



جَامِعَةُ الْبَيَانِ



Academic Program Description

Al-Bayan University College of Health & Medical Techniques

2026 - 2025

Department of Aesthetic and Laser Techniques
September 10, 2025

University	Al-Bayan University
Faculty/Institute	College of Health and Medical Techniques
Scientific Department	Aesthetic and Laser Techniques
Academic/Professional Program Name	Course Description
Final Certificate Name	Bachelor in Aesthetic and Laser Techniques
Academic System	Morning
Description Preparation Date	10-09-2025
File Completion Date	19-09-2025

Head of Department

Signe

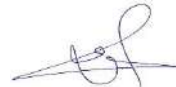


Name Prof. Dr. Abdul Sattar Jabbar Taha

Date 25-04-2025

Scientific Associate

Signe



Name Lec. Dr. Mytham Jabouri
Abdullhussein

Date 25-04-2025

This File has been checked by Quality Assurance and University Performance
Director of Quality Assurance and University Performance Department

Head of Quality Assurance Section

Signe



Name Lec. Sarah Abdullatif

Date 25-04-2025



Approval of the Dean
Prof. Dr. Ghaith Ali Jasim

1. Program Vision

Our vision is to provide preparations for medical technologists to possess high scientific skills in accordance with international standards, able to work within an effective teamwork atmosphere in order to participate in the treatment and alleviation of the suffering of dermatology patients. All these preparations will be provided during the period of theoretical study and practical training at the University, along with cosmetology centers at the Institutes of the Iraqi Ministry of Health, in order to achieve the highest degrees of scientific and practical competence for graduates, and be qualified for work. In hospitals in general, and hemodialysis centers in particular.

2. The Message of the Academic Program

The Department of laser cosmetology Technologies works with its unique staff to provide the latest laboratory equipment in the field of laser therapy and provide high-quality scientific material to graduate professional cadres in the field of laser therapy and Cosmetology and meet the constant need of the labor market in this specialty and promote sustainable development of this field.

3. The Objectives of the Academic Program

- **1-Introducing the student to the new department and what he will learn from it of scientific and practical outputs for society and development for Sustainable Development.**
- **2-providing an excellent learning environment in order to graduate a distinguished cadre in terms of Science and performance.**
- **3-introducing the student to modern and advanced devices to master the profession professionally and excellently.**
- **4-urging students to develop this scientific field and continue to develop new methods in this specialty and promote the development of sustainable development in it.**

4. The Program Accreditation

N/A

5. Other External Influences

N/A

6. Program Structure

Course Structure	Number of Courses	Credit Units	(%)	Reviews
Institutional Requirements	5	11	12.35	
College Requirements	9	34	38.2	
Department Requirements	10	44	49.43	
Summer Training				satisfied
Other				

7. Program Description

Year / Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1 st	02031101	Human Biology	2	2
	02031102	General Chemistry	2	2
	02031103	General Physics	2	2
	02031104	English	2	-
	02031105	Human rights and Democracy	2	-
	02031106	Computer	2	2
	02031201	Skin and hair Biology	2	2
	02031202	Anatomy and Histology	2	2
	02031203	Organic chemistry	2	2
	02031204	Laser physics	2	2
	02031205	Medical Terminology	2	-

	02031206	Arabic	2	-
1st	02032101	Laser physics and medical app	2	2
	02032102	physiology	2	2
	02032103	Nutrition	2	2
	02032104	General pathology	2	2
	02032105	Pharmacology	2	2
	02032106	Skin care basics and techniques	2	2
2nd	02032107	The crimes of the baath regime	2	-
2nd				
3rd				
4th				

8. Expected learning outcomes of the program

→ Knowledge

Outcome Learning 1

The student will be able to learn about the impact of the department and its importance in society

Outcome Learning 2

The student will be able to know the scientific and practical basics of the Department

Outcome Learning 3

The student will be able to master the applications of the program and the professionalism of the profession

Outcome Learning 4

The student will be able to learn about the causes of skin diseases and how to treat them with modern techniques

→ Skills

Outcome Learning 1

The student will be able to acquire the skill of dealing with cosmetic devices and lasers

Outcome Learning 2

The student will be able to diagnose conditions that affect the skin and the skin with the correct handling technique

Outcome Learning 3

The student will be able to master the pattern of laboratory devices in the field of Cosmetology and laser

Outcome Learning 4

The student will be able to gain the skill of dealing with the patient and mastering the use of cosmetic devices and lasers during treatment sessions

→ Values

Outcome Learning 1

The student will get acquainted with the work ethics in this specialty

Outcome Learning 2

The student will learn about the importance of dealing with the patient in this area

Outcome Learning 3

The student will be able to understand the basic principles of specialization and how to carefully contain the patient

Outcome Learning 4

The student will be able to understand the importance and method of dealing with the patient in a humane and ethical manner in accordance with the ethics of Health and medical professions

9. Teaching and Learning Strategies

<i>Theoretical Lessons</i>	<i>Laboratory training</i>	<i>Conduct laboratory experiments</i>
<i>Practical Lessons</i>	<i>Conduct scientific discussions with students</i>	<i>Show video clips of laboratory experiments</i>
<i>Sending students to hospitals for training</i>	<i>Holding seminars and conferences</i>	<i>Assistance in supervising graduation research</i>

10. Evaluation Methods

<i>Oral exams</i>	<i>Weekly exams</i>	<i>Monthly exams</i>
<i>Quick quiz</i>	<i>Presenting Seminars</i>	<i>Midterm exam</i>
<i>Making scientific reports and essays</i>	<i>Practical exams</i>	<i>Final exam</i>

11. Faculty Members

Titles	Specialization		Numbers	
	General	Special	Staff	lec
Prof	Pharmacology	Pharmacology		
Prof	Biological Sciences	Biophysics		
Prof	Anatomy and histology	Tissue engineering and stem cells		

Lecturer	General chemistry	Biochemistry
Asst. Lecturer	Engineering of materials technologies	Engineering of materials technologies
Asst. Lecturer	Language education	English
Asst. Lecturer	General physics	Laser Physics
Asst. Lecturer	Clinical Biochemistry	Clinical Biochemistry
Asst. Lecturer	Life science	<i>Environmental science</i>
Asst. Lecturer	Veterinary Medicine	<i>Physiology</i>

Professional Development

Mentoring New Faculty Members

Guidance and directing are provided to new recruits in the Department of Industrial Kidney Techniques by engaging those concerned in training workshops and holding specialized seminars in their work, as well as development courses.

Professional Development for Faculty Members

Creating developmental sessions by involving them in teaching and then making an evaluation through a referendum by the stages they taught.

10. Admission Criteria

The target group for admission to the department of industrial kidney techniques is graduates of secondary school in the scientific section only with a grade point average of no less than 70 present.

The application mechanism to study in the department will be after the announcement of the high school results and the opening of the gate for admission by the registration department at the presidency of Al Bayan university.

11. Key Sources of Information about the Program

- 1- The university's website and other websites**
- 2- Prescribed scientific references, including books and magazines related to the academic curriculum**
- 3- Lectures presented by faculty members in the department**

14. Program Development Plan

Thanks to the teaching staff of the Department of cosmetic and laser techniques, amazing positive results have appeared, noting that it is a new department at the Faculty of Health and medical technologies. Therefore, a professional academic plan has been developed to develop the Department's program by accelerating the opening of more laboratories for the new department in order to increase the speed of scientific production of students of the Department of cosmetic and laser techniques and gain scientific and practical experience in this field in addition to teaching students the importance of the field and reaching them to the highest levels of careful handling of the patient due to the sensitivity of this specialty with care to develop their professional potential and support modern applications in the field of lasers and the development of advanced centers according to modern standards in the field of laser and patient skin treatment techniques.

Program Skills															
Year/Level	Course Code	Course Title	Primary or Optional	Learning Outcomes Required from the Program											
				Knowledge				Skills				Values			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1 st	02031101	Human Biology	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031102	General Chemistry	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031103	General Physics	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031104	English	Optional	✓	✓			✓	✓			✓	✓		
	02031105	Human rights and Democracy	Optional	✓	✓			✓	✓			✓	✓	✓	
	02031106	Computer	Optional	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031201	Skin and hair Biology	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031202	Anatomy and Histology	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031203	Organic chemistry	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031204	Laser physics	Primary	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031205	Medical Terminology	Optional	✓	✓	✓		✓	✓	✓		✓	✓	✓	
	02031206	Arabic	Optional	✓	✓			✓	✓			✓	✓	✓	

[illegible]

4th



Course Description (Skin and Hair Biology)

1. Course Title		Skin and Hair Biology	
2. Course Code		02031201	
3. Semester/Year		2024-2025	
4. Description Preparation Date		27/3/2025	
5. Available Attendance Form		Students' attendance	
6. No. of Hours (Total)		60+45	
7. No. of Credits (Total)		4	
8. Course Administrator Name		Prof.Dr.Abdul Sattar Jabbar Taha	
9. E-mail		Abdulsattar.j@albayan.edu.iq	
10. Course Objectives			
Knowledge	A1	Develop a Strong Foundation in Skin and Hair Biology	
	A2	Enhance Patient Care and Professional Competency	
	A3	Ensure Safety and Efficacy in Laser and Cosmetic Procedures	
	A4	Prepare for a Successful Career in Cosmetic and Laser Technology	
Skills	B1	Master Skin and Hair Anatomy and Physiology	
	B2	Identify and Manage Common Skin and Hair Disorders	
	B3	Apply Knowledge of Cosmetic Ingredients and Their Effects	
	B4	Safely Perform Microdermabrasion, Chemical Peels, and Laser Treatments	
Values	C1	Develop Proficiency in Laser and Light-Based Hair Removal Techniques	
	C2	Implement Safety Standards and Professional Protocols	
	C3	Conduct Effective Patient Consultations and Treatment Planning	
	C4		
11. Teaching and Learning Strategies			
1.	Lecture based instructions	4.	Inquiry based instruction
2.	Technology based learning	5.	Summative learning
3.	Cooperative learning	6.	Differentiation

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2		Week 1: Layers of the Skin	Student attendance	quiz
2	2		Week 2: Skin Cells and Their Functions	Student attendance	quiz
3	2		Week 3: Skin Proteins and Molecules	Student attendance	Quiz
4	2		Week 4: Introduction to Hair Structure	Student attendance	Quiz
5	2		Week 5: Components of the Hair Shaft	Student attendance	Quiz
6	2		Week 6: Hair Growth Cycle	Student attendance	Quiz
7	2		Week 7: Skin Barrier Function	Student attendance	Quiz
8	2		Week 8: Skin Hydration Transepidermal Water Loss	Student attendance	quiz
9	2		Week 9: Aging in Skin and Hair	Student attendance	Quiz
10	2		Week 10: Chronological Aging Hormonal Effects on Hair	Student attendance	Quiz
11	2		Week 11: Skin Types	Student attendance	Quiz
12	2		Week 12: Common Skin Conditions	Student attendance	Quiz
13	2		Week 13: Hair Conditions	Student attendance	Quiz
14	2		14: Hair Disorders and Irregularities	Student attendance	Quiz
15	2		Week 15: Nutrition and Skin/Hair Heal	Student attendance	Quiz

13. Course Evaluation

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Collins, C. Edward: A Short Course in Medical
Main References (sources)	Collins, C. Edward: A Short Course in Medical
Recommended Books & References (Scientific Journals, Reports ...)	Collins, C. Edward: A Short Course in Medical
Websites or Electronic References	



Course Description (First Year) / College of Medical and Health Technologies – Aesthetic and Laser Department

1. Course Title		English Language
2. Course Code		02031104
3. Semester/Year		2024-2025
4. Description Preparation Date		1 /11/2024
5. Available Attendance Form		In-person lectures
6. No. of Hours (Total)		60
7. No. of Credits (Total)		2
8. Course Administrator Name		Asst. Lect. Hiba Jasim Mohammed
9. E-mail		hibairaq32@gmail.com
10. Course Objectives:		
A. Practice conversation in English.		
B. Construct and use grammatically correct sentences.		
C. Improve the four skills in general: reading, writing, speaking, and listening.		
Knowledge	A1	Learn new vocabulary related to various topics in the coursebook.
	A2	Learn more about different cultures and lifestyles by reading about them.
Skills	B1	Improve the student’s speaking skills.
	B2	Teach them how to write emails using formal language.
	B3	Improve their reading skills.
	B4	Improve their presentation skills in English.
Values	C1	Global Communication
	C2	Career Opportunities
	C3	Cultural Exchange
	C4	Personal Development
10. Teaching and Learning Strategies		

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1.	Communicative Approach	4.	A mix of individual, pair, and group activities
2.	Task-Based Learning	5.	Authentic Materials

11. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	3	See the coursebook's Language Input	Unit 1/No place like home	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
2	3	See the coursebook's Language Input	Unit 1/No place like home	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
3	3	See the coursebook's Language Input	Unit 2/ Been there, done that!	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
4	3	See the coursebook's Language Input	Unit 2/ Been there, done that!	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
5	3	See the coursebook's Language Input	Unit 3/What a story!	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
6	3	See the coursebook's Language Input	Unit 3/What a story!	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
7	3	See the coursebook's Language Input	Unit 4/Nothing but the truth	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz

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8	3	See the coursebook's Language Input	Unit 5/An eye to the future	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
9	3	See the coursebook's Language Input	Unit 6/Making it big	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
10	3	See the coursebook's Language Input	Unit 7/Getting together	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
11	3	See the coursebook's Language Input	Unit 8/Going to extremes	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
12	3	See the coursebook's Language Input	Unit 9/Forever friends	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
13	3	See the coursebook's Language Input	Unit 10/Risking life and limb	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
14	3	See the coursebook's Language Input	Unit 11/In your dreams	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz
15	3	See the coursebook's Language Input	Unit 12/It's never too late	1. Communicative Approach 2. Task-Based Learning 3. A mix of individual, pair, and group activities	Quiz

12. Course Evaluation

10 marks for daily participation and homework
10 marks for a test
20 for a monthly exam
60 for the final exam

13. Learning & Teaching Resources

Required textbooks (curricular if any)	Soars, L. and Soars, J. (2003). New Headway Upper-Intermediate, Oxford University Press.
Main References (sources)	New Headway Plus [Intermediate] by Liz and John Soars, Oxford: Oxford University Press (2006),
Recommended Books & References (Scientific Journals, Reports ...)	Morphy, A.J (1983) English Grammar in use. Cambridge: CUP
Websites or Electronic References	https://www.internationalstudent.com/essay_writing/essay_tips/ https://owl.purdue.edu/owl/general_writing/academic_writing/essay_writing/index.html https://www.ukessays.com/guides/how-to-write-an-essay.php https://www.grammarly.com/blog/verb-tenses/

Course Description (Anatomy and Histology)

Course Title .1			Anatomy and Histology		
Course Code .2			02031202		
Semester/Year .3			2024-2025		
Description Preparation Date .4			27/3/2025		
Available Attendance Form .5			Students' attendance system		
No. of Hours (Total) .6			30		
No. of Credits (Total) .7			4		
Course Administrator Name .8			Prof.Dr.Bahaa Faghre Hussien		
E-mail .9			=		
Course Objectives .10					
Knowledge	A1	understanding of human anatomy at the macroscopic level			
	A2	Acquire knowledge of systems-based and regional anatomy			
	A3	Explain structures of body organs			
	A4	Define the basic anatomical characteristics of the kidney and renal system			
Skills	B1	Gain familiarity to human body and organs			
	B2	Apply medical terminology knowledge			
	B3	Train the eye on surface anatomy			
	B4	Build a base for clinical examination and basic interventions skills			
Values	C1	Pave the way for students to involve with patients			
	C2	Appreciate human live, health and wellbeing in a scientific way			
	C3	Provide the bases for future dialysis therapeutic practices			
	C4	Professional interaction with staff and colleges			
Teaching and Learning Strategies .11					
1.	Lecture based instructions		4.	Differentiation	
2.	Technology based learning		5.	Inquiry based instruction	
3.	Cooperative learning		6.	Summative learning	

The Structure of the Course .12

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2		Introduction to anatomy, body organizations, & anatomical positions	Students attendance	Quiz
2	2		body regions, cavities, planes and sections	Students attendance	Quiz
3	2		Directional terms, tissues and membranes	Students attendance	Quiz
4	2		Upper limb	Students attendance	Group task
5	2		Lower limb	Students attendance	Quiz
6	2		Thorax	Students attendance	Quiz
7	2		Abdomen	Students attendance	Quiz
8	2		Pelvis	Students attendance	Group task
9	2		Head & Neck	Students attendance	Quiz
10	2		Musculo-skeletal system	Students attendance	Quiz
11	2		Digestive system	Students attendance	Quiz
12	2		Cardiovascular system	Students attendance	Group task
13	2		Respiratory system	Students attendance	Quiz
14	2		Urinary system	Students attendance	Quiz
15	2		Reproductive system	Students attendance	Quiz

Course Evaluation 13

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

Learning & Teaching Resources 14

Required textbooks (curricular if any)	Snell's clinical anatomy
Main References (sources)	Snell's clinical anatomy, Gray's Anatomy
Recommended Books & References (Scientific Journals, Reports ...)	Snell's clinical anatomy, Moor's essential clinical anatomy
Websites or Electronic References	http://teachmeanatomy.info

Course Description (Computer Applications)

1. Course Title		Computer Applications	
2. Course Code		02031106	
3. Semester/Year		1 st semester / 2023-2024	
4. Description Preparation Date		31/3/2024	
5. Available Attendance Form		On-Site	
6. No. of Hours (Total)		60 hours	
7. No. of Credits (Total)		3	
8. Course Administrator Name		Asst. Lect. Mustafa Mohammed Hammoodi	
9. E-mail		tuhafi.1989@gmail.com	
10. Course Objectives			
Knowledge	A1	Computer System Operation	
	A2	Windows Operating System	
	A3		
	A4		
Skills	B1	Working on Windows Operating System	
	B2		
	B3		
	B4		
Values	C1	Computer System Importance	
	C2		
	C3		
	C4		
11. Teaching and Learning Strategies			
1.	Interactive Lecture		4. Documented Lecture
2.	Practical Demonstration		5. Questionnaire Bank
3.	Practical Practice		6.

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	4	Projector Slides	Computer System Basics	Visual, Auditory, and Kinesthetic	Summative
2	4	Projector Slides	Starting Windows	Visual, Auditory, and Kinesthetic	Summative
3	4	Projector Slides	Applications Windows	Visual, Auditory, and Kinesthetic	Summative
4	4	Projector Slides	Desktop and Taskbar	Visual, Auditory, and Kinesthetic	Summative
5	4	Projector Slides	Computing Sessions	Visual, Auditory, and Kinesthetic	Summative
6	4	Projector Slides	Applications Shortcuts	Visual, Auditory, and Kinesthetic	Summative
7	4	Projector Slides	Desktop Icons	Visual, Auditory, and Kinesthetic	Summative
8	4	Projector Slides	File System	Visual, Auditory, and Kinesthetic	Summative
9	4	Projector Slides	Files and Folders	Visual, Auditory, and Kinesthetic	Summative
10	4	Projector Slides	File Explorer	Visual, Auditory, and Kinesthetic	Summative
11	4	Projector Slides	Accounts and Permissions	Visual, Auditory, and Kinesthetic	Summative
12	4	Projector Slides	Date and Time	Visual, Auditory, and Kinesthetic	Summative
13	4	Projector Slides	Region and Language	Visual, Auditory, and Kinesthetic	Summative
14	4	Projector Slides	System Restore	Visual, Auditory, and Kinesthetic	Summative
15	4	Projector Slides	System Backup	Visual, Auditory, and Kinesthetic	Summative

13. Course Evaluation

60% Theoretical
40% Practical (Lab.)

14. Learning & Teaching Resources

Required textbooks (curricular if any)	
Main References (sources)	Joan Lambert, Windows 10 Step by Step, 2 nd edition, Microsoft Corp.
Recommended Books & References (Scientific Journals, Reports ...)	Andy Rathbone, Windows 10 For Dummies
Websites or Electronic References	www.microsoft.com

Course Description (Laser Physics)

1. Course Title		Laser Physics	
2. Course Code		02031204	
3. Semester/Year		2024-2025	
4. Description Preparation Date		27/3/2025	
5. Available Attendance Form		Students’ attendance	
6. No. of Hours (Total)		60h+45h	
7. No. of Credits (Total)		4	
8. Course Administrator Name		Asiss.Lec.Ali Aqel	
9. E-mail		-	
10. Course Objectives			
Knowledge	A1	The student will be able to learn about the importance of lasers in physics	
	A2	The student will be able to apply laser-based devices	
	A3	The student will be able to learn the mechanics of working on lasers in physics	
	A4	The student will be able to identify the importance and sensitivity of the tools used in these techniques	
Skills	B1	Work on different devices	
	B2	Mastering the laser profession after recognizing the physical importance of it	
	B3	Identify the contents of laser devices	
	B4	Getting to know the applications of laser devices	
Values	C1	Studying on the device itself	
	C2	The study on the body	
	C3	Study of the physical relationship with lasers	
	C4	The study of cell divisions	
11. Teaching and Learning Strategies			
1.	Lecture based instructions	4.	Inquiry based instruction
2.	Technology based learning	5.	Summative learning
3.	Cooperative learning	6.	Differentiation

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2		Electromagnetic Radiation, Electromagnetic Radiation in Matter. Electromagnetic Radiation in vacuum	Student attendance	quiz
2	2		Refraction of Light Beam - Snell Law:	Student attendance	quiz
3	2		Properties of Laser Radiation, Monochromaticity. Directionality Coherence,.	Student attendance	Quiz
4	2		low divergent angle ,brightness	Student attendance	Quiz
5	2		Lasing processes, Bohr model of atom, Photons and the energy diagrams,	Student attendance	Quiz
6	2		Absorption of electromagnetic Radiation Spontaneous emission electromagnetic Radiation,	Student attendance	Quiz
7	2		Decay Rate, Population Thermodynamic Equilibrium Population Inversion, Stimulated Emission , Amplification	Student attendance	Quiz
8	2		Three Level Laser, Four Level Laser	Student attendance	quiz
9	2			Student attendance	Quiz

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			The Laser System, The laser act medium: The excitation mechanism Collisions with atoms, Feedback Mechanism, Output Coupler		
10	2		Operation of a Laser System Interactive Applets: Laser Gain Fluorescence line shape of the laser Fluorescence Linewidth,	Student attendance	Quiz
11	2		Laser Gain Curve Broadening Fluorescence line, Loop Gain Calculating Loop Gain (G_L) With Losses, Calculating Loop Gain (G_L) With Losses,	Student attendance	Quiz
12	2		Calculating Gain Threshold (G_L) Saturation Gain in a Continuous Wave Laser, Pulsed Laser	Student attendance	Quiz
13	2		Different Laser Types and their Characteristics, Gas Lasers, Excitation of a gas laser , Groups of Gas Lasers Controlling the laser radiation properties, Some Common Laser Resonators. Selective coating the cavity mirrors	Student attendance	Quiz
14	2		Controlling the laser radiation properties, Some Common Laser Resonators. Selective coating on the cavity mirrors	Student attendance	Quiz
15	2		The second course exam	Student attendance	Quiz

13. Course Evaluation

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Collins, C. Edward: A Short Course in Medical
Main References (sources)	Collins, C. Edward: A Short Course in Medical
Recommended Books & References (Scientific Journals, Reports ...)	Collins, C. Edward: A Short Course in Medical
Websites or Electronic References	

Course Description (General Chemistry)

1. Course Title		General Chemistry
2. Course Code		02031102
3. Semester/Year		First semester/2024-2025
4. Description Preparation Date		2025/03/30
5. Available Attendance Form		Attendance in the classroom in addition to e-learning
6. No. of Hours (Total)		4
7. No. of Credits (Total)		4
8. Course Administrator Name		Dr. Mustafa Saleem Shareef
9. E-mail		-
10. Course Objectives		
Knowledge	A1	Knowing the basics of atoms, elements, and compounds, and studying the states of matter (solid, liquid, and gaseous)
	A2	The student should be familiar with how to prepare solutions of different concentrations, in addition to identifying ions and organic materials
	A3	The student learns about acids and bases that are important in detecting different chemical elements
	A4	The practical general chemistry course is concerned with security and safe procedures within the laboratory and how to deal with hazardous materials, acids, and bases
Skills	B1	The student should be able to acquire basic knowledge and skills in chemistry
	B2	Teaching the student how to become able to think logically, analyze, and employ the prescribed curriculum vocabulary.
	B3	Developing the student's mental and personal ability in the specialty is an important part of his field of specialization
	B4	Providing the student with communication skills and using modern educational technologies effectively.
Values	C1	The student should be able to work collectively and work individually to solve chemical analysis problems
	C2	The student should be able to use information technology to search for information
	C3	The student should be able to communicate with the professor and colleagues
	C4	The student must be able to rely on himself
11. Teaching and Learning Strategies		

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1.	Providing an appropriate educational climate for logical thinking through continuous guidance of students during lectures	4.	Use the display screen to lecture and the blackboard.
2.	Opening the door for open and direct discussions with students	5.	Visit the library
3.	Follow a cooperative learning strategy	6.	Directing the student to websites to benefit from them

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2	A1, B1	Introduction to analytical chemistry (main structure of atom, periodic table , bonds)	Acquiring information for electronics structure of the atom	Oral questions
2	2	A2, B2, B3, B4, C1, C2, C3, C4	Methods of analysis Solution (preparation of standard solution , concentration, percentage, formal. Sol.	Know the difference between qualitative and quantitative analysis	solving equations
3	2	A2, B2, B3, B4, C1, C2, C3, C4	Molar solution, Normal solution	How to calculate concentration	solving equations
4	2	B2, B3, B4, C1, C2, C3, C4	Statistical treatment of analytical (accuracy, Mean value, deviation, standard deviation mean, value systematic error, relative error , random and absolute error)	Knowledge of some statistical treatments for laboratory results	solving equations
5	2	A2, A3, B2, B3, B4, C1, C2, C3, C4	Chemical reaction (equilibrium constant, reaction rate, catalyst solubility, ionization)	Learn about the types of chemical reactions and how to calculate the equilibrium constant	Written exam
6	2	A2, A3, B2, B3, B4, C1, C2, C3, C4	Neutralization (acid base theory, PH, Buffers end point) Oxidation reduction Equilibria	Identify bases, acids, and buffer solutions	solving equations
7	2	A2, A3, B2, B3, B4, C1, C2, C3, C4	Precipitation methods (gravimetry) formation of ppt., type of agent titration, calculations	Knowledge of sedimentation methods and gravimetric analysis of the sediment	solving equations
8	2	B2, B3, B4, C1, C2, C3, C4	Spectroscopy (Optical spectroscopy, Beer's law)	Know the basics of how to use a spectrophotometer	Discussions
9	2	A2, B2, B3, B4, C1, C2, C3, C4	Structure of carbon compounds (alkanes, alkenes, alkynes, halogen compound)	Identify organic chemistry hydrocarbon compounds	Oral questions and discussions
10	2	A2, B2, B3, B4, C1, C2, C3, C4	Alcohols, classification, properties reaction	Identify alcohols, their preparation methods, and their interactions	Oral questions and discussions

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11, 12	4	A2, B2, B3, B4, C1, C2, C3, C4	Aldehydes and ketones properties reaction	Identify aldehydes and ketones, their preparation methods, their reactions	Oral questions and discussions
13, 14,	6	A2, B2, B3, B4, C1, C2, C3, C4	Carboxyl acid, amines	Identify carboxylic acids, amines, methods of their preparation and reactions	Oral questions and discussions

13. 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.

14. Learning & Teaching Resources

Required textbooks (curricular if any)	
Main References (sources)	Katherine J. Denniston, Danaè R. Quirk, Joseph J. Topping, Robert L. Caret - General, Organic, and Biochemistry- McGraw-Hill(2023)
Recommended Books & References (Scientific Journals, Reports ...)	Spencer L. Seager, Michael R. Slabaugh, Maren S. Hansen - Chemistry for Today_ General, Organic, and Biochemistry- Cengage Learning(2021)
Websites or Electronic References	https://www.sciencedirect.com/ https://pubmed.ncbi.nlm.nih.gov/

Course Description (Organic Chemistry)

1. Course Title		Organic Chemistry
2. Course Code		02031203
3. Semester/Year		Semester
4. Description Preparation Date		2025\3\30
5. Available Attendance Form		Official attendance time (morning and Evening).
6. No. of Hours (Total)		30 hours for the theoretical aspect and 30 hours for the practical aspect
7. No. of Credits (Total)		4 units
8. Course Administrator Name		Dr. Mustafa Saleem Shareef
9. E-mail		
10. Course Objectives		
Knowledge	A1	Teaching students basic scientific concepts of Biochemistry topics with focus on clinical chemistry and metabolisms.
	A2	Studying biochemistry, metabolisms in illness and recovery
	A3	Teaching metabolisms and obesity and stress and exercises.
	A4	Teaching biochemistry of nutrition's and dietary.
Skills	B1	Scientific discussion
	B2	Weekly exams
	B3	Monthly tests
	B4	Practical examinations
Values	C1	Participation in the classroom
	C2	Provide activities

	C3	Semester and final tests and activities
	C4	Self-learning, discussion panels
11. Teaching and Learning Strategies		
1.	Active participation in the classroom is evidence of the student's commitment and responsibility	4. Developing the student's ability to deal with multiple tasks.
2.	Adherence to the specified deadline for submitting assignments and research.	5. Active participation in the classroom is evidence of the student's commitment and responsibility
3.	Semester and final exams express commitment and cognitive and theoretical understanding.	6. Developing the student's ability to deal with technical means

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2 theory 2 practi.	The way out in theory The way out in practice	-Introduction to Biochemistry -Specimen Collection [blood, urine, CSF]	Presence presence	Daily, monthly and annual written exam
2	2 theory 2 practi.	The way out in theory The way out in practice	-General Metabolisms -Specimen Collection [blood, urine, CSF]	presence	Daily, monthly and annual written exam
3	2 theory 2 practi.	The way out in theory The way out in practice	-Metabolisms in illness, recovery -Specimen Transport and Specimen Processing	presence	Daily, monthly and annual written exam
4	2 theory 2 practi.	The way out in theory The way out in practice	-Nutrition biochemistry, dietary -Specimen Transport and Specimen Processing	presence	Daily, monthly and annual written exam
5	2 theory 2 practi.	The way out in theory The way out in practice	-Biochemistry, prevention medicine -Blood collection techniques, Anticoagulant, Separation of serum	presence	Daily, monthly and annual written exam
6	2 theory 2 practi.	The way out in theory The way out in practice	-Biochemical bases in disease -Principle of instrumentation [photometer, colorimetry and spectrophotometry]	presence	Daily, monthly and annual written exam
7	2	The way out in theory	-Biochemistry at water pH	presence	Daily, monthly and

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	theory 2 practi.	The way out in practice	-Carbohydrates tests		annual written exam
8	2 theory 2 practi.	The way out in theory The way out in practice	-Review and exam -Molish test, Iodin test, Benedicts test and Barfoed test	presence	Daily, monthly and annual written exam
9	2 theory 2 practi.	The way out in theory The way out in practice	-Biochemistry and electrolytes -Seliwanoffs test, Osazone test, Athrone and Dinitrosalicylic acid method	presence	Daily, monthly and annual written exam
10	2 theory 2 practi.	The way out in theory The way out in practice	-Metabolism of carbohydrates -Roes method, Fehling test, Somogyi-Nelson method and Mucic acid test	presence	Daily, monthly and annual written exam
11	2 theory 2 practi.	The way out in theory The way out in practice	-Metabolisms pathways -Amino acid tests	presence	Daily, monthly and annual written exam
12	2 theory 2 practi.	The way out in theory The way out in practice	-ATP synthesis -Ninhydrin test, Isatin test and Xanthoprotic test	presence	Daily, monthly and annual written exam
13	2 theory 2 practi.	The way out in theory The way out in practice	-Lipids biosynthesis -Paulys diazo test, Sakaguchi test Millon test	presence	Daily, monthly and annual written exam
14	2 theory 2 practi.	The way out in theory The way out in practice	-Lipids oxidations -Paulys diazo test, Sakaguchi test Millon test	presence	Daily, monthly and annual written exam
15	2 theory 2 practi.	The way out in theory The way out in practice	-Metabolisms of glycerol -Hopkins-Cole test, Lead acetate test	presence	Daily, monthly and annual written exam

13. 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.

14. Learning & Teaching Resources

Required textbooks (curricular if any)	General biochemistry Geoffrey Beckett Text book of biochemistry, 2016
Main References (sources)	Articles
Recommended Books & References (Scientific Journals, Reports ...)	Hepers illustrated. Biochemistry, medical book.
Websites or Electronic References	Wikipedia, research gate, google scholar, and many

Course Description (Medical Terminology)

1. Course Title		Medical Terminology	
2. Course Code		02031205	
3. Semester/Year		2024-2025	
4. Description Preparation Date		27/3/2025	
5. Available Attendance Form		Students' attendance	
6. No. of Hours (Total)		3	
7. No. of Credits (Total)		2	
8. Course Administrator Name		Prof. Dr. Ghaith Ali Jasem	
9. E-mail		ghaith.a@albayan.edu.iq	
10. Course Objectives			
Knowledge	A1	Introducing medical terminology concept to students	
	A2	Knowing how medical terms is formed	
	A3	Understanding of the formulation of medical terms	
	A4	Fluency in describing patient's conditions	
Skills	B1	build medical linguistic skills	
	B2	Standardize documentation	
	B3	Improve communication skills with medical staff	
	B4	Ability to describe health status with patient in the common language	
Values	C1	Promoting accuracy, safety, and efficacy in patient's care	
	C2	Providing patient's with treatment plan with same common goals	
	C3		
	C4		
11. Teaching and Learning Strategies			
1.	Lecture based instructions	4.	Inquiry based instruction
2.	Technology based learning	5.	Summative learning
3.	Cooperative learning	6.	Differentiation

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2		Introduction to anatomy, body	Student attendance	quiz
2	2		organizations, & anatomical positions	Student attendance	quiz
3	2		Body regions, cavities, planes	Student attendance	Quiz
4	2		Directional terms, tissues, a membranes	Student attendance	Quiz
5	2		Cardiovascular system	Student attendance	Quiz
6	2		Digestive system	Student attendance	Quiz
7	2		Musculo-skeletal system	Student attendance	Quiz
8	2		Endocrine system	Student attendance	quiz
9	2		Respiratory system	Student attendance	Quiz
10	2		Urinary system	Student attendance	Quiz
11	2		Abdomen	Student attendance	Quiz
12	2		Blood	Student attendance	Quiz
13	2		Immune system	Student attendance	Quiz
14	2		Head & Neck	Student attendance	Quiz
15	2		Reproductive system	Student attendance	Quiz

13. Course Evaluation

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Collins, C. Edward: A Short Course in Medical
Main References (sources)	Collins, C. Edward: A Short Course in Medical
Recommended Books & References (Scientific Journals, Reports ...)	Collins, C. Edward: A Short Course in Medical
Websites or Electronic References	

Course Description (1)

1. Course Title		pathology
2. Course Code		02032104
3. Semester/Year		2026-2025
4. Description Preparation Date		2025/9/18
5. Available Attendance Form		Lectures and laboratory sessions
6. No. of Hours (Total)		60 hours (theory) 60 hours (practical)
7. No. of Credits (Total)		7
8. Course Administrator Name		Dr. Ahmed Turki Hani
9. E-mail		ahmedt@albayan.edu.iq
10. Course Objectives		
Knowledge	A1	Provides the students with the essential basic scientific knowledge required to understand in integrated manner the structure and functional deviations from the normal in the various body systems and organs.
	A2	Familiarize students with the basic pathology.
	A3	Understand the etiology, pathogenesis and pathologic manifestation of disease process.
	A4	Provide the students with the skills of differentiation between normal and abnormal tissues.
Skills	B1	Describe and contrast neoplasm and cysts.
	B2	Identify pathological changes by the light microscope
	B3	Describe the pathologic picture of a disorder based on gross or microscopic morphology
	B4	Demonstrate the ability to identify the macroscopic and microscopic criteria of the altered structure and hence function of the tissue in disease process
Values	C1	Explain terms and divisions in general pathology.
	C2	Demonstrate an understanding of the etiology and pathogenesis of disease & its effects on the body
	C3	Explain the salient principles of inflammation and repair
	C4	Describe circulatory dysfunction
11. Teaching and Learning Strategies		
1.		4.
2.		5.
3.		6.

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2th+2p		Introduction, cell constituent	Data show and white board	Quiz and homework
2	2th+2p		Inflammation, Repair & Degeneration Acute Inflammation	Data show and white board	Quiz and homework
3	2th+2p		Chronic Inflammation	Data show and white board	Quiz and homework
4	2th+2p		Repair, healing & Regeneration	Data show and white board	Quiz and homework
5	2th+2p		Retrograde, changes, Degeneration	Data show and white board	Quiz and homework
6	2th+2p		Atrophy Necrosis, cloudy swelling	Data show and white board	Quiz and homework
7	2th+2p		Gangrene	Data show and white board	Quiz and homework
8	2th+2p		Criteria used for cytopathological diagnosis of cancer	Data show and white board	Quiz and homework
9	2th+2p		Changes in the cytoplasm malignancy, Changes in the nucleus in malignancy	Data show and white board	Quiz and homework
10	2th+2p		Changes in cell as a general malignancy	Data show and white board	Quiz and homework

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11	2th+2p		Nomenclature of tumors	Data show and white board	Quiz and homework
12	2th+2p		Classification of tumors.	Data show and white board	Quiz and homework
13	2th+2p		Fixation & Fixatives, Theoretical aspects of Fixation, Most common fixatives common use	Data show and white board	Quiz and homework
14	2th+2p		Fixation for special substances Specializes Techniques individual tissue & fixation Arte fact	Data show and white board	Quiz and homework
15	2th+2p		Tissue processing, Fixation, dehydration, clearing, embedding	Data show and white board	Quiz and homework
16	2th+2p		Factors influencing rate impregnation, Agitation, heat, viscosity, ultrasonics, vacuum	Data show and white board	Quiz and homework
17	2th+2p		Microtomy and paraffin section	Data show and white board	Quiz and homework
18	2th+2p		Staining of tissue sections Hematoxylin, eosin, connective tissue, stains	Data show and white board	Quiz and homework
19	2th+2p		Special stains	Data show and white board	Quiz and homework

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			for proteine,carbohydrat lipid,mucosubstance,pigmen minerals,apud cell and microorganisms		
20	2th+2p		Preparationof bone sections	Data show and white board	Quiz and homework
21	2th+2p		Demonstration of cytoplasm granules organells and social tissue	Data show and white board	Quiz and homework
22	2th+2p		Neuropatholglcal techniques	Data show and white board	Quiz and homework
23	2th+2p		Enzyme histochemistry and aplicaton	Data show and white board	Quiz and homework
24	2th+2p		Immunohistochemistry and application	Data show and white board	Quiz and homework
25	2th+2p		Resin embedding media	Data show and white board	Quiz and homework
26	2th+2p		Electron microscopy techniques	Data show and white board	Quiz and homework
27	2th+2p		Electron microscopy -Diagnostic uses	Data show and white board	Quiz and homework
28	2th+2p		Histometry and diagnostic uses	Data show and white board	Quiz and homework
29	2th+2p		Immunofluoresence Techniques	Data show and white board	Quiz and homework
30	2th+2p		Museum and other demonstration techniques	Data show and white board	Quiz and homework

13. Course Evaluation

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

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Robins Basic Pathology
Main References (sources)	
Recommended Books & References (Scientific Journals, Reports ...)	
Websites or Electronic References	

Course Description (3)

1. Course Title		physiology
2. Course Code		02032102
3. Semester/Year		Semester
4. Description Preparation Date		2025\9\18
5. Available Attendance Form		attendance
6. No. of Hours (Total)		60 (30 Theoretical + 30 Practical)
7. No. of Credits (Total)		4
8. Course Administrator Name		prof.dr.shallal murad
9. E-mail		Shallal.murad@albayan.edu.iq
10. Course Objectives		
Knowledge	A1	The student will be familiar with the functions of the human body's organs and how to perform laboratory tests for that
	A2	
	A3	
	A4	
Skills	B1	Teaching the function of organs in the human body and the mechanism of each function Teaching the student how to perform laboratory tests and how to read ...the results. These tests help Maintaining human health
	B2	
	B3	
	B4	
Values	C1	Encouraging the student to spread health culture and awareness about the human body and how to care for and maintain it Every function of every organ
	C2	
	C3	
	C4	
11. Teaching and Learning Strategies		
1.	data show presentation	4.
2.	lab work	5.

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12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2th+2p	Human physiology 2	General Introduction to Physiology	theoretical and practical	exam and quiz and report and home work
2	2th+2p	Human physiology 2	Cell Physiology: General Functions, Membrane Transport/lab: Introduction: Characteristics of good technician.	theoretical and practical	exam and quiz and report and home work
3	2th+2p	Human physiology 2	How To avoid contamination of Specimen Technician	theoretical and practical	exam and quiz and report and home work
4	2th+2p	Human physiology 2	General Idea about Body fluids: Ty Composition, and Functions. Unit Measurement, Conversion and Conversion factor/ lab: Specimen: Type, Collection, and Preparation.	theoretical and practical	exam and quiz and report and home work
5	2th+2p	Human physiology 2	Specimen identification	theoretical and practical	exam and quiz and report and home work
6	2th+2p	Human physiology 2	Lab Reports: Types and righting.	theoretical and practical	exam and quiz and report and home work
7	2th+2p	Human physiology 2	Blood: Composition, Specific Functions each Compartment. Plasma and Se Differences and Separation/ lab: Basic steps drawing a blood specimen by venipunct Complications of venipuncture.	theoretical and practical	exam and quiz and report and home work
8	2th+2p	Human physiology 2	Blood collection by skin punctures (Capillary Blood).	theoretical and practical	exam and quiz and report and home work
9	2th+2p	Human physiology 2	Types of Syringes used in blood collection	theoretical and practical	exam and quiz and report and home work
10	2th+2p	Human physiology 2	RBCs: Definition, Structure, and Nor Value; Hb Definition, Structure, and Nor Value; Blood Groups/ lab: Repeat: Blood drawing.	theoretical and practical	exam and quiz and report and home work

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11	2th+2p	Human physiology 2	Erythropoiesis, Homeostasis, Death Disposal/lab: Blood sample Hemolysis Reasons and how to avoid.	theoretical and practical	exam and quiz and report and home work
12	2th+2p	Human physiology 2	Blood Coagulants: Types and Uses. (EDTA, Citrate, Oxalate, Heparin, sodium fluoride.	theoretical and practical	exam and quiz and report and home work
13	2th+2p	Human physiology 2	White Blood Cells: Classification, Specimen Function, Normal Value/ lab: Specimen rejection: Reason and How to avoid	theoretical and practical	exam and quiz and report and home work
14	2th+2p	Human physiology 2	Type of anticoagulant used and their effect on Blood Cell Morphology.	theoretical and practical	exam and quiz and report and home work
15	2th+2p	Human physiology 2	Platelet: Definition, Function, Normal Value Thrombopoiesis and Hemostasis/lab: Blood separation to Cells, plasma, and serum	theoretical and practical	exam and quiz and report and home work

13. Course Evaluation

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

14. Learning & Teaching Resources

Required textbooks (curricular if any)	text books
Main References (sources)	Ganong of medical physiology
Recommended Books & References (Scientific Journals, Reports ...)	Guyton and hall textbook of medical physiology
Websites or Electronic References	Vander renal physiology

Course Description (Human Biology)

1. Course Title			Human Biology		
2. Course Code					
3. Semester/Year			2025/2024		
4. Description Preparation Date			2024/11/10		
5. Available Attendance Form			Theoretical + Practical		
6. No. of Hours (Total)			(60) Theoretical+ (45) Practical		
7. No. of Credits (Total)					
8. Course Administrator Name			Prof.Dr.Abdul Sattar Jabbar Taha		
9. E-mail			Abdulsattar.j@albayan.edu.iq		
10. Course Objectives					
Knowledge	A1	Understanding the basics of life			
	A2	Developing scientific thinking skills			
	A3	Awareness of biological diversity			
	A4	Enhancing medical knowledge			
Skills	B1	Analytical Thinking: The ability to analyze and interpret biological data			
	B2	Practical Laboratory Skills: Hands-on experience in a laboratory setting is vital understanding human biology			
	B3	Critical Thinking and Problem-Solving:The ability to critically evaluate biological concepts and apply logical reasoning to solve problems is essential.			
	B4	MemorizationTechniques: Human biology involves a significant amount of memorization			
Values	C1	Understanding of Human Health			
	C2	Contribution to Medical Advances:			
	C3	Appreciation of Human Diversity			
	C4	Environmental and Ethical Awareness			
11. Teaching and Learning Strategies					
1.	Attempting practical application of theoretical studies			4.	Many short-term scientific missions
2.	Active Learning Techniques			5.	Formative Assessments and Feedback
3.	Visual Aids and Models			6.	Inquiry-Based Learning

of the Course

RLOs	Topic/Subject Name	Learning Method	Evaluation Method
Student must be aware of information provided to him and of its application to reality	Introduction to biology, the cells, prokaryotic eukaryotic cells, animal and plant cell	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	The Structure of cells , types , shape and size	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	The Structure of cells , types , shape and size	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Movement in and out of cells: diffusion , osmosis and active transport.	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Movement in and out of cells: diffusion , osmosis and active transport.	Theoretical study practical applications	Conduct quick exams
The student must be aware of the information provided to him and the extent of its application to reality	Cell division: Amitosis, Mitosis and Meiosis	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Nucleic acid: DNA and RNA, DNA Replication	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Nucleic acid: DNA and RNA, DNA Replication	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Protein biosynthesis	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Human body tissues: Epithelial tissues	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Human body tissues: Epithelial tissues explanations	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Muscular and Nervous tissues	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Muscular and Nervous tissues	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Connective tissues: Bone and cartilage	Theoretical study practical applications	Conduct quick exams
Student must be aware of information provided to him and of its application to reality	Blood (R.B.C and WBC) and lymph	Theoretical study practical applications	Conduct quick exams

13. 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.

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Basics of biology
Main References (sources)	International scientific references
Recommended Books & References (Scientific Journals, Reports ...)	Specialized scientific journals and published scientific reports
Websites or Electronic References	Scientific references on the Internet, such as the (human biology) website.

Course Description (1)

1. Course Title		Medical Physics
2. Course Code		050103
3. Semester/Year		Year
4. Description Preparation Date		2024-2025
5. Available Attendance Form		Lectures and Laboratory
6. No. of Hours (Total)		60 hours theory , 60 hours practical
7. No. of Credits (Total)		6
8. Course Administrator Name		MSC. ALI AQEEL MAHMOOD
9. E-mail		ali.aq@albayan.edu.iq
10. Course Objective: The objectives of the course are summarized in the College of Dentistry/ The first stage aims to provide all that the student needs, including solid theoretical curricula and practical applications, and to bring the graduate to the level required to contribute to advancing the wheel of development and to play his role in achieving comprehensive renaissance in all areas of work. Applications in medical physics contribute to all aspects of our daily lives, including the medical field, diagnostic devices, radiological imaging, physical therapy, audio and optics, the development of modern devices, and the study of physics and its effect on the human body and the physical functions of the human body's organs.		
Knowledge	A1	The teaching method changes according to the student's perception and interaction with the lecture. It may be the discussion method, the interrogation method, or the deduction and deduction method... and it may be all methods at the same time, in addition to the use of laboratories to increase the student's understanding and awareness.
	A2	
	A3	
	A4	
Skills	B1	Motivating the student through expression, thinking and response
	B2	The lecture relies on student interaction, brainstorming, and intellectual questions
	B3	Giving the student the necessary space to express their scientific opinions
	B4	Urging the student to solve problems and possess distinctive thinking
Values	C1	Professional preparation and encouraging the student to have positive behavior in public life
	C2	Cultural preparation and refining the student's personality
	C3	Utilizing the acquired skills so that the student becomes a dentist capable of understanding the physical functions of the organs of the human body.
	C4	

11. Teaching and Learning Strategies

1.	Lectures using Data show and power point.	4.	Educational films
2.	Homework	5.	
3.	Laboratories and preparing reports	6.	

12. The Structure of the Course

Week	Hours	RLOs	Topic/Subject Name	Learning Method	Evaluation Method
1	2	Medical Physics, physical medicine, Physical therapy, Health Physics.	Terminology	Data show presentation and white board	Short quiz ,Oral examination
2	2	Radiological Physics, clinical physics. Modeling, Accuracy, Precision, False Positive, False Negative	Terminology	Data show presentation and white board	Short quiz ,Oral examination
3	2	Static forces :(type of levers with medical examples).	Force on & in body	Data show presentation and white board	Short quiz ,Oral examination
4	2	Dynamic forces (Centrifuge	Force on & in body	Data show presentation and white board	Short quiz ,Oral examination
5	2	Bones:(Function of bones, Composition of bone, bone remodeling, compact and trabecular bone).	Physics of the skeleton	Data show presentation and white board	Short quiz ,Oral examination
6	2	Stress-strain curve :(compressive and tensile stress, young modulus). Bone joints :(Synovial fluid, coefficient of a joint).	Physics of the skeleton	Data show presentation and white board	Short quiz ,Oral examination
7	2	Physical basis of heat and temperature, Temperature scales, Converting Temperatures, Temperature in Dentistry, Thermal	Heat and cold in medicine:	Data show presentation and white board	Short quiz ,Oral examination

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8	2	expansion, (Linear, Area, Volume Thermal Expansion), Thermometry, Heat therapy, Thermography, Cold in medicine and cryosurgery. Thermal conductivity.	Heat and cold in medicine:	Data show presentation and white board	Short quiz ,Oral examination
9	2	First law of thermodynamic. Energy change in the body (Met, Basal metabolic rate (BMR).	Energy, work and power of the body	Data show presentation and white board	Short quiz ,Oral examination
10	2	Work and power. Efficiency heat losses from the body. Anaerobic phase and aerobic phase. Hypothalamus (body's thermostat).Heat lost by (radiation, convection, evaporation of sweat and respiration).	Energy, work and power of the body	Data show presentation and white board	Short quiz ,Oral examination
11	2	Definition, absolute pressure, gauge pressure, negative pressure, unit of pressure. Measurement of pressure in the body (Manometer). Pressure inside the skull.	Pressure	Data show presentation and white board	Short quiz ,Oral examination
12	2	Eye pressure. Pressure in the skeleton. Pressure in the urinary bladder. Boyle's law: (pressure diving). HOT (hyperbaric while oxygen therapy).	Pressure	Data show presentation and white board	Short quiz ,Oral examination

13	2	Electrical potential of nerves (resting potential, action potential in myelinated and unmyelinated nerves). Electromyogram	Electricity within the body	Data show presentation and white board	Short quiz ,Oral examination
14	2	(EMG). Electrical potential in the heart (electrocardiogram ECG). Electroencephalogram (EEG).	Electricity within the body	Data show presentation and white board	Short quiz ,Oral examination
15	2	Properties of sound.	Sound in medicine	Data show presentation and white board	Short quiz ,Oral examination
16	2	Stethoscope (including heart sound mechanism of hearing.	Sound in medicine	Data show presentation and white board	Short quiz ,Oral examination
17	2	(A-scan, B-scan, M-scan and Doppler effect).	Ultrasound	Data show presentation and white board	Short quiz ,Oral examination
18	2	Physiological effect of ultrasound in therapy	Ultrasound	Data show presentation and white board	Short quiz ,Oral examination
19	2	Light nature, Planck Equation, (Reflection, Refraction and Absorption of Light, Properties of light).	Light in medicine	Data show presentation and white board	Short quiz ,Oral examination
20	2	Diffuse reflection, Specular reflection, Phototherapy, Application of ultraviolet and infrared light in medicine, Tanning and Skin Cancer.	Light in medicine	Data show presentation and white board	Short quiz ,Oral examination
21	2	What is laser? Application of laser in medicine Atomic Transitions, Population inversion, Laser Typical	Laser in medicine	Data show presentation and white board	Short quiz ,Oral examination
22	2	Characteristics, General Applications of Laser, Laser Dental Applications, Reshape	Laser in medicine	Data show presentation and white board	Short quiz ,Oral examination

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		gum tissue, Laser aided teeth whitening, Laser Drill			
23	2	Focusing element of the eye (cornea, lens). Element of the eye (pupil, aqueous humor, vitreous humor sclera).	Physics of eye and vision	Data show presentation and white board	Short quiz ,Oral examination
24	2	Visual acuity, Snellen chart, optical density.	Physics of eye and vision	Data show presentation and white board	Short quiz ,Oral examination
25	2	Properties of X-ray, production of X-ray. Absorption of X-ray, contrast media-ray image	Physics of diagnostic X-ray	Data show presentation and white board	Short quiz ,Oral examination
26	2	penumbra, grid, and intensifying screens). Radiation to patients from X-ray (filters).	Physics of diagnostic X-ray	Data show presentation and white board	Short quiz ,Oral examination
27	2	Radioactivity decay, half-life, units. Basic instrumentation and its medical application (GM-tube, Photomultiplier tube	Physics of nuclear medicine	Data show presentation and white board	Short quiz ,Oral examination
28	2	detector, solid state Scintillation detector). Therapy with radioactivity. Radiation doses in nuclear medicine.	Physics of nuclear medicine	Data show presentation and white board	Short quiz ,Oral examination
29	2	The dose units (Rad and Gray). Principles of radiation therapy	Physics of radiation therapy	Data show presentation and white board	Short quiz ,Oral examination
30	2	Brach therapy, quality factor (QF).	Physics of radiation therapy	Data show presentation and white board	Short quiz ,Oral examination

13. Course Evaluation

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل المحاضرات اليومية والامتحانات اليومية والشؤونية والشهرية والتحريرية والتأريخ الخ

14. Learning & Teaching Resources

Required textbooks (curricular if any)	Medical Physics (John Cameron)
Main References (sources)	Physics of of the human body(Irving Herman)
Recommended Books & References (Scientific Journals, Reports ...)	
Websites or Electronic References	