Course Description Form

1. Course Name
Electricity And Magnetism
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/7
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
60hours/45 units (two theoretical units and one practical unit per week)
4. Course administrator's name (mention all, if more than one name)
The name Hussein AbdAlkareem Hussein Email: husseinabd@mu.edu.iq
8.Course Objectives
• Providing the student with information about electricity and magnetism. • Introducing the student to methods for calculating resistance. • Introducing the student to the types of electric fields. • Introducing the student to the relationships of electric fields for several cases. • Introducing the student to the properties of magnetic fields. • Learn about the relationships of magnetic fields and their applications. • Teaching students all the necessary information related to electricity and magnetis which will enable them to research all fields of electrical and magnetic physics.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Static electricity	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Coulomb's law	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Electric field	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Gauss's law	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Electrical capacity	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		electric current	The cognitive, skill and emotional domain	2	Sixth week
	Lecture and discussion	First month test	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Ohm's law	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	AC circuits	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Concepts and properties of magnetism	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Flux and magnetic field	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	The effect of the magnetic field on the movement of conductors.	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources	
Required textbooks	كتاب الكهربائية والمغناطيسية تأليف الدكتور يحيى الحاج علي
Main references (sources)	Electricity and magnetism / Edward M. Purcell, David J. Morin, Harvard University, Massachusetts. – Third edition.
Recommended books and references (scientific journals, reports...)	الفيزياء الحديثة للجامعات جيمس ريتذاردز
Electronic References, Websites	http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html http://www.schoolarabia.net/fezia/fezia.htm https://physics.info/

Head of dept.

Asst.prof. Ammar Nadal Shareef

Lecturer

Hussein AbdAlkareem Hussein

Course Description Form

1. Course Name
Environment and health
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/3/29
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name: Elaf Lateef Neamah Email: Elaf.lateef@mu.edu.iq
8.Course Objectives
• Providing the student with information about the environment and health • Introducing the student to the concept of health and aspects of health • Introducing the student of the goals that health education seeks to achieve • Introducing the student to the concept of school health • Introducing the student to the concept of environmental pollution and the goals of environmental health • Identify and prevent communicable diseases • Teaching students all the necessary information related to the environment and hea subject, which will enable them to research all areas of environmental and hea education.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means

- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to public health	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	School Health	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	The role of education in raising the level of health awareness	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	nutrition	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Malnutrition diseases	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	Vaccines	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Environmental pollution	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Infectious diseases (infectious diseases)	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Transmissible diseases	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	first aid	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Supplement - first aid	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, monthly, written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks	التربية البيئية والصحية ، ليث حمدي عبد الله الطالب ، 2020
Main references (sources)	Allensworth, D. D.," Health Education ; State of the art " Journal of School Health , 63 (1) , 1993 .
Recommended books and references (scientific journals, reports...)	التلوث البيئي والمخاطر الور ثية والبيولوجية ، عادل محمد المصري 2015،
Electronic References, Websites	

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

M.Sc Elaf Lateef Neamah

Course Description Form

1. Course Name
Inorganic Chemistry of Main Group Elements
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
28-1-2024
5. Available Attendance Forms:
Attendance in classrooms and laboratory
6.Number of Credit Hours (Total) / Number of Units (Total)
60 hours/4 units
4. Course administrator's name (mention all, if more than one name)
The name: Hasanain Gomhor Jasim Email: chemistrystage234basc4@mu.edu.iq
8.Course Objectives
It aims to teach students the basics of inorganic chemistry, such as studying the perio properties of elements, studying hydrogen, and studying the eight groups in the periodic table detail, including metals, non-metals, and metalloids. It also teaches the students practical skills preparing and detecting inorganic molecules.
9. Teaching and Learning Strategies
▪ The explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily	Lecture and	Introduction to	The cognitive, skill and	4	First Week

participation	discussion	inorganic chemistry Introduction to laboratory devices and tools	emotional domain.		
Daily participation	Lecture and discussion	Periodic properties of the elements. The reaction of the elements of the first group with water	The cognitive, skill and emotional domain.	4	Second Week
Quiz	Lecture and discussion	Hydrogen, its properties, reactions and compounds. Prepare table salt	The cognitive, skill and emotional domain.	4	Third Week
Daily participation	Lecture and discussion	The elements of the first group, their characteristics, reactions, and compounds. Preparation of barium peroxide	The cognitive, skill and emotional domain	4	Fourth week
Daily participation	Lecture and discussion	The elements of the second group, their characteristics, reactions, and compounds.	The cognitive, skill and emotional domain.	4	Fifth week
Daily participation	Lecture and discussion	The elements of the third group, their characteristics, reactions, and compounds. Preparation of calcium carbonate	The cognitive, skill and emotional domain	4	Sixth week
Quiz	Lecture and discussion	The elements of the first group, their characteristics,	The cognitive, skill and emotional domain.	4	seventh week

		reactions, and compounds Practical exam			
Daily participation	Lecture and discussion	The elements of the fourth group, their characteristics, reactions, and compounds. Preparation of calcium peroxide	The cognitive, skill and emotional domain	4	eighth week
Daily participation	Lecture and discussion	The elements of the fifth group, their characteristics, reactions, and compounds	The cognitive, skill and emotional domain.	4	ninth week
Quiz	Lecture and discussion	The elements of the sixth group, their characteristics, reactions, and compounds. Preparation of barium borate	The cognitive, skill and emotional domain	4	tenth week
Daily participation	Lecture and discussion	The elements of the seventh group, their characteristics, interactions, and compounds	The cognitive, skill and emotional domain.	4	eleventh week
Daily participation	Lecture and discussion	The elements of the eighth group, their characteristics, reactions, and compounds. Preparation of aluminum oxide	The cognitive, skill and emotional domain	4	The twelfth week
Daily participation	Lecture and discussion	The uses of the s p elements in industry and their contact with humans.	The cognitive, skill and emotional domain	4	thirteenth week

		Theoretical and Practical exam	The cognitive, skill and emotional domain.	4	Fourteenth week
		Review the lectures	The cognitive, skill and emotional domain	4	Fifteenth week

11. Course Evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the students, such as daily preparation, daily and monthly exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks	Inorganic Chemistry Book – written by Dr. Noman Al-Naimi
Main references (sources)	Inorganic Chemistry and Representative Elements - written by Dr. Mahdi Naji Al-Zakum
Recommended books and references (scientific journals, reports...)	Inorganic Chemistry Book - written by Dr. Ihsan Abdel Ghani
Electronic References, Websites	

Head of dept.

Asst. prof. Ammar Nadal Shareef

Lecturer

Asst. prof. Hasanain Gomhor Jasim

Course Description Form

1. Course Name
Immunology
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/14
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name:Huda raheem Hashim Email: hudaraheem@mu.edu.iq
8.Course Objectives
• Providing the student with information about Introduction of Immunology • Introducing the student to methods of Innate Immunity classification • Introducing the student to methods of phagocytosis stage • Introducing the student to the Typ of Natural Immunity • Introducing the student to the types of Mechanical barriers • Learn about Antbodies and Antigens industries •
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to Immunology	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Type of Natural immunity	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Acquired Immune system	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Lymphoid organs & tissues	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Type of Leukocytes	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	Receptors of Ag .in Innate I. S	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Antigens & Immunogens	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Antibodies or Immunoglobulins	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Classes of Ab & Subclasses	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Type of Interferon	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	The Phagocytosis	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	محمد هيثم الخياط ،المعجم الطبي الموحد ، 2009، الطبعة الرابعة ، بيروت ، م لبنان ناشرون، المكتب الأقليمي لمنظمة الصحة العالمية في الشرق الأوسط
Main references (sources)	Clinical Immunology and Allergy by Professor Dr.

	Muhammed Madallah Al-Jubouri, first edition, 2024
Recommended books and references (scientific journals, reports...)	Basics of Immunology by Dr. Ahmed Ali Hussein, Babylon, Dar Al-Sadiq, 2019
Electronic References, Websites	https://www.healthline.com/health/cold-flu/immune-boosting-tips-to-prep-for-winter

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Asst.prof.Huda Raheem Hashim

1. Course Name

Human biology

2. Course Code :

3. Semester / Year

Second semester 2023/2024

4. Description Preparation Date:

2024/2/7

5. Available Attendance Forms:

Attendance in classrooms

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

60 hours/30 units

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

name:assistant lecturer tabarek salam abd-alraoof
Email: tabarek@mu.edu.iq

8.Course Objectives

1- Introducing the student to the concept of the cell, types of cells, cell components, and focusing on animal cell.
2- Providing the student with information about cell division, both direct and indirect, and in which type of cell direct and indirect division occurs.
3- The student learns about the systems that exist in the human body, starting with the skeletal system, digestive system, the respiratory system, the urinary system, the vascular system, the reproductive system, and the nervous system. And the most important problems and diseases that affect various systems.
4- Discussing in general the endocrine system in the human body so that the student learns about hormones and their effect on the human body and its various functions.

9. Teaching and Learning Strategies

- the explanation
- Brainstorming
- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure					
Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
formative assessment	Discussion and questioning	Definition of biology and the theory of self-evolution.	Introduction: Biology, its definition and the most important theories in biology.	2	Week 1
Daily participation + quiz.	Discussion and questioning	Human evolution and the environment. the cell: the structural unit of the body.	Human evolution and its relationship with the environment and learning about the cell and its types.	2	Week 2
Daily participation + quiz	Discussion and questioning.	Mitosis and meiosis.	The concept of direct and indirect division and the different stages of direct and indirect cell division.	2	Week 3
Daily participation + quiz	Discussion and questioning	Tissues and organs.	Tissues, organs, and homeostasis	2	Week 4
Daily participation +quiz.	Discussion and questioning.	The skeletal system.	Identifying the systems that made up the human body: the skeletal system and its components and the most important diseases and problems that affect it.	2	Week 5
Daily participation + quiz.	Discussion and questioning.	digestive system.	The digestive system, its parts and components, and the most important diseases and problems that affect it.	2	Week 6
Daily participation + quiz.	Discussion and questioning.	the respiratory system.	The respiratory system, its parts, function, and the most important diseases that affect it.	2	Week 7
Exam				2	Week 8
structural evaluation	discussion and questioning.	The vascular system.	The vascular system, its components, function, and the most important diseases that affect it	2	Week 9
Daily participation + quiz.	Discussion and questioning.	The urinary system.	The urinary system: its components, functions, and the most important diseases that affect it	2	Week 10
Daily participation + quiz.	Discussion and questioning.	the reproductive system.	The reproductive system: its components, functions, and the most important diseases that affect it.	2	Week 11
Daily participation + quiz	Discussion and questioning.	The nervous system.	The nervous system: its components, functions, and the most important diseases that affect it	2	Week 12
Exam				2	Week 13

Formative evaluation	Discussion and questioning.	The endocrine system.	The endocrine system: hormones and their effect on the human body.	2	Week 14
The final exam				2	Week 15

11. Course Evaluation

Average of two exams: 60%, average of daily quizzes: 20%, presentation at the end of the semester: 10% Participation/attendance: 10%

12. Learning and Teaching Resources

Required textbooks	بيولوجيا الانسان.المؤلف:حميد احمد الحاج
Main references (sources)	Human Biology By: Michael D. Johnson
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Free Human Biology manual PDF available at: https://openlab.citytech.cuny.edu/oer-human-biology/coursebook/

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Assistant lucturar Tabarek salam abd-alraoof

1. Course Name

Calculus

2. Course Code :

3. Semester / Year

Second semester 2023/2024

4. Description Preparation Date:

2024/2/7

5. Available Attendance Forms:

Attendance in classrooms

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

30hours/30 units

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

The name:prof. Dr. Murtadha Mohammed Abdulkadhim
Email: murtadha_moh@mu.edu.iq

8.Course Objectives

- Building students according to a scientific method and how to link subjects w each other and communication with other sciences

9. Teaching and Learning Strategies

- the explanation
- Brainstorming
- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Coordinates and Graphs in the Plane	Distance Formula for Points in the Plane.	2	First Week
Daily participation	Lecture and discussion	Slope, and Equations for lines	Functions, Domain and Range of functions, Properties of functions	2	Second Week
Quiz	Lecture and discussion	Arithmetic operations on functions	Composition of functions, Expressing a function as a composition	2	Third Week
Daily participation	Lecture and discussion	Definition of real function and their graph with example	functions	2	Fourth week
Daily participation	Lecture and discussion	example	functions	2	Fifth week
Daily participation		Definitions\theorems	limits	2	Sixth week
Quiz	Lecture and discussion	Using definition of the limit	limits	2	seventh week
Daily participation	Lecture and discussion	Definition,with examples	continuous	2	eighth week
Daily participation	Lecture and discussion	Theorem about continuity	continuous	2	ninth week
Quiz	Lecture and discussion	Definition,theorems and some application	differentiation	2	tenth week
Daily participation	Lecture and discussion	Trigonometric function with inverse	Transcendental function	2	eleventh week
Daily participation	Lecture and discussion	Hyperbolic function with inverse	Transcendental function	2	The twelfth week
Daily participation	Lecture and discussion	Exponential qnot algorithm	Transcendental function	2	thirteenth week
Daily participation	Lecture and discussion	Functions with application	Transcendental function	2	Fourteenth week
Daily participation	Lecture and discussion	The final test	The final test	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	LCULUS/ Ross L. Finney, George 3. Thomas, Jr. / USA/ 1989
Main references (sources)	Calculus 7th /Howard Anton, Irl Bivens, Stephen Davis/ USA/ 2002. 2- Student's Solutions Manual for use with "Calculus" 2nd/ Robert T. Smith, Roland B. Minton/ 2002.
Recommended books and references (scientific journals, reports...)	Thomas' CALCULUS 12th/ George B. Thomas, Jr., Maurice D. Weir, Joel Hass/ 2009. 4- التفاضل و التكامل/ د. رمضان محمد جهيمة، د. أحمد عبد العالي هب الريح/ الطبعة الأولى/ 2002
Electronic References, Websites	

Course Description Form

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Prof. Dr. Murtadha Mohammed

Course description form

1. Course name
Educational psychology
2- Course Code
Semester/year/stage .1
Second semester 2023/2024 Second stage - Chemistry-Physics
The date this description was prepared .2
2024/2/7
3. Available forms of attendance .3 .4
Attendance in classrooms
5. Number of study hours (total)/number of units (total) .5 .6
30 hours/30 units
Name of the course administrator
Name: A. Dr. Thaer Sakban Hussein Email: hasnthair801@mu.edu.iq
7. Objectives of the course .7
aihdaf almadat aldirasia **tazwid altaalib bimaelumat ean asasiaat eilm alnafs altarbawi.** **taerif altaalib bimahawir aleamaliat altaelimia** **taerif altaalib bikayfiat astitharat aldaafieiat liltaealum** **taerif altaalib biwujuhat alnazar almukhtalifat hawl aleamaliat altaelimia** **taerif altaalib bishurut wakhasayis altaealum aljayid**

altaearuf ealaa ahimi altatbiqat altarbawiat almutaealiqat binazariaat altaealumi.

Objectives of the study subject

Providing the student with information about the basics of educational psychology.

Introducing the student to the aspects of the educational process

Introducing the student to how to stimulate motivation to learn

Introducing the student to different points of view about the educational process

Introducing the student to the conditions and characteristics of good learning

Identify the most important educational applications related to learning theories

8. Teaching and learning strategies .8

the explanation - Brainstorming - Dialogue and discussion - Using references and sources - Using modern teaching methods - Assigning students to research papers	The strategy

Course structure .9

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Daily sharing	Lecture and discussion	**Introduction to educational psychology**	The cognitive, skill and .emotional domain	2	the first
Daily sharing	Lecture and discussion	The importance and goals of educational psychology	The cognitive, skill and emotional domain	2	the second
Daily exam	Lecture and discussion	Desirable teacher personality characteristics	The cognitive, skill and emotional domain	2	the third
Daily sharing	Lecture and discussion	Motivation in learning	The cognitive, skill and emotional domain	2	the fourth
Daily sharing	Lecture and discussion	Memory and forgetting	The cognitive, skill and emotional domain	2	Fifth
	Lecture and discussion	First month test	The cognitive, skill and emotional domain	2	six
Daily exam	Lecture and discussion	Transfer effect of training	The cognitive, skill and emotional domain	2	Seventh

Daily sharing	Lecture and discussion	Feedback	The cognitive, skill and emotional domain	2	VIII
Daily sharing	Lecture and discussion	Learning	The cognitive, skill and emotional domain	2	Ninth
Daily sharing	Lecture and discussion	Learning theories	The cognitive, skill and emotional domain	2	The tenth
Daily sharing	Lecture and discussion	Educational applications	The cognitive, skill and emotional domain	2	eleventh
Daily sharing	Lecture and discussion	Learning curves	The cognitive, skill and emotional domain	2	twelveth
	Lecture and discussion	Second month test		2	Thirteenth
Daily sharing	Lecture and discussion	Review the article	The cognitive, skill and emotional domain	2	fourteenth
	Lecture and discussion	The final test		2	Fifteenth

10. Course evaluation

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

Learning and teaching resources . .10

- Al-Anani, Hanan Abdel Hamid (2017) Educational Psychology - Al-Kanani, Firas Ali (2014). Readings in educational psychology	Required prescribed book
Mansi, Mahmoud Abdel Halim (2014) Educational Psychology .	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
https://www.noor-book.com/	Electronic references, Internet sites

lead of the Science Department

Prof. Ammar Nidal Sharif

Subject teacher

Prof. Dr. Thaer Sakban Hussein

Course Description Form

1. Course Name
Biochemistry
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
14\3\2024
5. Available Attendance Forms:
Attendance in classrooms and laboratory
6.Number of Credit Hours (Total) / Number of Units (Total)
60 hours/4 units
4. Course administrator's name (mention all, if more than one name)
The name: ali yahya naoom Email: ali.yahya@mu.edu.iq
8.Course Objectives
with knowledge about the basics of biochemistry. Teaching the student how to identify chemical compounds that exist or that disturb the human body and provide him with sufficient information that enables him to understand the vital activities taking place in the human body the molecular level, and apply them with practical lessons and demonstrate the methods used diagnose some of these molecules in the laboratory.
9. Teaching and Learning Strategies
▪ The explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers
10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to the importance of biochemistry. Basic life molecules. Cell parts Mulch revealed, Benedict revealed	The cognitive, skill and emotional domain.	4	First Week
Daily participation	Lecture and discussion	Definition and existence of carbohydrates Parforid detection, Selivanov detection, Bell detection	The cognitive, skill and emotional domain.	4	Second Week
Quiz	Lecture and discussion	Classification of carbohydrates. The importance of carbohydrates Hydrolysis of disaccharides by acid	The cognitive, skill and emotional domain.	4	Third Week
Daily participation	Lecture and discussion	Proteins Functions of proteins Detection of polysaccharides. Diagnosis of an unknown sugar.	The cognitive, skill and emotional domain	4	Fourth week
		First month test	The cognitive, skill and emotional domain.	4	Fifth week
Daily participation	Lecture and discussion	Amino acids, peptides Biuret detection, ninhydrin detection, Melon detection	The cognitive, skill and emotional domain	4	Sixth week
Quiz	Lecture and discussion	Fats Fat functions Diagnosis of an	The cognitive, skill and emotional domain.	4	seventh week

		unknown .protein Estimating the amount of protein using the Biuret method or the Folen method			
Daily participation	Lecture and discussion	Classification of fats and their importance Lipid detection Finding the iodine number (detecting (unsaturation	The cognitive, skill and emotional domain	4	eighth week
Daily participation	Lecture and discussion	Nucleic acids Functions of nucleotides	The cognitive, skill and emotional domain.	4	ninth week
Quiz	Lecture and discussion	Nucleic acids .DNA and RNA Mutations. Find the acidity .number Estimating the amount of cholesterol in the blood	The cognitive, skill and emotional domain	4	tenth week
		Second month test	The cognitive, skill and emotional domain.	4	eleventh week
Daily participation	Lecture and discussion	Enzymes General properties of .enzymes RNA extraction from yeast	The cognitive, skill and emotional domain	4	The twelfth week
Daily participation	Lecture and discussion	Factors that affect enzyme effectiveness Estimation of	The cognitive, skill and emotional domain	4	thirteenth week

		vitamin B, A, C			
Daily participation	Lecture and discussion	Hormones Definition of the hormone and its .functions Preparation of invertase enzyme from bread yeast. Estimation of its effectiveness	The cognitive, skill and emotional domain.	4	Fourteenth week
		Review the lectures	The cognitive, skill and emotional domain	4	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	oduction to biochemistry, Dr. Khawla Ahmed Falih, University of Mosul / 1986 AD
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Principles of Biochemistry, Dr. Mazhar Nabat Abd Ali, University of Babylon / 2016

Head of dept.

Asst. prof. Ammar Nadal Shareef

Lecturer

Dr . Ali yahya naoom

Course Description Form

1. Course Name
laboratory safety
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
14\3\2024
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name:zina abdulhussein jawad Email: zina.abdulhussein@mu.edu.iq
8.Course Objectives
• . Taking all measures and means of individual protection within educational laborator and recognizing the indicative signs and their importance in order to reduce or prevent t risk of infection.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to laboratory safety	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	The most important instructions that must be followed before entering educational laboratories	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	The most important instructions to follow before starting the experiment and upon completion	The cognitive, skill and emotional domain.	2	Third Week
		First month test	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Identify means of individual protection	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation	Lecture and discussion	The most important sterilization methods used in educational laboratories	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	Indicative signs are important to recognize	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Waste disposal methods	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Specifications of a good laboratory	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Identify escape routes	The cognitive, skill and emotional domain	2	tenth week

Daily participation	Lecture and discussion	Spreading preventive awareness among students	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Recognizing the indicative signs inside laboratories	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	What are dangerous ?laboratories	The cognitive, skill and emotional domain	2	thirteenth week
		Second month test	The cognitive, skill and emotional domain.	2	Fourteenth week
		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	Laboratory security and safety book
Main references (sources)	Book of means of individual protection
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

M.Sc zina abdulhussein jawad

Course Description Form

1. Course Name
Organic Chemistry-1
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/7
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
hours/60 : Units /45
Course administrator's name (mention all, if more than one name)
The name: Ahmed Abdulrazzaq Hadi Email: aarhrf@mu.edu.iq
8.Course Objectives
• Introducing students to the basic concepts of organic chemistry. • Defines what organic compounds are and explains the difference between organic compounds. • Introducing the student to the structure of different types of hydrocarbons (open chain, cyclic, and aromatic) • Introducing the student to the names of hydrocarbons such as alkanes, alkenes, and alkynes and their physical and chemical properties. • Introducing the student to aromatic compounds, their conditions, and their chemical reactions. • Introducing the student to organic compounds with distinct functional groups, such as aliphatic and aromatic alcohols, aldehydes, ketones, carboxylic acids, esters, and amines and includes learning about their structure, nomenclature, and physical and chemical properties.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming

- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily exam and participation	Lecture and discussion	Identify the foundations of organic chemistry, its importance, and the type of bonds in organic compounds	The cognitive, skill and emotional domain.	2	First Week
Daily exam and participation	Lecture and discussion	General features of organic compounds	The cognitive, skill and emotional domain	2	Second Week
Daily exam and participation	Lecture and discussion	Identifying alkanes in terms of structure and nomenclature, and addressing their physical and chemical properties	The cognitive, skill and emotional domain.	2	Third Week
Daily exam and participation	Lecture and discussion	Identifying alkenes in terms of structure and nomenclature and addressing their physical and chemical properties	The cognitive, skill and emotional domain	2	Fourth week
Daily exam and participation	Lecture and discussion	Identifying alkynes in terms of structure and nomenclature and addressing their physical and chemical properties	The cognitive, skill and emotional domain.	2	Fifth week
Daily exam and participation	Lecture and discussion	Isomers: types and structure	The cognitive, skill and emotional domain	2	Sixth week
		First month test		2	seventh week
Daily exam and participation	Lecture and discussion	Aromatic hydrocarbons, aromatic character, stability of the benzene ring, benzene reactions	The cognitive, skill and emotional domain	2	eighth week
Daily exam and participation	Lecture and discussion	Identify alcohols, phenols, and ethers in terms of structure and nomenclature, and address their physical and chemical properties	The cognitive, skill and emotional domain.	2	ninth week
Daily exam and participation	Lecture and discussion	Identify aldehydes and ketones in terms of structure and	The cognitive, skill and emotional domain	2	tenth week

		nomenclature, and address their physical and chemical properties			
Daily exam and participation	Lecture and discussion	Identifying esters and carboxylic acids in terms of structure and nomenclature, and addressing their physical and chemical properties	The cognitive, skill and emotional domain.	2	eleventh week
Daily exam and participation	Lecture and discussion	Identify amines and amides in terms of structure and nomenclature, and address their physical and chemical properties	The cognitive, skill and emotional domain	2	The twelfth week
Daily exam and participation	Lecture and discussion	Identify some organic compounds that have a role in daily life	The cognitive, skill and emotional domain	2	thirteenth week
		Second month test		2	Fourteenth week
	Lecture and discussion	Review	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	كتاب الكيمياء العضوية - دراسة مفصلة وامثلة محلولة
Main references (sources)	كتاب مبادئ الكيمياء العضوية الحديثة
Recommended books and references (scientific journals, reports...)	كتاب مقدمة مكثفة في الكيمياء العضوية
Electronic References, Websites	https://arabian-chemistry.com/category/organic. https://www.udemy.com/course/organic-chemistry-j/

Head of dept.

Asst.prof. Ammar Nadal Shareef

Lecturer

Dr. Ahmed Abdulrazzaq Hadi

Course Description Form

1. Course Name
Gravimetric Analytical Chemistry
2. Course Code:
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2/7/2024
5. Available Attendance Forms:
Attendance in classrooms
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 units
7. Course administrator's name (mention all, if more than one name)
Asst. prof. **Zainab Jassim Khudair** chemistry.zainb@mu.edu.iq
8. Course Objectives
• Providing the student with information about One type of quantitative analytical chemist is gravimetric analytical chemistry. • Introducing the student to the concepts and basics of quantitative weight analysis. • The student's knowledge of chemical analysis methods. • Know the meaning of quantitative weight analysis and methods for performing calculations. • The student learns about the solubility of sediments. • Understand the meaning of the solubility product constant. • Learn about separation methods.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to Gravimetric Quantitative Analysis	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Accounts in Gravimetric Quantitative Analysis	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Issues and questions	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Introduction to solubility	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Issues and questions	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test		2	Sixth week
Quiz	Lecture and discussion	Factors affecting the solubility of sediments	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Effect of ionic strength and effectiveness factor	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Crystalline formation of the sediment	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Colloidal state	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Sediment pollution and treatment	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Separation techniques	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test		2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test		2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources	
Required textbooks	- الكيمياء التحليلية (الجزء الاول)/ الاسس العامة للتحليل الكمي الوزني تأليف د. صفاء رزوقي المرعب. - الكيمياء التحليلية (الجزء الثاني)/ المدخل الى طرائق الفصل تأليف د. صفاء رزوقي المرعب.
Main references (sources)	-اسس الكيمياء التحليلية.
Recommended books and references (scientific journals, reports...)	- Analytical chemistry the fundamentals Chemical separation methods by John A. Dean.
Electronic References, Websites	- Daniel C. Harris, "Quantitative Chemical Analysis" Eighth Ed. Freeman and Company New York. 2010. - Hage D.; Carr J. "analytical Chemistry and quantitative analysis" international Ed. Person, USA, 2011.

Head of dept.

Asst.prof.Dr. Ammar Nadal Shareef

Lecturer

Asst.prof. Zainab Jassim Khudair

جامعة المثنى
كلية التربية الاساسية
قسم العلوم

Course description form

1. Course name
Measurement and evaluation
2 - Course Code
Semester/year/stage
Second semester 2023/2024 Third stage - Chemistry-Physics
1. The date this description was prepared
2024/2/ 7
1. Available forms of attendance
Attendance in classrooms
Number of study hours (total)/number of units (total)
30 hours/30 units
Name of the course administrator
Name: A. Dr. Thaer Sakban Hussein hasnthair801@mu.edu.iq :Email
Course objectives .1
Objectives of the study subject **Providing the student with information about measurement, evaluation and its types.** **Introducing the student to the levels of measurement** **Introducing the student to the rules of preparing all types of tests.** **Introducing the student to the educational objectives and the evaluation process.** **Introducing the student to how to prepare and design an achievement test.** **Get to know the specifications table and the school card.** **Teaching students all the necessary information related to the subject of measurement and evaluation in a way that qualifies them to carry out teaching in the best way.**
2. Teaching and learning strategies

the explanation - – Brainstorming - – - Dialogue and discussion – - Using references and sources – - Using modern teaching methods –	The strategy

Assigning students to research papers	

2. Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Daily sharing	Lecture and discussion	**Introduction to measurement and evaluation**	The cognitive, skill and . emotional domain	2	the first
Daily sharing	Lecture and discussion	Historical development of measurement and evaluation	The cognitive, skill and emotional domain	2	the second
امتحان يومي	Lecture and discussion	Factors affecting it	The cognitive, skill and emotional domain	2	the third
Daily sharing	Lecture and discussion	Measurement levels	The cognitive, skill and emotional domain	2	the fourth
Daily sharing	Lecture and discussion	Calendar and its types	The cognitive, skill and emotional domain	2	Fifth
	Lecture and discussion	First month test		2	six
Daily exam	Lecture and discussion	Calendar fields	The cognitive, skill and emotional domain	2	Seventh
Daily sharing	Lecture and discussion	Educational goals	The cognitive, skill and emotional domain	2	VIII
Daily sharing	Lecture and discussion	Achievement tests	The cognitive, skill and emotional domain	2	Ninth
Daily exam	Lecture and discussion	Oral exams	The cognitive, skill and emotional domain	2	The tenth
Daily sharing	Lecture and discussion	Written tests	The cognitive, skill and emotional domain	2	elevent
Daily sharing	Lecture and discussion	Performance tests	The cognitive, skill and emotional domain	2	twelveth
	Lecture and discussion	Second month test		2	Thirteen
Daily sharing	Lecture and discussion	Review the article	The cognitive, skill and emotional domain	2	fourteenth

	Lecture and discussion	The final test		2	Fifteenth

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

2. Learning and teaching resources .2	
- Mustafa, Mahmoud Al-Imam, and Anwar, Abdul Rahman (1990) Measurement and Evaluation - Odeh, Ahmed (2004). Measurement and evaluation in the teaching process	Required prescribed books
-Allam, Salah El-Din (2007) Educational measurement and evaluation in the teaching process. Razouki, Abdul Hussein, and Hamid, Yassin (2012) Measurement and evaluation for university students.	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
https://www.noor-book.com/tag https://ircoedu.uobaghdad.edu.iq/wp-content/uploads/sites/26/2019/04	Electronic references, Internet sites

lead of the Science Department

Prof. Ammar Nidal Sharif

Subject teacher

Prof. Dr. Thaer Sakban Hussein

Course Description Form

1. Course Name
Solid State Physics
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/14
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name:Sahib Hasan Email: sahib.hasan@mu.edu.iq
8.Course Objectives
Objectives of the study material **1**. Provide the student with information on the principles of solid or condensed materials scienc **2**. Introduce the student to the most prominent qualities of crystalline and non-crystalline materials. **3**. Study and understand the crystal network. **4**. Introducing the student to the types of polyps and how to calculate the stacking factor in different crystals. **5**. Introduce the student to how to calculate the theoretical density of the solid. **6**. Identify Miller coefficients, crystalline trends, and crystalline levels and their methods of calculation. **7**. Study the inverted network. **8**. Study of Bloch's theory of solids. **9**. Study of energy bands in solids.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming

- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to crystals and amorphous materials	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Types of crystals	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Crystal lattice	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	packing factor and theoretical density of crystals	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Miller coefficients, crystal levels, and methods for calculating them	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		Determine the locations of atoms in the lattice	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	First month test	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Reciprocal lattice	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	X-ray diffraction	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	The Schrödinger equation in one dimension in a crystal	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Bloch theory	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Energy bands in solids	The cognitive, skill and emotional domain	2	The twelfth week

Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

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

12. Learning and Teaching Resources	
Required textbooks	Solid State Physics, Yahya Nour El Gamal
Main references (sources)	Solid State Physics (Kittel)
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Wikipedia and other educational YouTube sites

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Sahib Abd Alkhuder Hasan

Course Description Form

1. Course Name
petroleum and petrochemicals
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/7
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
60 hours/45 units
4. Course administrator's name (mention all, if more than one name)
The name:Ameena Naeem Seewan Email: ameena.naeem@mu.edu.iq
8.Course Objectives
• Providing the student with information about crude oil and its components • Introducing the student to methods of petroleum classification • Introducing the student to methods of processing crude oil before the refining stage • Introducing the student to the oil refining process • Introducing the student to the types of fuel and anti-knock fuel • Learn about petrochemical industries • Teaching students all the necessary information related to petroleum and petrochemica which will enable them to research all areas of petroleum chemistry.
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to crude oil	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Crude oil components	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Physical properties of crude oil	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Evaluation of oil and its derivatives	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Anti-knock fuel	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	extraction of crude oil	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Petroleum refining operations	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Petroleum refining operations	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Process of purifying petroleum derivatives	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Introduction to petrochemical industries	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	petrochemical industries	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, monthly, written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks	الكيمياء الصناعية والتلوث الصناعي ، الدكتور عمر موسى رمضان ،خالد احمد عبد الغنام ، احمد عبد الكريم ذنون ،الطبعة الثانية 2011
Main references (sources)	Chemistry_of_Petrochemical_Processes, sami matar , Lewis Fatch , 2 edution,2001
Recommended books and references (scientific journals, reports...)	تكرير البترول ، محمد الكناني ، يوسف ادريس ،2011
Electronic References, Websites	https://petex.utexas.edu/e-learning/360-petroleum-exploration https://www.arab-oil-naturalgas.com/arabic-petroleum-books-4/

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

M.Sc Ameena Naeem Seewan

جامعة المثنى
كلية التربية الاساسية
قسم العلوم

Course Description Form

1. Course Name
sustainable development
2. Course Code :
3. Semester / Year
Second semester 2023/2024, Third stage
4. Description Preparation Date:
2024\2 \28
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 units
7.Course administrator's name (mention all, if more than one name)
The name M. Budoor Adulateef Thamer Email: badour.alfadhli@mu.edu.iq
8.Course Objectives
1-The student learns about the concept of sustainable development and its most important environmental, .economic, social, and technical definitions 2-The student will be familiar with the characteristics, requirements and dimensions of sustainable .development 3-The student will be familiar with the goals of sustainable development 4-The student will be familiar with the indicators of sustainable development 5- That the student will be able to know the future vision for enhancing dimensions of sustainable development, which will enable the Iraqi people to have a safe and unified country in which everyone enjoys equal rights, establish an economic system with diverse social trends in the market and stable indicators at the macroeconomic level, and create

a clean, safe and sustainable environment. For present and future generations.

9. Teaching and Learning Strategies

- View article
- Brainstorming
- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	The concept of sustainable development and its most important environmental, economic, and socio-technical definitions.	The cognitive, skill and emotional domain.	3	First Week

Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Characteristics of sustainable development and its continuity	The cognitive, skill and emotional domain	3	Second Week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Historical development of sustainable development	The cognitive, skill and emotional domain.	3	Third Week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Sustainable development requirements and its most important elements (economic, social, environmental, and technological aspects)	The cognitive, skill and emotional domain	3	Fourth week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Sustainable development goals (and their principles, goals, indicators and targets)	The cognitive, skill and emotional domain.	3	Fifth week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	First month exam	The cognitive, skill and emotional domain	3	Sixth week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	The first goal: eradicating poverty The second goal:	The cognitive, skill and emotional domain.	3	seventh week

		eliminating hunger Third goal: good health and well-being Fourth goal: quality education			
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Fifth goal: gender equality Sixth goal: clean water Seventh goal: clean energy Goal Eight: Decent work and economic growth Ninth goal: industry and innovation	The cognitive, skill and emotional domain	3	eighth week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Tenth goal: Reducing inequalities Eleventh: Sustainable cities and local communities Twelfth: Consumption and production Thirteenth: Climate action Fourteenth: Life under water	The cognitive, skill and emotional domain.	3	ninth week

		Fifteenth: Life in righteousness Sixteenth: Peace and justice Seventeenth: Corporate contracts to achieve goals			
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Iraq's vision for the 2030 sustainable development goals	The cognitive, skill and emotional domain	3	tenth week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Community vision for the 2030 Sustainable Development Goals	The cognitive, skill and emotional domain.	3	eleventh week
Preparing a paper on the topic and conducting a test for students	Discussion, asking questions, and using the cooperative learning method	Second month exam	The cognitive, skill and emotional domain	3	The twelfth week

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

12. Learning and Teaching Resources	
Required textbooks	
Main references (sources)	Sustainable development (its concept - dimensions - indicators)
Recommended books and references (scientific	**Sustainability Science** **Journal of Sustainable Development**

journals, reports...)	**Ecology and Society**
Electronic References, Websites	**Goals Development Sustainable Nations United**

Head of Department

Asst.prof.Ammar Nadal Shareef

Lecturer

Assistant lucturar. Budoor Adulateef Thar

1. Course Name

Thermal and thermodynamics

2. Course Code :

3. Semester / Year

The second stage - Physics / Second semester 2023/2024

4. Description Preparation Date:

2024/2/7

5. Available Attendance Forms:

Attendance in classrooms+ laboratory

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

60 hours/45 units (two theoretical units and one practical unit per week)

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

Name: lecturer Zaid Suod Razaq
Email: said.s.razaq@mu.edu.iq

8.Course Objectives

1- It is concerned with studying the change in temperature of a system and the change in its state (so liquid, or gaseous) as a result of the transfer of energy to and from the system.
2- The science of thermodynamics is useful in clarifying and explaining the properties of matter and relationship of these properties with the atoms and molecules that make up the matter.
3- The science of thermodynamics answers many practical questions and inquiries. For example, have thought about how a refrigerator is able to cool its contents, what is the nature of the transformations t occur in power plants and car engines, or what happens to the kinetic energy of moving objects when t stop, and that the laws of thermodynamics provide us with explanations for all of these and ot phenomena.
4- Studying the reasons why matter is considered an important element for studying thermal phenomena. example. Gases expand greatly when heated, while liquids and solids expand little.
5- It deals with the macroscopic description of the ideal gas, where the focus will be on the relations between pressure, volume, and temperature, and on the microscopic description of the ideal gas, based the fact that the gas is composed of tiny particles, and this can be a model for studying gases.
6- Explaining to the student how to distinguish between processes and temperature systems
7- Enabling the student to understand the meaning of dynamics and the difference between them
8- Enable the student to explain the mechanism of heat transfer and its transformations
9- The student understands the meaning of volume, pressure and temperature
10- The student should distinguish between heat and temperature
11- The student can identify and differentiate between types of minerals
12- Training the student to solve problems related to heat capacity
13- Teaching the student to solve problems related to work and specific heat
14- Training the student to solve problems related to thermal expansion
15- Enable the student to solve problems related to internal energy and equations for an ideal gas.

9. Teaching and Learning Strategies

- the explanation
- Brainstorming
- meeting and discussion
- Using references and sources
- Using modern teaching methods
- Assigning students to research papers
- Discussion
- Student groups
- Scientific trips
- Display experiences
- workshops
- Scientific reports
- Oral exams
- Surprise written exams
- Direct questions

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily sharing	Method of giving lectures and method of discussion	Quantity of heat - the difference between heat and temperature	Explains to the student the sources of heat and the difference between heat and temperature	2	Week 1
Daily sharing	Method of giving lectures and method of discussion With laboratory work	Temperature gauges and types of thermometers	It shows the student the types of how to create temperature scales along with the principle of how thermometers work	2	Week 2
quiz	Method of delivering lectures, student groups With laboratory work	Temperature regimes - absolute zero	Explains to the student the temperature systems (Celsius, Fahrenheit, and Kelvin) and the difference, while explaining the concept of absolute zero.	2	Week 3
Daily sharing	How to deliver lectures with laboratories	Calorimeter - specific heat - heat capacity	Explain and clarify the work of the calorimeter and how to find specific heat through it	2	Week 4
Daily sharing	Method of giving lectures and method of discussion With laboratory work	Molecular heat capacity	Explains to the student the relationship between specific heat capacity and molecular heat capacity with their respective rates	2	Week 5

quiz	Method of giving lectures and method of discussionWith laboratory work	Processes and transitions between phases of matter	The student learns about the concepts of solid, liquid, and gaseous states and how to transform between them	2	Week 6
Daily exam	E-learning and presentation experiences With laboratory work	Heat of evaporation - boiling of liquids - amount of heat of combustion	The student learns about the concepts of evaporation, boiling, and liquids, in addition to the amount of heat of combustion	2	Week 7
First Exam				2	Week 8
Daily sharing	Method of giving lectures And laboratory work With laboratory work	Thermal expansion	Explains to the student how longitudinal expansion, area expansion, and volumetric expansion are caused by temperature changes	2	Week 9
Daily sharing	Method of giving lectures and e-learning With laboratory work	Work done by heat transfer	Explains to the student how to create work resulting from heat transfer	2	Week 10
quiz	Method of giving lectures Discussion method with e-learning With laboratory work	Zeroth law of thermodynamics - entropy	The student learns about defining and discovering the zeroth law of thermodynamics and introducing the concept of entropy	2	Week 11
Daily sharing	Method of giving lectures Discussion method with e-learning	First law of thermodynamics	The student learns about the definition of the first law of thermodynamics and its laws	2	Week 12
quiz	Method of giving lectures Discussion method with e-learning With laboratory work	Second law of thermodynamics	It explains to the student the definition of the second law of thermodynamics and its laws and applications	2	Week 13
Daily sharing	Method of giving lectures Discussion method with e-With learning laboratory work	Third law of thermodynamics	It explains to the student the definition of the third law of thermodynamics and its laws and applications	2	Week 14
Second Exam				2	Week 15

11. Course Evaluation	
The total for the two Theoretical exams is 20%, with the two practical exams for a total of 10%, with daily attendance at 5% and participation with the daily quiz at 5%, so that the final total is 40% plus the final exam at 60%.	
12. Learning and Teaching Resources	
Required textbooks	General physics - Written by Abdul Majeed Abdul Khaleq Majeed Al-Sufi
Main references (sources)	1- University Physics - Written by Rahim Abdel Katal - Abdel Salam Abdel Amir - Talib Nahi Al Khafaji - Fayyad Abdel Latif Al Najm 2- Heat and the properties of matter - written by - Kazem Ahmed Muhammad 3- Fundamentals of Physics - Written by - F. Bush
Recommended books and references (scientific journals, reports...)	https://www.uomisan.edu.iq/jmr/issue.
Electronic References, Websites	https://download-scientific-pdf-ebooks.com/1039-1-library-books

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Lucturar Zaid Suod Razaq

Course Description Form

1. Course Name
Electronics
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/14
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name:Sahib Hasan Email: sahib.hasan@mu.edu.iq
8.Course Objectives
Objectives of the study material • Provide the student with information on the principles of electronics science. • Introducing the student to the most prominent types of semiconductors. • Introducing the student to methods of creating semiconductors. • The student's definition of how semiconductor types work. • Introducing the student to a two-link working basis (diode). • Recognize the basis of the work of the triple link (transistor).
9. Teaching and Learning Strategies
▪ the explanation • Brainstorming • Dialogue and discussion • Use references and sources • Using modern teaching means • Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	Introduction to semiconductors	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Types of materials according to their nature of electrical conductivity	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Fermi-Dirac distribution	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Types of semiconductors	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	The process of creating a diode and the nature of its work from a physical standpoint	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test	The cognitive, skill and emotional domain	2	Sixth week
Quiz	Lecture and discussion	Methods of connecting diodes and their types	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Diode as a rectifier	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Rectifiers and filters	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Three-junction transistor	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Basics of transistor operation	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Logic Circuits (Overview)	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

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

12. Learning and Teaching Resources	
Required textbooks	Electronics basics
Main references (sources)	Lectures available online
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Wikipedia and other educational YouTube sites

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Sahib Abd Alkhuder Hasan

جامعة المثنى
كلية التربية الاساسية
قسم العلوم

Course Description Form

1. Course Name
Optical physics
2. Course Code :
3. Semester / Year
Second semester 2023/2024
4. Description Preparation Date:
2024/2/7
5. Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
60 hours/30 units
4. Course administrator's name (mention all, if more than one name)
The name:Ammar Nadhal Shareef Email: ammarnadhal@mu.edu.iq
8.Course Objectives

- Providing the student with information about light and its nature.
- The student will learn about the duality theory of light.
- Introduce the student to the laws of reflection and refraction of light.
- Introducing the student to creating images of objects using all types of mirrors and lenses.
- Introducing the student to the phenomena in which light behaves as a wave.
- Identify interference, diffraction, and polarization of light waves.
- Teaching students all the necessary information related to the subject of geometric and wave optics, in a way that qualifies them to know the most important phenomena related to the interaction of radiation with matter.

9. Teaching and Learning Strategies

- the explanation
- Brainstorming
- Dialogue and discussion
- Use references and sources
- Using modern teaching means
- Assigning students to research papers

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily participation	Lecture and discussion	A general introduction to light and its nature.	The cognitive, skill and emotional domain.	2	First Week
Daily participation	Lecture and discussion	Geometric optics, mirrors, their types, and the images formed.	The cognitive, skill and emotional domain	2	Second Week
Quiz	Lecture and discussion	Lenses, their types, characteristics of the images formed by each type, and the lens equation.	The cognitive, skill and emotional domain.	2	Third Week
Daily participation	Lecture and discussion	Definition of aberrations and their types and ways to reduce their effects on optical devices.	The cognitive, skill and emotional domain	2	Fourth week
Daily participation	Lecture and discussion	Wave optics Laws of reflection and refraction.	The cognitive, skill and emotional domain.	2	Fifth week
Daily participation		First month test	The cognitive, skill and emotional domain	2	Sixth week

Quiz	Lecture and discussion	Snell's law and its applications.	The cognitive, skill and emotional domain.	2	seventh week
Daily participation	Lecture and discussion	Total internal reflection and its most important applications in the field of optical fibers.	The cognitive, skill and emotional domain	2	eighth week
Daily participation	Lecture and discussion	Interference and the double slit experiment.	The cognitive, skill and emotional domain.	2	ninth week
Quiz	Lecture and discussion	Diffraction and the single slit experiment.	The cognitive, skill and emotional domain	2	tenth week
Daily participation	Lecture and discussion	Spatio-temporal polarization and wave front.	The cognitive, skill and emotional domain.	2	eleventh week
Daily participation	Lecture and discussion	Polarization, its types, and the media that cause light to be polarized.	The cognitive, skill and emotional domain	2	The twelfth week
Daily participation	Lecture and discussion	Second month test	The cognitive, skill and emotional domain	2	thirteenth week
Daily participation	Lecture and discussion	Review the lectures	The cognitive, skill and emotional domain.	2	Fourteenth week
Daily participation		The final test	The cognitive, skill and emotional domain	2	Fifteenth week

11. Course Evaluation

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

12. Learning and Teaching Resources	
Required textbooks	Fundamentals of Optics; F. A. Jenkins and H. E. White, McGrow-Hill Priml Custom- Publishing, 2001.
Main references (sources)	Halliday-Resnick walker_Fundamentals_of_Physics
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://youtu.be/sCHdWttmFhg https://youtu.be/6K3k3GWv7Uw https://youtu.be/DHh7pb07VoQ

Head of dept.

Asst.prof.Ammar Nadal Shareef

Lecturer

Asst.prof.Ammar Nadal Shareef