Providing t student w knowledge of t laboratory a explaining how prepare repo and understa experiments	Get to know t experiences the first semes in general	Lectures are presented in PDF format (standard method.discussion)	Class performar and Daily and monthly exams
2	2	Providing the student with knowledge of graphing, setting points on the require coordinates, and finding th slope	Mapping poin on a graph a calculating t slope	Lectures are presented in PDF format (standard method.discussion)	Class performar and Daily
3		Providing the student with knowledge of the simple pendulum	The pendulu experiment	Lectures are presented in PDF format (standard method.discussion)	Class performar and Daily
4	2	Providing the student with knowledge of Hooke's law	Hooke's experiment	Lectures are presented in PDF format (standard	Class performar and Daily

				method discussion)
5	2	Providing the	Boyle's	Lectures
J	2	student with	experiment	aro procented
		knowledge of	_	in DDE format
		Boyle's Law		III PDF IOFIIIat
				(standard
-	0	Durani dina tha	E	method.discussion
6	2	Providing the	the Far	Lectures
		knowledge of how	acceleration	are presented
		find the Earth's		in PDF format
		acceleration using		(standard
		simple pendulum		method.discussion
7	2	Providing the	An experiment t	Lectures
		student with	aetermines hardness factor	are presented
		determining the	metal leg using	in PDF format
		hardness factor o	static method	(standard
		metal leg using th		method.discussion
0	2	Static method Providing student	A comprehend	Loctures
Ö	2	with knowledge o	review of	
		laboratory	experiences of	are presented
		equipment	first semester	in PDF format
				(standard
		D 11 1 1		method.discussion
9	2	Providing student	practical exam	
		laboratory		
		equipment		
10	2	Providing student	practical exam	Lectures
		with knowledge o		are presented
		equipment		in PDF format
				(standard
				method.discussion
11	2	Providing the	Learn about	
		student with	experiences of	
		experiences of the	second semester	
		second semester		
12		Providing the	Review and alert	Lectures
		student with	errors	are presented
		KIIOWIEUge OI		in PDF format
		ways to avoid the		(standard
		<u> </u>		method.discussion
13	2	Providing the	Experiment to f	
-		student with	the grou	
		knowledge of how	acceleration using	
			concave surface	
	1			

14	2 2	Providing the student with the knowledge to calculate the coefficient of longitudinal expansion of a copper stem Providing the student with knowledge of how determine the frequency of a	Experiment on coefficient longitudinal expansion of a cop stem Determine frequency of a tun fork using stand waves	Lectures are presented in PDF format (standard method.discussion Lectures are presented in PDF format (standard		
16		tuning fork using standing waves Providing the student with knowledge of hov	Experiment determine coefficient of st	method.discussion Lectures are presented		
		determine the coefficient of stati friction between t horizontal/slante surfaces	friction between thorizontal/slanted surfaces	in PDF format (standard method.discussion		
17	2	Providing the student with knowledge of determining the Young's modulus a metal wire	Experiment determine Young's modulus o metal wire	Lectures are presented in PDF format (standard method.discussion		
18	2	Providing student with knowledge o laboratory equipment and laboratory experiments	Review experiences of second semester	Lectures are presented in PDF format (standard method.discussion		
19	2	Providing student with knowledge o laboratory equipment and laboratory experiments	practical exam	Lectures are presented in PDF format (standard method.discussion		
11.	Course	Evaluation				
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc 12. Learning and Teaching Resources						
Required textbooks (curricular books, if a			if a Pract	ical physics		
Main references (sources)			Fund	Fundamentals of Physics F Rush 1971		
Recommended books and references (scientific journals, reports)			ces Scien speci	tific books and scientific journ alized in mechanical percussion		

Electronic References, Websites

Farid sites in physics

1. Course Name: Mechanic

2. Course Code:

- 3. Semester / Year:2025
- 4. Description Preparation Date:
- 5. Available Attendance Forms:
- 6. Number of Credit Hours (Total) / Number of Units (Total)
- Course administrator's name (mention all, if more than one name)
 Name: Dheyab thair noori
 Email: theya.bthair.tuz@tu.edu.iq
- 8. Course Objectives

Course Objectives

Teaching students the concepts of motion, velocity and projectiles in mechanics Using the laws of motion and velocity in solving problems

> Training students in laboratory on some pract experiments.

9. Teaching and Learning Strategies

Strategy

Teaching and motivating first-year students to use the concepts of

mechanics in describing natural phenomena in their correct form

and how to apply them in real life.

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluation
		Outcomes	name	method	method
1	3	Vectors and	Vectors and		
		Units	Units		
2	3	, Properties of	Vector		
		Vectors,	Properties		
3	3	Negative of a	Vector Negation		
		vector	Vector Addition		
4	3	Addition of a	Vector		
		vector	Subtraction		
5	3	Subtraction of a			
6	3	vector	Vector Equality		
		Equality of a	Vector Product		
7	3	vector	Directional		
		Directional	Trinomial		
8	3	product	Dot Product		
9	3	Directional,			
		triple	Dotted Trinomial		
10	3	Dot product	Displacement		
11	3	Dot, triple	and Distance		
		Displacement	Time and		
12	3	and distance	Acceleration		
		Time and	Motion of		
13	3	acceleration,			
14	3	Motion of	Uniform Objects		
		uniform bodies	In a Straight Line		
15	3	In a straight line	Free Fall		
16	3	Free fall	Projectile		
		Motion	Motion		
17	3	projectiles,	Newton's Laws		
		Newton's Laws	Momentum		
18	3	Momentum	Inertia,		
19	3	Inertia,	Power and		
		Power and	Energy,		
20	3	Energy,	Kinetic Energy,		
21	3	Kinetic Energy,			
		Potential	Potential Energy.		
22	3	Energy.	Mass and Weight		
23	3	Mass and Weight	Friction		
~ (Friction	Types of Friction		
24	3	Types of Friction	Central Force		
25	3	Central Force			
			Law of Universal		

26	3	Law of Universal	Gravitation		
		Gravitation			
27	3	Conservative	Conservative		
		Forces	Forces		
28	3	Non-	Non-		
		Conservative	Conservative		
29	3	Forces	Forces		
	2	Kepler's Lav	Kepler's Lav		
30	3				
11. Course Evaluation					
Distribu prepara	iting the ition, dai	score out of 100 accord ly oral, monthly, or wr	ding to the tasks assign itten exams, reports	ed to the studer etc	it such as daily
12. l	earning	and Teaching Reso	ources		
Required textbooks (curricular books, if any)			any)		
Main references (sources)					
Recommended books and references (scientific		ientific			
journals, reports)					
Electronic References, Websites		Uniqu	e site in physi	CS.	

Dheyab thair noori

1. 0	Course	Name:	Electric
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2. Course Code:

3. Semester / Year:2025/2024

4. Description Preparation Date:

5. Available Attendance Forms:

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

7. Course administrator's name (mention all, if more than one name) Name: Dheyab thair noori Email: theya.bthair.tuz@tu.edu.iq

8. Course Objectives

O summer Ohlis atting a					
Course Objectives	•				
The general objective of this course is	to •				
_For the student to know the basic law in electrical circuits and to gain the ski of practical applications and conductin experiments.	• ill ng				
_For the student to know electrical devices, especially the devices used for electrical measurements.					
_For the student to know how to connect electrical circuits.					
_For the student to know how to use t results obtained.					
9. Teaching and Learning Strategies					
Strategy					
_Preparing printed material _Asking surprise questions _Daily and monthly tests _Using the smart board _Using electrical appliances.					
--	-------------------------	---	--	-------------------------	------------------
10. Co	ourse St	ructure	Iluit or oubingt	Looming	Fuchation
week	Hours	Outcomes	name	method	method
		Ohm's Law Internal resistance of an ammeter, Internal resistance of a voltmeter, Charging and discharging of a capacitor, Wheatstone bridge,			
11. (Course I	Evaluation			
Distribu prepara	iting the ition, dai	score out of 100 accord ly oral, monthly, or writ	ing to the tasks assign tten exams, reports	ed to the studer etc	nt such as daily
12. l	_earning	and Teaching Reso	urces		
Require	d textboo	ks (curricular books, if a	ny)		
Main references (sources) Recommended books and references (scientific journals, reports)					

Electronic References, Websites	Unique location in physics

Dheyab thair noori

1. Course Name:

Computer

2. Course Code:

016 h

3. Semester / Year:

Annual

4. Description Preparation Date:

2025

5. Available Attendance Forms:

Classrooms

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

30 hours

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

•

.

Name: M.M. Laith Shahada Khader

Email: laytashehada@tu.edu.iq

8. Course Objectives

Course Objectives

Preparing and qualifying specialists to meet the

requirements of the labor market in both the

public and private sectors. Commitment to the

curriculum as a curriculum within a pre-

prepared study plan.

 9. Teaching and Learning Strategies

 Strategy

 1- Presenting the foundations of organized calculators, with a focus on understanding the hardware and software associated with the computer

 2- Enabling the student to understand the basics of computer science 3- Artificial intelligence 					
10. Course	Structure	;		1	T
Week	Hours	Required	Unit or	Learning	Evaluation
		Learning	subject	method	method
		Outcomes	name		
First		General introductio			
Second		and stages the compu- life cycle Evolution			
Third		computer			
Fourth		Electronic			
Fifth		computer, data a			
Sixth		information			
Seventh		features a			
Eighth		areas of use Computer			
Ninth		component			
Tenth		computers			
Eleventh		Computer			
Twelfth		and physi			
Thirteenth		parts Input devic			
Fourteenth		and outp devices			
Fifteenth		Computer			
Sixteenth		box (systernation unit)			

	Software	
Seventeenth	entity	
Fightograth	Numbering	
Eignteenth	systems	
Nineteenth	computers	
	Your perso	
Twentieth	computer	
Twonty	Computer	
I wenty-	platform	
first	Factors	
	consider	
Twenty-	when buvi	
second	a computer	
Second	Main featu	
Twenty-	of a persol	
41 1	computer	
third		
Twenty-	Ethics of t	
1 wonty	electronic	
fourth	world a	
Trucation	computer	
I wenty-	security	
fifth	Privacy.	
	software	
Twenty-	licenses, a	
sixth	types	
SIXUI	computer	
Twenty-	licenses	
	Intellectual	
seventh	property a	
Twenty-	electronic	
I woney	hacking	
eighth	Malware	
Transit	Computer	
i wenty-	protection	
eighth	steps a	
8	their harm	
Twenty-	health	
ninth	Security a	
mmun	networks	
Thirtieth	Security a	
	networks	
	Security a	

networks Security a networks Electronic commerce Electronic commerce Electronic commerce Troublesho computer errors and them Troublesho computer errors and them Troublesho computer errors and them		
11. Course Evaluation		
Distributing the score out of 100 according to the daily preparation, daily oral, monthly, or written e	e tasks assigned to the student such as xams, reports etc	
12. Learning and Teaching Resources		
Required textbooks (curricular books, if any)	Computer basics and office	
	applications (Part One)	
	Introduction to the world of	
	artificial intelligence. Dr. Adel	
	Abdel Nour, 2005	
Main references (sources)	University House for Printing, Publishing, Writing and Translatio Introduction to the world of artificial intelligence by Dr. Adel Abdel Nour 2005	
Recommended books and references (scientific		
journals, reports)		

Electronic References, Websites	

1. Course Name:

English Language

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

Year

4. Description Preparation Date:

2024-2025

- 5. Available Attendance Forms:
 - Presence
- 6. Number of Credit Hours (Total) / Number of Units (Total)30 Hours/ 2 units each hour.

7. Course administrator's name (mention all, if more than one name) Name: Maali Sattar Namuq Email: maaly.a.namuq@tu.edu.iq

8. Course Objectives

Course Objectives	The aim of this course is to introduce the student
	to the importance of the scientific subject
	-Describe all aspects of language teaching,
	including reading, writing, listening, and
	speaking
	-Empowering the student to rely on himself in
	applying the scientific material in his academic
	life.

9. Teaching and Learning Strategies

Strategy	1- Lecture method and use of the interactive whiteboard
	2-Explanation and clarification
	3- Providing students with the basics and additional topics
	Related to thinking outcomes.
	4- Asking the students questions and forming discussion groups
	during lectures to discuss the solution to the questions posed to then
	5- Giving homework to students.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
30 weeks	Each hour weekly	Outcomes	 I-How to do exercises 2-About 3-Time:telling the time 4-Same and difference 5-How old are you? Family history. 6-Physical actions 7-Parts of body 8-Talk about character 9-first exam 10-Emotion 11-12-13 Review and solving exercises 14-Accessoties with Clothes 	Presence Diction Direct And the means Illustratio With Electronic Program (Class -room)	Oral Questions Daily exams Homework Monthly Exams Final exam
			16- Review and solvin exercises 17-Describing routine		

	exercises	
	19-Adverbs	
	20-Agreeing and disagree	
	21-22- Review and solving exercises	
	23-second exam	
	24-Writing e-mail	
	25-Talking about the Weather	
	26- Time expressions	
	27-present tense	
	28-past tense	
	29-futer tense	
	30- Review and solving exercises	
11. Course E	/aluation	
Distributing the some of the some of the some of the solution	core out of 100 according to the tasks assigned t oral, monthly, or written exams, reports etc about topics that can be discussed by students i	o the student such as daily

questions that the student can solve.

Classes have daily exams and intellectual questions. Preparing external questions from supporting sources and following up on the method of class discussions.

Required textbooks (curricular books, if any)	New Headway:
	beginner first year students English
	Language
Main references (sources)	English Grammar in Use
Recommended books and references	Any book that deals with the basics of
(scientific journals, reports)	the English language

Electronic References,	Websites
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1. Course Title: Developmental and Educational Psychology

2. Course Code : HNT 017

3. Semester / Year: Annual

4. Date of preparation of this description at the beginning of the academic year 2024 - 2025

5. Available Attendance Forms: Physical

6. Number of credit hours (total) / number of units (total): 60 hours, number of units: 2

7. Course administrator name (if more than one name is mentioned) /

Name: M.m Najah M. Werdee

Email: najah.m.werdee@tu.edu.iq

8. Course Objectives

This course aims to provide the student with the basic concepts of developmental psychology, the study of the stages of human growth from the beginning of pregnancy until the end of childhood, and shed light on the physical, mental, linguistic, emotional and social characteristics of development for each stage, and the developmental theories that explain them.

9.	Teaching and Learning Strategies	
		- Brainstorming , dialogue, discussion and some classroom activities.

- Use educational discussion
(educational dialogue), which
depends on the exchange of ideas
to reach the facts.
- The collective memorandum to
involve all students in the
classroom activity. –

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	The week
Oral and written test	Dialogue, discussion and brainstorm ing	Course Description + Developmental Psychology Concept and Demands	Course Description + Developmental Psychology Concept and Demands	2	1
Oral and written test	Dialogue, discussion and brainstorm ing	Factors affecting growth (genetic + environmental + glands)	Factors affecting growth (genetic + environmental + glands)	2	2
Oral and written test	Dialogue, discussion and brainstorm ing	Growth theories	Growth theories	2	3
Oral and written test	Dialogue, discussion and brainstorm ing	Division of developmental and embryonic stages	Division of developmental and embryonic stages	2	4
Oral and written test	Dialogue, discussion and	Lactation stage	Lactation stage	2	5

	brainstorm				
	ing				
	Dialogue,				
Oral and	discussion				
	and	Early childhood 3-6	Early childhood	2	6
written test	brainstorm	years	5-0 years		
	ing				
	Dialogue,				
Oral and	discussion		Middle		
•	and	Middle Childhood 6-	Childhood 6-9	2	7
written test	brainstorm	9 Years	Years		
	ing				
	Dialogue,				
Oral and	discussion				
••••	and	Late childhood 9-12	Late childhood 9-	2	8
written test	brainstorm	years	12 years		
	ing				
	Dialogue,				
Oral and	discussion				
	and	Childhood problems	Childhood	2	9
written test	brainstorm		problems		
	ing				
	Dialogue,				
Oral and	discussion		Adolescence		
	and	Adolescence Early	Early	2	10
written test	brainstorm	adolescence	adolescence		
	ing				
	Dialogue,				
Oral and	discussion				
	and	Late adolescence	Late adolescence	2	11
written test	brainstorm				
	ing				
	Dialogue,				
Oral and	discussion	T	T		
witten test	and	reenagers' needs and	1 eenagers' needs	2	12
written test	brainstorm	problems	and problems		
	ing				

	1				1
Oral and written test	Dialogue, discussion and brainstorm ing	Review	Review	2	13
Oral and written test	Dialogue, discussion and brainstorm ing	The historical development of educational psychology	The historical development of educational psychology	2	14
Oral and written test	Dialogue, discussion and brainstorm ing	Definition, nature and subject of educational psychology	Definition, nature and subject of educational psychology	2	15
Oral and written test	Dialogue, discussion and brainstorm ing	Psychology Schools	Psychology Schools	2	16
Oral and written test	Dialogue, discussion and brainstorm ing	Applied direction	Applied direction	2	17
Oral and written test	Dialogue, discussion and brainstorm ing	Educational objectives: classification and transformation into educational goals	Educational objectives: classification and transformation into educational goals	2	18
Oral and written test	Dialogue, discussion and brainstorm ing	Steps to write the goal	Steps to write the goal	2	19

Oral and written test	Dialogue, discussion and brainstorm ing	Learning and its conditions	Learning and its conditions	2	20
Oral and written test	Dialogue, discussion and brainstorm ing	Behavior and factors affecting it	Behavior and factors affecting it	2	21
Oral and written test	Dialogue, discussion and brainstorm ing	Factors affecting the effectiveness of the educational process (science and education)	Factors affecting the effectiveness of the educational process (science and education)	2	22
Oral and written test	Dialogue, discussion and brainstorm ing	Attention	Attention	2	23
Oral and written test	Dialogue, discussion and brainstorm ing	Motivation in learning	Motivation in learning	2	24
Oral and written test	Dialogue, discussion and brainstorm ing	Remember	Remember	2	25
Oral and written test	Dialogue, discussion and brainstorm ing	Objective factors that help to remember	Objective factors that help to remember	2	26

Oral and written test	Dialogue, discussion and brainstorm ing	Theories of interpretation of remembrance	Theories of interpretation of remembrance	2	27
Oral and written test	Dialogue, discussion and brainstorm ing	Forgetting	Forgetting	2	28
Oral and written test	Dialogue, discussion and brainstorm ing	Transmission of the learning effect	Transmission of the learning effect	2	29
Oral and written test	Dialogue, discussion and brainstorm ing	Review	Review	2	30
11. Course	e Evaluation				
TheoreticaQuestionsOral tests	 Theoretical exams Questions out of the box Oral tests 				
12. Learnir	ng and Teach	ning Resources			
Al-Alusi, Jamal Hussein: 1983 Required textbooks (methodology, if any)					
developmental Psychology, Book No. 121 Main references (sources)					
Author Dr. Ma	riam Selim, Ye	ear of printing 20			
Number of page	es 560				

نموذج وصف المقرر اسم المقرر: علم النفس النمو والتربوي <u>.</u> رمز المقرر: عن ت 017 الفصل / السنة: السنوى .3 ٤. تاريخ إعداد هذا الوصف بداية السنة الدراسية 2024 - 2025 أشكال الحضور المتاحة :حضوري .5 عدد الساعات الدر اسية (الكلى)/ عدد الوحدات (الكلى): 60 ساعة، عدد الوحدات: 2 .6 اسم مسؤول المقرر الدراسي (إذا أكثر من اسم يذكر) / .7 الاسم: م.م. نجاح مدد ويردي najah.m.werdee@tu.edu.iq الإيمدل. اهداف المقرر .8 يهدف هذا المقرر الى تزويد الطالب بالمفاهيم الأساسية لعلم نفس النمو، ودراسة مراحل نمو الانسان منذ بدء فترة الحمل حتى نهاية مرحلة الطفولة، والقاء الضوء على خصائص النمو الجسمية والعقلية واللغوية والانفعالية والاجتماعية لكل مرحلة، والنظريات النمائية المفسرة لها. استراتيجيات التعليم والتعلم .9 - العصف الذهني، الحوار والمناقشة وبعض الأنشطة الصفبة - استخدام المناقشة التعليمية (الحوار التعليمي) والذي يعتمد على تبادل الأفكار للوصول إلى الحقائق. المذكرة الجماعية لأشراك جميع الطلبة في النشاط الصفي. –

				نية المقرر	.10 بن
طريقة التقييم	طريقة التعلم	اسم الوحدة او الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	توصيف المقرر+ مفهوم علم نفس النمو ومطالبه	توصيف المقرر + مفهوم علم نفس النمو ومطالبه	2	1
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	العوامل المؤثرة على النمو (وراثية+ بينية+ غدد)	العوامل المؤثرة على النمو (وراثية+ بينية+ غدد)	2	2
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	نظريات النمو	نظريات النمو	2	3
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	تقسيم مراحل النمو والمرحلة الجنينية	تقسيم مراحل النمو والمرحلة الجنينية	2	4
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مرحلة الرضاعة	مرحلة الرضاعة	2	5
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مرحلة الطفولة المبكرة 3-6 سنوات	مرحلة الطفولة المبكرة 3-6 سنوات	2	6
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مرحلة الطفولة الوسطى 6-9 سنوات	مرحلة الطفولة الوسطى 6-9 سنوات	2	7
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مرحلة الطفولة المتأخرة 9- 12 سنة	مرحلة الطفولة المتأخرة 12-9 سنة	2	8

اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مشكلات مرحلة الطفولة	مشكلات مرحلة الطفولة	2	9
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مرحلة المراهقة مرحلة المراهقة المبكرة	مرحلة المراهقة مرحلة المراهقة المبكرة	2	10
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	المراهقة المتأخرة	المراهقة المتأخرة	2	11
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	حاجات المراهقين ومشكلاتهم	حاجات المراهقين ومشكلاتهم	2	12
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مراجعة	مراجعة	2	13
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	التطور التاريخي لعلم النفس التربوي	التطور التاريخي لعلم النفس التربوي	2	14
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	تعريف علم النفس التربوي وطبيعته وموضوعه	تعريف علم النفس التربوي وطبيعته وموضوعه	2	15
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مدارس علم النفس	مدارس علم النفس	2	16
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	الاتجاه التطبيقي	الاتجاه التطبيقي	2	17

اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	الأهداف التربوية: تصنيفها وتحويلها الى اهداف تعليمية	الأهداف التربوية: تصنيفها وتحويلها الى اهداف تعليمية	2	18
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	خطوات كتابة الهدف	خطوات كتابة الهدف	2	19
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	التعلم وشروطه	التعلم وشروطه	2	20
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	السلوك والعوامل المؤثرة فيه	السلوك والعوامل المؤثرة فيه	2	21
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	العوامل المؤثرة في فاعلية العملية التعليمية(العلم والتعليم)	العوامل المؤثرة في فاعلية العملية التعليمية(العلم والتعليم)	2	22
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	الانتباه	الانتباه	2	23
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	الدافعية في التعلم	الدافعية في التعلم	2	24
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	التذكر	التذكر	2	25
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	العوامل الموضوعية التي تساعد على التذكر	العوامل الموضوعية التي تساعد على التذكر	2	26

اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	نظريات تفسير التذكر	نظريات تفسير التذكر	2	27
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	النسيان	النسيان	2	28
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	انتقال اثر التعلم	انتقال اثر التعلم	2	29
اختبار شفهي وتحريري	الحوار والمناقشة والعصف الذهني	مراجعة	مراجعة	2	30
				ييم المقرر	11. تق
				انات النظرية	• الامتد
			Ĺ	خارج الصندوق	• اسئلة
				ارات الشفهية	• الاختب
12. مصادر التعلم والتدريس					
مال حسين :1983	لكتب المقررة المطلوبة (المنهجية أن وجدت) الالوسي، جمال حسين :1983				الكتب المقر
ۇلف د. مريم سليم ,	كتاب 12131, المؤ	علم نفس النمو, رقم ال	(.	يسة (المصادر	المراجع الرئ
	ىىفحات 560	الطبع 2002 عدد الم			

Course Description Form
1 Course Name
Heat and material properties
2.Course Code:
THP014
3 Semester / Year
2024/2025
4. Description Preparation Date:
2025/1/30
5.Available Attendance Forms:
In-person lectures according to the official schedule of the Physics Department / Fourth Stage,
as well as exams, according to the instructions within the department in the college.
6.Number of Credit Hours (Total) / Number of Units (Total)
60 h
7.Course administrator's name (mention all, if more than one name)
Name: Esam Sameen Ali
Email: esam.ail@tu.edu.iq
6. Course Objectives
Students learn about the tonic of heat and the properties of matter and its role in
understanding the principles of physics and in daily life
How to use this knowledge in facing daily life situations in the field of advection
for the and as a state.
Tamily and society.
Makes students of the faculties of education for pure sciences feel the value and
importance of physics and the role of heat in the history of physics and how to deal with
school students after graduation and practice their specialties as teachers in schools.
And middle and secondary schools and some research laboratories in government
departments in the field of research and development.
9. Teaching and Learning Strategies
1. Identify the material of heat and the properties of matter, and how it originated, crystallized and
became a human need for engineering and technological applications, as well as identify its methods,
Tields and theories.
2. Identify the faws, then standards and conditions, the crises they go through, and then benefits to society
3 Identify the types of temperature scales
4. Identify the mechanical properties of materials.
5. Identify the magnetic and electrical properties of materials.
6. Identify the fourth state of matter.
7. Provide the student with knowledge of heat and the properties of matter, as the student can convert
this knowledge into behavior and action when the situation requires a specific response to solve a
problem.
8. Provide the student with knowledge of heat and the factors that determine it, and it can convert this
knowledge into behavior that contributes to removing the factors that determine it, and enjoys personal compatibility and harmony with the environment in which he lives.
10 Course Structure

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2+3+4	8=4×2	Gaining Gaining knowledge in the field of heat physics and its role in building human civilization in general. Identifying the types of thermometers and the mechanics of heat transfer.	Temperature measurement Types of thermometers Thermal expansion Methods of heat transfer	Theoretical	Tests and Questions
5+6+7+8	8=4×2	Gain knowledge in the field of energy sources and the first law of thermodynamics.	 Energy sources Thermal Specific heat First law of thermodynamics 	Theoretical	Tests and Questions
9+10+11 +12	8=4×2	Gain knowledge in distinguishing between ideal gas and real gas.	 Real gas and ideal gas Kinetic theory of gases Relationship between Cv and Cp 	Theoretical	Tests and Questions
13+14 15+16	8=4×2	Gain knowledge in the field of density as well as viscosity.	Density and specific gravity - Bernoulli's equation - Surface tension - Viscosity	Theoretical	Tests and Questions
17+18 19+20	8=4×2	Gain knowledge of the mechanical properties of materials.	-Young's coefficient -Types of stress and strain -The relationship between mechanical properties and temperature	Theoretical	Tests and Questions
21+22 23+24	8=4×2	Gain knowledge in the field of magnetic properties of materials.	ge in l of tic ss of ls. Study of the magnetic properties of materials Study of the magnetic properties the magnetic properties the Study of the Study of the magnetic properties Study of the Study of the Study of the Study of the Magnetic properties Study of the Study of th		Tests and Questions
25× 26	4=2×2	Gain knowledge in the field of	in - Classification of materials Theoretical		Tests and Questions

		electrical	Electr	ical		
		properties of	conduct	ivity		
		materials.	- Condu	ctors		
			Insulator	rs and		
			semicond	luctors		
		Gaining	Knowin	g the		
		knowledge in	difference	between		
20 27	4 2 2	the field of the	the states o	f matter		Tests and
28 × 27	4=Z×Z	fourth state of	Plasma	forms	Theoretical	Ouestions
		matter, which is	The impor	tance of		
		plasma.	studving	olasma		
		Gain				
		knowledge in the	- Classific	ation of		
		field of	mater	ials		
20.20	4.0.0	composite	- Type	s of		Tests and
29+30	$4=Z\times Z$	materials	composite r	naterials	Theoretical	Questions
		reinforcements	- Advanta	ges and		Questions
		and base	disadvant	ages of		
		materials.	composite r	naterials		
11. Course Evalua	ation		ļ			
Distributing the sco	re out of 1	00 according to the ta	asks assigned	to the stude	nt such as daily pre	paration daily
oral monthly or w	ritten exam	is reports etc.	isitis assigned		ne saon as aanj pro	purution, unif
12 Learning and	Teaching R	esources				
12. Learning and	reaching r	Coources		1 Heat	nd properties of	f Matarials
				1- IICat a		
				, by Kade	in Annea mone	med .
				2- The S	cience and Eng	ineering of
Require	d textbook	s (curricular books, if	f any)	Materials, Donald R. Askeland –		
				Pradeep 1	P. Phulé .	
				3-Classification of materials		
				JosenPoch March		
				Jusephoe		- M1- XX7
	Main refe	erences (sources)		Heat and	Inermodynamic	s, Mark W
		(,		Zymansk	У	
Recommended books and references (scientific journals		Heat and Properties of Matter Lectures B		ter Lectures Bo		
reporte)		PDF Physics Website -				
	icp	0115)		com The la	argest library in phy	ysics
				-1 Heat an	d properties of mat	tter, the unique
	Electronic Deferences, Websites			site in phys	sics.	
Б				-2 Propert	ies of matter and	heat, the Al N
				Library we	ebsite.	
				-3 Heat a	nd properties of 1	matter, the uni
				electronic library.		

نموذج وصف المقرر

1-Course name: Arabic language

2-Course code UOA137

3. Semester/Year: Annual

4-The date this description was prepared is 10/20/2025

5-. Available forms of attendance: basic/in-person

6. Number of study hours (total)/number of units (total): 30 hours

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

9- Name: Wasfi Kanaan Nasr al-Din al-Obaidi

Email : <u>Wasfi.k.nasruldeen@tu.edu.iq</u>

1-Course objectives

Decision:
The general goal of this course is for the student to know the concept of the
subject and the predicate
1-The student should know the elementary grades
2-The student should know when the news comes

3-The student should know that the predicate complements the principle
4- The student must know Al-Mutanabbi, his poetry, and his collections
5- Developing the student's intellectual culture regarding the Arabic
language subject
6- The student must know Surah Ad-Dhuha, its benefits, and the wisdom
behind its revelation
7- The student must know numbers, types, and counts
8- The student must be aware that punctuation marks are very important in
the Arabic language because the meaning of a word changes if its vowel is
changed, especially in the Qur'an.
9- The student must know the types of hamza, its place of occurrence, and
its conditions
10- Wan, her sisters, her parsing, and the cases of Wan.

2--Teaching and learning strategies

	Strategy
. Teaching and learning methods	
1-The student should know the elementary grades .	
2-The student should know when the news comes	
3-The student should know that the predicate	
complements the principle	
4-The student must know Al-Mutanabbi, his poetry, and	
his collections	

5- Developing the student's intellectual culture	
regarding the Arabic language subject	
6- The student must know Surat Ad-Dhuha, its benefits,	
and the wisdom behind its revelation	
7- The student must know numbers, types, and counts	
8- The student must be aware that punctuation marks are	
very important in the Arabic language because the	
meaning of a word changes if its vowel is changed,	
especially in the Qur'an.	
9- The student must know the types of hamza, its place	
of occurrence, and its conditions	
10- Wan, her sisters, her parsing, and the cases of Wan.	
1-Course structure	

Evaluation	Le	Name of the unit or topic	Required learning	Wa	week
method	arn		outcomes	tch	
	ing			es	
	me				
	tho				
	d				
Daily exams and student	perat	-Surat Al-Dhuha - Interpretation	-Memorizing the surah	2	1-2
the lecture.	ning	and parsing of Surat Al-Dhuha	and understanding its		
oral exam	ussio		parsing and interpretation		

Delle	1				
and student participation in	ecture ask	-Biography of Al-Mutanabbi - a	2-Knowing who Al-	2	3-4
the lecture.	stions	daily test	Mutanabbi is		
oral exam			3-Memorizing poetry and		
		-Al-Mutanabbi's poem - his	understanding its context	2	5-6
Daily exams and student		poetic purposes	is one of the purposes	2	
participation in the lecture.			4- Explaining Shamsi's		
Monthly exam			knowledge of Qamari's		
Daily exams		-The solar and lunar- monthly	words	2	7-8
participatio		exam	5- Explaining knowledge		
n in the lecture.			of numbering		
oral exam		-Punctuation marks - how to	6-Knowing the drawing	2	9.10
		write hamza	of the hamza and		
Daily exams		-Cases of drawing the hamza -	distinguishing between		
and student		the extreme hamza	them		11.12
participatio n in the			-An exam on some topics	2	
lecture.		-Daily exam-report examples	8- Explaining speech and		
oral exam			its types		13-14
			9-Understanding the		
Daily exams			nominal sentence and	2	
and student			nominal sentence and		
participatio			when the sentence is		
n in the		-Speech and what it consists of -	nominal		
iectuie.		~room and what it consists of			
Monthly e		the parts of the word	Explaining the actual		15-16
Daily exams			sentence, understanding it		
and student			<i>,</i>	2	
participatio			and understanding it		

n in the lecture.	-The subject nominal sentence	Details of the beans in		
oral exam	and its types - the predicate and	Anne, her sisters, Hakul,	2	17-18
	its types	and Ahjamna		
Daily exams		Explaining that and its		
and	-The verbal sentence and its	sisters and the conditions		
student participatio	cases - a daily exam	of what precedes it		19-20
n in the		Statement of the number,	2	
lecture.	-Monthly exam - it and its	what is different from it,		
oral exam	sisters are not done without	and what is identical with		21-22
	condition or restriction	it	2	
	-What is done provided that it is	When do the subject and		
	preceded by a denial,	object come?	2	23-24
	prohibition, or supplication -	Place of the object and its		
	that and its sisters	cases in nominal		
	-Numbers and numbers - a daily	sentences		
Daily exams	test			25-26
and student			2	
participatio	-Subject-object			
lecture.			2	27-28
			2	
	-The effect is a monthly exam			
			2	29-30
Monthly exam				

1-Course evaluation

To ask questions about educational topics for discussion by students in classes, ask questions for the student to solve.

Practical classes have daily quick exams with intellectual questions. And reports are

customized

General and qualifying skills (other skills related to employability and personal development).

Follow up on external sources

Preparing questions from relevant sources and following the method of class discussions

Urging students to follow organizations, especially the Human Rights Organization

The evaluation method is annual

1- Monthly exam 30%

2-Daily exam 5%

3-Activity, participation and attendance 10%

4-Report 5%

5- Final exam 50%

2– Learning and teaching resources

thodical book. The book Alfiyya It	n
Malik. Ibn Aqeel explaine	d Required textbooks (methodology, if any)
awayh's book and the principles	of
gramma	Main references (sources)
entific journals, conference	s, Recommended supporting books and references
mposiums, reports, Al-Ajrumiyya te>	t, (scientific journals, reports, the United Nations, human rights organizations)
Al-Fiyah Ibn Malik text.	.)

i		
	nothing	
	Electronic	c references, Internet sites

1. Cou	irse Na	ame:						
Electroma	Electromagnatic Lab II							
2. Cou	irse Co	ode:						
ELP032								
3. Sen	nester	/ Year	: Year					
year								
4. Des	4. Description Preparation Date:							
2025								
5. Ava	ilable	Attenda	ance For	rms:				
Cla	SS							
6. Nur	nber of	f Credit	t Hours	(Total) / N	Sumber of Units (Total))		
2 /	1							
7. Cou	urse a	dminis	trator's	name (m	ention all, if more that	an one name)		
Nar	ne: Nil	had Ali	Shafee	k	•	,		
Em	ail: <u>nib</u>	nadshat	feek201	6@tu.edu	<u>ı.iq</u>			
8. COL	irse Ot	ojective	S					
Course Obje	ectives		The use of electrical appliances and a comparison with t					
		th	Ineoretical					
		En	Encourage students to complete the course plan					
			Commitment to academic vocabulary as a curriculum within a time-bol					
		Sti	study plan					
		Up	Updating vocabulary by teaching staff for at least 15% annually					
		•	•					
			•					
9. Tea	ching a	and Lea	arning S	Strategies				
Strategy								
10. Course Structure								
Week	Hours	Red	quired	Unit or	Learning method	Evaluation method		
		Lea	rning	subject				
		Out	tcomes	name				

15	2		1	Examination and Report	Discussion	
11. Course Evaluation						
Through periodic visits by other professors to the specialized teacher and the method of presenting and discussing the topic						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc						
12. Learning and Teaching Resources						
Required textbooks (curricular books, if a						
Main references (sources)						
Recommended books and references			ces			
(scientific journals, reports)						
Electronic References, Websites						

	Course name:
	Earth Science/First Stage/Bachelor
	Course code: .۲
	From B015
	the chapter/Year:Annual/ .٣
	Annual /
Date	e this description was prepared/ .٤
	10/10/2024
	Available attendance forms: .°
	Daily attendance
Number of study hour	rs (total) / Number of units (total):
	60hour
Name of the course administr	ator (if more than one name is
	mentioned)
	Name: Dr. Abdullah Saleh Mahdi
	Email: <u>Abdullah.saleh.tuz@tu.edu.iq</u>
	Course objectives .A
	The student should get to know
	The importance of science and scientific
	research for the individual and society.
	Characteristics and obstacles of scientific
	thinking.
	3- Fundamentals of scientific research.
	4- Scientific research tools.
	5- Scientific research methods.
	How to write a scientific research and apply
	it practically
	Teaching and learning strategies .٩

1-Knowledge of science and its objectives.2-Old ways of obtaining knowledge.3- Scientific methods in research.	theCognitive -) objectives
wledge How to procedure Research Scientific from during Recognition on Types Research: 1- Search Historical. 2- Search Descriptive. 3- Search Experimental. 4-Style Systems. 5- Search Procedural.	for- ObjectivesSkillsYesSpecial forScheduled.

	Course structure .					
Evaluation	Learning	Name of	Required learning	Watches	The	
method	method	the unit or	outcomes		week	
		topic				
Discuss	style		dent definition of scientific	1		
ion and	The lecture and discussion	Research	research foundations			
exchan		Foundations			1+2	
ge of		Scientific				
views						
Discuss ion and exchan ge of views	style The lecture and discussion	Research Methods Scientific	udent definition of each type Scientific research methods	1	3-6	
Discuss ion and	style The lecture and discussion	stages Preparation	dent definition of how to identify the research Scientific	11	7+8	
		1	1			
---------	----------------------	----------------	---	---	-------	
exchan		scientific				
ge of		research				
views						
Discuss	style The lecture		roducing the student to the methods of collection	1		
ion and	and discussion	Collection	Data and how it is collected			
exchan		method			0	
ge of		Doto			2	
vioue		Dala				
VIEWS						
	style		rn about scientific research	1		
Discuss	The lecture		tools	_		
ion and	and discussion	Cooreb Toolo				
exchan		Search Tools			10	
ge of		Scientific				
views						
Partici	style The lecture		roducing the student to how	1		
nation	and discussion		Thesis			
pation		writing rules			11.10	
		e message or			11+12	
discuss		Thesis				
ion						
	style		roducing the student to the	1		
Partici	The lecture		tructions and guidelines for	1		
pate in	and discussion		printing and output			
present		directions				
ation		d instructions			13-15	
and		nting and			10 10	
discuss		production				
ion						

Partici	Lecture style and discussion		roducing the student to how to write	1	
pation		index	Sources		
and		Sources			16+17
discuss		References			
ion					
	semester exam	Practical		1	
	the first	mples of			1.0
		documenting			18
		references			
Discuss	ture + discussions		inition of how to write drafts	1	
ion and	Saliya	Writing drafts	Search		
exchan		Search			19
ge of		Coulon			
views					
Discuss	Lecture style		roducing the student to how	1	
ion and	and discussion		to write an introduction		
evchan		Research	Cearch		20
ge of		introduction			20
views					
Discuss	style		roducing students to how to	1	
ion and	and discussion		Table of Contents		
exchan		Contont Indox			21
ge of					<u> </u>
views					
120110					
Discuss	Lecture and		oducing the student to how to obtain	1	
ion and	style	sources	Sources		23
avebon	~ ~	Information			
exchan					

ge of views					
Discuss ion and exchan ge of views	ond semester exam	Application model		1	24-25
Discuss ion and exchan ge of views	style The lecture and discussion	Statistics		1	26-28
		Research plan (numbers)	dent definition of how to prepare a plan Search		29
		ange the chapters	dent definition of how to arrange the chapters		30
		Discussion			31
_			Course	Evaluatior	וו. ו
			Course	e Evaluatio	on .11
A1- Assign A2- Assign A3- Gi	Written semester exam, oral exam, and research preparation. C- Emotional and valuable goals: A1- Assigning the student to write reports according to the curriculum's vocabulary. A2- Assigning students to obtain data and information related to some of the curriculum's components. A3- Giving them some external questions related to the curriculum vocabulary.				
			Looming and tooching	rocouroo	- \ #

	Required textbooks (methodology if any)
Scientific research methodsBy the	Main References (Sources)
author Abdul Rahman Al-Badawi	
Fundamentals of Scientific	
ResearchTo Dr. Munther Dhaman	
entific research methodology Dr.	
Muthanna Razzaq Al-Omar.	
	Recommended supporting books and
	references (scientific journals, reports, etc.)
	Electronic references, websites

Form Description of the course

1. :Course name

Growth psychology

2. :Course Code

A 017

3. The annual: The year/The classroom

Annual

4. Date of preparing this description

2025-2024

5. Available attendance forms:

A basic

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

(hours / number of units (2 60

7. (The name of the course administrator (if more than one name Name: Amer Sherif Said

lEmai : siramir99@yahoo.com

8. Goals

The course aims to provide the student with the basic concepts of psychologyTl And to study the stages of human growth since pregnancy until the end of grow childhood, shed light on the characteristics of physical, mental, linguistic, emotion and social growth for each phase and the development of its expedition

9. strategies Education and learning

 Mental 	artifacts,	dialogu
discussion	and some	classroc
.activities		
– Use	educational	activiti
educationa	al dialogue) whic
depends o	on the exchan	ge of ide

10. Course	e Structure	-	Use educational d educational dialog depends on the exc to reach the facts. The collective me involve all students classroom activity.	iscussion ue), whic change of morandur in the –	h ideas n to
Evaluation	Learning		Required		The
method	method	Unit or subject name	Learning	Hours	week
			Outcomes		
Oral and written test	Dialogue, discussion and brainstorm ing	Course Description + Developmental Psychology Concept and Demands	Course Description + Developmental Psychology Concept and Demands	2	1
Oral and written test	Dialogue, discussion and brainstorm ing	Factors affecting growth (genetic + environmental + glands)	Factors affecting growth (genetic + environmental + glands)	2	2
Oral and written test	Dialogue, discussion and brainstorm ing	Growth theories	Growth theories	2	3
Oral and written test	Dialogue, discussion and brainstorm ing	Division of developmental and embryonic stages	Division of developmental and embryonic stages	2	4
Oral and written test	Dialogue, discussion and	Lactation stage	Lactation stage	2	5

	brainstorm				
	ing				
Oral and written test	Dialogue, discussion and brainstorm ing	Early childhood 3-6 years	Early childhood 3-6 years	2	6
Oral and written test	Dialogue, discussion and brainstorm ing	Middle Childhood 6- 9 Years	Middle Childhood 6-9 Years	2	7
Oral and written test	Dialogue, discussion and brainstorm ing	Late childhood 9-12 years	Late childhood 9- 12 years	2	8
Oral and written test	Dialogue, discussion and brainstorm ing	Childhood problems	Childhood problems	2	9
Oral and written test	Dialogue, discussion and brainstorm ing	Adolescence Early adolescence	Adolescence Early adolescence	2	10
Oral and written test	Dialogue, discussion and brainstorm ing	Late adolescence	Late adolescence	2	11
Oral and written test	Dialogue, discussion and brainstorm ing	Teenagers' needs and problems	Teenagers' needs and problems	2	12

Oral and written test	Dialogue, discussion and brainstorm ing	Review	Review	2	13
Oral and written test	Dialogue, discussion and brainstorm ing	The historical development of educational psychology	The historical development of educational psychology	2	14
Oral and written test	Dialogue, discussion and brainstorm ing	Definition, nature and subject of educational psychology	Definition, nature and subject of educational psychology	2	15
Oral and written test	Dialogue, discussion and brainstorm ing	Psychology Schools	Psychology Schools	2	16
Oral and written test	Dialogue, discussion and brainstorm ing	Applied direction	Applied direction	2	17
Oral and written test	Dialogue, discussion and brainstorm ing	Educational objectives: classification and transformation into educational goals	Educational objectives: classification and transformation into educational goals	2	18
Oral and written test	Dialogue, discussion and brainstorm ing	Steps to write the goal	Steps to write the goal	2	19

Oral and written test	Dialogue, discussion and brainstorm ing	Learning and its conditions	Learning and its conditions	2	20
Oral and written test	Dialogue, discussion and brainstorm ing	Behavior and factors affecting it	Behavior and factors affecting it	2	21
Oral and written test	Dialogue, discussion and brainstorm ing	Factors affecting the effectiveness of the educational process (science and education)	Factors affecting the effectiveness of the educational process (science and education)	2	22
Oral and written test	Dialogue, discussion and brainstorm ing	Attention	Attention	2	23
Oral and written test	Dialogue, discussion and brainstorm ing	Motivation in learning	Motivation in learning	2	24
Oral and written test	Dialogue, discussion and brainstorm ing	Remember	Remember	2	25
Oral and written test	Dialogue, discussion and brainstorm ing	Objective factors that help to remember	Objective factors that help to remember	2	26

Oral and written test	Dialogue, discussion and brainstorm ing	Theories of interpretation of remembrance	Theories of interpretation of remembrance	2	27
Oral and written test	Dialogue, discussion and brainstorm ing	Forgetting	Forgetting	2	28
Oral and written test	Dialogue, discussion and brainstorm ing	Transmission of the learning effect	Transmission of the learning effect	2	29
Oral and written test	Dialogue, discussion and brainstorm ing	Review	Review	2	30
11. Course	e Evaluation				
 Theoretica Questions Oral tests 	l exams out of the box				
12. Learnir	ng and Teach	ning Resources			
	Al-Alusi, Jamal Hussein: 1983 Required textbooks (methodology, if any)				
developmental Psychology, Book No. 121 Main references (sources)					
Author Dr. Ma	riam Selim, Yo	ear of printing 20			
Number of page	es 560				

1. Course Name:

Computer

2. Course Code:

016 h

3. Semester / Year:

Annual

4. Description Preparation Date:

2025

5. Available Attendance Forms:

Classrooms

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

30 hours

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

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Name: M.M. Laith Shahada Khader

Email: laytashehada@tu.edu.iq

8. 0	Course	Objective	s
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Course Objectives

Preparing and qualifying specialists to meet the

requirements of the labor market in both the

public and private sectors. Commitment to the

curriculum as a curriculum within a pre-

prepared study plan.

9. Teaching ar	nd Learning Strategies	
Strategy		

Strategy	1- Word 2010 and its tabs

			2- PowerPoint and its uses3 Artificial intelligence				
10. Course	Struct	ure	Pequired	Unit or	Learning	Evaluation	
HCCN	liou	13	Learning	subject name	method	method	
			Outcomes				
First			Introduction and	theoretical			
Second			operation of	licoreticui			
Second			Word 2010				
Third			Word 2010				
Fourth			program				
Fifth			interface				
Sixth			File tab and				
Seventh			Home tab				
Eighth			Page layout tab				
Ninth			View tab				
Tenth			Help				
Eleventh			Insert tab				
Twelfth			Table tools tab				
Thirteenth			Design tab				
Fourteenth			Layout tab				
Fifteenth			Image tools tab				

Sixteenth	Text group and	
Seventeenth	Symbols group	
Eighteenth	References tab	
Nineteenth	Correspondence	
Twentieth	tab	
Twenty-	Review tab	
first	Compare group	
Twenty-	and Protect	
second	group	
Twenty-	PowerPoint	
third	2010 program	
Twenty-	operation and	
fourth	program	
Twenty-	interface	
fifth	File tab	
Twenty-	Introduction to	
sixth	Artificial	
Twenty-	Intelligence	
seventh	Home	
Twenty-	Introduction to	
eighth	Artificial	
Twenty-	Intelligence	
eighth	The Role of	
Twenty-	Artificial	
ninth	Intelligence in	
Thirtieth	Phones	

The Role of
Artificial
Intelligence in
Phones
Artificial
Intelligence
Applications and
Tools
Artificial
Intelligence
Applications and
Tools
Artificial
Intelligence and
Society
Ethical
Challenges in
Artificial
Intelligence
Ethical
Challenges in
Artificial
Intelligence
Ethical
Challenges in
Artificial

	[Г	1		F	· · · · · · · · · · · · · · · · · · ·
		Intelligence				
		The Future of				
		Artificial				
		Intelligence				
11. Course	e Evalua	tion				
Distributing the daily preparat	ne score (ion, daily	out of 100 according oral, monthly, or wri	g to the tten ex	e tasks assig ams, reports	ned to the st s etc	udent such as
12. Learni	ng and T	eaching Resources	3			
Required textbo	ooks (curr	icular books, if any)		Computer	Basics and C	Office
				Applicatio	ons Part Two	
				Artificial	Intelligence	
Main reference	s (sources	5)		Uni	versity Hou	se for Printin
				Put Tra	olishing, Aut Inslation	horship and
				Inti	roduction to	o the World
				Art	ificial Intel	ligence by
				Ade	el Abdel Nou	ır 2005
Recommended	books	and references (sci	entific			
journals, report	s)					
Electronic Refe	rences, N	/ebsites				



1. Course Name:

Optics (theoretical)

2. Course Code:

OPP012

3. Semester / Year:

Year

4. Description Preparation Date:

2024 - 2025

5. Available Attendance Forms:

My presence

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

90 hours / (7) units with practical

7. Course administrator's name (mention all, if more than one name) Name: Robak Aziz Rasheed Email: Rupak.A.Rasheed@tu.edu.iq

8. Course Objectives

The course aims to provide the student with the basic theoretical scientific skills in the subject of physics and optics and to understand the basic principles in this field

• The student can identify the nature of light

- Study the phenomenon of interference in light
- Study mirrors, their types, mirror geometry, and how to form the image in the mirror
- Study lenses, their types, and how to create images in lenses
- A study on aberration, types of aberration, and methods of reducing aberration

• The student can identify the cometary aberration, astigmatism, field

curvature aberration, distortion aberration, chromatic aberration and

methods of reducing them.

• Study interference and experiments to obtain interference, study

diffraction and the mechanism of diffraction, study polarization and how

polarization is produced.

9. Teaching and Learning Strategies	\$
 A- Knowledge and understanding The student can explain the physical meaning of light The student can explain the psychological meaning of optics The student can explain the origin of light The student can explain the origin of light The student can explain the occurrence of light The student can mention the basic conditions for the occurrence and propagation of light 	 B - Subject-specific skills B1 - Identify the concepts in the subject of optics B2 - Develop skills in using means of clarification, many examples, memorization and analysis B3 - Use modern techniques in some topics (smart board and blended learning) B4 - Solve exercises from the prescribed book and from auxiliary sources

10. Course Structure

Week	Hours	Required	Unit or subject name	Learning	Evaluation
		Learning		method	method
		Outcomes			
1	3	Introducing the student to the concept of Optics and its	General introduction to the definition of optics, its applications and		
		relationship to other	properties		
2	3	THE NATURE AND PROPAGATION OF LIGHT	The nature of Light , wave from and rays , Huygens principles	Lecture method and use of available illustrative	Midterm and final exams Daily exams and studen participation
3	3	THE NATURE AND PROPAGATION OF LIGHT	Index of refraction , The electromagnetic Spectrum , problems	means to convey the idea, brainstorming	lecture discussion Preparing special
4	3	REFLECTION AND REFRA CTION	Reflection and refraction at plane surface, the laws of reflection and refraction	and conducting experiments	assignments academic top
5	3	First month exam	First month exam		

			1	
6	3	REFLECTION AND REFRA CTION	Ray treatment of reflection and refraction , the principle of Reversibility, Fermats principle , problems	
7	3	SPHERICAL SURFACES	Focal points and Focal lengths, Image formation, Virtual Images, conjugate points and planes	
8	3	SPHERICAL SURFACES	Convention of signs, Graphical constructions , the parallel Ray method	
9	3	SPHERICAL SURFACES	Oblique - Ray methods, Magnification , Reduced vergence, Derivation of Gaussian Formula, problems .	
10	3	LENSES	Thin lenses, focal points and focal lengths, Image Formation , Conjugates points and planes ,	
11	3	LENSES	the parallel -Ray method, The oblique- Ray method Use of lens formula, Lateral Magnifiaction , virtual Images , Lens Markers formula	
12	3	LENSES	Thin - Lens combinations, the power of a thin Lens , Derivation of the Lens Makers formula.	
13	3	LENSES	Problems	
14	3	Second month exam	Second month exam	
15	3	SPHERICAL MIRRORS	Focal point and Focal Length, Graphical coustructions,Mirror Formulas, power of	
16	3	SPHERICAL MIRRORS	Mirrors Thick mirrors, Thick - Mirror Formulas, other thick Mirrors	

		•		
17	3	A BERRIONS OF LENSES AND MIRRORS	A berrations , Spherical aberration of a lens , Spherical aberration of Mirrors	
18	3	A BERRIONS OF LENSES AND MIRRORS	coma, Astigmatism ,curvature of field , kinds of aberration .	
19	3	Third month exam	Third month exam	
20	3	OPTICAL INSTRUMENTS	The eye , Defects of vision , Spectacle , the simple microscope Magnifier , Refracting telescopes	
21	3	OPTICAL INSTRUMENTS	Normal magnification , the reflecting telescope , camera, stops, the rangefinder, problems	
22	3	INTERFERENCE	Experiment , Interference Fringes from a Double source , s principle , Young , Huygen sBiprism , Other Apparatus , , Intensity Distribution in the fringe system , Fesnel	
23	3	INTERFERENCE	Depending on Division of the wave front , Coherent sources , Division of Amplitude	
24	3	INTERFERENCE	Michelson Interferometer, Circular Fringes, visibility of Fringes, Interformetric Measurements of Length	
25	3	INTERFERENCE	Twyman and Green Interferometer , Index of Refraction by Interference Methods, Reflection from a plane - parallel film , Fringes of Equal s Rings, problems. , Inclination , Newton	

	1	1	r			1	
26	3	DIFFRACTION	Fresnel fr	aunhofer			
			single sli	t, Further			
			Investigat	ion of			
			Diffractio	n pattern			
27	3	DIFFRACTION		1			
			Rectangula	r Aperture,			
			Rectangula	ir Aperture,			
			Chromatic	Resolving			
			power of a	n prism			
28	3	DIFFRACTION	Circular A	perture,			
_0	Ū		Resolving	power of a			
			power of a	Microscope			
29	3	DIFFRACTION	The Double	e slit,			
			qualitive Aspects of				
			Derivatior	the pattern, Derivation of the			
			Equation for the				
			Intensity,	Comparsion			
		Fourth month	Fourth month	exam			
30	3	exam	100101110000				
11.	Course	e Evaluation					
• Mon	thly and	final exams					
• Daily	y exams a	and student parti	cipation in le	cture discussio	n		
• Prep	oaring sp	ecial assignments	s on academi	c topics			
12.	Learnir	ng and Teaching	g Resource	S			
Requir	red textbo	oks (curricular bo	oks, if any)]	Fundamentals of o	optics	
		\	,	,thiro	edition ,Jenkins a	nd white	
Main r	Main references (sources)			1-	FUNDAMENTALS OF	OPTICS	
× /				FRANCIS A. JENKI	NS,		
					HARVEYEWHII	IE	
					2-OPTICS		
Recon	nmended	books and	references				
(scien	tific journa	als, reports)					
Electro	onic Refe	rences, Websites					



1. Course Name:

Educational Administration/Second Stage/Bachelor's Degree

2. Course Code:

ت1 015

3. Semester / Year:

Annual

4. Description Preparation Date:

2024/10/10

5. Available Attendance Forms:

Daily attendance

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

60 hours

7. Course administrator's name (mention all, if more than one name) Name: husham saber Qadri

Email: hisham.saber.tuz@tu.edu.iq

8. Course Objectives

Course Objectives	•	Introducing students to
		concept of management in Isla
	•	Introducing students
		management and the nature
		management
	•	Identify modern trends
		educational administration

9. Teaching and Learning Strategies

Strategy1- Cognitive objectives 1- What is the definition of be
educational administration and the nature of education
administration? 2- What are the modern theories in sche
administration? 3- What is classroom management?
What are the elements of the administrative process?
What are the factors affecting educational administration
6- What is school administration and what are sche
administration relationships? 2- The skills objectives
the course. 1- Present with the methodological book.

Conducting research studies by students. 3- Aski students questions related to the subject of the study.

10. Course Structure						
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation	
		Outcomes	name	method	method	
1-2	4	Introducing t	Introduction a	Lecture a	Discussion a	
		student to t	general idea Ba	discussion	exchange	
		science	definitions	method	opinions	
		educational	educational	Lecture a	Discussion a	
3-4	4	administration	administration T	discussion	exchange	
		Introducing t	nature	method	opinions	
		student to t	administration a	Lecture a	Discussion a	
		nature	schools A	discussion	exchange	
		management a	administrative	method	opinions	
5-6	4	clarifying t	process theor	Lecture a	Discussion a	
		schools a	Elements of t	discussion	exchange	
		theories of t	administrative	method	opinions	
7.0	4	administrative	process T	Lecture a	Discussion a	
/-8	4	process The stude	calendar and t	discussion	exchange	
		introduces t	foundations of t	method	opinions	
		elements of t	calendar	Lecture a	Participation	
		administrative	Administrative	discussion	and discussi	
0.10	1	process Introduci	leadership sty	method	They particip	
9-10	4	the student	Factors affecti	Lecture a	in presentati	
		evaluation a	educational	discussion	and discussi	
		enumerating a	administration	method	Participation	
11-12	4	clarifying t	School	Lecture a	and discussi	
11 12	1	foundations	administration	discussion	Participation	
		evaluation	School	method	and discussi	
		Clarifying	administration	Lecture a	Discussion a	
13-14	4	administrative	relations Mode	discussion	exchange	
_		leadersnip sty	theories in sch	method	opinions	
		Enabling t	administration	Lecture a		
		student to expla	Classroom	alscussion		
15-16	4	the factors affect	management a	Inethod		
		educational	classroom	discussion	Discussion	
		auiiiiiisu auoii Studont dofiniti	CIdSSI UUIII	uiscussioii mothod	evchange	
17-18	4	of coh	management	Locture	oninions	
		oi scho		Lecture a	opinions	

		administration	Classroom	discussion	
		Clarifying studen	management "	method	
		school	the concent	Locturo a	
19-20	Л.	administration	classroom	discussion	
19-20	т	aummistration	Classi UUIII	uiscussion	
			management Me	methou	
		Introducing	or sch	Lecture a	
21 22	4	students to mode	communication	discussion	Disquestion
21-22	4	theories in scho	with the commun	method	DISCUSSIOII a
		administration	Parent and teac	Lecture a	exchange
		Introducing	councils Sch	discussion	opinions
		students to mode	activities, th	n style	
		theories in scho	importance, go		
22.24		administration	and colo	ι	
23-24	4	Introducing	Educational		
		students	supervision		
		classroom	Methods		
		management a	educational		
25-26	4	the concept	supervision		
		classroom			
		management			
		Introducing t			
	_	student to t			
27-28	4	school's means			
		communication			
		with the commun			
		Introducing			
		students to t			
		duties of pare			
		teacher cound			
29-30	4	Introducing t			
		student to sch			
		activities a			
		explaining th			
		importance			
		objectives			
		colours Introduci			
	4	the student to t			
		dution of t			
		aducational			
		euucational			
		supervisor			
		introducing t			
		student to t			
		methods			

	educational						
	supervision						
11. Course	Evaluation	1					
The quarterly written exam, the oral exam, and research preparation. C- Emotional value goals:- C1- Assigning the student to write reports according to the curriculum it C2- Assigning students to obtain data and information related to some components o curriculum C3- Giving them some external questions related to the curriculum vocabu					- Emotional an urriculum item mponents of th lum vocabulary	d s. ie	
12. Learning	g and Teaching Res	ources	6				
Required textboo	oks (curricular books, if	any)	Educa	tional	adm	inistration	а
	(,	super	vision b	ook		
Main references	(sources)						
Recommended	books and refer	rences					
(scientific journal	s, reports)						
Electronic Refere	ences, Websites						



1-	The	name	of	the	course:
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Mathematics-Second Stage-Physics Section

2- Course code:

MAP022

3- Semester/Year: Annual

2025-2024

4- Date of preparation of this description

2025/1/23

5- Available Attendance Forms

In-person

6- Number of study hours (total) / Number of units (total)

90 hours

7- Name of the course leader (if more than one)

Name: Dr . Zainab Ali Jaafar

Email: zainabali611@tu.edu.iq

1. Course Objectives	
-Define the basics of mathematics and its	
applications.	
-Enable students to study the basics of mathemati	
-Student's knowledge of the most important	
applications in mathematics.	
-Enable the student to keep pace with scientific	
development.	
-Enable the student to obtain knowledge and	
understanding of effective media.	
In addition to increasing his knowledge of the mo	
important applications of mathematics	
in the field of life	
2. Teaching and Learning Strategies	
- Lectures and the use of textbooks	
-Solving problems related to the subject matter	
-Writing scientific reports and analysing data	
-Using e-learning in teaching according to	
possibilities available.	
-Self-learning method	
-Brainstorming	
-Lecture time feedback	
- Collaboration and feedback loop	
3. Course structure	

Week	Hours	Required Learning Outcomes	Unit or topic name	Instruction Method	Assessment method
		Introduce the student to	finite -Sequence	Plackboard/	Daily Exam –
		sequences and their types	sequence-infinite	Data Show	Monthly
1	3		sequence	Data Bhow	Exams
		Introduce students to	Convergent sequences	=	=
		convergent and divergent	-divergent sequences		
2	3	sequences			
		Solving Different	Solve exercises, proofs	=	=
3	3	Exercises	and discussion		
	2	Introduce to geometric	Geometric series	=	=
4	3	series			
-	2	matheda of acquergent	Mathad of annuargant	=	=
5	3	sequential methods	Method of convergent		
		Solving Different	Solve exercises proofs		
6	3	Exercises	and discussion	-	—
		Introducing the Power	The power series	=	=
7	3	Series			
	_	Introducing the Tyler	The Taylor series	=	=
8	3	Series	5		
		Solving Different	Solve exercises, proofs	=	=
9	3	Exercises	and discussion		
		Introducing the McLaurin	Maclaurin polynomial-	=	=
10	3	Series	computation of		
			logarithms		
11	3	Introducing the Fourier Series	Fourier series	=	=
12		Solving Different	Solve exercises, proofs	=	=
12	3	Exercises	and discussion		
13	3	Introducing Vectors	the Vectors	=	=
14	2	Introduce students to unit	Unite vector	=	=
	3	Vectors Solving Different	Solvo ovorcioco prosfe		
15	2	Exercises	solve exercises, proois	=	=
	3	Introduce students to the	Scalar product-scalar		
16	3	dot product and cross	dot product	_	-
	5	product of vectors	aor product		
		Introduce students to		=	=
17	3	vector projection and	Vector projection-scalar		
		periodic projection.	projection		
		Introduce students to	Equation of sphere-line-	=	=
18	3	solving the equations	plane		
		sphere, line, and plane			

	1		1		
10		Introduce the student to	Partial differential	=	=
19	3	partial derivatives			
20		Solving Different	Solve exercises, proofs	=	=
20	3	Exercises	and discussion		
		introduce the student to	The chair rule	=	=
21	3	one of the methods for			
	_	solving partial derivatives.			
		Introduce the student to	Vector differential-	=	=
22	3	the vector derivative and	higher order differential		
	_	multiple differentiations.			
		Introduce the student to	Local max-local mim-	=	=
23	3	major and minor limits	critical point		
		and the critical point.	L.		
		Introduce the student to	The differential	=	=
24	3	the differential equation	equation-general –		
24		and the general and	special solution		
		special solution.	-		
		introduce students to	Separable-homogenous-	=	=
25	3	separable, homogeneous,	non homogenous		
25		and heterogeneous	diff.equation		
		differential equations.	-		
26		Solving Different	Solve exercises, proofs	=	=
26	3	Exercises	and discussion		
		Introduce the student to		=	=
27	3	complete, incomplete, and	Exact non-exact –linear		
27		linear differential	diff.equation		
		equations.			
		Introduce the student to		=	=
28	3	special cases of the	Special types of second		
		second order.	order		
20		Introduce the student to	Laplace transformation	=	=
29	3	Laplace transforms.	-		
0.0		Solving Different	Solve exercises, proofs	=	=
30	3	Exercises	and discussion		

1. Course evaluation

Distribute 100 marks according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.

2. Learning and Teaching Resources

1- Required textbooks (syllabus if any)	1-Principles of Lasers ,O.Svelto, 2nd Edition , Plenum Press . New York and London , 1998.
Main References (Sources)	1- Laser and their applications, M .J. Beesley, Taylor & Franci LTD, 1976. 2- Introduction to optical electronics , Amnon Yariv, Holt Richard Winston, 1976.

Recommended supporting books and references (scientific journals, reports)	Calucales
Electronic references, websites	Various websites

		Course name: .1
		the language Arabic
		Course code: .2
		017To the west
		the chapter/Year:Annual .3
		2024-2025
D	ate th	is description was prepared4
		1/23/2025
		Available attendance forms .5
		My presence
Number of study h	ours ((total) / Number of units (total): .6
		30 hours
Name of the course admin	istrato	or (if more than one name is .7
		mentioned)
	1	Name: M.M. Hussein Ali Mohammed
	Em	ail:HUSSEIN.A.Mohamed@tu.edu.iq
		Course objectives 8
A Constitute chiesting		
A- Cognitive objectives	eaching	g basic concepts (hamzat al-qata', hamzat
al-gata' and hamzat al-wasl.		al-wasl, <code>Pad</code> and <code>Padha</code>),
Learn the grammatical rules such as -2		Other grammar rules).
subject, predicate, verb and agent.		
habling students to gain knowledge of how to		 Know the types of hamza.
formulate sentences and what they consist of	alizing	the relationship between grammatical and
	wri	tten topics in terms of spelling and parsing.
	erentia	ting between the letters Dhad and
		Tha
	rn to w	rite the hamzet all gate' and hamzet
		ai-wasi
	Τe	eaching and learning strategies .9
Use of modern scientific techniques (slide projector)(over	- head).	Use educational discussion - (educational dialogue) which depends on exchanging ideas to reach the facts.

Group memo to involve all students in the	
class activity.	

Course structure .10

Evaluation method	Teaching method	Name of the unit or topic	Required learning outcomes	Watches	The week
Oral	Discussion	The concept of linguistic errors	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	1
Oral	Discussion	Rules for writing the closed and open taa	Meeting with students and giving educational and teaching guidance	1	2
Oral	Discussion	Extended and shortened alif	Give them the vocabulary of the subject	1	3
Oral	Discussion	Solar and lunar letters	Meeting with students and giving educational and teaching guidance	1	4
Oral	Assignments		Activities and duties	1	5
Oral	Assignments and applications at the end of each stage.	Writing the hamza	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	6
Oral	Assignments and applications at the end of each stage.	punctuation marks	Meeting with students and giving educational and teaching guidance	1	7

			Give them the		
			vocabulary of the subject		
Editorial	First semester exam		First semester exam	1	8
Oral	Assignments and applications at the end of each stage.	Noun and verb	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	9
Oral	Assignments and applications at the end of each stage.	Effects	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	10
Oral	Assignments and applications at the end of each stage.	Effects	Continuation of the previous lecture	1	11
Oral	Assignments and applications at the end of each stage.	preparation	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	12
Oral	Assignments and applications at the end of each stage.	Common Language Mistakes Applications	Meeting with students and giving educational and teaching guidance	1	13

			Give them the vocabulary of the subject		
Oral	Assignments and applications at the end of each stage.	Meanings of prepositions	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	14
Oral	- Assignments, applications and discussions with students.	The base of the differential alif	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	15
Oral	Assignments and applications at the end of each stage.	The rule of Noon and Tanween	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	16
Oral	Assignments and applications at the end of each stage	Administrative discourse language	Meeting with students and giving educational and teaching guidance Give them the vocabulary of the subject	1	17
Editorial		Second semester exam	Second semester exam	1	18
Oral	- Discussions with students and paper testing.	Types of effects	Continuation of the previous lecture	1	19

1. Course Evaluation	Course Evaluation				
-to encourage Students on Dealing with Materials Educational Different in a light skills Artistic And technology suitable.					
2. Learning and teaching resources					
-Sufficient grammar - Basics of Arabic Language -Spelling rules	Required textbooks (methodology if any)				
- Brief in Arabic	Main References (Sources)				
- Explanation of Ibn Aqil	Recommended supporting books and references (scientific				
Various websites	Electronic references, websites				
نموذج وصف المقرر



9- Name: Wasfi Kanaan Nasr al-Din al-Obaidi Email : <u>Wasfi.k.nasruldeen@tu.edu.iq</u>

1-Course o	bjectives
	The decision:
	The general goal of this course is for the student to know the concept of
	crime
	The student should know the characteristics on which the ideas of the
	Baathist Party are based
	1- That the student knows the crime and its concept
	2- That the student knows the types of crime in the United Nations and its
	divisions
	3- That the student knows the concept of the Baath Party, its mentality, its
	meaning and its reality
	4- The student must conclude that what the party did during its rule was
	tantamount to dictatorship, oppression, and injustice
	5- Developing the student's intellectual culture about each party
	- The student must know what the party's relationship with the people was,
	its dealings, and its style
	7- The student must know that one of the reasons for the occupation of Iraq
	and the deterioration of the security situation is the result of the wrong
	policies of the party
	8- The student must be aware that injustice and corruption have a dire and
	unsatisfactory end

9- The student must know that the results of the party during its rule were starvation, war, injustice, mass graves, and the confinement of the idea of a civil state.

1-Teaching and learning strategies

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Teaching and learning methods	Strategy
Theoretical lectures include the curriculum	
scheduled for this stage at a rate of 1 hour per week.	
And using various educational methods.	
Using various teaching methods, including	
discussion, dialogue, and cooperative education, to	
enhance students' confidence.	
Explanation and direct delivery using the necessary	
means to convey the idea	

1-Course structure

Evaluation	Learni	Name of the unit or topic	Required learning	W	week
method	ng		outcomes	a	
	method			t	
				c	
				h	

				e s	
Daily exams and student participation in the lecture. oral exam Daily exams and student	Cooper ative learnin g and discuss ion Lecture and ask questio	-The concept of crime - types of crime -Sections of crime and types of international crimes - decisions Issued by the criminal court -Daily exam - the United Nations concept of crime	 -1 The student can explain the difference between the actions of the party and the actions of the party's figures 2- The student can explain the basis on which the party was built -3 The student can explain the meaning of the party in 	222	1-2 3-4 5-6
participation in the lecture. oral exam Daily exams and student participation in the lecture. oral exam	ns	-Monthly exam - the most prominent phenomena, one of which is the party -Daily Exam - Party Violations of Human Rights -Decisions and violations of the party	general and the Baath Party in particular -4 The student can explain the internal and external relationship of the party 5-The student can know the crime, its sections and types 6 To know the party's goals	222	7-8 9.10
Daily exams and student		- the results of the zero uprising	and components and what it is based on -7 The student can explain the meaning of the party in	2	13-14

participation	Places of the party's prisons -	general and the Baath Party		
in the lecture.	environmental crimes of the Baath	in particular		
oral exam	Party			
	The dangers of using internationally	8- The student can explain	2	15-16
Daily exams	prohibited weapons - a daily exam	the meaning of the party in		
and student		general and the Baath Party		
		in particular	2	
participation	Effects of the chemical attack on	-9 The student can explain		17-18
in the lecture.	Halabja and Basra - daily exam	the meaning of the party in		
oral exam		general and the Baath Party		
		in particular		
	The most important evidence of the	-10 The student can explain	2	19-20
Daily exams	scorched earth policy - a monthly	the internal and external		
and student	exam	relationship of the party		
participation	-The most important effects resulting		2	21-22
in the lecture.	from dredging - the effects of drying			
oral exam	up the marshes			
	-Ymoi exam - the events of the		2	23-24
	party's mass graves			
	-Events extending from 1967-2003 -		2	25-26
	the events of the genocide cemeteries			

Daily exam-report	2	27-28
Locations of graves for Anfal and Intifada - a monthly examination	2	29-30

1-Course evaluation

To ask questions about educational topics for discussion by students in classes, ask questions for the student to solve.

Practical classes have daily quick exams with intellectual questions. And reports are

customized

General and qualifying skills (other skills related to employability and personal development).

Follow up on external sources

Preparing questions from relevant sources and following the method of class discussions

Urging students to follow organizations, especially the Human Rights Organization

The evaluation method is annual

1- Monthly exam 30%

2-Daily exam 5%

3-Activity, participation and attendance 10%

4-Report 5%

5- Final exam 50%

Learning and teaching resources	
Methodical book	Required textbooks (methodology, if any)
nothing	Main references (sources)
nothing	Recommended supporting books and references (scientific journals, reports, the United Nations, human rights organizations)
nothing	Electronic references, Internet sites

- 1. Course Name: Astronmy 2. Course Code: **SSP052** 3. Semester / Year: Annual **4.** Description Preparation Date: 2024-2025 5. Available Attendance Forms: Attendance 6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours / 4 unit 7. Course administrator's name (mention all, if more than one name) Name: Dr. Zainab Sameen Ali Email: zainabsali@tu.edu.iq 8. Course Objectives Study some basic concepts related to astrophysics, including: • Giving an introduction to astrophysics, the celestial sphere and its parts, identifying the most important parts of the celestial sphere in addition to astronomical coordinates and astronomical units of measurement. • Identifying the constellations that appear in the sky according to the four Course
 - Objectives astronomical seasons.
 Identifying the zodiac region, the zodiac circle, and the celestial signs and the difference between them and the rest of the constellations.
 Identifying astronomical phenomena and identifying the phenomena of precession and swaying related to the Earth's axis.

• Studying the physical properties of the sun, identifying its layers and identifying
the phenomena occurring on its surface.
 Addressing some theories related to studying the movement of celestial bod
around the sun (Kepler's laws)
• Studying the physical properties of the moon and identifying methods
measuring the moon's distance from the earth.
 Identifying the orbital and axial movements of the moon
• Identifying the phenomena of eclipses and solar eclipses, their types and
reason for their occurrence, in addition to the difference between them.
• Study the solar system including the sun, planets, satellites, celestial bod
and cosmic bodies including asteroids, meteors, meteorites and comets.
• Identify the physical properties of stars (magnitudes, luminosity, radii, ag
etc.)
 Identify the types of binary and multiple stars and study galaxies

9. Teaching and Learning Strategies				
Strategy	Lecture, dialogue, discussion, and giving examples.			

10. Course Structure								
Week	Houro	Required Learning	Unit or subject	Learning	Evaluation			
WEEN	Hours	Outcomes	name	method	method			
1-4	8	Study the celestial sphere, including celestial bodies, systems for determining the location of celestial bodies, defining constellations, knowing the constellations, learning about astronomical units of measurement, and the movements of the Earth's axis.	Chapter One / General Introduction to Astronomy	Lecture and discussion	Daily exams and homework in addition to monthly exams			

5-10	12	Study the physical properties of the sun, learning about its layers, learning about the phenomena occurring on the surface of the sun, studying the physical properties of the moon, learning about methods of measuring the distance of the moon from the earth, and then learning about the orbital and axial movements of the moon, the phenomena of eclipses and their types, and their types, and their types, and	Chapter Two / The Sun and the Moon	Lecture and discussion	Daily exams and homework in addition to monthly exams
11-16	12	Study the solar system, including the sun, planets, satellites, celestial bodies, and cosmic bodies, including asteroids,	Chapter Three / The Solar System	Lecture and discussion	Daily exams and homework in addition to monthly exams

		meteors, meteorites, and comets			
17-22	12	Study the physical properties of stars (their apparent and absolute magnitudes, their luminosity, their radii, their ages,) and the relationship between the mass of stars and their luminosity.	Chapter Four / Physical Properties of Stars	Lecture and discussion	Daily exams and homework in addition to monthly exams
23-25	6	Study the types of binary and multiple stars.	Chapter Five / Stellar Systems and Variables	Lecture and discussion	Daily exams and homework in addition to monthly exams
26-28	6	Study the types of galaxies, the stellar population in the galaxy, and star clusters.	Chapter Six / Galaxies	Lecture and discussion	Daily exams and homework in addition to monthly exams
29-30	4	-	Review	-	Daily exams and homework in addition to monthly exams

11. Course Evaluation

Distributing the score out of 50 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources								
Required textbooks (curricular books, if any)	Dr.	Hamid	Majul	Al-Naimi	and			
	Fayy	vadh Al-l	Najm. A	tmospheric	and			
	Spac	e Physic	s (Part (One) Astron	omy,			

	Iraqi Ministry of Higher Education and Scientific Research. 1981.
Main references (sources)	Hamid Majul Al-Naimi and Fayyadh Al-Najm. Atmospheric and Space Physics (Part One) Astronomy, Iraqi Ministry of Higher Education and Scientific Research, 1981
Recommended books and references (scientific journals, reports)	Astronomy Michael Youssef Slawans
Electronic References, Websites	Educational Physics Websites
13. Curriculum Development Plan	

The increasing use of information technology, the extraction of reliable electronic books, and the updating of vocabulary and curricula to ensure keeping pace with the great development in astronomy and continuing to read reliable research published in high-level reliable journals, which ensures the development of teaching ability.

0

1. Course Name:

English Language/Second Stage

2. Course Code:

3. Semester / Year:

Year

4. Description Preparation Date:

2024-2025

- 5. Available Attendance Forms:
 - Presence
- 6. Number of Credit Hours (Total) / Number of Units (Total)30 Hours/ 2 units each hour.

7. Course administrator's name (mention all, if more than one name) Name: Maali Sattar Namuq Email: maaly.a.namuq@tu.edu.iq

8. Course Objectives

Course Objectives	The aim of this course is to introduce the student
	to the importance of the scientific subject
	-Describe all aspects of language teaching,
	including reading, writing, listening, and
	speaking
	-Empowering the student to rely on himself in
	applying the scientific material in his academic
	life.

9. Teaching and Learning Strategies

Strategy	1- Lecture method and use of the interactive whiteboard
	2-Explanation and clarification
	3- Providing students with the basics and additional topics
	Related to thinking outcomes.
	4- Asking the students questions and forming discussion groups
	during lectures to discuss the solution to the questions posed to them.
	5- Giving homework to students.

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
30 weeks	Each hour weekly		 1-2-the tense system: Present and past simple And continuous 3-Reading:people, the great communicator's -the many ways communicates 4-5-thetense system: present and past Perfect, passive and Active 6-linking words: but, However 7-Question and negative 8-Quantity: much and many 9-Expressions of Quantity: A few and a little 10-Future forms 11-Vocabulary: hot verbs, take and put 12-Informal letters 13-Comparative and Superlative adjective 14- Hypothesizing: spoken 	Presence Diction Direct And the means Illustrations With Electronic Program (Class -room)	Oral Questions Daily exams Homework Monthly Exams Final exam

	16- Review	
	17- First exam	
	18-Determiners	
	19-Writing letters, Biography and e-mails	
	20-Adverbs	
	21-Exclamations	
	22-Indirect questions	
	23-Time expressions	
	24-Agreeing and Disagreeing	
	25-Review	
	26- Time expressions	
	27-Adescription	
	29- second exam	
	30-Review	
11 Course Evolution		

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

Asking questions about topics that can be discussed by students in class and asking questions that the student can solve.

Classes have daily exams and intellectual questions.

Preparing external questions from supporting sources and following up on the method of class discussions.

New Headway:
Pre-Intermediate students English Languag
_

Main references (sources)	English Grammar in Use
Recommended books and references (scientific journals, reports)	Any book that deals with the basics of the English language
Electronic References, Websites	

1. Cou	1. Course Name:						
Electroma	Electromagnatic II						
2. Cou	ırse Code						
ELP032							
3. Sen	nester / Y	'ear: Year					
year							
4. Des	cription	Preparation	Date:				
2025							
5. Ava	ailable Att	endance For	rms:				
Clas	SS	41 77		1 011 (77 1	<u> </u>		
6. Nur	nber of C	redit Hours ((Total) / N	umber of Units (Total)		
2/	5						
7. Cou	urse adm	inistrator's	name (me	ention all, if more that	an one name)		
Nar	ne: Nihad	l Ali Shafeel	ζ	,	, , , , , , , , , , , , , , , , , , , ,		
Ema	ail: <u>nihad</u>	shafeek201	<u>6@tu.edu</u>	.iq			
8. Col	irse Objec	ctives					
Course Obje	ectives	Encourage	students to o	complete the course plan			
		Commitmen	it to academ	ic vocabulary as a curric	ulum within a time-bou		
		study plan					
		Updating vo	ocabulary by	teaching staff for at least	15% annually		
		•					
		•					
9. Tea	ching and	I Learning S	trategies				
Strategy							
10 Cours	se Structu	re					
Week	Houre	Required	Unit or	Learning method	Evaluation method		
WEEK	nouis	Leerning	outiest	Learning method			
		Outcomes	name				
15	2		5	Examination	Discussion		

11. Cou	ırse Evalu	ation		I			
Through pe presenting Distributin preparation	eriodic visi and discus g the score n, daily ora	ts by other p sing the topic out of 100 ac l, monthly, or	rofessors t cording to t written exa	o the speci he tasks as ams, report	alized teache signed to the s etc	r and the method of student such as daily	
12. Learning and Teaching Resources							
Required te	xtbooks (cu	rricular books	, if ar				
Main refere	Main references (sources)						
Recommended books and references							
(scientific jo	urnals, repo	orts…)					
Electronic R	References,	Websites					

			Mation				
Course Name: Sound and wave Motion							
Course	Code:						
WMP04	42						
G							
Annual	er / Year: (2024-20	125)					
2.	Descri	ption Preparation Date:					
1/9/202	.4	• •					
Availab	ole Attend	lance Forms:					
3.	-						
	In-p	erson					
4.	Numbe	er of Credit Hours (Total) / Number of V	Units (Total)			
	ZHOUT	s/4unit					
5.	Course	e administrouator's name	(mention all, it	f more than one name)			
	Name:	Reham.Z.Hadi					
	Email:	reham.z.hadi@tu.edu.iq					
6.	Course	e Objectives					
Course O	Objectives						
				- The general ob	pjective of this c	ourse is to	
help students understand the basic concepts					sic concepts of		
				sound and wave	motion and to	gain the skill	
				of practical appl	lications and con	nducting	
				experiments:			
				The student can	identify sound,	continuity,	
				elasticity, and in	nertia.		
				The student can	also explain the	e physical	
				meaning of sour	also explain in	^y physical	
7.	Teachi	ng and Learning Strategi	ies	incaning of sour	iu		
Strategy		Course (utcomes Teac	hing Learning and Evalue	ation Mathods The mach	panism for applying the	
Strategy		of physic	s theoretically	to the scientific material and	nd ways to understand the	iem:	
A- Cognitive objectives							
The student can explain the physical meaning of sound.							
The student can explain the psychological meaning of sound.							
The student can show the occurrence of sound.							
The student can mention the basic conditions for the occurrence and propagation of sound.							
Week	Hours	Required Learning	Unit or subjec	t name	Learning method	Evaluation method	
1		Outcomes	Bas	sic concepts What is wave			
	2		mo	tion and its types Means o			
2	2		ene	rgy transmission	lecture		

		Explanation and direct delivery using the	Basic properties of the occurrence and transmission of waves,	Exams homework
	2	necessary means to cor the idea.	mechanical wave motion	preparation
3	2	Conducting experime	Transmission of wave motion and wave motion models	
4			Sound waves and types of wave motion	
5	2		Vibration theory, vibrational motion	
6			Simple harmonic motion and solving the equation of simple harmonic motion	
7	2		Synthesis of simple harmonic motion,	
8			composition rule	
9			same direction Lisogo figures	
10	2		Representation of the harmonic motion the rotation vector	
11			Damaged vibration, forces causing the decaying vibration	
12	2		Simple harmonic motion equation for t decaying vibration	
13	2		Solving the equation of simple harmon	
15	=		Forced vibration	
14	=		Equation of motion for the decaying	
15	=		Importance of transient and forced	
16	=		vibrations, vibration amplitude	
			Resonance	
17			Longitudinal waves in one dimension, transverse waves in one dimension	
18	2		Equation Transverse wave,	
19			Equation of transverse waves in one dimension	
20	2		Long wave in a metal rod, natural frequency of a metal rod fixed at two er	
21	2		Longitudinal waves in a fluid column	
22			Equation of motion for a metal rod fixe one end	
23	2		Equation of wave motion in two dimensions, solving the wave equation two dimensions	
24	2			
25	2		Natural vibrations of finite membranes	
26	2		Long wave in a filetai	

27 28 29 30	2 2 2 2	Reso Appl Revi Revi	hator, types of resonators cation of wave motuon evw ew				
9. Distrib	9. Course Evaluation Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams,						
10.	Learning	and Teaching Resources					
Requir	ed textbook	s (curricular books, if any)	The curriculum book and auxiliary books				
Main references (sources)			Book (Physics of Sound and Wave Motion) by Dr. Amjad Abdul Ra Karajiya				
Recommended books and references (scientific journals, reports)			ls, Using the library and the information network to obtain s information and student abilities				
Electro	onic Referen	nces, Websites	Scientific encyclopedias				

1. Course Name:

Optics (Practical)

2. Course Code:

OPP012

3. Semester / Year:

Year

4. Description Preparation Date:

2024 - 2025

5. Available Attendance Forms:

My presence

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

60 hours/ (7) units with theory

- 7. Course administrator's name (mention all, if more than one name) Name: Robak Aziz Rasheed Email: Rupak.A.Rasheed@tu.edu.iq
- 8. Course Objectives

The general objective of this course is to help students understand the basic

concepts of optics and to acquire the skill of practical applications,

conducting experiments, and knowing the nature of light, the phenomena of

interference, diffraction, reflection, refraction, and polarization of light.

- 9. Teaching and Learning Strategies
- 1- Lecture method and use of interactive board
- 2- Explanation and clarification

3- Providing students with the basics and additional topics related to thinking

outcomes

4- Directing questions to students and forming discussion groups during lectures to

discuss solving thinking and analysis problems

5- Assigning students to prepare reports related to the course Applying theoretical

concepts in various physical problems

10. C	ourse S Hours	tructure Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method				
30	60	Assigning students to prepare reports related to the course Application of theoretical concepts in various physical problems	 1- Identifying the bright and dark fringes of Newton's rings using Newton's rings device 2- Refractive index of glass and water using a microscope 3- Determining the focal length of a convex lens using the graph method 4- Finding the focal length of the mirror using the graph method 5- Verifying the inverse square law in light using a photoelectric cell 6- Finding the slit width using a helium- neon laser 7- Knowing the intensity of polarized light from the analyzer and polarizer through the experiment of Malus's law 8- Finding the laser energy and power using a laser power device 9- Finding the 	(In-person) Live presentation and illustrative means	Daily exams and homework to monthly and final exams.				

					1	
			wavelengt	h of mercury		
			light using	a diffraction		
			grating			
			10- Findin	g the optical		
			power of a	a sugar		
			solution			
			11- Verify	ing Snell's		
			law and fin	nding the		
			refractive	index		
11. C	Course	Evaluation				
1- Practi	cal test	S				
2- Theor	etical te	ests				
3- Repor	ts and s	studies				
4- Daily	evams					
i Dany	CAUIIIS					
5- Grade	s specif	ied in weekly re	ports			
12. L	eaming	g and Teaching) Resources	8		
Required	textboo	oks (methodology	if any)			
Main refe	erences	(sources)				
Recomm	ended	supporting bo	oks and			
references (scientific journals, reports)						
Electronic	c referei	nces, Internet site	es			

1. Course Name:

Atomic Physics – Practical

2. Course Code:

ATP023

3. Semester / Year:

Annual

4. Description Preparation Date:

2024-2025

5. Available Attendance Forms:

Attendance

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

60 hours / 1 unit

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

Name: Dr. Zainab Sameen Ali

Email: zainabsali@tu.edu.iq

8. Course Objectives

Course Objectives	The course aims to enable the student to: –

- 1- Understand the laws of radiation
- $2\mathchar`-$ Understand the definition of the visible spectrum
- 3- Understand the photoelectric phenomenon
- 4- Verify the inverse square law
- 5- Understand the X-ray spectrum

9. Teaching and Learning Strategies								
Strategy	Lecture	method,	laboratory	dialogue,	discussion,	and	giving	
ollalogy	examples.							

10. Course Structure						
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation	
		Outcomes	name	method	method	

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	1		1		
1-2	4	Finding the value of Stefan Boltzmann's constant	Stefan–Boltzmann constant law in radiation	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
3-4	4	Calculating the wavelengths of different colors	Study the visible spectrum of the hydrogen atom and find the wavelengths of the Balmer series	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
5-6	4	Calculating the Rydberg constant within the Balmer series	Determination of the Rydberg constant	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
7-8	4	-	Review of experiments and exam 1	-	Daily exams in addition to monthly exams
9-10	4	Determination of Planck's Constant	Photoelectric emission	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
11-12	4	Calculation of the grating constant by spectroscopy	Finding the diffraction grating constant using a cadmium source	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
13-14	4	Calculation of the slope of the inverse square law	Verification of the inverse square law of a light source	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
15-16	4	-	Review of experiments and exam 2	-	Daily exams in addition to monthly exams
17-18	4	Knowing the value of the charge of an oil droplet with a statement of the charge quantization	Millikan Oil - drop	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
19-20	4	Calculating the value of the charge using the Schuster method	Finding the specific charge of an electron e/m by Schuster's method	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
21-22	4	Calculating the specific charge	Determination of the specific charge	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
23-24	4	Learn about X-ray spectra	X-ray spectrum	Theoretical lecture with data show	Daily exams in addition

					explanation in the lab	to monthly exams
25-26	4	Calculating tl inter-crystal distance	he	Finding the interatomic distance of Li, NaCl	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
27-28	4	Studying tl attenuation of rays	he X-	X-ray absorption	Theoretical lecture with data show explanation in the lab	Daily exams in addition to monthly exams
29-30	4	-		Review of experiments and exam 3	-	Daily exams in addition to monthly exams

11. Course Evaluation

Distributing the score out of 15 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Concepts in Atomic Physics		
Main references (sources)	Atomic Physics Book, Year Publication 1980		
Recommended books and references (scientific journals, reports)	-		
Electronic References, Websites	General Physics Websites		

13. Curriculum Development Plan

- Applying some modern teaching strategies.
- Benefiting from the latest scientific research results for atomic applications in physics.
- Using modern technology and scientific reports through explanatory videos to consolidate the scientific material in a visual manner.

1. Course Name:

Analytical Mechanics

2. Course Code:

AM P043

3. Semester / Year:

Annual

4. Description Preparation Date:

2024-2025

5. Available Attendance Forms:

Attendance

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

90 hours / 6 unit

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

Name: Dr. Zainab Sameen Ali

Email: zainabsali@tu.edu.iq

8. Course Objectives

	1. Introducing the student to the importance of the scientific material for the
	course
Course	2. Describing all the movements in direction and the mechanism for applying
Objectives	them.
	3. Enabling the student to rely on himself in the mechanism for applying the
	scientific material in solving all problems.

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9. Teaching and Learning Strategies

Strategy Lecture, dialogue, discussion, and giving examples.

10. Cour	se Stru	cture			
		Required Learning	Unit or subject	Learning	Evaluation
Week	Hours	Outcomes	name	method	method
1)	3	Introducing the student to vectors, their properties and uses	Fundamentals of vector analysis	Lecture and discussion	Daily exams and homework in addition to monthly exams
2)	3	Introducing the student to the numerical and directional multiplication of vectors and its applications	Scalar and directional product of vectors	Lecture and discussion	Daily exams and homework in addition to monthly exams
3)	3	Introducing the student to changing coordinate systems	Vector change	Lecture and discussion	Daily exams and homework in addition to monthly exams
4)	3	Introducing the student to the differentiation of vectors, velocity, and tangential and vertical acceleration	Vector differentiation	Lecture and discussion	Daily exams and homework in addition to monthly exams
5)	3	Introducing the student to the basics of motion in a straight line	Particle dynamics in linear motion	Lecture and discussion	Daily exams and homework in addition to monthly exams
6)	3	Introducing the student to the applications of linear motion	=	Lecture and discussion	Daily exams and homework in addition to monthly exams
7)	3	Introducing the student to the basics of general motion	Particle dynamics in general motion	Lecture and discussion	Daily exams and homework in addition to monthly exams

		Introducing the			Daily exams and
8)	3	student to the applications of general motion and	=	Lecture and discussion	homework in addition to monthly exams
		conservative force			
9)	3	Introducing the student to the motion of projectiles	Projectiles and their motion	Lecture and discussion	Daily exams and homework in addition to monthly exams
10)	3	-	First exam	-	Daily exams and homework in addition to monthly exams
11)	3	Student introduction to central forces and their applications	Central Forces	Lecture and discussion	Daily exams and homework in addition to monthly exams
12)	3	=	=	Lecture and discussion	Daily exams and homework in addition to monthly exams
13)	3	Student introduction to celestial mechanics	Celestial Mechanics	Lecture and discussion	Daily exams and homework in addition to monthly exams
14)	3	Student introduction to Kepler's Law 1	Kepler's Law 1	Lecture and discussion	Daily exams and homework in addition to monthly exams
15)	3	Student introduction to Kepler's Law 2	Kepler's Law 2	Lecture and discussion	Daily exams and homework in addition to monthly exams
16)	3	Student introduction to Kepler's Law 3	Kepler's Law 3	Lecture and discussion	Daily exams and homework in addition to monthly exams
17)	3	Student introduction to the orbit equation	Orbital Equation	Lecture and discussion	Daily exams and homework in addition to monthly exams
18)	3	Student introduction to orbit energy	Orbital Energy	Lecture and discussion	Daily exams and homework in addition to monthly exams

	1	1			
19)	3	Student introduction to its applications	Various Applications	Lecture and discussion	Daily exams and homework in addition to monthly exams
20)	3	-	Second exam	-	Daily exams and homework in addition to monthly exams
21)	3	Student introduction to the dynamics of a group of particles	Dynamics of a group of particles	Lecture and discussion	Daily exams and homework in addition to monthly exams
22)	3	Student introduction to the center of mass, linear and angular momentum	With center of mass, linear and angular momentum	Lecture and discussion	Daily exams and homework in addition to monthly exams
23)	3	Student introduction to potential and kinetic energy and collision	Potential and kinetic energy and collision	Lecture and discussion	Daily exams and homework in addition to monthly exams
24)	3	Student introduction to Lagrange's equations of motion	Lacrange's equations of motion	Lecture and discussion	Daily exams and homework in addition to monthly exams
25)	3	Student introduction to generalized forces	Generalized coordinates and forces	Lecture and discussion	Daily exams and homework in addition to monthly exams
26)	3	Student introduction to some applications of Lagrange's equations of motion	Various applications	Lecture and discussion	Daily exams and homework in addition to monthly exams
27)	3	Student introduction to Hamilton's	With Hamilton's equations of motion	Lecture and discussion	Daily exams and homework in addition to monthly exams

		equations of motion			
28)	3	Student introduction to some applications of Hamilton's equations of motion	Various applications	Lecture and discussion	Daily exams and homework in addition to monthly exams
29)	3	Various comprehensive applications	Various comprehensive applications	Lecture and discussion	Daily exams and homework in addition to monthly exams
30)	3	-	Third exam	Lecture and discussion	Daily exams and homework in addition to monthly exams

11. Course Evaluation

Distributing the score out of 50 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)	Analytical mechanics: by Dr. Grant R. Fowles Translated by Dr. Talib Nahi Al-Khafaji Year of publication 1989				
Main references (sources)	Analytical mechanics BY GRANT R. FOWLES				
Recommended books and references (scientific journals, reports)	Any book that deals with the basics of analytical mechanics and its applications				
Electronic References, Websites	Any website that deals with analytical mechanics				

13. Curriculum Development Plan

- Familiarity with all that is new and innovative in teaching and learning strategies.
- Benefit from the latest scientific research results for applications of analytical mechanics in physics.
- Apply some modern teaching strategies

1. C	ours	se N	Jame:				
Comple	Complex functions						
2. C	2. Course Code:						
	2. Gourde Gouer						
3. S	3. Semester / Year:						
2024-2	2024-2025						
4. D	4. Description Preparation Date:						
6-4-20	24						
5. A	vaila	abl	e Attendance Forms	5:			
C	lassi	00	m and Google class	room			
6. N	lumb	er	of Credit Hours (To	otal) / Nu	mber of Uni	ts (Total)	
(6	50 hc	our	per year) / Number	of Units	(4 units)		
7. C	Cours	se	administrator's na	me (mei	ntion all, if	more than on	e name)
N	lame	e: Il	orahim S. Ahmed				
E	mail	:ił	orahim1992@tu.ed	lu.iq			
		. (
8. C	8. Course Objectives						
Course O	bject	ives	;		Qualifying a	and training the p prepare	student to
					Complex fu	nctions, complex	x functions
					and their pu	coperties, and co	mplex
					Series, phys	ical applications	s, and the use
					of functions	to serve other a	cademic
οτ	aaab	line	and Loorning Strat	togiog	subjects.		
9. 1	eaci	μιίξ	and Learning Stra	legies			
Strategy		Gi	ving lectures				
		Us	e method books				
		Fe	edback at lecture time	e			
	Collaboration and feedback series						
10. Cou	urse	Str	ructure				
Week	Hour	s	Required Learning	Unit or s	subject	Learning	Evaluation
			Outcomes	name		method	method
1-5	10		Gain knowledge in Complex numbersIntroduction, complex numberExplanation by using the boardQuick test 				

		And its properties	, algebraic attributes, absolute value, Geometric representation of complex numbers, coordinates Polarity				
6-10	10	Gain knowledge in	complex variable				
0 10		Complex numbers	functions,	=	=		
		And its properties	limits, continuity, derivative, analytic functions, harmonic functions				
11-15	10	Gain knowledge in	Exponential function,				
	_ •	Complex numbers	logarithmic function,	=	=		
		And its properties	Trigonometric				
			functions and their				
			inverse				
			Hyperbolic				
			trigonometric				
			functions and their				
			inverses				
16-20	10	Gain knowledge in	Indefinite integral and				
		Complex numbers	Cauchy's theorem	=	=		
		And its properties					
21-25	10	Gain knowledge in	Sequences and Series in complex plane				
		Complex numbers	complex plane				
		And its properties					
26-30	10	Gain knowledge in	Applications of complex functions				
		Complex numbers	runetions	=	=		
And its properties							
11. Course Evaluation							
Distributing the score out of 100 according to the tasks assigned to the student such as							
daily preparation, dailyoral, monthly, or written exams, reports etc (50) and (50) final exam.							

12. Learning and Teaching Resources						
Required textbooks (curricular books, if any)	الدوال المعقدة للصف الثالث فيزياء في كليات التربية					
	سمير بشير حديد					
Main references (sources)	Complex analysis with applications, Asmar, Nakhlé H Grafakos, Loukas - Grafakos L., Springer 2018					
Recommended books and references						
(scientific journals, reports)						
Electronic References, Websites						

	1. Course Name:						
Thermod	Thermodynamic						
	2. Course Code:						
THP033							
3. Sen	nester / Y	ear: Year					
year							
4. Des	cription	Preparation	Date:				
2025							
5. Ava	ailable Att	endance For	rms:				
Cla	SS						
6. Nui	nber of C	redit Hours	(Total) / N	umber of Units (Total)		
3 /	5						
7 00	ireo adm	inistrator'a	namo (m	antion all if more the			
7. CO	ne Nihac	Ali Shafeel					
Em	ail: nihad	shafeek201	6@tu.edu	.ia			
8. Cou	irse Objeo	ctives					
Course Obje	ectives	Encourage	students to o	complete the course plan			
		Commitmen	it to academ	ic vocabulary as a curric	ulum within a time-bo		
		study plan					
		Updating vo	ocabulary by	teaching staff for at least	15% annually		
		•					
		•	•••••				
9. Tea	ching and	Learning S	trategies				
Strategy			-				
10. Course Structure							
Week	Hours	Required	Unit or	Learning method	Evaluation method		
Learning subject							
Outcomes name							
15	3		5	Examination	Discussion		
	5			2	2 1000001011		

11. Cou	ırse Evalu	ation	<u> </u>	I		<u> </u>	
Through pe presenting Distributin preparation	Through periodic visits by other professors to the specialized teacher and the method of presenting and discussing the topic Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation daily oral monthly or written exams reports etc						
12. Lea	rning and	Teaching R	lesources				
Required te	xtbooks (cu	rricular books	, if ar				
Main refere	Main references (sources)						
Recommend	Recommended books and references						
(scientific journals, reports)							
Electronic References, Websites							
Course Description Form

- 1. Course Name: Electronic
- 2. Course Code:
- 3. Semester / Year:2025/2024
- 4. Description Preparation Date:
- 5. Available Attendance Forms:
- 6. Number of Credit Hours (Total) / Number of Units (Total)
- 7. Course administrator's name (mention all, if more than one name) Name: dheyab thair noori Email: theya.bthair.tuz@tu.edu.iq
- 8. Course Objectives
 - The student should know the classification of materials according to their electrical properties: conductive, insulating and semiconducting
 The student should know the scientific basis for the work and manufacture of semiconducting materials.
 - The student should know the factors affecting the determination of the basic properties of semiconducting materials.
 - The student should know the factors affecting the determination of any practical application based on semiconducting materials.
- 9. Teaching and Learning Strategies

Strategy		Lecture, discus	sion, reports and	problem solv	ing	
10. Course Structure						
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation	
		Outcomes	name	method	method	
1	3					
		Chapter 1 1				
		Circuit				
2	3	Electrical 2				
		Electric Voltage				
		Electric Current				
		and Conductors				
3	3	Solved Examples				
		Chapter 2				
		Introduction				
		Energy Packs				
4	3	Crystals				
		Conductors.				
		Insulators and				
		Semiconductors				
		Pure				
5	3	Semiconductors				
		Impurity				
		Semiconductors				
		Chapter 3				
6	3	Crystalline				
		Binary				
		Binary Junction				
		Depletion				
7	3	Region				
		The barrier				
		voltage is				
8	3	negative and				
		positive in				
		steady state				
9	3	The power				
		diagram of the				
		iunction				
10	3	The barrier				
		voltage				
		calculation				

			1	1
11	3	The junction		
		under external		
		influence		
		Forward and		
12	3	reverse bias		
		Diode circuit		
		analysis		
		Zener diode		
13	3	Tunnel diode		
		Solar cell		
		Commitment		
		circuits		
14	3	Limiting circuits		
		Uses of diode		
		Rectification		
15	3	Half-wave		
		rectification		
		circuit		
		Full-wave		
16	3	rectification		
		circuit		
		Rectification		
17	3	bridge		
		Rinnle factor		
		Efficiency factor		
		Filter circuits		
18	3	Voltage		
		multiplier circuit		
		Voltage		
		regulator circuit		
19	3	Introduction to		
		transistor		
		Binolar		
		transistor		
20	3	Transistor		
		operation		
		Transistor		
		currents		
		Transistor		
21	3	voltages		
		Working areas		
		Transistor		
22	3	11011515101		

		1		
1		Conditions of		
		operation		
23	3	Methods of		
		connection		
		circuits		
		Load line		
24	3	Field effect		
		transistor		
		Its structure		
		How it works		
		and its		
25	3	conditions		
		Field effect		
		transistor		
26	3	working areas		
		Methods of		
		connection		
27	3	circuits		
		Load line		
		Properties and		
28	3	parameters		
		Transistor with		
		problems		
		Using the		
		transistor		
29	3	As an amplifier		
		and as a switch		
		Self-bias circuit		
		For field effect		
20	2	transistor		
30	3	Depletion		
		transistor		
		Its structure and		
		operation		
		Improved type		
		transistor and		
		its structure, use		
		and operation		
		Metal oxi		
		field eff		
		transistor		
		amplifier		
		*		

11. (11. Course Evaluation							
Distribu prepara	Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc							
12. I	12. Learning and Teaching Resources							
Require	d textboo	ks (curricular boc	oks, if a	any)				
Main ref	erences	(sources)			Electr	onics by Dr. S	obhi Al-Rawi	
Recomm	nended	books and	refer	ences				
(scientif	c journal	s, reports)						
Electron	ic Refere	nces, Websites						

Dheyab thair noori

Course Description Form for Atomic and Molecular Material in English

1. Course Name:

Atomic and Molecular Physics

2. Course Code:

ATP023

3. Semester/ Year: Annual

2024-2025

4. Date of preparation of this description

10/9/2024

5. Available Attendance Forms:

Physical attendance of all students until download cases

6. Number of credit hours (total) / number of units (total):

90 hours

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

Name: M.M, Abdullah Zahim Nouri

Email: <u>Abdullah.zahem.tuz.@tu.edu.iq</u>

8. Course Objectives

1- Qualifying students theoretically and practically They enable them to

continue their higher studies on the one hand and play a distinguished

role in research. -Qualifying students theoretically and practically and

working in scientific and industrial facilities.

2- The importance of atomic physics lies in the fact that it has entered

into all fields such as (X-rays, sonar, mafras, detection of cancerous

tumors, magnetic resonance and others)(.

3- The student learned the most important concepts and basic principles of the theory of special and general relativity, as well as atomic models, finding the radii of orbitals, the principle of exclusion for Pauli and Hund's rule, as well as X-rays.

9. Teaching and learning strategies

- Is Strategy Home which Will Adopted in Introducing This one Unit in encouragement Share Students in Exercises Loyal Same time amelioration and expand Capacity And reach:
- 1- Enable students to acquire knowledge and understanding of modern physics .
- 2- Enable students to acquire knowledge and understanding of private and general relativity .

• 3- Enable students to acquire knowledge and understanding of the equations of finding the radii of orbits as well as finding energy for atom planes..

•	4- Enable students to acquire knowledge and understanding of
	electronic distribution within the atom

10. Cou	10. Course Structure								
The wee k	Hour s	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method				
1	3	Enable	Introduction to	Blackboar	Daily				
		students to	the nature of	d and Data	exams				
		know how to	light, the first	Shaw	and				
		speed of light	measuring the		and				
		through	speed of light		homewor				
		experiments	the experiment		k in				
			of Michaelsen		addition				
			and Morley		to daily				
					exams				
		Enable	Definitions	Blackboar					
		students to	(special theory	d and Data					
		know Galileo's	of relativity, its	Shaw					
		transformation	hypotheses,						
		s and the	general theory						
		theory of	of relativity,						
2	3	special and	axes of						
		general	attribution						
		relativity	(inertial						
			references),						
			Galileo						
			transformations						
		5 11	•	51 11					
		Enable	Lawrence	Blackboar					
		students to	transforms,	d and Data					
3	3	know	reciprocal	Shaw					
		Lawrence	Lawrence						
		transforms and	transforms,						
		the reciprocal	velocity						

		of Lawrence	summation		
		transformation s			
		Enable	Relativity of	Blackboar	
		students to	masses,	d and Data	
		know and	suspended	Shaw	
		determine the	mass with		
		relative mass,	energy, relative		
Δ	3	relative	force, relative		
4	5	momentum	momentum,		
		and the	suspended		
		relationship	between energy		
		between	and momentum		
		energy and	of a relative		
		mass	particle.		
		Enable	Mass and	Blackboar	
		students to	energy in other	d and Data	
		determine	words	Shaw	
		mass and	Momentum -		
5	3	energy in	Energy - Mass		
		another way	- Force		
			Transformation		
			s - Solved		
			Problems		
		Enable	A brief history	Blackboar	
		students to	of the	d and Data	
		know the	development of	Shaw	
6	3	development	the idea of the		
U		of the idea of	atom, atomic		
		the atom and	models, the		
		atomic models	stability of the		
			atom		
		Enable	Bohr model,	Blackboar	
		students to	finding the	d and Data	
		identify the	radii of orbits	Shaw	
7	3	Bohr model,	and also		
		orbital radii,	finding energy		
		and energy	levels		
		levels			
8	3	examination	examination		

		_			
		Enable	The deficit of	Blackboar	
		students to	Bohr's theorem,	d and Data	
		know the	the principle of	Shaw	
		deficit and	congruence or		
9	3	defects of	symmetry in		
		Bohr's theory	the Bohr		
			model, the		
			disadvantages		
			of this model		
		Enable	Electronic	Blackboar	
		students to	Configuration	d and Data	
		know the	of the Atom,	Shaw	
		electronic	Approved		
10	2	distribution of	Quantum		
10	5	atoms and	Numbers, Pauli		
		quantitative	Principle and		
		numbers	Hund Rule,		
			Atomic		
			Structure		
		Enable	The Law of	Blackboar	
		students to	Electron	d and Data	
		know the	Distribution of	Shaw	
		difference	Major Orbitals		
		between the	and Secondary		
11	3	law of	Crusts, Atomic		
		electrons in	Spectra		
		orbits and the			
		law of			
		distribution of			
		crusts			
		Enable	Definition of	Blackboar	
		students to	series, types of	d and Data	
12	3	know the types	strings, atomic	Shaw	
14		of atomic	transitions,		
		chains and	picking rule		
		transitions			
		Enable	Autoangular	Blackboar	
13	3	students to	momentum of	d and Data	
13	5	know electron	the electron	Shaw	
		spin, magnetic	(electron spin),		

		moment and	magnetic		
		total angular	moment of		
		momentum	electron spin,		
			total angular		
			momentum,		
			correlation		
			reaction of		
			twist-orbit		
		Enable	Effective	Blackboar	
		students to	magnetic field	d and Data	
		know Zeman's	of orbital	Shaw	
		usual and	electron		
14	3	abnormal	motion, Zeman		
		effect	habitual effect,		
			Zeman		
			anomalous		
			effect		
		Enable	Zeman's	Blackboar	
		students to	abnormal and	d and Data	
15	3	know the	landa-factor	Shaw	
15	5	working landa	effect, solved		
			issues,		
			exercises		
16	3	Second month			
		Enchlo	Dauhla	Dlashbaan	
		Ellable students to	Double property of	d and Data	
		students to	property of	u anu Data	
17	2	spacial duality	waves and	Shaw	
1/	5	of way as and	function		
		or waves and	Dibroguli's		
		particles	hypothesis		
		Enchla	Waya valaaity	Plaathoor	
		students to	and wave relocity	d and Data	
		know the	and wave group	Show	
19	2	speed of the	velocity,	Sllaw	
10	5	speed of the	diffraction		
		wave and the	unifiaction,		
		speed of the	solved		
		The origin of	The origin of	Dialthoor	
19	3	The origin of	The origin of	d and Data	
		quantum	quantum theory	u and Data	

		theory, blackbody radiation and energy distribution in the spectrum of black body	- black body radiation - energy distribution in the black body spectrum - the failure of classical physics to explain energy in the black body spectrum	Shaw	
20	3	Enabling students to know and learn about Stephan's law – Planck- Boltzmann's quantum theory	Planck's quantum theory, Stefan's law, Boltzmann	Blackboar d and Data Shaw	
21	3	Enable students to know and apply photoelectric effect, Compton scattering, pair production	Photoelectric effect, Compton scattering, pair output	Blackboar d and Data Shaw	
22	3	Enabling students to know the physical waves, the principle of inaccuracy of Heisenberg, the principle of encounter to Bohr,	Physical waves, Heisenberg's principle of inaccuracy, Bohr's principle of convergence, solved problems	Blackboar d and Data Shaw	

		Enabling students to know thermal	Thermal ion emission, radiation	Blackboar d and Data Shaw	
23	3	ion emission, radiation conservation	conservation and momentum,		
		and momentum,	momentum of		
		angular	radiation,		
		momentum of	solved		
		Third month	problems		
24	3	exam			
		Enabling	X-ray, X-ray	Blackboar	
		students to	detection	d and Data	
25	3	know the		Shaw	
		detection of X-			
		rays	V nov intersity	Dlastrbase	
		Enable students to	A-ray intensity	d and Data	
		know the	X-ray	u allu Data Shaw	
26	3	measurement	diffraction	Shaw	
20	5	of X-ray	unnaction		
		intensity, X-			
		ray diffraction			
		Enabling	X-ray crystal	Blackboar	
		students to	spectrometry	d and Data	
27	3	know the	X-ray	Shaw	
		crystal	mechanics		
		spectrometer			
		Of X-rays	V more	Dlastrhaar	
		cliable students to	A-Idy	d and Data	
		know the X-	elements	Shaw	
28	3	ray spectrum	solved	Snaw	
		of the	examples.		
		elements	exercises		
		Enable	Uses of X-rays	Blackboar	
20	2	students to	in the medical	d and Data	
29	5	know and	and industrial	Shaw	
		apply the uses	fields		

30	3	of X-rays in the medical and industrial fields Fourth month				
	_	exam	Course Evaluation			
 Semester and final exams. Daily exams and student participation in the discussion lecture. 						
		12. Learning	g and Teaching Resou	irces		
Requir (metho	ed textbo dology, if	oks 'any)	Concepts in Atomic Physics, by Arthur Baiser – Translation : Dr. Abdel Moneim Mashkour Dr. Shaker Jaber Shaker			
Main r	eferences	(sources)	Physics for scientists and engineers - atomic physics - translated by Prof. Dr. Saleh Kamel Al-Bunni			
Recommended books and references (scientific journals, reports)			Modern physics –Auther – Serway , Moses , Moyer			
Electronic References, Websites			The use of sober Internet sites in collecting in the collection of some scientific lectures <u>Whoa</u> , whoa, who <u>Google books</u>			

Course Description Form

	0	
1	I OUICO	namo
	Course	name
	Gouise	manne

Optional (Renewable Energy + Nanotechnology)

2. Course code:

/

3. Semester/Year: Annual

Annual

4. Date this description was prepared

9/16/2024

5. Available attendance forms:

Daily

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

60 hour

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

Name: Haider Mahdi Ahmed

Email:haider.m.ahmed@tu.edu.iq

8. Course objectives

Renewable energy:

- 1- Perception and understanding Principles of Renewable Energy
- 2- Knowledge of renewable energy sources
- **3-** Knowing the types of renewable energy
- 4- Knowing the main sources of non-renewable energy
- 5- Knowledge of traditional energy sources
- 6- Knowing the types of non-renewable energies

Nanotechnology:

This course aims to know the history of nanoscience and technology and the tools used. Takh Blood to deliver Yes Nanomaterials and discussion The consequences of the development missed Tribalism in the fields of science KIt's a disaster The see it growing Community development The focus will be on Khill Basic principles and knowledge to Crisis for students to understand science and technology At the nano level And YT And The decision is of interest Special for methods You And Nanomaterials.

9.	9. Teaching and learning strategies						
		 Explaining the scientific material to students in detail. Student participation in the work. Discussion and dialogue on vocabulary related to the topic 					
10.	С	Course Evaluation					
1.	D	aily tests With questions Multiple choice that requires scientific skills					
2.	Р	articipation scores for competition questions for academic topics					
3.	G	rading homework					
4.	4. Practical tests						
5.	5. Reports and studies						
		*					

			Cours	se structu	ure .11
Evaluat	Learning	Name of the unit	Required learning	Watche	The
ion	method	or topic	outcomes	s	week
metho					
d					
Daily exams And homew ork In additio n to Exams Monthl y	The blackboard What is your data?	Solar energy	Student definition of solar energy	2	1
=	=	Solar Energy Technologies Solar Collectors	Student definition With solar energy technologies Solar collectors	2	2
=	=	Energy uses Solar heating Water	Student definition The most important uses of solar energy	2	3
=	=	Solar cell (photovoltaic)	Student definition for Solar cell	2	4
=	=	Wind energy	Student definition for Wind energy	2	5
=	=	Hydropower	Student definition Hydropower	2	6

=	=	Other sources For energy	Student definition From other sources For energy	2	7
=	=	Biogas	etailed explanation of my stification Vital	2	8
=	=	Diesel Vital	Detailed explanation of Diesel Vital	2	9
=	=	Hydrogen energy	Detailed explanation of Energy Hydrogen	2	10
=	=	Ways Hydrogen production	Introducing the student to the methods of hydrogen production	2	11
=	=	Biomass energy	Student definition of energy Biomass	2	12
=	=	Energy from waste	Introducing the student to how Energy production from waste	2	13
=	=	Cells Fuel	dent definition With fuel cells	2	14
=	=	Applications fuel cells	Introducing the student to applications Fuel cells	2	15

		Nanotechnology concept	Introducing the student to the concept Nanotechnology	2	16
=	=	History of Nanotechnology	Student introduction to history Nanotechnology	2	17
=	=	Nanotechnology Basics	Introducing the student to the basics Nanotechnology	2	18
=	=	Technical Excellence Principles Nano	Introducing the student to the principles Nanotechnology is distinguished	2	19
=	=	Material properties Nanotechnology	Introducing the student to the properties Nanomaterials	2	20
=	=	Material forms Nanotechnology	Introducing the student to the forms Nanomaterials	2	21
=	=	The importance of globalization for nanotechnology And its applications.	Introducing the student to the importance of Global Nanotechnology	2	22
=	=	Explanation and clarification of the most important Nanotechnology applications In physics	Detailed explanation of the most important applications Nanotechnology in physics	2	23
		Explanation and clarification The most Important technical applications	Introducing students to technology applications Nanotechnology in medicine	2	24

		Nanotechnology in medicine			
=	=	Explanation and clarification The most important technical applications Nano in industry	Introducing students to technology applications Nano in industry	2	25
=	=	The role of technology Vitality in medicine	Introducing students to technology applications Nanotechnology in medicine	2	26
=	=	Nanotechnology applications In the field of electronics	Student Definition of Nanotechnology In the field of electronics	2	27
=	=	Nanotechnology applications In pharmacy	Introducing students to technology applications Nano in Pharmacy	2	28
=	=	Nanoscale phenomena, nanoparticles and nanostructured materials	Introducing the student to phenomena and particles and nanomaterials	2	29
=	=	Nanotechnology applications: Current status and prospects the future	Detailed explanation of how Prepare a standard Solution of Liquid substance	2	30

12. Learning and teaching resources			
 Sathyaj the Mathew, 2006, "Wind Energy," "Fundamentals, Resource Analysis and Economics", Springer, Netherlands. What is Nanotechnology (A Brief Introduction in the Form of Simplified Lessons) by Noha Alawi Habashi - 1432 - 2011 Ministry of Culture and Information in the Kingdom of Saudi Arabia Saudi Arabia 	Required textbooks (methodology any)		
http://www.renewableenergyworld.com/index. html	Main References (Sources)		
	Recommended supporting books and		
	references (scientific journals, reports,		
	etc.)		
World organization Renewable energy – Related Websites and news sources <u>http://nano.ksu.edu.sa/ar/nanotech</u>	Electronic references, websites		

Course Description Form for Electronics Lab Course in English

1. Course Name: Electronics Lab 2. Course Code:

ELP013

3. Semester/ Year: Annual

2024-2025

4. Date of preparation of this description

10/9/2024

5. Available Attendance Forms:

Physical attendance of all students until download cases

6. Number of credit hours (total) / number of units (total):

60 hours

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

Name: M.M , Abdullah Zahim Nouri

Email: <u>Abdullah.zahem.tuz.@tu.edu.iq</u>

8. Course Objectives

The general objective of this course is to familiarize the student with the basic laws in

electronic circuits and provide them with the skill of practical applications and

experiments.

- The student should know the electrical and electronic devices, especially the devices used for electrical measurements.
- The student should know how to connect electrical and electronic circuits correctly.
- The student should know how to use the results obtained.
- Teaching the student the methods used in circuit analysis

9. Teaching and learning strategies

1- The student can know an idea about some electronic and electrical laboratory devices.

2- The student can explain and link Ohm's law in electronic circuits.

3- The student can show how to relate the properties of the crystalline diode.

4- The student can show how to connect the half-wave rectifier.

5- The student can show how to connect the full wave rectifier using a midpoint converter.

6- The student can show how to connect a full wave rectifier using four diodes.

7- The student can show how to connect a two-zener circle.

8- The student can show how to link the circle of obligation.

9- The student can show how to connect the transistor circuit as an amplifier in finding the magnification factor of the signal.

10- The student can show how to connect the internal property circuit of a transsur with a common emitter linkage.

11- The student can show how to connect the circuit of external properties of a transistor with a common base link.

10. Course S	Structure				
The week	Hour s	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Give an idea of some laboratory instruments such as resistance, diode, dilator	Laboratory Instruments	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
2	2	Give an idea of some laboratory devices such as Power Supply and wave generator	Laboratory Instruments	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
3	2	Give an idea of some laboratory equipment such as PUR waveplotters, midpoint transformers and experimental board	Laboratory Instruments	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
4	2	Studying the experiment of Ohm's law blindly and taking readings	Ohm's Law Experiment	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
5	2	Study of the bilateral sensors by anterior binding	Study of the properties	My work using the	Evaluate the student by

		method and taking readings for silicon and germanium	of ordinary diopards	devices, the Dacho device and the program Multisim	means of a test in the manner of discussion and the work of a short test QUIZ
6	2	Study of the sensors of the biloid diode by reverse binding method and taking readings for silicon and germanium	Study of the properties of ordinary diopards	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
7	2	Study of the Effect of Temperature on Disilicon	Experiment with the effect of temperatur e on the diode	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
8+9	4	Study of the Experiment of the Half-Wave Rectifier with the Sustainability of a Normal Daewoo	Mid- rectifier experiment	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test OUIZ
10+11	4	Study of the full wave rectifier using a midpoint transformer +amplitude use	Full wave rectifier experience	My work using the devices, the Dacho device and the	Evaluate the student by means of a test in the manner of discussion and the work of

				program Multisim	a short test QUIZ
12+13	4	Study of the full wave rectifier using four diodes + using the filter	Full wave rectifier experience	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
14	2	Study of the Bi-zener experiment and how to stabilize voltages In the front and reverse bias	Experience Dual Zener	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
15	2	Test on how to connect circles correctly	examination	Theoretical and practical	Laboratory tests for all experiments and devices and the use of the graphic method to clarify curves and diagrams on the waveplotter and measuring devices
16+17	4	Study the determination circuits and find the results on the signal plotter and determine the value of the electric potential difference	Experiment with selection circles	My work using the devices, the Dacho device and	Evaluate the student by means of a test in the manner of discussion

				the program Multisim	and the work of a short test QUIZ Daily
18+19	4	Study the determination circuits and find the results on the signal plotter and determine the value of the electric potential difference	Experiment with binding circles	My work using the devices, the Dacho device and the program Multisim	laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
20+21	4	Study of the input properties of the NPN transistor	Experience the NPN Trussistor	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
22+23	4	Study of the output properties of the NPN transistor	Experience the NPN Trussistor	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
24	2	Study of the common emitter CE by fixed bias method	Combined emitter amplifier experience	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
25	2	Study of the common	Combined	My work	Evaluate the

		emitter ce by the method of base resistance	emitter amplifier experience	using the devices, the Dacho device and the program Multisim	student by means of a test in the manner of discussion and the work of a short test QUIZ
26	2	Study of the common emitter CE by backfeed method	Combined emitter amplifier experience	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
27	2	Study of the common emitter CE by voltage divider method	Combined emitter amplifier experience	My work using the devices, the Dacho device and the program Multisim	Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
28	2	Output characteristics of the GFT transistor	GFT Transistor Experience	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
29	2	Study of the Transistor of the effect of the field and the finding of both the incoming and outgoing signal	Experience a field effect transistor amplifier	My work using the devices, the Dacho device and	Evaluate the student by means of a test in the manner of discussion

				the program Multisim	and the work of a short test QUIZ	
30	2	Test on how to connect circles correctly	examination	practical and theoretical	Laboratory tests for all experiments and devices and the use of the graphic method to clarify curves and diagrams on the waveplotter and measuring devices	
11. Course	Evaluatio	n				
• Sem	lester and	d final exams.				
• Dail	y exams	and student participati	on in the discussion	on lecture.		
• Wee	ekly and	monthly practical tests	related to connect	ing electrical	l and electronic	
circ	uits					
12. Learnin	g and Tea	aching Resources				
Required textbooks (methodology, if any)			Electronics Physics by Dr. Sobhi Saeed Al-Rawi			
Main references (sources)			Principles of Malv	ino Electronic	S	
Recommended books and references (scientific journals, reports)		Electronic devises (Floyed, 2005)				
Electronic	Electronic References, Websites			Googal, and the use of the program National instruments Multisim		

Course Description Form for Electronics Lab Course in English

1. Course Name: Electronics Lab 2. Course Code:

ELP013

3. Semester/ Year: Annual

2024-2025

4. Date of preparation of this description

10/9/2024

5. Available Attendance Forms:

Physical attendance of all students until download cases

6. Number of credit hours (total) / number of units (total):

60 hours

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

Name: M.M , Abdullah Zahim Nouri

Email: <u>Abdullah.zahem.tuz.@tu.edu.iq</u>

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7- The student can show how to connect a two-zener circle.

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10. Course S	10. Course Structure						
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5	2	Study of the bilateral sensors by anterior binding	Study of the properties	My work using the	Evaluate the student by		

		method and taking readings for silicon and germanium	of ordinary diopards	devices, the Dacho device and the program Multisim	means of a test in the manner of discussion and the work of a short test QUIZ
6	2	Study of the sensors of the biloid diode by reverse binding method and taking readings for silicon and germanium	Study of the properties of ordinary diopards	My work using the devices, the Dacho device and the program Multisim	Daily laboratory tests of the experiment Evaluate the student by means of a test in the manner of discussion and the work of a short test QUIZ
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11. Course	Evaluatio	n				
• Sem	lester and	d final exams.				
• Dail	y exams	and student participati	on in the discussion	on lecture.		
• Wee	ekly and	monthly practical tests	related to connect	ing electrical	l and electronic	
circ	uits					
12. Learnin	g and Tea	aching Resources				
Required textbooks (methodology, if any)			Electronics Physics by Dr. Sobhi Saeed Al-Rawi			
Main references (sources)			Principles of Malv	ino Electronic	S	
Recommended books and references (scientific journals, reports)		Electronic devises (Floyed, 2005)				
Electronic	Electronic References, Websites			Googal, and the use of the program National instruments Multisim		

نموذج وصف المقرر

	1. اسم المقرر: 1
	مناهج وطرائق التدريس
	2. رمز المقرر:
	ت ط 018
	 الفصل / السنة: السنوي
	سنوي
	4. تاريخ إعداد هذا الوصف
	01/09/2024
	5. أشكال الحضور المتاحة :
	حضوري
كلي):	 عدد الساعات الدر اسية (الكلي)/ عدد الوحدات (ال
	ساعتين نظري / عدد الوحدات (2)
دكر)	 اسم مسؤول المقرر الدراسي (ادا اكتر من اسم ب
	الاسم: م.د.سفيان حائم هز اع حمدي الأربيان منه مله مسترى محمد ما ما محمد عدم
	الايمين: suryan.n.nazza@tu.edu.iq
	ي المقرر الحجال الطلاب قارر ا علي .
 آن يعرف الطالب طبيعة التدريس آب المحالب طبيعة التدريس 	
2– ان يعرف الطالب طرائق التدريس الصحيحه والمنا	
للتدريس	
3- ان يعرف الطالب فنون ومهارات وطرائق واستراتيجيات	
التدريس	
	9. استراتيجيات التعليم والتعلم
	\$11
هداف المهار أنية الحاصبة بالمغرر.	ا-الأهداف المعرفية
موصيح أمثلة التوضيحية	 إسلطيع الطالب أن يبين معنى العلم. إسلاما الألب أن يبين الذاد، إلاً الكثرة الأرا
المصادر المرتبطة المقرر	2- يستطيع الطالب أن يبين المعاهيم الإسار
	الملهج الدراسي.
	التدريمر)

التدريس والاستراتيجيات والوسائل التعليمية .
5- يستطيع الطالب أن يبين النظام التعليمي الحا
والتقليدية وطريقة تطوير المناهج أ

				نية المقرر	.10 بذ
طريقة التقييم	طريقة التعلم	اسم الوحدة او الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
اختبارات	محاضره	مفهوم العلم	مكونات العلم وخصائصه، مهارات التفكير العلمي، المفاهيم ، فلسفة تدريس العلوم	4	2-1
شرح	محاضرہ	مفاهيم اساسية في المنهج	مفهوم المنهج القديم والح تنظيمات المنهج الم والسيكولوجي	4	4-3
اسئلة قصيرة	محاضرہ	اسس بناء المنهج الدراسي	الاساس المعرفي، الاس الاجتماعي ، الاساس النفس الاساس الفلسفي	8	6-5 8-7
اختبارات	محاضرہ	انواع المناهج الدراسية	منهج المواد المنفصلة، النشاط ، منهج المج الواسعة، منهج الوحدات، ال المحوري	8	10-9 12-11
شرح	محاضره	عناصر المنهج الدراسي المنهج كنظام رباعي	الاهداف التربوية، المحتّم والخبرات التعليمية، ال المدرسي	8	14-13 16-15
اسئلة قصيرة	محاضرہ	طرائق التدريس والتقنيات التعليمية	معنى الطريقة، الاسل الاستراتيجية في التدريس ، اسس التدريس الجيد، الاستجواب ، الزيارات الميد اعداد التقارير	12	18-17 20-19 22-21
اختبارات	محاضرہ	المختبر والاداء العملي	التقويم، التخطيط في التدريس	12	24-23 26-25 28-27
شرح	محاضره	تطبيقات علمية	تطبيقات عملية ونظرية	4	30-29
		م المقرر	11. تقيي		
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	النسبة	طرق التقييم	ت		
	المئوية				
	10	الامتحان الشهري الاول نصف اول	1		
	10	الامتحان الشهري الثاني نصف اول	2		
	5	الامتحان الشفهي نصف اول	3		
-	10	الاختبار التطبيقي السرح نصف ناني	4		
-	<u> </u>	الامتحان الشهري الثاني تصف تأتي	5		
-	50	الامتحان النعائب	0		
-	100	المحمد ع	, 8		
	100		0		
		مادر التعلم والتدريس	12. مص		
		المطلوبة (المنهجية أن وجدت)	الكتب المقررة		
 1- اساسيات في طرائق التدريس العامة 		بة (المصادر)	المراجع الرئيم		
داود ماهر محمد ومجيد مهدي محمد، 1991					
2- المنهج والكتاب المدرسي، د. منى يونس بح					
و عایف حبیب ، بغداد، 1995					
3- تخطيط المنهج وتطويره، احمد حسين اللقائي وع					
ابو سنينة ،عمان، 1999					
4- طرائق التدريس العامة، د. توفيق احمد مر					
و محمد محمود الحلية، عمان، 2006					
5- تحتوجت التغليم بين التطريد والتطبيق ، د. م					
محمود الحلية، عمان، 2005					
6- أساليب تدريس الدراسات الاجتماعيه، د. ما					
سکران ، عمان ، 2002					
7- اصول تدريس المواد الاجتماعية، د. شاكر مح					
الامين واخرون ، بغداد، 2006					
8- طرائق تدريس الاجتماعيات وتطبيقات علمية، يـ					
محمد نبهان ، عمان، 2006					
	العلمية،	مع الساندة التي يوصى بها (المجلات	الكتب والمراج		
			التقارير)		
		رونية ، مواقع الانترنيت	المراجع الإلكة		

1. Course Name: Counseling and mental health

2. Course Code: 1 Rating: 019 A S N

3. Semester / Year:yearly

4. Description Preparation Date: 2025/10/10

5. Available Attendance Forms: Basic attendance

6. Number of Credit Hours (Total) / Number of Units (Total)60hour

7.Course administrator's name (mention all, if more than one name) Name: Zainab Chalabi Mohamad Email: Zinab.g.mohamad@tu.edu.iq

8.Course objective.

Course Objectives:	Course specific skill objectives.
The general objective of this course is for the student to know the concept of educational guidance. For the	 The traditional method of delivering the theoretical lecture.
student to know the Toliber for psychological guidance. For the student to know the characteristics on which the guidance	 Using modern technologies in some topics (smart board).
process is based. For the student to	• The possibility of presenting experiments by the
know the personality characteristics	student.
of the psychological counselor.	
Course outcomes, teaching, learning	 Adopting scientific thinking
mechanism for applying the laws of	C- Emotional and value objectives
physics theoretically to the scientific	Directing attention to knowing psychological
material and ways to understand it:	· Directing attention to knowing psychological

A- Cogniti	ve objectives	guidance.		
• 1- The student can explain the relationship of psychological guidance to other sciences.		 Student participation in any form of participation. 		
 2- The stimportance and counse 3- The store of guidance group guide 	cudent can explain the ce of psychological guidance reling. cudent can explain the types ce (individual guidance, dance).	 Giving the student a conceptual vision of the topic, arrangement or organization. D- General and transferable qualification skills (other skills related to employability and personal development). 		
• 4- The st of using g	cudent can explain the cases roup guidance.	 Preparing external questions from approved sources. 		
• 5- The st advantage	cudent can explain the es of group guidance.	 Following up on the method of classroom discussions inside the hall. 		
• 6- The st disadvant	cudent can explain the ages of group guidance.	 Urging students to follow education series that are presented in video for an afficial scientific links 		
• 7- The student can explain the means of collecting information in guidance.		on official scientific links.		
• 8- The student can explain the types of interview according to the objectives of the interview.				
• 9- The st benefits o	cudent can explain the f the interview.			
• 10- The similaritie group guid	student can explain the es between individual and dance			
1. Tea	ching and Learning Strategies			
Strategy	. Teaching and learning met	hods		
	• Theoretical lectures covering the curriculum for the stage for 3 hours per week.			

And using various educational means.

Using various teaching methods including discussion, dialogue and cooperative learning to enhance students' confidence.

Explanation and direct delivery using the necessary means to convey idea

2. Course Structure

Week	Hours	Required	Unit or subject	Learning	Evaluation
		Learning	name	method	method
		Outcomes			
1	4	Cognitive objectives -1 The student can explain the meaning of guidance and counseling. -2 The student can explain the basis for the	-The concept of guidance and counseling - The meaning of educational counseling - The concept of counseling - The emergence and development of counseling.	Cooperative Learning Discussion Lecture Brainstorming	Midterm and final exams Daily exa and stude participati in t lecture.
2	4	establishment and development of counseling and the factors that led to the emergence of counseling.	- The emergence and development of counseling in the modern era - Multiple factors contributed to the emergence and development of counseling	Cooperative Learning Discussion Lecture Brainstorming	
3	4	-3 The student can explain the meaning of counseling and its importance in our social, school and	- The development of the concepts of counseling and counseling - The experience of counseling and counseling in	Cooperative Learning Discussion Lecture Brainstorming	

			I _		· · · · · · · · · · · · · · · · · · ·
		family life	Iraq -	Cooperative	
		and its		Learning	
4	4	importance.	- Justifications	Discussion	
			for counseling	Lecture	
		-4 The	and its functions	Brainstorming	
		student can	- The goals of		
		explain the	educational		
		relationship	counseling and		
		between	its functions	Cooperative	
5	4	counseling		Learning	
		and other	- The	Discussion	
		sciences and	relationship	Lecture	
		the extent of	between	Brainstorming	
		benefit from	counseling and		
		counseling in	other sciences		
		applying	(psychology -	Cooperative	
6	4	other	religion -	Learning	
		sciences such	sociology -	Discussion	
		as religion,	psychotherapy)	Lecture	
		psychology		Brainstorming	
		and others.	- Foundations of	_	
		-5 The	counseling	Cooperative	
7	4	student can	(psychological -	Learning	
		explain the	social -	Discussion	
		foundations	philosophical -	Lecture	
		of		Brainstorming	
		psychological.	- General		
		social.	foundations -		
		neurological	psychological.	Cooperative	
8	4	and	neurological and	Learning	
		physiological	physiological	Discussion	
		counseling	foundations)	Lecture	
		B - Course		Brainstorming	
		specific skill	- Fields of	0	
		objectives	nsychological		
		Means of	counseling		
		clarification	(according to the	Cooperative	
9	4	A lot of	field - according	Learning	
		illustrative	to the	Discussion	
		examples	beneficiary	Lecture	
		Clarification	grouns	Brainstorming	
		of sources	Brocks)	0	
		related to the	- Courseling the		
			Counsening the		

			,		
		course	unusual -	с	
10.11		(- 	Methods of	Cooperative	
10-11	4-4	Teaching	psychological	Learning	
		and	counseling	Discussion	
		learning	(individual -	Lecture	
		methods	group), including	Brainstorming	
			direct and		
			indirect		
12	4			Cooperative	
			- Theories of	Discussion	
			educational	Lecture	
			counseling	Brainstorming	
			Freud's theory -		
13	4		theory	Cooperative	
			U U	Learning	
			- Psychoanalysis	Discussion	
			- Theory of the	Lecture	
			self - Existential	Brainstorming	
14	4		theory -	0	
	-		Behavioral	Cooperative	
			theory	Learning	
			encory	Discussion	
			- Information	Lecture	
15	4		needed for the	Brainstorming	
15	1		counseling	Cooperative	
			nrocess - Means	Learning	
			of collecting	Discussion	
			information	Discussion	
			mormation		
16	1.		- Cumulativo		
10	т		- Cumulative	Cooperative	
			study Norrativo	Lecture	
			study - Narrative	Brainstorming	
			ICCUIU -	Dramstorming	
			Autobiography		
17	1		Tooto and		
1/	4		- Tests and	Cooperativo	
			measures, their	Loarning	
			auvantages,	Discussion	
			aisaavantages	Lactura	
10			and types.	Brainstorming	
18	4			Cooperative	
			- Educational	Looperative	
			guidance and	Learning	

		counseling in	Discussion	
		school -	Lecture	
		Functions of the	Brainstorming	
		school counselor		
		- Educational		
19-20	4-4	counselor, his		
		functions and		
21	4	preparation	Cooperative	
			Learning	
		- Guidance and	Discussion	
22	4	counseling in	Lecture	
		middle and high	Brainstorming	
		school -	Cooperative	
		Educational	Learning	
		guidance -	Discussion	
23	4	Parents and	Lecture	
		teachers councils	Brainstorming	
		and their role in	Cooperative	
		counseling.	Learning	
		C	Discussion	
		- Mental health -	Lecture	
		Classifications of	Brainstorming	
		mental health	_	
24	4		Cooperative	
		- Basic concepts	Learning	
		related to mental	Discussion	
		health	Lecture	
25	4		Brainstorming	
		- Characteristics	Cooperative	
		of a normal and	Learning	
		abnormal person	Discussion	
		- Standards of a	Lecture	
		normal and	Brainstorming	
26	4	abnormal	Cooperative	
		personality	Learning	
		- •	Discussion	
		- Self-standard,	Lecture	
		ideal standard	Brainstorming	
27-28	4-4	and social	Cooperative	
		standard	Learning	
			Discussion	
		- Personality	Lecture	

		integration - Psychological crises - Causes of psychological crises	Brainstorming	
29	4	- Frustration - Psychological and mental disorders.	Cooperative Learning Discussion Lecture Brainstorming	
30	4	-Defense mechanism (psychological defense tricks)- Repression- Withdrawal- Regression- Fixation- Justification- Projection- Substitution	Cooperative Learning Discussion Lecture Brainstorming	
		-Compatibility- Meaning of compatibility- Adaption and compatibility and the relationship between them and the differences between them.		
		- aracteristics a compatible erson-Types of ompatibility		

3. Course Evaluation

To ask questions about topics that can be discussed by students in classes. Ask questions that the student solves.

For classes, make daily quick exams with intellectual questions.

General and transferable skills (other skills related to employability and personal development)

Follow up on external sources

Prepare external questions from those sources

Follow up on the method of class discussions

Urge students to follow educational series that are presented in video form on official scientific links.

the student such as daily preparation, daily oral, monthly, or written exams, reports etc

4.	Learning	and	Teaching	Resources
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Required textbooks (curricular books, if any)	methodical book
Main references (sources)	
Recommended books and references	
(scientific journals, reports)	
Electronic References, Websites	



1. Course Name:

Nuclear Physics – Practical

2. Course Code:

NUP014

3. Semester / Year:

Annual

4. Description Preparation Date:

2024-2025

5. Available Attendance Forms:

Attendance

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

60 hours / 1 unit

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

Name: Dr. Hassan Jalal Akber

Email: hassan.j.akbar@tu.edu.iq

8. Course Objectives

Course Objectives	The student should know what are nuclear and radioactive sources
	• The student should know the risks and benefits of nuclear radiation and
	laboratory safety measures.
	• The student should try out methods of using radioactive sources through
	various experiments.
	• The student should know the meaning of terms, half–life and the amount of
	the mass number of isotopes of the element wax, etc.
	• The student should know the meaning of the standard and international
	units in use.
	• Use statistical methods and mathematical distributions such as the Gauss
	distribution
	I construction of the second se

9. Teaching and Learning Strategies Strategy Lecture method, laboratory dialogue, discussion, and giving examples.

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10. Course Structure							
		Required Learning	Unit or subject	Learning	Evaluation		
Week	Hours	Outcomes	name	method	method		
1-2	4	Learn about different types of radiation	Types of radiation	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
3-4	4	The effects of radiation on human health	Health effects of ionizing radiation	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
5-6	4	Methods of radiation protection	Means of protection	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
7-8	4	Knowing the units of measurement of nuclear radiation	Radiation units	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
9-10	4	-	Exam 1	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
11-12	4	Knowing the methods of safety from nuclear radiation	Radiation Safety Characteristics Curve	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
13-14	4	Components of the Geiger– Müller	Geiger–Müller Counter	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
15-16	4	The principle of operation of the meter	How to Make a Geiger–Müller Counter	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
17-18	4	Areas of operation of the Geiger–Müller	Experiment for a Geiger–Müller Counter	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		
19-20	4	-	Exam 2	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams		

21-22	4	Experiment to verify the inverse square law of nuclear radiation	Reducing exposure by increasing the distance with nuclear radiation	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams
23-24	4	Experiment of absorption coefficient for AL	Calculating the amount of material absorbed by different thicknesses of AL	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams
25-26	4	Calculation of maximum energies of beta particles	Determining a curve showing the value of the maximum energy of beta particles	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams
27-28	4	scintillation counter	Components and working areas of the meter	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams
29-30	4	-	Exam 3	Theoretical lecture in the laboratory	Daily exams in addition to monthly exams

11. Course Evaluation

Distributing the score out of 15 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nuclear Physics		
Main references (sources)	Nuclear Physics Book, Radiati Protection Book, Fusion Boo Ionizing Radiation and Protecti Book, Types of Radiation Book		
Recommended books and references (scientific journals, reports)	Theses and Dissertations		
Electronic References, Websites	Electronic Research		

13. Curriculum Development Plan

- Familiarity with the latest in teaching and learning strategies.
- Use modern technology and scientific reports through explanatory videos to consolidate the scientific material in a visual manner.



1. Course Name:

Solid State Physics

2. Course Code:

SOP024

3. Semester / Year:

Annual

4. Description Preparation Date:

2024-2025

5. Available Attendance Forms:

Attendance

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

90 hours / 6 unit

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

Name: Dr. Hassan Jalal Akber

Email: hassan.j.akbar@tu.edu.iq

8. Cours	8. Course Objectives				
	1. Study some basic concepts related to solid state physics				
	2. Give an introduction to solid state physics and identify the meaning of crystal,				
	its properties and types				
	3. Give an introduction to crystal dimensions and lattice parameters				
	4. Address some theories related to the study of (crystal structure)				
Course	5. Identify some theories of crystal defects and types of those defects				
	6. Identify the methods of radiation interaction with matter during the process				
Objectives	of identifying the type of bore in the diffraction system and the properties of				
	each type and how to deal with it				
	7. Address some types of crystal diffraction				
	8. Identify some types of crystal lattice vibrations				
	9. Explain the general methods for getting rid of crystal defects and how to treat				
	them				
9. Teaching and Learning Strategies					
Strategy	Lecture, dialogue, discussion, and giving examples.				

Strategy

10. Cour	10. Course Structure						
		Required Learning	Unit or subject	Learning	Evaluation		
Week	Hours	Outcomes	name	method	method		
1-6	18	Understanding the components of the crystal, theories of crystal structure, some crystal structures and types of diffraction	Chapter One / Basic Concepts in Crystal Structure	Lecture and discussion	Class questions and written exams		
7	3	-	Month exam 1	Editorial	Monthly exam		
8-10	9	Understanding the types of diffraction	Chapter Two / Crystal Diffraction	Lecture and discussion	Class questions and written exams		
11-14	12	Understanding the different types of lattice vibrations and distinguishing between them	Chapter Three / Lattice Vibrations	Lecture and discussion	Class questions and written exams		
15	3	-	Month exam 2	Editorial	Monthly exam		
16-20	15	Understand the difference between theories that make up heat capacity and know the types of thermal properties	Chapter Four / Thermal Properties of Solids	Lecture and discussion	Class questions and written exams		
21-24	12	Understand the methods of the applied fields of superconductivity and their types by knowing the critical temperatures of materials	Chapter Five / Crystalline Defects	Lecture and discussion	Class questions and written exams		
25	3	-	Month exam 3	Editorial	Monthly exam		
26-30	15	Know the difference between the types of crystal structures and defects	Chapter 6 / Superconductivity	Lecture and discussion	Class questions and written exams		

11. Course Evaluation

Distributing the score out of 50 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Solid State Physics _ By Dr. Yah		
	Nouri Al-Jamal		
Main references (sources)	Solid State Physics, Mu'ayy		
	Gabriel 1 and 2		
Recommended books and references			
(scientific journals, reports)	-		
Electronic References, Websites	General Physics Sites		

13. Curriculum Development Plan

Familiarity with everything new and innovative in teaching and learning strategies and benefiting from the latest scientific research results in materials physics. Applying some modern teaching strategies by reading solid research published in solid high-level journals, which ensures the development of the teaching ability.

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Course Description Form						
Course Name: 1.						
Quantum Mechanics						
Course Code 2.						
: QUP034						
Semester / Year:						
year 3. Description Preparation Date:1/9/2024						
2025-2024						
Available Attendance Forms: In-person						
4.						
5. Number of Credit Hours (Total) / Number of Unit 90Hours/7unit	ts (Total)					
6. Course administrouator's name (mention all, if mo	pre than one name)					
Name: Reham.Z.Hadi Email:reham.z.hadi@tu.edu.iq						
7. Course Objectives						
Course Objectives	- Study the concept of the physical					
	foundations of quantum mechanics					
	2- The student learns the most important					
	concepts and basic principles of the wave					
	function, the concept of particles and					
	waves, and the solutions of Schrödinger					
8. Teaching and Learning Strategies Strategy						
nable students to gain knowledge and understanding of quantum						
physics	physics					
Enable students to gain k	Enable students to gain knowledge and understanding of the wave					
function and its propertie	function and its properties					
Enable students to gain k	Enable students to gain knowledge and understanding of the time-					
dependent and time-inde	dependent and time-independent Duncker equation					

9. 0	9. Course Structure							
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method			
1	3	Outcomes						
			Physical Foundations of Ouantum	T I (* 1	Б			
2	3			lecture	homework			
	-		Mechanics Effects EffectsProperties		preparation			
3	3		Lifeets, Effects roperties					
5	5		Thetime-dependent Schrödinger					
			equation					
4	3		Thenon-time-dependent Schrödin					
			equation					
5	3		The non-time-dependent Schrödir					
			equation					
			Quantum Principles and Solving					
6	3		Schrödinger Equation					
			First Month Exam					
7	3							
			Applications of the Schrödinger					
8	3		equation					
0	3							
	5		Eigenvalue and eigenfunction					
10	2		The Hermetic Effect					
10	5		orthogonality and orthogonal					
11	2		functions					
11	3		Ehrenfst's Theory I and II					
10	2							
12	3		Decomposition with Examples					
13	3		Symmetry					
			Punctuated cases					
14	3		Calculation of Wavefunctions					
			for the Harmonic Oscillator					
15	3							
16	3		The harmonic oscillator rate					
			Second month exam					
17	3		The harmonic oscillator					
			equation					
18	3							
19	3		Solving the free-body					
20	3		Applications of the Schrödinger					
20	Application		Equation in One Dimension					
22	Period		Application Period Application Period					
23	Application Period		Application Period					
25	=		Application Period					
26	=		Application Period					
27	3		Application Period					
			File partical III DOX					

28 29 30 <u>10. C</u> Distributi reports	3 Course Evaluati ing the score out	on of 100 according to the tar	Atomic of hydrogen Atomic of hydrogen ding to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exam-			
Required textbooks (curricular books, if any)			The curricu	lum book and auxiliary b	oooks	
Main references (sources)			Quantum mechanics by Dr. Abdul Salam Abdul Amir and Jassim Muhammad			
Recommended books and references (scientific journals, reports)			Using the linformation	ibrary and the informat and student abilities	ion network to obtain s	
Electroni	c References, We	ebsites		Scientific er	ncyclopedias	

Course Description Form
1 Course Name
Nuclear
2.Course Code:
NUP014
3.Semester / Year:
2024/2025
4. Description Preparation Date:
2025/1/30
5. Available Attendance Forms:
In-person lectures according to the official schedule of the Physics Department / Fourth Stage,
as well as exams, according to the instructions within the department in the college.
6.Number of Credit Hours (Total) / Number of Units (Total)
75 h
7. Course administrator's name (mention all, if more than one name)
Name: Esam Sameen Ali
Email: esam.ali@tu.edu.iq
8. Course Objectives
Course Objectives
Learn about the meaning of the nucleus, its basic properties, and how to classify it into types
according to its mass and atomic numbers.
Know the nuclear structure and nuclear models that played a role in explaining the stability of nuclei
and calculating binding and separation energies and how to determine the most stable nuclei for
different isobaric nuclei.
Learn about the types of nuclear radiation, the characteristics of each type, its risks, and now to deal
WIII II.
pross section of the reaction and the stopping power
tioss section of the reaction and the stopping power.
9. Teaching and Learning Strategies
Preparing specialists in general physics and its practical applications, who are responsible for
studying the country's need for development and progress and are able to meet the needs of the labor
market in state institutions and industrial sectors.
Preparing an educated generation armed with science and relying on scientific knowledge and the
scientific method as a basis for modern radical changes and putting thinking, analysis and adaptation
to
Technology development in order to keep pace with the expansion of human needs.
Effective contribution to decreasing and strengthening the university's relationship with acciety
Effective contribution to deepening and strengthening the university's relationship with society
inrough implementing consulting work, training and developing teaching and administrative cadres.
Serving the preparation of graduates specialized in physics who contribute to serving development in
the country
the country.

0. Course Structure						
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method	
3+2+1	9 Knowing some basic concepts about the nucleus		1- The fixed properties of the nucleus such as: mass, charge, size of the nucleus, and the kinetic properties of the nucleus. 2- Definitions (isotopes, isobars, isomers, isotones) The property of symmetry	Theoretical	Tests and Questions	
6+5+4	9	Learn about the nuclear structure	1 Binding energy -2 Binding energy ratio -3 Calculation of separation energies -4 Stability and abundance line Natural	Theoretical	Tests and Questions	
9+8+7	9+8+7 9 Nuc mod		1 Liquid drop model (Update) Add questions about determining the most stable isobars -2 Nuclear shell model -3 Other nuclear models	Theoretical	Tests and Questions	
12+11+10 9 Understand the meaning of radioactivity and patterns of nuclear decay. (Upd of t		 -1 Phenomenon of radioactivity and effectiveness -2 Methods of production of radioisotopes -3 Radioactive equilibrium -4 Patterns of decay (alpha, beta, and gamma) (Update): Calculation of the mixing ratio Transitions of rays 	Theoretical	Tests and Questions		
15+14+13	9	Knowing the methods of interaction of nuclear	-1 Stopping power -2 Range -3 Interaction of charged and non-	Theoretical	Tests and Questions	

		radiation with	charged nart	icles and		
		matter	gamma	ravs		
		matter	with matter			
			-4 Shielding from			
			nuclear radi	ation and		
			the materials	used for		
			each tyr			
			radiati	on		
			-1 Types of	nuclear		
			reaction	nacical		
		Nuclear	-2 Cross-se	ectional		Tests and
18+17+16	9	reactions	area and it	s types	Theoretical	Questions
		reactions	-3 Nuclear	fission		Questions
			and fusion r	reactions		
			Nuclear re	Pactors		
		Learn about	Fissic	on		
		nuclear energy	-1 The wo	orking		Tests and
21+20+19	9	production	nrinciple	of the	Theoretical	Questions
		from reactors	react	or		
		fioli reactors	-2 The read	of stor part		
			1- Types of	radiation		
			dose	s		
			-2- Risk	factor		
			-2- Kisk factor (Update) Mathoda of			
			- Metho	us of		
		Identify the	redicti	on		
		types of	A Protecti	on from		
		rediction desce	-A- Hotech		Theoretical	Tests and Questions
24+23+22	9	raculting from	B Protocti	on from		
		avposure to	-D- Flotecti			
		exposure to		posure		
		Tautauon.	Recommendations regarding limits -and periods of			
			in the fit	ald of		
			-in the fit			
		Learn about	Introduct	ion to		
25	3	elementary	elementary	narticle	Theoretical	Tests and
23	5	particles	nhysi		Theoretical	Questions
11 Course Evaluation						
Distributing the score	e out of 1	00 according to the	tasks assigned	l to the stude	nt such as daily pre	naration daily
oral monthly or write	tten exam	s reports etc	usits assigned		in such as dany pro	Paradion, dany
12 Learning and T	eaching R	esources				
Required textbooks (curricular books if any)						
Main references (sou	(current					
Recommended boo	$\frac{1}{1000}$ ks and 1	references (scienti	fic journals			
reports	reporte)					
Flectronic Reference	os Wahsit	65				
Electronic References, websites						

1.	Course l	Name:
_		

Education lab

2. Course Code:

3. Semester / Year:

Annual

4.	Descri	otion	Prepa	aration	Date:
••	DCCCII		1 Cpt	aracion	Date

2024-2025

5. Available Attendance Forms:

Inpresence

- 6. Number of Credit Hours (Total) / Number of Units (Total)
 - 90 hours
- 7. Course administrator's name (mention all, if more than one name)
 Name: khawla salim mohammed
 Ahmed abd al hussen qamber
 Batool khalf mohammed
 - Mateen abd al ameer mahdi
 - Email: Khawla.mohammed122@st.tu.edu.ig
- 8. Course Objectives

-			
Course Objectives		Introducing students to	
		spectra in general	
		the importance of radiation	nd
		application life whether	
		ultraviolet radiation.	
		Ultraviolet ,infrared and ran	an ra
		student to importance of lig	t
9. Teaching and	d Learning Strategies		
Strategy			
	1- Explain in detail the electronic	c spectra.	

10 Cour	se Structu	re		
Week	Hours	Required Learning	Unit or subject name	Learning method
1	3	Introducing to student ultraviolet rays with detailed explanation their uses, application and application	UV Transitions with Spectrophotometer	Blackbo To clarif notes Illustrat the task Both dra plan
2	3	Explain the transitions that occur ultraviolet radiation with detailed explanation of t electronic excitation that occurs to t electrons in t region.	UV Transitions with Spectrophotometer	=
3	3	Introducing t student to t concept of t electronic spectrum a explaining Lambert-Beer's law, wh expresses t concept of t spectrum, wh absorbance considered t basic factor spectra.	Electronic bags	=

4	3	Explaining a clarifying t areas of radiati in detail	Infrared rays	=
5	3	Explaining a clarifying t areas of radiati in detail	X-ray applications	=
6	3	Explaining a clarifying t areas of radiati in detail	X-ray applications	=
7	3	Detailed explanation of t applications radiation	X-ray diffraction interpretation	=
8	3	Explaining t Raman princip the characteristics Raman, t advantages a disadvantages Raman, and t comparison w infrared rays.	Raman spectrum	=
9	3	Explaining t Raman princip the characteristics Raman, t advantages a disadvantages Raman, and t comparison w infrared rays.	Gamma rays and their effect on the atom or particle	=

10	3	nuclear magne	nuc	lear	=	
		resonance	mag	gnetic resonance		
11	3	Physics of	Phy	sics of	=	
		Light	Lig	ht		
12	3	Joule Experime	Goa	l experience	=	
13	3	Mirrors	Mirrors and	nd lenses		
		and lenses				l
14	3	temperatures	Ten	nperatures w	' =	
		with	the	rmometers		
		thermometers				
11. Cou	ırse Evalu	ation				
Daily and n	nonthly exa	am				
12. Lea	rning and	Teaching Resources				
Required te	xtbooks (cu	irricular books, if any)		Lectures a	are printed	
Main referei	Main references (sources) Sources					
Recommended books and references (scientific journals, Scientific journals and re ea						ear
reports)						
Electronic R	References,	Websites		Internet s	sites	

Course Description Form for Electromagnetic theories Course in English

1. Course Name:

Electromagnetic theories

2. Course Code:

MER46

3. Semester/ Year: Annual

2024-2025

4. Date of preparation of this description

10/9/2024

5. Available Attendance Forms:

Physical attendance of all students until download cases

6. Number of credit hours (total) / number of units (total):

75 hours

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

Name: M.M , Abdullah Zahim Nouri

Email: <u>Abdullah.zahem.tuz.@tu.edu.iq</u>

8. Course Objectives

- 1- The student can explain the basic concepts of electrical and stable magnetism.
- 2- The student can explain the behavior of different materials electrically and magnetically.
- 3- The student can show the origin of electromagnetism.
- 4- The student can show the malleability of the materials used in electrical appliances.
- 5- The student can mention the basic conditions for the occurrence and propagation of electromagnetic waves.

9. Teaching and learning strategies

Is Strategy Home which Will Adopted in Introducing This

one Unit in encouragement Share Students in Exercises Loyal Same time amelioration and

expand Capacity on solution Problems Electromagnetism And life realism, and capacity on use Math As a communication

tool, ability on tying Ideas electromagnetism, and capacity on Thinking that May be Use in That is position As Critical thinking, Logically, and systematic; Be patient Objectivity And honesty and discipline mud Problems. Will be achievement That Who is it During the classes & Reports & Projects & Programs Educational Interactivity.

10. Cou	10. Course Structure						
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
1+2	6	Coordinates	Coordinates and their types	theoretical	Discussion questions and quizzes		
3	3	Types of integration and some theories of integration transformations	Types of integration	theoretical	Discussion questions and quizzes		
4+5	6	General Questions	Solving Vector Questions and Problems alif	theoretical	Discussion questions and quizzes		
6+7	6	Charges and electric field	Shipment distribution and domain calculation	theoretical	Discussion questions and quizzes		
8	3	Calculation of the electric field	Kaus's Law	theoretical	Discussion questions and quizzes		
9	3	Differential and Integral Formulas of Kaus' Law	Kaus's Law	theoretical	Discussion questions and quizzes		
10	3	Types of Shipment Distribution	Dipole Electrode	theoretical	Discussion questions and quizzes		
11+12	3	Effort	Surface of the isomer	theoretical	Discussion		

		1	I		questions
					and
					quizzes
		calculate the	Dot charge in a	theoretical	Discussion
10	2	domain of a point charge in a	fluid		questions
13	3	fluid,			and
					quizzes
		Moving from one	Boundary	theoretical	Discussion
	_	another	field and		questions
14	3		displacement		and
					quizzes
		examination	examination	theoretical	Discussion
	_				questions
15	3				and
					quizzes
		Understand the	Continuity	theoretical	Discussion
		continuity equation.	equation		questions
17+16	6	equation,			and
					quizzes
		Introduction to	Maxwell's	theoretical	Discussion
10	-	Maxwell's equation	equation		questions
18	6				and
					quizzes
		Applications	Applications of	theoretical	Discussion
10			Maxwell's equations		questions
19	3		quations		and
					quizzes
		Differentiation of	Wave equation	theoretical	Discussion
40	_	the wave equation			questions
18	3				and
					quizzes
19	3	The Vector of	Boyntang vector	theoretical	Discussion
	Ť	BioNTG and its			questions

		applications			and quizzes	
20	3	Magnetic field	Constant current magnetic field	theoretical	Discussion questions and quizzes	
21+22	6	Derivation and applications of the laws of Piot and Safart	Piot and Safart Laws	theoretical	Discussion questions and quizzes	
23	3	The concept of magnetism and magnetization	Magnetism and magnetization	theoretical	Discussion questions and quizzes	
24	3	Derivation of the Law of Wave Velocity	Electromagnetic wave speed	theoretical	Discussion questions and quizzes	
25	3	examination	examination	theoretical	End of Second Semester Exam	
11. Cou	rse Evalua	ition		•		
 Sem Dail 12. Lear 	nester an ly exams ming and	d final exams. and student part Teaching Resources	icipation in the di	scussion lect	ure.	
Requir	ed textboo	oks (methodology,	Fundamentals of Theory Electromagnetic			
if any)			Theory - by Ritz Milford			
Recommended books and references (scientific journals, reports)			 Electromagnetism by BB Loud Electromagnetic Field Theory Engeneering ElectromagnetismW.H. Hight, Jr, McGraw-Hill, 2001 			
Electronic References, Websites			The use of sober In the collection of	nternet sites in f some scientific	collecting in c lectures	

1. Course Name:

Laser

2. Course Code:

LAP044

3. Semester / Year:

Year

4. Description Preparation Date:

2024 - 2025

5. Available Attendance Forms:

My presence

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

60 hours

- 7. Course administrator's name (mention all, if more than one name) Name: Robak Aziz Rasheed Email: Rupak.A.Rasheed@tu.edu.iq
- 8. Course Objectives

• The course aims to provide the student with basic theoretical scientific skills in

laser physics and to understand the basic principles in this field

• Learn about laser properties and types of lasers, Clear scientific knowledge in the

field of laser and its applications

9. Teaching and Learning Strategies				
A- Knowledge and understanding	B - Subject-specific skills			
A1-Learn the basic skills in laser	B1 - Identify the concepts in laser physics			
material	B2 - Developing skills in using means of			
A2- Lecture method	clarification, abundance of examples,			
A3- Practical application	memorization, and analysis			
A4- Evaluation examinations	B3 - Using modern technologies in some			
A5- Developing the student through	subjects (smart board and blended			

self- and continuous education by				learning)		
studyi	ng the p	roperties of the	laser, its			
types a	and bene	efits				
10. C	ourse St	tructure				
Week	Hours	Required	Unit or sul	bject name	Learning	Evaluation
		Learning			method	method
		Outcomes				
1	2	Introducing the student to the concept of lasers and their relationship to other sciences	A general the defini their appl characteri	introduction to tion of lasers, ications and stics		Daily
2	2	Basic principles	The conc theory developm theory Light, ele spectrum, Laser	ept of light, the of light, the ent of the ctromagnetic discovery	(In attendance) Live delivery And the means Illustrations	Daily exams And homework In addition Exams Monthly
3	2	Radiation interaction with matter	Black boo theory, ab Spontaneo stimulateo Emission	ly radiation osorption, ous emission, d emission, rates and absorption		and final
4	2	Radiation interaction with matter	Einstein's translation Section Transver and absor coefficien	calculations of nal coefficients, se transmission ption, and gain at		
5	2	Radiation	Permitted	and permitted		

		interaction	transitions, spectral line	
		with matter	broadening processes,	
			level occupation at	
			thermal equilibrium	
6	2	First month	First month exam	
0		exam		
		0110111	Theoretical calculations	
7	2	Laser theory	of the ratio of stimulated	
			to spontaneous emission	
			and of different bands of	
			the electromagnetic	
			spectrum	
			Spectral line broadening	
			processes	
			Homogeneous and	
8	2	Laser theory	heterogeneous exposure	
-			occupancy of levels at	
			thermal equilibrium	
0		Census	The idea of the masses and	
9		inversion	laser the basics of laser	
		and	operation	
		threshold	count inversion, threshold	
		condition	condition, gain factor at	
			threshold limit	
		Pumping	Demoniana ta da di minana in	
10	2	methods in	Pumping techniques in	
		lasers	numping plans	
			triple and quadruple	
			1 · · · · · · · · · · · · · · · · · · ·	
11	2	Pumping	Rate equations for	
		methods in	pumping schemes, critical	
		lasers	pumping, overall	
			beam characteristics	
12	2	Resonator in	Classification of	
14	<u></u>	laser devices	resonators in terms of	
			(stability or geometric	
			shape), Fabry-Perot input,	

			1	Γ	1	
			stability condition			
13	2	Vibration patterns	Resonator patterns, theoretical calculations of laser spot size, and wave front radius of curvature.			
14	2	Second month exam	Second month exam			
15	2	Adjust the quality factor and lock the pattern.	Quality control factor, quality control techniques (rotating mirror, electro- optical technology {Pockel cell - Kerr cell}, audio-optical technology)			
16	2	Adjust the quality factor and lock the pattern.	Giant Pulse, Giant Pulse Power, Giant Pulse Laser Uses, Pattern Fixation			
17	2	Types of lasers	Solid State Lasers: Sapphire, Nd:YAG, Nd:Glass.			
18	2	Types of lasers	Gas lasers: Helium-neon, argon ion, carbon dioxide, excimer			
19	2	Types of lasers	Liquid state lasers: R6G dye laser. Semiconductor lasers: Gallium arsenide			
20		Application	Application period			
21		Application	Application period			
22		Application	Application period			
23		Application period	Application period			
24		Application	Application	on period		
---	-----------	--	---	---	--	--
25		Application	Application	Application period		
26	2	Uses of lasers	In physics life science industry	In physics and chemistry, life sciences, medicine, industry		
27	2	Laser Applications	in optical communications, in measurement and inspection, in military uses, in stereoscopic photography.			
28	2	Laser Applications	Medical, Optical Communications, Measurements and Inspection, Stereography, Isotope Separation			
29	2	Third month Exam	Third month exam			
30	2	Safety and Security in Laser Laboratories	Penetrance and absorption to the eye, Effect on the body, Threshold levels, Eye protection			
11.	Course	Evaluation				
Sem	ester an	d final exams				
• Daily exams and student participation in the lecture discussion						
Prep	paring sp	becial assignme	nts on acad	emic topics		
12.	Learnin	g and Teaching	g Resource	S		
Requir	ed textbo	oks (curricular bo	oks, if any)			
Main references (sources)			Laser physics and some practical			
			applications, written by Dr. Siham Afif			

	Qandala Lasers, written by Bella A. Linkel, translated by Farouk Aboudi Kassir
Recommended books and references	
(scientific journals, reports)	
Electronic References, Websites	

Course Description Form

1. Course Title:

Measurement and evaluation

2. Course Code:

3. Semester / Year:

annual

4. The date of preparation of this description is the beginning of the school year

2024-2025

5. Available Forms of Attendance:

Came

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

60 hours

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

Name: Qutayba Hadi Mohammed

Email: qutaiba.h.mohamed@tu.edu.iq

8. Course Objectives

- 1- Know the basic concepts (test, measurement, evaluation). –Distinguish between various types of tests.
- 2- Know the characteristics of pedagogical measurement. Distinguish between the characteristics of educational measurement and physical measurement.
- $_{\rm 3-}\,$ The types of calendar are defined by the time of the procedure.
- 4- Recognize the relationship between educational objectives and the educational evaluation process.
- **5-** Know the types of achievement tests
- 6- The qualities of a good test (honesty, consistency, ease of application and correction, comprehensiveness, objectivity, standards) define its concept, types, factors affecting it.
- 7- Define behavioral goals and their classifications.
- $8-\;$ Know the test experience and the steps of conducting it .
- 9- Calculate the coefficient of difficulty, ease, wrong alternatives and judge paragraphs.

9. Teaching and Learning Strategies							
- Defines th	Cognitive Objectiv						
measuren							
- Determines each) teacher							
- Determine each of the st administratio							
- Knowledge	of school evalu	ation tools [tests, questio	onnaire,				
observation - Statement of the relationship of achievement tests with educational objectives.							
- Create an	atmosphere of o	desire to think or form m	ental habits	Emotional	coolo		
- Create an e thoughtful th	and value.						
- Use educati	Teaching						
- The use of n	learning n	netnods					
- The collective memorandum to involve all students in the classroom							
activity.	activity.						
some aspects	of evaluation.	interpate in muning app	solutions				
- General a	nd qualifying ski	lls transferred (other skil	ls related to				
employability and personal development).					n method		
- Encourage students to deal with different educational materials in the light of appropriate technical and technical skills.							
 Developing students' abilities to analyze educational content to identify thinking skills and problem-solving skills . Developing students' abilities to design presentations of thinking skills 							
- The ability to evaluate the processes presented to students.							
10. Cours	e Structure						
Evaluation method	Method of education	Unit or subject name	Required Learning Outcomes	Hours	The week		
Oral	Discussion		Meeting with students and	1-2	1		

		Meeting with students and giving educational guidance Give them the vocabulary of the material	giving educational guidance Give them the vocabulary of the material		
Oral	Discussion	Returning general information about the measurement and evaluation material An overview of measurement and evaluation, including a brief history and the concepts of testing, measurement and evaluation and their importance in the educational process	Returning general information about the measurement and evaluation material An overview of measurement and evaluation, including a brief history and the concepts of testing, measurement and evaluation and their importance in the educational process	1-2	2
Oral	Discussion	What do we measure types of measurement, characteristics or nature of psychological and educational measurement	The main steps of learning assessment Definition of measurement	1-2	3
Oral	Discussion	Definition of test and evaluation The difference between test and evaluation and the relationship between them	Testing and evaluation The difference between testing and evaluation	1-2	4

Oral	Commissio ns and application s at the end of each stage.	The purpose for which pedagogical psychometrics is used	The importance of measurement and evaluation in the educational process	1-2	5
Oral	Commissio ns and application s at the end of each stage.	Formative primer Diagnostic	Types of calendar by time	1-2	6
Oral	Commissio ns and application s at the end of each stage.	Spoken Tests Reference Benchmark Tests Reference	Types of evaluation according to the interpretation of the results of the achievement test	1-2	7
editorial	First Semester Exam		First Semester Exam	1-2	8
Oral	Commissio ns and application s at the end of each stage.	Determining educational educational objectives Determining the content (specification table)	Building achievement tests	1-2	9
Oral	Commissio ns and application s at the end of each stage.	Analysis of the content of the course and the number of hours scheduled for teaching	Building achievement tests	1-2	10
Oral	Commissio ns and application s at the end of each stage.	The general purpose of building achievement tests from the preparation of the teacher	Continuation of the previous lecture	1-2	11

	I	I	1	I	
	Commissio				
	ns and	Oral tests - their	Types of	1-2	
Oral	application	disadvantages -	achievement tests		12
	s at the end	methods of			12
	of each	improvement -			
	stage.	written tests			
	Commissio	Advantages of the	Types of essay		
	ns and	essay test Conditions	tests	1-2	
	application	for preparing essay			
Oral	s at the end	questions -			13
	of each	disadvantages -			
	stage.	methods of			
		correcting them			
	Commissio	Essay tests Objective	Tests used in		
	ns and	tests have their	evaluating	1-2	
Oral	application	advantages and	academic		14
	s at the end	disadvantages	achievement		11
	of each				
	stage.				
	-	Its advantages and	The rules on		
	Assignment	disadvantages Paired	which it is based	1-2	
	s,	conformity tests	in the design of		
Oral	application	Conditions for their	true and false		15
	s and	preparation	tests		15
	discussions				
	with				
	students.				
	Commissio	Multiple tests with	Types of		
	ns and	their advantages,	objective tests	1-2	
Oral	application	disadvantages and			16
	s at the end	rules of preparation			10
	of each				
	stage.				
	Commissio				
	ns and	Observation, its tools	Test methods	1-2	
Oral	applicatio	and types,			17
orui	ns at the	advantages and			17
	end of	disadvantages			
	each stage				
		Second Semester	Second Semester	1-2	
editorial		Exam	Exam		18
11. Course Evaluation					
Daily exam and monthly exam					
· · · · · · · · · · · · · · · · · · ·					

12. Infrastructure

1- Required textbooks

 Psychometrics and educational evaluation. Authored by A.d.Safaa Tariq Habib. Psychometrics . Written by Safwat Farag. Psychometrics. Written by Saad Abdel Rahman. Measurement and evaluation . d.Sabah Huss Al-Ajili et al. 	2- References and sources
-Journal of Psychometrics and Educational Evaluation Journal of Educational and Psychological Measurement) -Statistical programs for data analysis such SPSS, Rascall	A- Recommended books and references (scientific journals, reports,)
Internet Sites	Electronic References
	13. Course Development Plan

- Holding workshops related to measurement and evaluation

- Benefiting from research and conference recommendations regarding measurement and evaluation

- Keeping abreast of developments in the field of measurement and evaluation