Course Description Form

1. Course Name:
General pathology
2. Course Code:
MTAL2104
3. Semester / Year:
1st course /2025-2026
4. Description Preparation Date:
7/10/2025
5. Available Attendance Forms:
Full-time and official attendance hour
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours /15 Units
7. Course administrator's name (mention all, if more than one name)
Name: zahraa haziem nadhiem Email: zahraahaziem987@gmail.com

8. Course Objectives	
Course Objectives	**Knowledge** **• Pathology transforms abstract medical theories (how cells and the immune syst work) into tangible clinical applications. It works on mechanisms to understand tissue defects that cause the problem and the ability to understand the ba classifications of diseases (infectious, non-infectious, chronic, acute, hereditary).** **• The ability to apply knowledge of the analytical pathological basis of skin conditi and differentiate between pathological changes.** **• Link the pathological basis with cosmetic technology to understand how and v laser technology works in diseased conditions.** **Skill** **• Diagnostic skill: The ability to examine skin conditions, apply patholog knowledge, differentiate between normal and pathological conditions, pre potential complications, take appropriate therapeutic measures, and apply e detection rules for dangerous lesions.** **• Communication and consultation skills: Providing scientific consultations clearly explaining procedures and risks.** **• Proficient in operating cosmetic and laser devices and adjusting techn parameters according to the diseased condition.**

	Ethical objectives **• Adherence to basic principles and prioritizing client safety over all ot considerations.** **• Commitment to transparency and full disclosure of Medical procedures integrity. Providing consultations according to medical and patient needs.**

9. Teaching and Learning Strategies

Strategy	The strategic goal is to: • Transform the student from a passive recipient to an active researcher analyzing the pathological mechanisms of systemic diseases and sl manifestations. • Analyze clinical images and relate them to the underlying pathology. • Evaluate cosmetic indications and contraindications based on t underlying disease.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T 2 P	Students will be able define pathology, Describe its main branches, and expla its role in medical sciences	Introduction to Patholo Definitions, Divisions Lab safety, microscopy, tissue handling	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description

2	2T 2 P	Students v understand the causes a mechanisms of cell injury a differentiate betwe reversible a irreversible injury	Cell Injury and Cell Death Reversible vs Irreversible cell injury slides	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
3	2T 2 P	Students will descri the stages and cellul events of acute inflammation and identify morphological features	Inflammation I – Acute Slides of acute inflammation	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
4	2T 2 P	Students v distinguish chronic from acute inflammation a explain the formation and features of granulon	Inflammation II–Chronic Granulomatous TB and granuloma slides	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
5	2T 2 P	Students will expl the processes of tissue regeneration a wound healing, includ factors affecting healin	Tissue Repair: Regeneration Healing Wound healing stages	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
6	2T 2 P	Students v recognize the causes and effe of edema, hyperemia, congestion, and thrombosis	Hemodynamic Disorders I Edema, thrombosis slides	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
7	2T	Students will descri the mechanisms and consequences of	Hemodynamic Disorders II Infarcted organs	Lectures a PowerPoint slides &	Weekly, monthly, a reporting examinatio

	2 P	infarction and differentiate betwe red and white infarcts		Interactive	And Scienti Description
8	2T 2 P	Students will define shock, classify types, and explain its pathophysiology an clinical importance	Shock & Clinical Correlates Shock pathology	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
9	2T 2 P	Students w understand the types of hypersensitivity reactions and identi autoimmune diseas with examples	Immune-Mediated Diseases Lupus, RA histology	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
10	2T 2 P	Students w distinguish between benign and malignant tumors a understand the basi characteristics of neoplasia	Neoplasia I Benign vs malignant tumors	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
11	2T 2 P	Students will identif tumor markers, understand metastasis, and descr laboratory diagnostic metho like IHC	Neoplasia II Tumor markers, IHC	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
12	2T 2 P	Students will expl the pathological effects environmental toxi and nutritional imbalan on body tissues	Environmental and Nutritio Diseases Lead, alcohol effects	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description

13	2T 2 P	Students will descri chromosomal abnormalities, genet syndromes, and diagnostic techniqu like karyotyping	Genetic Disorders Karyotyping, congenital syndromes	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
14	2T 2 P	Students will integra and apply their knowledge pathology through case-based analysis a discussion	Review of General Patholog Case-based discussion	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description
15	2T 2 P	Students will demonstrate comprehensive understanding and practical application general pathology concepts.	Final Exam Lab & theory exam	Lectures a PowerPoint slides & Interactive	Weekly, monthly, a reporting examinatio And Scienti Description

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	ımar, V., Abbas, A.K., Aster, J.C. (2020). .1)bbins and Cotran Pathologic Basis of ,Disease .th Edition. Elsevier10 .2Kumar, V., Abbas, A.K., Aster, J (2017). Robbins Basic Patholo 10th Edition. Elsevier .
Main references (sources)	.3Damjanov, I. (2014). Pathology for t Health Professions, 5th Edition. Elsevier .4Wheater's Functional Histology Text and Colour Atlas, 6th Editi (Young, Lowe,Stevens & Heath) .
Recommended books and references (scientific journals, reports…)	.5Rosai and Ackerman's Surgi Pathology, 11th Edition .

Electronic References, Websites	lor Atlas of Pathology: Pathologic .6 inciples, Associated Diseases, and Differential Diagnoses by Ursus-Nikolaus Ried Martin Werner

1. Course Name: nutrition	
2. Course Code:	
MTAL2106	
3. Semester / Year:1st course/2025-2026	
4. Description Preparation Date:7/10/2025	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)30 hours theiory	
7. Course administrator's name (mention all, if more than one name)	
Name: zahraa haziem nadhiem Email:zahraahaziem987@gmail.com	
8. Course Objectives	
Course Objecti	1.Cognitive (Knowledge) Objectives By the end of the course, students should be able to: Define the basic concepts and terminology related to nutrition. Identify and describe the essential nutrients (carbohydrates, proteins, fats, vitami minerals, and water) and their functions in the human body. Explain the daily nutritional requirements and the factors affecting them (age, genc activity level, and health status). Describe the processes of digestion, absorption, and metabolism of nutrients. 2. **Psychomotor (Skills) Objectives** **:Students should be able to** **.Assess the nutritional status of individuals using basic anthropometric and dietary to** **Analyze dietary patterns and evaluate their adequacy based on nutritic** **.recommendations**
9. Teaching and Learning Strategies	
Strategy	interactive Lectures) Begin with , focused presentations40.(minutes each topic .Use visuals: diagrams of digestion, nutrient cycles, and food pyramids ask students to discuss answers to small nutrition questions

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to Nutrition –	nutrition	Lectures andPowerpoint slides	Short theoretical exam
2	2	Macro-nutrients and micro-nutrients			
3	2	Carbohydrates – ,metabolism, glycemic index			
4	2	Proteins – importance for skin			
5	2	Fats –types and metabolism			
6	2	Vitamins – Types, symptoms, in skin and hair health			
7	2	Minerals – cosmetic relevance			
8	2	Water and Electrolytes –			
9	2	Nutrition and Skin Health			

10 11 12 13 14 15	2 2 2 2 2 2	Nutrition and Hair Health – Special Diets – Dietary Supplements – Malnutrition and obesity Food safety and e behavior Cours review			

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	1. Human nutrition(lomer,m.et al) 2. Understanding nutrition- by Elear Whitney &Sharon rady 3. WHO nutrition Guidelines
Electronic References, Websites	Michgan.gov wood.osu.edu

Course Description Form

1. Course Name:
Pharmaceuticals
2. Course Code:
MTAL2105
3. Semester / Year:
First Course 2024-2025
4. Description Preparation Date:
2025-11-2
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Maha Hassan Sahi Email: phmhwi76@gmail.com
8. Course Objectives

Course Objectives Course Objectives **General Objective:** **To introduce students to the relationship betw pharmacology and its applications in the field cosmetics and laser, helping them understand h pharmacological principles are integrated into cosm science.**	**Specific Objectives:** **To familiarize students with the basic princip of pharmacology related to cosmetic techniques.** **To distinguish between different types of dr used in cosmetic fields such as skin, hair, a nails.** **To understand the mechanism of drug actio the cellular and tissue levels of the skin**

9. Teaching and Learning Strategies	
Strategy	Teaching and Learning Strategies

	Strategy: Educational Philosophy: Integrating theoretical scientific knowledge with professional practical applications. Interactive Lectures: Encouraging active student participation and engagement. Problem-Based Learning (PBL): Developing critical thinki through real-life case scenarios. Group Discussions: Promoting collaboration and exchange ideas among students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**Introduction Pharmacology** Drug classificati Importance cosmetic practic		Theoretical lecture u PowerPoint	Pop Direct ques Attendance Midterm Final Exam
2	4	**Pharmacokinetics** Absorption, distribut metabolism, excre **Pharmacodynamics** Mechanism of action, d response, receptor binding		Theoretical lecture u PowerPoint	Pop Direct ques Attendance Midterm Final Exam
3	2	**Topical Agents** - Emollients, retinoids, corticosteroids, antibiotics		Theoretical lecture u PowerPoint	Pop Direct ques Attendance Midterm Final Exam

4	4	**Antibiotics and Antiseptics** – Us acne, wound car and infection co **Analgesics and Anesthetics** – Lo anesthetics, pain management in aesthetic practic		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam
5	2	**Anti-inflammatory and Immunomodulatory Dru** – Steroids, calcineurin inhibitors		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam
6	4	**Hormonal Therapy** – Androgens, estrogens, ora contraceptives **Drugs for Pigmentation Hair Disorders** – Hydroquinone, minoxidil, finasteride		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam
7	2	**Botulinum Toxin and Fillers** **Adverse Drug Reactions** Allergic reactions, photosensitivity, pigmentation		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam
8	4	**Drug Interactions and Contraindications in Cosmetic Practice** **Skin Lightening and Ant aging Products** – Active ingredients and pharmacological roles		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam
9	4	**Legal and Ethical Aspec** Prescription rights, inform consent, product safety **Review and Integration** Case-based discussions a treatment planning		Theoretical lecture u PowerPoin	Pop Direct ques Attendance Midterm Final Exam

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Skincare basics and techniques
2. Course Code:
MTAL2101
3. Semester / Year:
2025_2026
4. Description Preparation Date:
2025
5. Available Attendance Forms:
Student attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hours/ 15Units
7. Course administrator's name (mention all, if more than one name)
Name: Nawres jamal kadhim Email: nawrasjk@yahoo.com
8. Course Objectives

Course Objectives	**1. Cognitive Objectives:** **• The student will understand their role and responsibilities in providing cosme care.** **• Befamiliar with the cosmetic materials and products necessary for skin ca** **• Understand skin types and colors and how to deal with each type.** **2. Course Skill Objectives:** **• Educate the student about the various devices available in cosmetic clinics a skin care centers.** **• Understand the main features of these devices.** **• Understand the performance of cosmetic devices before and after the sessi** **• Raise academic proficiency and expand students' awareness of the importar of the close relationship between the doctor and the cosmetic technician, work as a single medical team, and filling knowledge gaps to reduce medical errors all stages of treatment.** **3. Affective and Psychological Objectives:** *** The student will be convinced of the importance of the specialty they are studying.** *** Appreciate the efforts of the instructors in providing the scientific materia**

9. Teaching and Learning Strategies	
Strategy	Proficiency in working on all cosmetic device

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theory 2practical	Skin structure identification (models, diagrams)	Introduction to Dermatology: Skin anatomy & physiology	Interactive	Test and apply
2	2 theory 2practical	Facial cleansing steps & product selection	Basic Skin Care Principles: Cleansing, moisturizing, protection	Interactive	Test and apply
3	2 theory 2practical	Skin analysis: Wood's lamp, magnifying lam	Skin Assessment Techniques	Interactive	Test and apply
4	2 theory 2practical	Case-based discussion & ba diagnosis skills	Common Dermatological Conditions: Acne, pigmentation, drynes	Interactive	Test and apply
5	2 theory 2practical	Product label reading & formulation basics	Cosmetic Science: Active ingredients in skin care products	Interactive	Test and apply
6	2 theory 2practical	Superficial chemical peelin demonstration	Therapeutic Techniques I: Exfoliation & peels	Interactive	Test and apply
7	2 theory 2practical	Hands-on facial mask applicatio & microderm	Therapeutic Techniques II: Microdermabrasion, masks	Interactive	Test and apply

8	2 theory 2practical	Injection tools and materials: demo and handling	Introduction to Medi Injection Techniques	Interactive	Test and apply
9	2 theory 2practical	PRP preparatio steps (simulatic	PRP (Platelet-Rich Plasma): Theory and uses in cosmetics	Interactive	Test and apply
10	2 theory 2practical	Practice on models with sterile injection technique	Injection Materials: Fillers, Botox (overview)	Interactive	Test and apply
11	2 theory 2practical	Device demonstration and safety handling	Advanced Skin Care Devices: Laser, RF, ultrasound (overviev	Interactive	Test and apply
12	2 theory 2practical	Role-play: Ethic dilemmas in aesthetic practi	Ethics in Skin Care Practice	Interactive	Test and apply
13	2 theory 2practical	Review and discussion of a sample journal article Student presentations: Diagnosis + treatment plan	Research in Dermatology: Basics of scientific method	Interactive	Test and apply
14	2 theory 2practical	Drafting a mini	Business in Skin Care Client interaction, management basics	Interactive	Test and apply
15	2 theory 2practical	business plan fc a skin care clini	Final Case Study Presentation & Revie	Interactive	Test and apply

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Dermatology (4th ed.) Draelos, Z.D Cosmetic Dermatology

	Bolognia, J.L., Schaffer, J.V., & Cerroni, (2017)
Main references (sources)	Baumann, L. (2009). *Cosmetic Dermatology: Principles and Practice
Recommended books and references (scientific journals, reports…)	*Sadick, N.S. (2018). *PRP and Microneedling in Aesthetic Medicine. * Springer. Thibodeau, G.A., & Patton, K.T. (2018
Electronic References, Websites	*Cosmetic Dermatology: Products and Procedures (2nd ed.). * WileyBlackwell

Cou Description Formrse

1. Course Name: General physiology

2. Course Code:

MTAL2103

3. Semester / Year: second year- first semester

4. Description Preparation Date:2/10/2025

5. Available Attendance Forms:

Full-time and official attendance hours

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

Theory Lecture: 2 hours, Practical: 2, Total: 4 (2+2) per week
60 hours per semester

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

Name: Dr. Bassel Adel Ismail
Email: bassel.adel@alayen.edu.iq

8. Course Objectives

General Objective: At the end of the semester, the course provide students with knowledge about Basic general physiology of the human body and students will be able to understand the functions of the various body systems and how to act in normal and emergency sick situations and their relationship to aesthetic and laser.	**Specific Objectives:** The aim to provide students with basic k nowled general Physiology and the functions of the human body in pa icular - To be able to understand how the physiological activities of t e bod are related (activities of the heart, blood circulation, and respira ory sy - To be able to recognize the effect of the activity of the huma vitals , respiratory system, nervous system and urinary system and ther sy aesthetic and laser fields.

9. Teaching and Learning Strategies

Strategy	Lectures (Interactive), Role play, Team-based learning presentation) Discussion, Problem solvi

10. Course Structure Theoretical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evalu ation

1	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Introduction to Physiology: Homeostasis, Cell Functions	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, me exam nation Scien ific D
2	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Membrane Transport, Resting Membrane Potential Endocrine Mechanisms	Attendance • Lectures (interactive) Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	Week y, me exam nation Scien ific D
3	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Nerve Physiology: Action Potentials and Synapses	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, me exam nation Scien ific D
4	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Muscle Physiology: Types and Contraction Mechanism	Attendance • Lectures (interactive) Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	Week y, me exam nation Scien ific D
5	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Blood Composition and Functions	Attendance • Lectures (interactive)	Week y, me exam nation Scien ific D

				Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	
6	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Hemostasis and Blood Groups	Attendance • Lectures (interactive) Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	Week y, mo exam nation Scien ific D
7	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Immune System: Basic Functions	Attendance • Lectures (interactive) Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	Week y, mo exam nation Scien ific D
8	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Cardiovascular System: Heart Anatomy and Electrica Activity	Attendance • Lectures (interactive) Online lectures (interactive) Use strateg collaborati learning, discussion, brainstorm g and practical discussion	Week y, mo exam nation Scien ific D
9	2	A1/A2/A4 B1/B2/B3/B4	Cardiac Cycle and Heart Soun	Attendance • Lectures	Week y, mo exam nation

		C 1/C 2/C 3/C 4		(interactive) Online lectures (interactive) Use strateg collaborati learning, discussion brainstorm g and practical discussion	Scien ific D
10	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Respiratory System: Mechanics, Gas Exchange, and Control of Breathing	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, me exam nation Scien ific D
11	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Reproductive Physiology: Male, Female, Pregnancy and Lactation	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, me exam nation Scien ific D
12	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Digestive System: Anatomy, Absorption, Liver and Pancreatic Functions	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, me exam nation Scien ific D
13	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Urinary System: Structure, Filtration, Electrolyte Balanc	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio	Week y, me exam nation Scien ific D

				brainstorming and practical discussio	
14	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Thermoregulation and System Integration	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, mo exam nation Scien ific D
15	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Endocrine system	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussio brainstorming and practical discussio	Week y, mo exam nation Scien ific D

Syllabus of The Practical Course

1	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Lab safety, Introduction to Hematology Equipment, Hormonal Effects Blood (Discussion)	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming practical discussion	Weekly, monti and reporting examinations Scientific Discussions
2	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Blood Glucose Measurement, Cas Discussion: Hormonal Disorde and Blood Tests	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming practical discussion	Weekly, monti and reporting examinations Scientific Discussions
3	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Capillary and Ven Blood Sampling	Attendance • Lectures (interactive)	Weekly, monti and reporting examinations

			(Manikin Demonstration)	Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Scientific Discussions
4	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Blood Smear Preparation and Staining	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, monti and reporting examinations Scientific Discussions
5	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Microscopic Examination of Normal Blood Sme WBC and RBC Counting with Hemocytometer	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, monti and reporting examinations Scientific Discussions
6	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Blood Grouping an Rh Typing	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, monti and reporting examinations Scientific Discussions
7	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Hematocrit (PCV) Measurement and Hemoglobin Concentration Test	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a	Weekly, monti and reporting examinations Scientific Discussions

				practical discussion	
8	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Erythrocyte Sedimentation Rat (ESR) Test	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
9	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Reticulocyte Staini and Observation	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
10	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Observation of Abnormal Blood Smears (Anemia, Infections)	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
11	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Blood Changes During Menstrual Cycle and Pregnan Testosterone Effec on Blood	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
12	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Liver Function Overview, Serum Protein Measureme Effect of Jaundice Blood	Attendance • Lectures (interactive) Online lectures (interactive)	Weekly, mont and reporting examinations Scientific Discussions

				Use strategy, collaborative learning, discussion, brainstorming a practical discussion	
13	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Serum Creatinine a Urea Test Overviev Blood Electrolyte Demonstration	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
14	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Effect of Temperat on Blood Viscosity Project: Blood Parameters in Cosmetic Patients	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions
15	2	A1/A2/A4 B1/B2/B3/B4 C 1/C 2/C 3/C 4	Final Practical Exa and Submission of Hematology Portfo	Attendance • Lectures (interactive) Online lectures (interactive) Use strategy, collaborative learning, discussion, brainstorming a practical discussion	Weekly, mont and reporting examinations Scientific Discussions

11. Course Evaluation

The grade of 100 is distributed according to the student's mandated tasks such as daily preparation, daily, oral, monthly and final examinations: according to the following order
40 degrees midterm exam distributed to 20 degrees theoretical, 15 degrees practical and 5 degrees for participation, attendance and non-class activities
60 degrees final exam distributed to 25 degrees for practical and 35 degrees for theory

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Guyton and Hall , Physiology review 2th editi
Recommended books and references (scientific journals, reports…)	Ganongs' Review of Medical Physiology 26th Edition Elsevier, Sciencedirect springer link, Pdfdrive
Electronic References, Websites	University educational platform www.who.int

Course Description Form

1. Course Name:
Laser Physics and its Medical Applications
2. Course Code:
MTAL2102
3. Semester / Year:
First Semester / Second Year
4. Description Preparation Date:
01/12/2025
5. Available Attendance Forms:
Lists of student names (attendance)
6. Number of Credit Hours (Total) / Number of Units (Total)
4 credits (total) / 6 total hours (2 theoretical / 4 practical)
7. Course administrator's name (mention all, if more than one name)
Name: Ass. Prof. Mustapha Abdul Sattar Abdul Jabbar Email: mustapha-a.setar@alayen.edu.iq
8. Course Objectives
Course Objectives: - The students will obtain sufficient knowledge about the nature and physical properties of laser light. - They will get an suitable knowledge how to use lasers in medical and cosmetic field to achieve optimal results through safe interaction with human body tissues. - They will learn to follow international protocols for using laser devices in medical applications, particularly cosmetic ones.
9. Teaching and Learning Strategies
Strategies - Delivering in-person lectures in the classroom using electronic means such as screens and data projectors. - Emphasizing the practical aspects of the subject by providing students with opportunities to conduct practical experiments. - Conducting daily and monthly exams.
10. Course Structure

Week	Hour	Required	Unit or	Learnin	Evaluatio

	s	Learning Outcomes	subject name	g method	n method
1	2+4	To understand the laser properties	Introduction to Laser Physics – History, definitions, light properties	Lecture and lab	Participation and quiz
2	2+4	To understand the physics of the light	Nature of Light – Wavelength, frequency, and the electromagnetic spectrum	Lecture and lab	Participation and quiz
3	2+4	To differentiate between emission, population inversion, and laser components	Laser Fundamentals – Stimulated emission, population inversion, laser components	Lecture and lab	Participation and quiz
4	2+4	To know the different types of lasers in their different states	Types of Lasers – Gas, solid-state, diode, and dye lasers	Lecture and lab	Participation and quiz
5	2+4	To understand the laser-tissue interaction mechanism	Laser-Tissue Interaction – Absorption, scattering, thermal effects	Lecture and lab	Midterm Exam
6	2+4	To know and apply the principles of photothermolysis in hair removal and pigmentation	Selective Photothermolysis – Principle and applications in hair removal and pigmentation	Lecture and lab	Participation and quiz
7	2+4	To differentiate between the different laser parameters	Laser Parameters – Power, fluence, spot size, pulse duration	Lecture and lab	Participation and quiz
8	2+4	To understand the types of skin chromophores	Skin Chromophores – Melanin, hemoglobin, water	Lecture and lab	Participation and quiz
9	2+4	To know how to apply laser in hair removal	Laser Applications in Hair Removal	Lecture and lab	Participation and quiz

		procedures			
10	2+4	To apply laser techniques in skin rejuvenation and pigmented lesions	Laser Applications in Skin Rejuvenation and Pigmented Lesions	Lecture and lab	Participation and quiz
11	2+4	To understand and apply laser in vascular legions and tattoo removal settings	Laser Applications in Vascular Lesions and Tattoo Removal	Lecture and lab	Participation and quiz
12	2+4	Laser Safety – Hazards, protection standards, classification	Laser Safety – Hazards, protection standards, classification	Lecture and lab	Participation and quiz
13	2+4	Patient Selection and Contraindications	Patient Selection and Contraindications	Lecture and lab	Participation and quiz
14	2+4	Maintenance and Troubleshooting of Laser Equipment	Maintenance and Troubleshooting of Laser Equipment	Lecture and lab	Participation and quiz
15	2+4	Review and Integration – Ethics, regulations, and case-based discussions	Review and Integration – Ethics, regulations, and case-based discussions	Lecture and lab	Final Exam

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc
40/100 on Midterm Assessment (Midterm exam, attendance, participation…)
35/100 on Theoretical Final Exam
25/100 on Practical Final Exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lasers and Light Therapy by Pamela Hill
Main references (sources)	Laser Physics for Medical Applications by Leon Goldman
Recommended books and references (scientific journals, reports…)	Manufacturer manuals and clinical protocols

Electronic References, Websites	Online videos and lab demonstrations