Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve,

proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: Al-Manara College of Medical Sciences

Faculty/Institute: Al-Manara College of Medical Sciences Department.

Department: Medical Laboratory Technologies

Scientific Department: Medical Laboratory Technologies

Academic or Professional Program Name: Bachelor in Medical Laboratory Technologies

Final Certificate Name: Bachelor in Medical Laboratory Technologies

Academic System: courses

Description Preparation Date: 19/2/2024

File Completion Date: 19/2/2024

Signature:

Head of Department Name: الأستاذ المساعد د. مصطفى محمد علي رئيس قسم تقنيات المختبرات الطبية

Date: 27-04-2024

Signature:

Scientific Associate Name:

Date: 19-2-2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 2024-4-27

Signature:

Rasha Ahed Hussein

Approval of the Dean

م. د. محمد فوزي شعلان
معاون العميد الإداري

1. Program Vision

Scientific excellence in the field of supporting medical sciences (pathological analyses) by providing academically distinguished programs at the local and regional levels and preparing qualified cadres capable of raising the level of health behavior in society and enriching private scientific research in the field of medical laboratories through leadership in the field of training to become In the Department of Pathological Analysis at Al-Manara College of Medical Sciences, there is a competition for quality

2. Program Mission

Providing distinguished education in building the knowledge economy by creating a stimulating environment for education and intellectual creativity, optimal employment for development, effective local and global partnership, and the student's acquisition of analytical and medical skills.

3. Program Objectives

The program aims to:

1- Preparing qualified technical cadres capable of working in medical laboratories and conducting routine laboratory analyzes and chemical tests. bacteria, hormones, examining various body fluids, and operating and maintaining laboratory equipment.

2- Qualifying the department's students to be familiar with the theoretical and practical aspects of medical laboratory techniques and what surrounds them. Basic sciences such as microbiology, chemistry, physiology, histology, blood, and other sciences, in addition to the ability to deal with these Technologies and what provides the student with a scientific and practical background and a high level of accuracy that makes him able to find cadres The appropriate ground medical

equipment to deal with the pathological condition and reach the pathological diagnosis.

3- Introducing students to modern laboratory equipment and the working method for each of them through direct use of the equipment available in The department's laboratories, and each laboratory has its own advanced equipment.

4- Communicate with the local community, understand patients' problems and suffering, and work to help them find appropriate solutions.

5- Preparing students for postgraduate studies by training them in scientific research, scientific experiments, and the research process through Graduation project in the fourth stage.

4. Program Accreditation

In the process of preparing for program accreditation.

5. Other external influences

training courses

Developing students' professional skills

Summer training

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**2**	**3**	**3.15**	
College Requirements	**14**	**26**	**27.04**	
Department Requirements	**32**	**66**	**69.50**	
Summer Training	**30 Days**	**Unit less**		

Other				

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

7. Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			Theoretical	**practical**
1st Year/ 1st Semester	**MLT 111**	**General chemestry**	**2**	**4**
	MLT 112	**Medical terminology**	**1**	
	MLT 113	**Human biology 1**	**2**	**4**
	MLT 114	**Laboratory instrument 1**	**1**	**2**
	MLT 115	**Medical ethics**	**2**	
	MLT 116	**Computer Applications 1**	**1**	**2**
	MLT 117	**Human rights**	**2**	
	MLT 118	**English language**	**2**	
			13	**12**
1st Year/ 2nd Semester	**MLT 121**	**General chemistry 2**	**2**	**4**
	MLT 122	**Anatomy**	**2**	**4**
	MLT 123	**Human biology 2**	**2**	**4**
	MLT 124	**Laboratory instrument 2**	**1**	**2**
	MLT 125	**Computer Application 2**	**1**	**2**
	MLT 126	**Arabic language**	**2**	
			12	**14**

2nd Year/ 1st Semester	MLT 211	Medical Bacteriology 1	2	4
	MLT 212	Biochemistry 1	2	4
	MLT 213	Human physiology 1	2	4
	MLT 214	Histology 1	2	4
	MLT 215	Molecular Biology 1	2	4
	MLT 216	Medical Parasitology 1	2	4
			12	20
2nd Year/ 2nd Semester	MLT 221	Medical Bacteriology 2	2	4
	MLT 222	Biochemistry 2	2	4
	MLT 223	Human physiology 2	2	2
	MLT 224	Histology 2	2	2
	MLT 225	Medical Parasitology & Entomology	2	4
	MLT 226	Descriptive Biostatics	1	2
			11	18
3rd Year	MLT 301	Histopathology	2	3
	MLT 302	Hematology	2	2
	MLT 303	Virology and Mycology	2	2
	MLT 304	Clinical Chemistry	2	2
	MLT 305	Genetics	2	3

	MLT 306	**Immunology**	2	**2**
	MLT 307	**Advanced Laboratory Techniques**	2	**2**
	MLT 308	**Computer**	**1**	**2**
	MLT 309	**English**	**1**	
			16	**18**
4th Year	**MLT 401**	**Clinical Immunology**	**2**	**4**
	MLT 402	**Diagnostic Microbiology**	**2**	**4**
	MLT 403	**Advanced Clinical Biochemistry**	**2**	**4**
	MLT 404	**Parasitology**	**2**	**4**
	MLT 405	**Blood Transfusion**	**2**	**4**
	MLT 406	**Advanced Histopathology**	**1**	**5**
	MLT 407	**Graduation Project**		**5**
	MLT 408	**English**	**1**	
	MLT 409	**Lab Administration and Research Method**	**1**	
			13	**30**

8. Expected learning outcomes of the program

Knowledge

- Extensive knowledge in life sciences, chemistry, and health and medical basics, enabling the graduate to employ this knowledge in the field of pathological analyses.

• Graduating technical talents capable of working in medical laboratories, conducting routine laboratory analyses, general chemical examinations, and operating and maintaining laboratory equipment.
• Developing the spirit of scientific honesty, accuracy, and integrity in conducting various laboratory tests.
• Mastering laboratory work and developing the spirit of working as a team
Skills
• Learn how to work on laboratory equipment used in the Medical Laboratories and Medical Laboratory Department, as well as how to maintain Maintaining and calibrating these devices
• Learn how to deal with tissue samples, how to make tissue sections of the sample, and methods of staining the tissue sections to obtain Clear segments in terms of changes occurring compared to healthy samples
• Conducting various bacteriological tests, starting with taking samples, bacterial swabs, bacterial culture methods, and how to diagnose the type of bacteria that infects Human
• Conducting various clinical chemistry tests in the blood, such as testing blood sugar, urea, Cholesterol, triglycerides, high- and low-density cholesterol, and other tests (in clinical chemistry as well as in general chemistry)
• Conducting a microscopic analysis of urine and stool to identify infections and parasites that affect the urinary system and the digestive system.
Ethics
• Teaching students ethical, scientific, pedagogical and educational goals
• Teaching students the importance of educational guidance in university studies

- Teaching students how to interact positively with other colleagues in order to reach a state of academic excellence

9. Teaching and Learning Strategies

There are many strategies that have been followed in teaching and learning, such as:

- Brainstorming strategy
- Modeling learning strategy
- Group work or cooperative learning strategy
- Discussion strategy
- Project strategy
- A strategy for problem solving or problem-based learning
- Story strategy.
- Combining different strategies

10. Evaluation methods

Oral and written Examination.
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.

Daily preparation	daily exam	oral exam	monthly exam	report	written exam	total
5	5	5	10	5	70	100

11. Faculty

Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lec.
Prof. Dr.		✓			3	
Ass. Prof. Dr.	✓	✓			3	3
Ass. Lec.	✓	✓			4	3

Professional Development
Mentoring new faculty members
The new faculty members receive great interest from the program by expanding their knowledge in the field of specialization by placing them in specialized courses that will have a significant impact on increasing their technical and technical skills, with the need for their continued contact with the experiences and competencies of the senior staff with high academic titles in the branch.
Professional development of faculty members
There is a comprehensive plan for the academic and professional development of the faculty members in the branch through the use of advanced teaching and learning strategies in the field of specialization, many of which were mentioned in the lectures' curricula, with the need to conduct a comprehensive evaluation of

the students' learning outcomes and develop the professional aspect by involving them in applied scientific research practices with state institutions. Various matters related to the branch's specialization.

12.Acceptance Criterion

- The department receives graduates of preparatory school and graduates of the Medical Technical Institute for morning and evening studies.

2- The middle school grade is determined according to the requirements of the Ministry of Higher Education and Scientific Research as a minimum for accepting students. In the morning study and two grades less than it for the evening study, and this rate is subject to increase or decrease every year. Academic studies only as determined by the Ministry

3- The number of seats for each morning and evening study is determined by the Ministry of Higher Education and Scientific Research. This depends on the capacity of the department's teaching staff, laboratories, and classrooms.

4- Ensuring that the student chooses the department on the basis of his desire, as it provides the electronic system for applying to colleges. Eligibility: Five options that the student is allowed to accept according to his average approved by the Ministry of Higher Education and Research. Scientific...

5- The student must be medically fit, and this must be verified through the medical examination form.

6- Graduates of the morning and evening preparatory studies are accepted exclusively for the scientific or biological branch and at the rate permitted by Ministry...

12. The most important sources of information about the program

1- Ministry of Higher Education and Scientific Research

2- Central Technical University / College of Pathological Analysis Technologies

3- Methodological books and scientific sources in Arabic and English.

4- The spider web...

5- The college's official website on the Internet.

13. Program Development Plan

1- Developing students' research and investigation capabilities through conducting periodic modern discussion circles.

2- Urging students to look at sources, books, and magazines as a source of information through oral questions.

During the lecture and asking about the answers in the subsequent lecture.

3- Organizing workshops on a regular basis to keep pace with the latest developments in the medical field in the world.

4- Providing training opportunities for faculty members.

5- Providing scientific references

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
1st Year /1st Semester	MLT 111	General chemestry	Basic	•				•				•			
	MLT 112	Medical terminology	Basic	•				•				•			
	MLT 113	Human biology 1	Basic	•				•				•			
	MLT 114	Laboratory instrument 1	Basic	•				•				•			
	MLT 115	Medical ethics	Basic	•				•				•			
	MLT 116	Computer Applications 1	Basic	•				•				•			
	MLT 117	Human rights	Basic	•				•				•			

	MLT 118	English language	Basic	•				•				•				
			Basic	•				•				•				
			Basic	•				•				•				
1st Year/ 2nd Semester	MLT 121	General chemistry 2	Basic	•				•				•				
	MLT 122	Anatomy	Basic	•				•				•				
	MLT 123	Human biology 2	Basic	•				•				•				
	MLT 124	Laboratory instrument 2	Basic	•				•				•				
	MLT 125	Computer Application 2	Basic	•				•				•				
	MLT 126	Arabic language	Basic	•				•				•				
			Basic	•				•				•				

			Basic	•				•				•				
			Basic	•				•				•				
			Basic	•				•				•				
2nd Year/ 1st Semester	MLT 211	Medical Bacteriology 1	Basic	•				•				•				
	MLT 212	Biochemistry 1	Basic	•				•				•				
	MLT 213	Human physiology 1	Basic	•				•				•				
	MLT 214	Histology 1	Basic	•				•				•				
	MLT 215	Molecular Biology 1	Basic	•				•				•				
	MLT 216	Medical Parasitology 1	Basic	•				•				•				
			Basic	•				•				•				
			Basic	•				•				•				

			Basic	•				•				•			
2nd Year/ 2nd Semester	MLT 221	Medical Bacteriology 2	Basic	•				•				•			
	MLT 222	Biochemistry 2	Basic	•				•				•			
	MLT 223	Human physiology 2	Basic	•				•				•			
	MLT 224	Histology 2	Basic	•				•				•			
	MLT 225	Medical Parasitology & Entomology	Basic	•				•				•			
	MLT 226	Descriptive Biostatics	Basic	•				•				•			
			Basic	•				•				•			
			Basic	•				•				•			
			Basic	•				•				•			

3rd Year	MLT 301	Histopathology	Basic	•				•				•				
	MLT 302	Hematology	Basic	•				•				•				
	MLT 303	Virology and Mycology	Basic	•				•				•				
	MLT 304	Clinical Chemistry	Basic	•				•				•				
	MLT 305	Genetics	Basic	•				•				•				
	MLT 306	Immunology	Basic	•				•				•				
	MLT 307	Advanced Laboratory Techniques	Basic	•				•				•				
	MLT 308	Computer	Basic	•				•				•				
	MLT 309	English	Basic	•				•				•				

4th Year	MLT 401	Clinical Immunology	Basic	•				•				•			
	MLT 402	Diagnostic Microbiology	Basic	•				•				•			
	MLT 403	Advanced Clinical Biochemistry	Basic	•				•				•			
	MLT 404	Parasitology	Basic	•				•				•			
	MLT 405	Blood Transfusion	Basic	•				•				•			
	MLT 406	Advanced Histopathology	Basic	•				•				•			
	MLT 407	Graduation Project	Basic	•				•				•			
	MLT 408	English	Basic	•				•				•			
	MLT 409	Lab Administration and Research Method	Basic	•				•				•			

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

1st Year/ 1st Sem.

Course Description

Medical Terminology

Course Description Form

1. Course Name:

Medical Terminology

2. Course Code:

MLT 112

3. Semester / Year:

First Semester / First Stage

4. Description Preparation Date:

20/2/2024

5. Available Attendance Forms:

Weekly

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

Theory1 / 15

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

Name: Asst. Lect. Yazen Basil Hassan
Email: azenbasilhassanl-rubaie9@uomanara.edu.iq

8. Course Objectives

Preparing the student at a high level of proficiency in the English language in the four skills, especially the skill of speaking and reading, which helps him in studying medicine and specialist in general.

9. Teaching and Learning Strategies

1. Lectures
2. Reports
3. Quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	one		Prefixes & suffixes	Theoretical lecture	Quiz

Second	one		Pronunciation rules	Theoretical lecture	Quiz
eighth	Six		Digestive system Immune system	Theoretical lecture	Quiz
fifteenth	Seven		Speaking task	Theoretical lecture	Speaking task
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned,Mid- term and final exam, also reports .

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1.Medical terminology by Judi l. Nath Kelsey P. Lindsley. 2.English for Medicine and health Sciences. 3. Oxford books for learning English.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description

English Language

Course Description Form

1. Course Name:

English Language

2. Course Code:

MLT 118

3. Semester / Year:

First Semester / First Stage

4. Description Preparation Date:

20/2/2024

5. Available Attendance Forms:

Weekly

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

Theory1 / 30

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

Name: Asst. Lect. Yazen Basil Hassan
Email: yazenbasilhassanl-rubaie9@uomanara.edu.iq

8. Course Objectives

Preparing the student at a high level of proficiency in the English language in the four skills, especially the skill of speaking and reading, which helps him in studying medicine and specialist in general.

9. Teaching and Learning Strategies

1. Lectures
2. Reports
3. Quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	Two		Tenses	Theoretical lecture	Quiz

Second	Two		Pronunciation rules	Theoretical lecture	Quiz
Third-Twenty	Eight		Part of speech	Theoretical lecture	Quiz
Twenty one - Thirty	Eighteen		Speaking task	Theoretical lecture	Speaking task
5					
6					
7					
8					
9					
1					
11					
1					
1					
1					
1					
1					
1					

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned,Mid- term and final exam, also reports .

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1.English for Medicine and health Sciences. 2. Oxford books for learning English.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

2nd Year/ 1st Sem.

Course Description
Histology

Course Description Form

1. Course Name:
Histology
2. Course Code:
MLT 214
3. Semester / Year:
The first and second semester of the second stage / 2023-2024
4. Description Preparation Date:
16/2/2024
5. Available Attendance Forms:
weekly
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours
7. Course administrator's name (mention all, if more than one name)
Name: dr. Assist proph. taha hasan jasim Email: aleassery@gmail.com
8. Course Objectives

Providing the student with knowledge in histology	• Introduction to histology: a historical overview of it, the most prominent scientists, and the most important discoveries • The importance of histology, what are its most important applications, and its importance in relation to other sciences

9. Teaching and Learning Strategies	
Strategy	• Lectures • Reports • quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First	Two hours		Introduction and historical overview of histology, tissue classification, and tissue preparation	Theoretical lecture	Oral Exams.
Second	Two hours		Overview of Cell structure & types	Practical lecture	Oral exams.
Third - twelfth	twenty hours		3-Tissues: Concept and classifications of primary tissues 4- Epithelial tissue: Simple Ep. T. , Compound Ep. T. 5- The glandular Tissues (The Glands) 6- Connective and Supportive Tissue: Embryonic and adult C.T. 7- Connective Tissue proper (General C.T.) 8- Cartilage, Histogenesis, Growth and repair of cartilage 9 -Bone & Histogenesis of Bone 10 -The Blood The haemopoietic organ (bone marrow), Formation of blood 11- cells. 12 Muscular tissue	Theoretical lectures And practical	quizzes
thirteenth - twenty-seventh	Twenty-four hours		13-Nervous tissue: Overview of nervous system (CNS & PNS)	Theoretical lectures And practical	Oral exams

			Nervous system: the Nerve cells (neurons) and their 14-classification 15- Supporting cells of nervous system 16- Circulatory system 17-Lymphoid system- Lymphatic vessels- Lymph 18- Lymphoid organs 19- Respiratory system 20- Digestive system/ Part one- Oral cavity 21- Digestive system/ Part two- Gastrointestinal tracts 22- Digestive system/ Part three- Accessory Glands 23-24-9 Urinary system 25-26 Endocrine system 127 Male reproductive system		
Twenty-eighth - thirtieth	six hours		28-Female reproductive system 29- Sense organ 30- The integumentary system- Skin	Theoretical lectures And practical	Oral exams
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
Human Physiology

1. Teaching Institution	Department of Private Education / Al-Manara College for Medical Sciences
2. University Department/Centre	Human Physiology
3. Programme Title	Medical Laboratory Techniques
4. Title of Final Award	Bachelor's degree in Medical Laboratory Technology
5. Modes of Attendance offered	Terms (Semesters)
6. Accreditation	An annual study consisting of two semesters
7. Other external influences	Training within specialized scientific laboratories
8. Date of production/revision of this specification	13/02/2024
9. Aims of the Programme	
Enable students to to understand the main functions of human body..	
Enable students to identify any disorder of these functions by using laboratory analysis tests.	
To make students able to handle laboratory tools and apply biosecurity safety standards within laboratories.	
Training students on various analysis of body fluids and cell components.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1- Determining the structures and functions of body systems.

A2- Explanation of physiological disorder by using various analysis tests.

B. Subject-specific skills

B1 – Training on analysis of different types of body fluids and their components.

B2 – Studying the mechanisms of body functions.

B3 - Dealing with various laboratory equipment related to human physiology.

Teaching and Learning Methods

Theoretical study: (theoretical lectures supported by modern means of presentation and reinforced with the latest scientific sources and holding seminars in which students participate).

Practical study: (teaching students to take samples of body fluids such as blood, urine or semen and their chemical and biological analysis techniques. Vital signs measurements(Blood pressure, Temperature, Heart rate, Lung volumes & capacities were also included in such training)

Assessment methods

Through: Students' participation during the lecture, presentation of seminars, short-time quick exams.

Quarterly examinations for the theoretical and practical.

C. Thinking Skills

C1- Urging students to solve intellectual questions.

C2- Conducting intellectual competitions related to the scientific subject.

C3- Putting students in a scientific and practical environment related to bacteriology to deduce diagnoses from data.

C4 - Urging students to compete among themselves to achieve advanced positions within the scientific subject to obtain grades and moral prizes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D 1 - Access to a greater number of scientific sources.
D2 - Presenting the newly raised topics globally through a presentation and the participation of everyone through it.
D3 - Have the students conduct discussion panels, as well as make presentations related to the subjects of the scientific subject to develop and enhance their personalities.

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Second Stage	MLT	Human Physiology	Two hours Theory and 2 h practical	Bachelor Degree Requires (x) credits
			First & Second terms Mid exams 40 marks each, 25 Theory & 15 practucal) Final exam 60 practical: 25 Theory: 35	
				Grant a bachelor's degree. Sixty hours.

13. Personal Development Planning
By reviewing books and international sources specialized in Physiology.

14. Admission criteria .
The student must have a high school diploma from the scientific biological branch. Holds an average that qualifies him to join the Department of Medical Laboratory Techniques. He must have an interest and passion in the field of pathological analysis
15. Key sources of information about the programme
1- Ganong W.F. (Ed.); 2005. Review of Medical Physiology. *2- Guyton A.C. Text book of Medical Physiology . Latest Edition.*

Course Description

Medical Parasitology

and Entomology

Course Description Form

1. Course Name: Medical Parasitology (First Semester), Medical Parasitology and Entomology (Second Semester)

2. Course Code: Two Semester

3. Semester / Year: 2023-2024

4. Description Preparation Date: 26/2/2024

5. Available Attendance Forms: Weekly attendance at the college

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

60 theoretical hours and 80 practical hours / 6 units / per semester

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

Name: Dr. Mohammed Jasim Qasim
Email: mohammedjassimqasim721@uomanara.edu.iq

8. Course Objectives

-Identify the external appearance, life cycle and pathogenicity
And the laboratory. Diagnose all parasites of interest medical.
- Identify the epidemiology of parasites with reference
especially for those endemic in Iraq.

9. Teaching and Learning Strategies

-Presenting a lecture in PDF or PPT format and delivering it in different ways, including lecture methods
Discussion and brainstorming in person.
-Opening new horizons for the student and clarifying the general relationship between the theoretical and practical parts
-Relying on additional sources to enrich the lectures with scientific material
A- Knowledge and understanding
A1- Identifying parasites that infect humans

A2- Identifying parasites that cause diseases that affect human health

A3- Methods of transmission and diagnosis (laboratory(

A4- Identifying the body's immunity to which it is generated and benefiting from that in diagnosis

A5- The relationship between the human body and parasites in general

A6- Identify methods of treatment, prevention and control

B - Subject-specific skills

B1 - Learn modern methods for diagnosing pathogenic parasites

B2 - Identifying the parasites causing new epidemics

B3 - Multiple causes of different diseases

C- Emotional and value goals

C-1 Interrogation

C-2 Discussion

C-3 Laboratory experiments and reports

C-4 Extrapolation

D - General and transferable skills (other skills related to employability and development

personal(

D-1 Creating and developing lectures annually

D-2 Follow up on published research related to the subject

D-3 Conduct quarterly and annual research through personal and group efforts and publish it in Magazines

Arab and international

D-4 Discussing the curriculum with stakeholders and specialists in order to reach the best

Teaching and learning methods

All educational methods used, such as PowerPoint, presentation, and comprehensive reports. experimental in addition

To practical experiences and what was mentioned above.

The education method changes according to the student's awareness and interacting with the lecture, so the method may be

The discussion, the method of questioning, the method of inference and deduction…

All methods may be used at the same time, in addition to the use of laboratories and Try it

The process to increase the student's understanding and awareness

10. Course Structure (First Semister)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Terms and definitions in parasitology. Parasite ,host, symbio ectoparasite, endopara ,accidental parasite, oblig parasite, facultative parasite ,h parasite relation ship, scient nomenclature, type of life cyc type of hosts , mechanism antiparasitic drugs.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
2	2	Introduction to protozoology. Organell of locomotion, mode living, reproduction, classificat of protozoa.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
3	2	Sacodina, Entamoeba histolytica. Biology , medical importance and clinical feature of amoebiasis: 1-Intestinal amoebiasis. 2-Extra intestinal amoebiasis. Lab. Diagnosis: 1.Direct method (G.S.E.). 2.Indirect method (Serological tests).	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
4	2	Entamoeba coli Differntiation between E. histolytica & E.coli E. gingivalis. Biology, medical importance, Lab. Diagnosis.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams

5	2	Small amoeba: Endolimax nana Iodamoeba butschlii. Biology of the stages,Lab. Diagnosis.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
6	2	Mastigophora, general characters. Intestinal flagellates. Giardia lamblia. Chilomastix mesnali, Dieantamoeba fragilis. Biology & stages. Diagnostic characters of all stages.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
7	2	Genus Trichomonas. T. vaginalis/ urogenital flagellate. T. hominis T. tenax Biology , medical importance and Lab. Diagnosis of each species.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
8	2	Heamo- flagellates(blood & tissue flagellates),general characters. Developmental stages in the vertebrate & invertebrate hosts. Genus leishmania ,species of leishmania, biology, vector, medical importance of eachspecies, types of leishmaiasis , life cycle ,Lab. Diagnosis, incloding immunological tests.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
9	2	Genus Trypanosoma, species of trypanosome, biology , vector, medical importance of each species, forms of parasite, life cycle,Lab. Diagnosis. Ciliophora: Blantidium coli ,Biology , medical importance, Lab. Diagnosis.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
10	2	Apicomplex: General charcter. Genus Toxoplasma.,T.gondii ,Biology, medical lmportance,acquired and	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams

		congenital toxoplasosis. Life cycle, role of domesticate animals in the transmission of the disease. Lab. Diagnosis.			
11	2	Genus plasmodium. Introduction to malarial parasites, malarial paroxysm, general life cycle of the plasmodium , species of plasmodium.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
12	2	P.falciparum, P. vivax, P ovale, P. malarae Disease, pathology, medical importance, distribution, main differences during life cycle.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
13	2	General discussion on malarial parastes ,epidemiology, methods of diagnosis. Time to take clinical samples. Blood films.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
14	2	Isopora, pathology, medical importance,Lab. Dianosis. Sarcocystis species: pathology , medical importance,Lab diagnosis.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
15	2	Cryptosporidiadse Genus cryptosporidium, species belong the genus, biology, pathology, epidemiology,Lab.diagnosis.	**Medical parasitology**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
Course structure for the second semester (Medical Parasitology and Entomology 2)					
16		Platyhelminth: General characters. Class cestoda: General characters. Teania saginata: Teania solium: Morphology & the adult warm and the larval stages of each species, biology, life cycle of each species, pathologinicity of each species, Lab. Diagnosis	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
17	2	Hymenolepis nana, Hymenolepis diminuta. Diplidium caninum, Diphyllobathrium latum, Biology, morphology,	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams

		pathoginicity of eachspecies, Lab. Diagnosis.			
18	2	Echinococcus granulosus. Echinocuccus multilocularis. Biology,life cycle, pathoginicity, medica importance of hydatic cyst disease ,Lab. Diagnosis.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
19	2	Class Trematoda: General characters. Genus Schistosoma. Specis of human schistosoma, life cycle. Schistosoma hematobium. Schistosoma mansoni. Biology of adult worm, habitat, pathgenicity,Lab.diagnosis	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
20	2	Fasciula hepatica Biology , life cycle, pathogenicity, Lab diagnosis. Nemathelminthis. Nemtoda, general characters.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
21	2	Ascaris lambricoides Enterobius vermicularis. Biology of adult worm,life cycle, pathgenicity and medic importance of Each species, Lab. Diagnosis of eac species.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
22	2	Trichuris trichura. Trichenala spiralis. Biology , life cycle , pathogenicity, medica importanceof each species, Lab. Diagnosis of eac species.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
23	2	Strogyloides stercoralis. Biology, life cycle, pathgenicity, medical importance, Lab. Diagnosis.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
24	2	Ancylostoma duadenale ,Necator Americans (Hooks worm)	**Medical Parasitology & Entomology 2**	**Theoretical lecture using**	Daily, mid-term final exams

		Biology, life cycle, pathogenicity, medical importance of each species, Lab. Diagnosis.		**ppt presentat software**	
25	2	The filariae: Biology, pathgenicity and medical importance of each species, Lab. Diagnosis of each species. Visceral larvae migrance, Cutaneaus larvae migrance.	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
26	2	**Entomology**	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
27	2	Sand fly, Black fly	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
28	2	Mosqiutoes	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
29	2	Ticks & Mites	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams
30	2	Fleas	**Medical Parasitology & Entomology 2**	**Theoretical lecture using ppt presentat software**	Daily, mid-term final exams

11. 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.
-These are monthly, semester, and final exams and short exams.
Laboratory reports, attendance and absences.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Paniker's Textbook of Medical Parasitology, JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD (2013.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Subhash-Chandra Parija(2013).Protozoology Helminthology,4th Edition
Electronic References, Websites	https://www.cdc.gov Bub-Med and WHO

Course Description
Molecular Biology

Course Description Form

13. Course Name:	
Molecular Biology	
14. Course Code:	
MLT 2151	
15. Semester / Year:	
Semester / Stage second	
16. Description Preparation Date:	
17/2/2024	
17.Available Attendance Forms:	
Weekly	
18.Number of Credit Hours (Total) / Number of Units (Total)	
30 hours (Theoretical)/4 units 60 hours (practical)	
19. Course administrator's name (mention all, if more than one name)	
Name: Mohammed Shakir Atyiah Email: missanyiraqi3030@gmail.com	
20. Course Objectives	
Course Objectives:	Molecular biology is concerned with the study of biology the molecular level, so it overlaps with both microbiology chemistry in several branches and intersects biochemistry and genetics in several areas specializations. At the end of this course, the student wil able to understand the three-dimensional structures structural formations of nucleic acids in humans, as wel understand the molecular foundations of the process copying, cloning, and genetic translation.
21. Teaching and Learning Strategies	
Strategy	• Lectures • Quizzes ○ Reports
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2-4	2 2		Introduction to Molecular Biology applications in Medical Laboratory Techniques specialization Structure of Deoxyribonucleic acid (DNA) 1- Primary structure 2- Secondary structure 1- Tertiary structure and chromosome packing in human cells 2- Structure of Ribonucl acid (RNA)		Daily Exam Oral exams
5	2		DNA replication and replication Mod		Oral exams
6	2		DNA Transcription and post transcriptional modification processe		Oral exams
7	2		Translation and post translational modifications and protein synthesis		Oral exams
8	2		Gene expression, genetic code and applications of genetic code		Oral exams
9	2		DNA damage, types and repair syster and mechanisms		Daily exam
10-12	2		DNA mutations, chromosomal aberrations and causes of gene mutations		Oral exams
13			Programmed cell death, telomere and telomerase association with carcinogenesis		Daily exam
14-15			Introduction to Recombinant DNA technology 1- Restriction enzymes 2- Cloning vectors 3- Applications in Molecular cloning		Oral exams

23. 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

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	• General Genetics/ Dr. Abdul Hussein Al-Fai • Molecular genetics/Dr. Abdul Hussein Al-Faisal • Principles of human cytogenetics / Dr. Abdu Hussein Al-Faisal • Molecular biology/Dr. Nashat Ghalib • Introduction to Molecular Biology/Dr. Muhammad Al-Hajjaj

	• Molecular genetics and genetic engineering/Dr. Issam Qasim • Molecular biology / Dr. Aisha Divan Clinical medical genetics/Dr. Abdul Basit Al-Muslim
Recommended books and references (scientific journals, reports…)	• American Journal of Medical Genetics • Macedonian Journal of Medical Sciences • Records of human genetics • Immunogenetics • Genetics Magazine/Saudi Society for Gen Medicine • Iraqi Journal of Biotechnology/University Baghdad • Journal of the College of Science, Al-Nahr University • Journal of the College of Science, Departmen Biotechnology, University of Baghdad • Journal of the College of Science Girls/University of Baghdad Journal of Basra Sciences/University of Basra
Electronic References, Websites	• NCBI • CDC • NHGRI • National Center for Genome Resources

3rd Year

Course Description

Advanced laboratory technique

Course Description Form

1. Course Name:	
Advanced laboratory technique	
2. Course Code:	
MLT 307	
3. Semester / Year:	
The first and second semester of the second stage / 2023-2024	
4. Description Preparation Date:	
16/2/2024	
5. Available Attendance Forms:	
weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: dr.. taha hasan jasim Email: aleassery@gmail.com	
8. Course Objectives	
Providing the student with knowledge in histology	• Introduction to Advanced laboratory technique overview of it, the most prominent scientists, and the most important discoveries • The importance of Advancedlaboratory technique, what are its most important applications, and its importance in relation to other sciences
9. Teaching and Learning Strategies	
Strategy	• Lectures • Reports • quizzes
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	Two hours		Introduction and historical overview of Advanced laboratory technique,	Theoretical lecture	Oral Exams.
Second	Two hours		Safety and principles of sterilization	Practical lecture	Oral exams.
Third - twelfth	twenty hours		3- Collection, Transport, Examination & reporting of specimens 4,5- Culturing of organisms Conventional microbiological techniques 6,7- Biochemical testing of microorganisms 8,9- Serological diagnostic techniques 10 ,11,12- Molecular diagnostic techniques	Theoretical lectures And practical	quizzes
thirteenth - twenty-seventh	Twenty-four hours		13- Cell and tissue culture 14- Cell homogenisation and fractionation 15- Separation techniques (overview) 16- Enzyme kinetic	Theoretical lectures And practical	Oral exams

			Monitoring techniques Enzyme assay techniques 17,18- Separation of proteins Separation of amino acids 19- Application automated analysers in the biochemistry diagnostic lab 20- Agglutination techniques 21- Imunofluorescence Techniques 22- ELISA 23Radioimmunoassay 24- Inhibition technique 25-26,27- Common blood tests techniques, 28- Haemoglobenopathy tests		
Twenty-eighth - thirtieth	six hours		29- 30- Advance diagnostic technology in haematology lab	Theoretical lectures And practical	Oral exams

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

Human Genetics

Course Description Form

13. Course Name:
Human Genetics
14. Course Code:
MLT 305
15. Semester / Year:
Year/ Stage Third
16. Description Preparation Date:
17/2/2024
17. Available Attendance Forms:
Weekly
18. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (Theoretical)/7 units 120 hours (practical)
19. Course administrator's name (mention all, if more than one name)
Name: Mohammed Shakir Atyiah Email: missanyiraqi3030@gmail.com
20. Course Objectives

Course Objectives:	• Training students theoretically, practically and applied foundations of medical genetics • Transferring the latest advanced scientific techniques them for the purpose of enriching them with medical gene • Training students on methods of using genetics in techn medicine.

21. Teaching and Learning Strategies	
Strategy	• Lectures • Quizzes ○ Reports

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Cell division		Daily

2	2		Mitosis		Exam Oral exams
3	2		Meiosis		Oral exams
4-5	2		The chromosomes History -structur number karyotyping		Oral exams
6-8	2		The chromosomal abnormalities		Oral exams
9-10	2		Genetic disease due chromosomal abnormalities		Oral exams
11-12	2		Patter of inheritance Mendel's laws		Daily exam
13	2		Dominant inheritance		Oral exams
14	2		Recessive inheritance		Oral exams
15	2		Another type of inheritance		Oral exams
16-17	2		The genetic basis of sex X-linked inheritance –y linked inheritance		Oral exams
18	2		Sex influenced traits Sex –limited genes		Oral exams
19-20	2		Mutations –types of mutation –the genetic basis of mutation		Oral exams
21	2		Mutagens carcinogenic in the environment		Oral exams
22-23	2		The genetic basis of cancer Cancer &genetics		Oral exams
24	2		Chromosome &cancer		Oral exams
25	2		Oncogenes		Oral exams
26	2		Suppressor cati-oncogeness		Daily exam
27-28	2		Family pedigree, symbols ,determination the type of inheritanc		Oral exams
29	2		Prenatal diagnosis &genetic counseling Introduction types of prenatal diagnosis		Oral exams
30	2		Genetic counselling		Oral exams

23. 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

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	• General Genetics/ Dr. Abdul Hussein Al-Fai • Molecular genetics/Dr. Abdul Hussein Al-Faisal • Principles of human cytogenetics / Dr. Abdu Hussein Al-Faisal • Molecular biology/Dr. Nashat Ghalib • Introduction to Molecular Biology/Dr. Muhammad Al-Hajjaj • Molecular genetics and genetic engineering/Dr. Issam Qasim • Molecular biology / Dr. Aisha Divan Clinical medical genetics/Dr. Abdul Basit Al-Muslim
Recommended books and references (scientific journals, reports…)	• American Journal of Medical Genetics • Macedonian Journal of Medical Sciences • Records of human genetics • Immunogenetics • Genetics Magazine/Saudi Society for Gen Medicine • Iraqi Journal of Biotechnology/University Baghdad • Journal of the College of Science, Al-Nahr University • Journal of the College of Science, Departmen Biotechnology, University of Baghdad • Journal of the College of Science Girls/University of Baghdad Journal of Basra Sciences/University of Basra
Electronic References, Websites	• NCBI • CDC • NHGRI • National Center for Genome Resources

Course Description

Virology and Mycology

Course Description Form

25.	Course Name: Virology and Mycology

26. Course Code: **MLT 303**

27. Semester / Year: Year

28. Description Preparation Date: 17/2

29. Available Attendance Forms: Weekly

30. Number of Credit Hours (Total)2, / Number of Units (Total) 6

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

Name: Thuraya Mehbas Dewan
Email: Thurayadewan@gmail.com

32. Course Objectives: Introducing the student to viruses and medical fungi, the diseases they cause, and how to diagnose and treat them

33. Teaching and Learning Strategies: Lectures, Reports, Quizzes

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 **hours**		General properties of Viruses.	Theoretical lectu	Oral examina and quizzes
2	2 **hours**		Structure, Classification and Nomenclature of the Viruses Atypical Virus-like agents (Prions, Defective viruses, Pseudovirion and Viriods).	Theoretical lecture	Oral examination and quizzes
3	2 **hours**		Viral Genetic and Molecular & Viral Replication.	Theoretical lecture	Oral examination and quizzes

4	2 **hours**		Viral Pathogenesis and Transmission	Theoretical lecture	Oral examination and quizzes
5	2 **hours**		Immunity & Laboratory Diagnosis of Viruses	Theoretical lecture	Oral examination and quizzes
6	2 **hours**		Herpes virus	Theoretical lecture	Oral examination and quizzes
7	2 **hours**		Hepatitis virus	Theoretical lecture	Oral examination and quizzes
8	2 **hours**		Hepatitis virus	Theoretical lecture	Oral examination and quizzes
9	2 **hours**		Human Immune Deficiency virus	Theoretical lecture	Oral examination and quizzes
10	2 **hours**		Orthomyxovirus	Theoretical lecture	Oral examination and quizzes
11	2 **hours**		Paramyxovirus	Theoretical lecture	Oral examination and quizzes
12	2 **hours**		Enteric viruses (Rota, Polio and Reo viruses)	Theoretical lecture	Oral examination and quizzes
13	2 **hours**		Rabies and other Neurotropic viruses	Theoretical lecture	Oral examination and quizzes
14	2 **hours**		Poxvirus	Theoretical lecture	Oral examination and quizzes
15	2 **hours**		Coronavirus	Theoretical lecture	Oral examination and quizzes
16	2 **hours**		Adeno and Parvo viruses	Theoretical lecture	Oral examination and quizzes
17	2 **hours**		Arbovirus	Theoretical lecture	Oral examination and quizzes
18	2 **hours**		Oncogenic viruses	Theoretical lecture	Oral examination and quizzes
19	2 **hours**		Bacteriophages (Bacterial viruses)	Theoretical lecture	Oral examination and quizzes
20	2 **hours**		Antiviral Drugs &Viral	Theoretical lecture	Oral examination and quizzes
21	2 **hours**		Introduction to medical mycology, History and Epidemiology of medical mycology.	Theoretical lecture	Oral examination and quizzes
22	2 **hours**		Morphology, Classification,	Theoretical lecture	Oral examination and quizzes

			reproduction of pathogenic fungi.		
23	2 **hours**		Superficial mycosis : Tinea types and Dematiaceuos (black fungi).	Theoretical lecture	Oral examination and quizzes
24	2 **hours**		Cutaneous mycosis: *Trychphyton spp, Microsporium spp* and *Epidermophyton spp* .	Theoretical lecture	Oral examination and quizzes
25	2 **hours**		Subcutaneous mycosis: Sporothricosis and Mycetoma	Theoretical lecture	Oral examination and quizzes
26	2 **hours**		Infection due to filamentous fungi (Zygomycosis and Aspergillosis).	Theoretical lecture	Oral examination and quizzes
27	2 **hours**		Infection caused by yeasts(Candidiasis and Cryptococcosis).	Theoretical lecture	Oral examination and quizzes
28	2 **hours**		Opportunistic mycosis: Mucor and Penicillosis. Antibiotics produced by fungi	Theoretical lecture	Oral examination and quizzes
29	2 **hours**		Systemic mycosis: Coccidiomycosis and Blastomycosis.	Theoretical lecture	Oral examination and quizzes
30	2 **hours**		Histoplasmosis and Paracoccidiomycosis Antifungal agents Mycotoxins	Theoretical lecture	Oral examination and quizzes

35. Course Evaluation

1.

Required textbooks (curricular books, if any)	
Main references (sources)	Learning and Teaching Resources Themes, U. F. O. (2017-02-19). "6 Viruses–Basic Concepts". Basic medical Key. Retrieved 2020-05-29. 2- Jawetz, R., J.L. Melnick, and E.A. Adelberg, Review of Medical Microbiology, 16th Edition, pp. 347,

	Figure 27-3. Reproduced with permission. 3- Knipe DM, Howley PM, (edito in-chief): Fields Virology, 5th Lippincott Williams & Wilkins, 20
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description
Clinical Chemistry

1. Teaching Institution	Department of Private Education / Al-Manara College for Medical Sciences
2. University Department/Centre	Clinical Chemistry
3. Programme Title	Medical Laboratory Techniques
4. Title of Final Award	Bachelor's degree in Medical Laboratory Technology
5. Modes of Attendance offered	Terms (Semesters)
6. Accreditation	An annual study consisting of two semesters
7. Other external influences	Training within specialized scientific laboratories
8. Date of production/revision of this specification	13/02/2024
9. Aims of the Programme	
Enable students to to understand the main functions of human body..	
Enable students to identify any disorder of these functions by using laboratory analysis tests.	
To make students able to handle laboratory tools and apply biosecurity safety standards within laboratories.	
Training students on various analysis of body fluids and cell components.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1- Determining the structures and functions of body systems.

A2- Explanation of physiological disorder by using various analysis tests.

B. Subject-specific skills

B1 – Training on analysis of different types of body fluids and their components.

B2 – Studying the mechanisms of body functions.

B3 - Dealing with various laboratory equipment related to Clinical Chemistry .

Teaching and Learning Methods

Theoretical study: (theoretical lectures supported by modern means of presentation and reinforced with the latest scientific sources and holding seminars in which students participate).

Practical study: (teaching students to take samples of body fluids such as blood, urine or semen and their chemical and biological analysis techniques. Vital signs measurements(Blood pressure, Temperature, Heart rate, Lung volumes & capacities were also included in such training)

Assessment methods

Through: Students' participation during the lecture, presentation of seminars, short-time quick exams.

Quarterly examinations for the theoretical and practical.

C. Thinking Skills

C1- Urging students to solve intellectual questions.

C2- Conducting intellectual competitions related to the scientific subject.

C3- Putting students in a scientific and practical environment related to bacteriology to deduce diagnoses from data.

C4 - Urging students to compete among themselves to achieve advanced positions within the scientific subject to obtain grades and moral prizes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D 1 - Access to a greater number of scientific sources.
D2 - Presenting the newly raised topics globally through a presentation and the participation of everyone through it.
D3 - Have the students conduct discussion panels, as well as make presentations related to the subjects of the scientific subject to develop and enhance their personalities.

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Second Stage	L33	Clinical Chemistry	Two hours Theory and 2 h practical	Bachelor Degree Requires (x) credits
			First & Second terms Mid exams 40 marks each, 25 Theory & 15 practucal) Final exam 60 practical: 25 Theory: 35	
				Grant a bachelor's degree. Sixty hours.

13. Personal Development Planning
By reviewing books and international sources specialized inClinical Chemistry .

14. Admission criteria .
The student must have a high school diploma from the scientific biological branch. Holds an average that qualifies him to join the Department of Medical Laboratory Techniques. He must have an interest and passion in the field of pathological analysis
15. Key sources of information about the programme
Clinical Chemistry & Metabolic Medicine - Martin Crook **Clinical Chemistry: Principles, Techniques, Correlations** **Clinical Chemistry: 9th edition | William J. Marshall | ISBN**

Course Description
Clinical Chemistry

1. Teaching Institution	Department of Private Education / Al-Manara College for Medical Sciences
2. University Department/Centre	Clinical Chemistry
3. Programme Title	Medical Laboratory Techniques
4. Title of Final Award	Bachelor's degree in Medical Laboratory Technology
5. Modes of Attendance offered	Terms (Semesters)
6. Accreditation	An annual study consisting of two semesters
7. Other external influences	Training within specialized scientific laboratories
8. Date of production/revision of this specification	13/02/2024

9. Aims of the Programme
Enable students to to understand the main functions of human body..
Enable students to identify any disorder of these functions by using laboratory analysis tests.
To make students able to handle laboratory tools and apply biosecurity safety standards within laboratories.
Training students on various analysis of body fluids and cell components.

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1- Determining the structures and functions of body systems. A2- Explanation of physiological disorder by using various analysis tests.
B. Subject-specific skills B1 – Training on analysis of different types of body fluids and their components. B2 – Studying the mechanisms of body functions. B3 - Dealing with various laboratory equipment related to Clinical Chemistry .

Teaching and Learning Methods

Theoretical study: (theoretical lectures supported by modern means of presentation and reinforced with the latest scientific sources and holding seminars in which students participate).
Practical study: (teaching students to take samples of body fluids such as blood, urine or semen and their chemical and biological analysis techniques. Vital signs measurements(Blood pressure, Temperature, Heart rate, Lung volumes & capacities were also included in such training)

Assessment methods

Through: Students' participation during the lecture, presentation of seminars, short-time quick exams.
Quarterly examinations for the theoretical and practical.

C. Thinking Skills

C1- Urging students to solve intellectual questions.
C2- Conducting intellectual competitions related to the scientific subject.
C3- Putting students in a scientific and practical environment related to bacteriology to deduce diagnoses from data.
C4 - Urging students to compete among themselves to achieve advanced positions within the scientific subject to obtain grades and moral prizes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D 1 - Access to a greater number of scientific sources.
D2 - Presenting the newly raised topics globally through a presentation and the participation of everyone through it.
D3 - Have the students conduct discussion panels, as well as make presentations related to the subjects of the scientific subject to develop and enhance their personalities.

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	

Second Stage	L33	Clinical Chemistry	Two hours Theory and 2 h practical	Bachelor Degree Requires (x) credits Grant a bachelor's degree. Sixty hours.
			First & Second terms Mid exams 40 marks each, 25 Theory & 15 practucal) Final exam 60 practical: 25 Theory: 35	

13. Personal Development Planning
By reviewing books and international sources specialized inClinical Chemistry .
14. Admission criteria .
The student must have a high school diploma from the scientific biological branch. Holds an average that qualifies him to join the Department of Medical Laboratory Techniques. He must have an interest and passion in the field of pathological analysis
15. Key sources of information about the programme

Clinical Chemistry & Metabolic Medicine - Martin Crook

Clinical Chemistry: Principles, Techniques, Correlations

Clinical Chemistry: 9th edition | William J. Marshall | ISBN

Course Description
Histopathology

1. Teaching Institution	Department of Private Education / Al-Manara College of Medical Sciences
2. University Department/Centre	Histopathology

3. Program Title	Medical laboratory techniques
4. Title of Final Award	Bachelor's degree in Medical Laboratory Technology
5. Modes of Attendance offered	annual
6. Accreditation	An annual study consisting of two semesters
7. Other external influences	Training within specialized scientific laboratories
8. Date of production/revision of this specification	

9. Aims of the Program
Enable students to be able to identify the pathology and pathological branches especially histopathology branch,
Learn how prepare histopathological samples, diagnosis the tissue samples in laboratory.
Diagnosis the tumers in the tissue samples
Learn the students hoe prepare the reports about the the pathological tissue samples

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A 1- Identify the pathology and pathological branches. A2- Identify the diseases can cause cell injury and the stages of cell injury. A3- Identify the tissue necrosis and types of tissue necrosis. A4- Identify the inflammations and the types of inflammations. A5- Identify the tumors and how the tumors progress.
B. Subject-specific skills B1 - Study the properties of pathology B2 – Identify how prepare the tissue samples. B3 – Using the different laboratory instruments
Teaching and Learning Methods

Theoretical study: theoretical lectures supported by modern means of presentation and reinforced with the latest scientific sources and holding seminars in which students participate.
Practical study: teaching students to take tissue samples and providing pathological samples, how diagnosis the diseases in tissues samples

Assessment methods

Through: Students' participation during the lecture, presentation of seminars, short-time quick exams.
Quarterly examinations for the theoretical and practical.

C. Thinking Skills

C1- Learn the students how prepare the reports about the histopthological samples .
C2- Conducting intellectual competitions related to the scientific subject.
C3- Putting students in a scientific and practical environment related to histopathology to deduce diagnoses from data.
C4 - Urging students to compete among themselves to achieve advanced positions within the scientific subject to obtain grades and moral prizes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. access to a greater number of scientific sources
D2. Presenting the newly raised topics globally through a presentation and the participation of everyone through it.
D3. Have the students conduct discussion panels, as well as make presentations related to the subjects of the scientific subject to develop and enhance their personalities.

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Third Stage	L31	Histopathology	Theory 2 hours	

			Practical :3 hours	Bachelor Degree Requires (x) credits Grant a bachelor's degree. Sixty hours.
			Theory :20 practical: 20 final: 60	

13. Personal Development Planning
By reviewing books and international sources specialized in histopathology.
14. Admission criteria .
The student must have a high school diploma. A graduate of the scientific or biological branch. Holds an average that qualifies him to join the Department of Medical Laboratory Technologies. He must have an interest and passion in the field of pathological analysis
15. Key sources of information about the programme

References: Robbins ,Stanley (2010) Robbins and Cotran pathologic basis diseases(8 th ed)

Course Description
Computer applications

Course Description Form

1. Course Name:	
Computer applications	
2. Course Code:	
MLT 308	
3. Semester / Year:	
The first and second semester of the third stage / 2023-2024	
4. Description Preparation Date:	
16/2/2024	
5. Available Attendance Forms:	
weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Hameed Hassan Khalf Email: hameedre334@gmail.com	
8. Course Objectives	
Providing the student with knowledge in managing and using various computer applications.	• Introduction to computers: Hardware & Software Its generations and material components. • Windows operating system: Understanding the Windows system, its advantages, and its basic requirements for operating the system Components of the main desktop screen, desk top, icon concept, how to deal with it Mouse activities, importance and components of the task bar, taking advantage of start, entering Programs Task Concept Campaign Exit the system and turn off the computer.

9. Teaching and Learning Strategies	
Strategy	• Lectures • Reports • quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	Two hours		Introduction to computers: Hardware & Software Its generations and material components	Theoretical lecture	Oral Exams.
Second	Two hours		MS-DOS Operating System: The concept of an operating system, a system reference, disk directories Its levels, files, internal and external operating system commands External commands The most frequently used commands	Practical lecture	Oral exams.
Third - twelfth	twenty hours		Internal operating system commands: Internal commands Dir, Del, Time, Date, CIs, RD, CD, MD, Echo, prompt, Ren, copy, vol, ver, path External operating system commands:	Theoretical lectures And practical	quizzes

			Edit, tree, xcopy, format, chkdsk, diskcopy		
thirteenth - twenty-seventh	Twenty-four hours		Windows operating system: Understanding the Windows system, its advantages, and its basic requirements for operating the system Components of the main desktop screen, desk top, icon concept, how to deal with it Mouse activities, importance and components of the task bar, taking advantage of start, entering Programs Task Concept Campaign Exit the system and turn off the computer (shut down) - The concept of the window for any program and identifying its main components and dealing with desktop icons Such as (My computer, My document, Recycle bin) - Identifying the components of My	Theoretical lectures And practical	Oral exams

			Computer in terms of disks, folders and files, and how to deal with formatting floppy disks, copying folders and files, and making use of cut and paste. Know the properties of folders and files, deal with the trash, and how to delete files and retrieve it through what the trash can provides on this side - Taking advantage of Control Panel programs such as the Mouse icon and the Display icon, how to change the desktop background, control the screen, and change the appearance of window menus. And its colors. - Take advantage of the Run option to execute programs directly, as well as switch to the operating system signal and deal with MS DOS commands - Use entertainment programs such as Windows media player to play movies		

			- Take advantage of additional programs such as the Calculator		
Twenty-eighth - thirtieth	six hours		The concept of computer viruses: how to infect, its types, treatment, and dealing with it through anti-virus programs available within the operating system environment and Windows.	Theoretical lectures And practical	Oral exams

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

English language

Course Description Form

1. Course Name: language English

2. Course Code: **MLT 309**

3. Semester / Year:Years

4. Description Preparation Date:16/2/2024

5. Available Attendance Forms: Weekly

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

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

Name: Mohammed Jawad Atwan
Email: alnoory683@gmail.com

8. Course Objectives Language preparation / reading / reports / translation / pronunciation

9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1			Basics English	theoretical	

2	2 hou		Sounds a pronunciatic method	theoretical	
3	2hou		Parts of spee	Theoretical	
4			sentences parts. T noun of the verb w the object of the fi object and the obj of the second and complement	theoretical	
5	2 hou		Types of sentences	theoretical	
6	2 hc s		Getting to know y Present simp terms. Prese continuous.. ha /have got	Theortical	
7	2 hc s		The way we li Present simple	Theoreitcal	
8	2 hou		It all wro Questions	Theoretical	
9	2 hou		Let's go shoppi Much and many Afew literature	Theoretical	
10	2 hou		What do you wan like. Conjugation verbs	Theoretical	
11	2 hou		Tell me What is like. Going to will	Theoretical	
12	2 hou		Unit 7: fame prese perfect. From. Sins	Theoretical	
13	2 hou		Unit 8 Do and don Have l have got Should moust	Theoretical	
14	2 hou		Going place Unit 9		

15	2 hou		Unit 10 scared death/ varb patter infinitives	Theoretical	
16	2 hou		Things that chang that words. Passiv	Theoretical	
17	2 .Hc		Unit 12 Dreams a realits	Theoretical	
18	2 hou		Unit 13 Earning living prese perfect continuc and present perf simple	Theoretical	
19	2 hou		Unit 14 family t Writinig story	Theoretical	
20					
21					
22					
23					
24					
25					
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27					
28					
29					
30					

11. Course Evaluation

12. Learning and Teaching Resources

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

4th Year

Course Description

Clinical Immunology

and Diagnostic Microbiology

Course Description Form

1. Course Name: Clinical Immunology and Diagnostic Microbiology .
2. Course Code: **MLT 401 – MLT 402**
3. Semester / Year: Second semester / 2024
4. Description Preparation Date: 18/2/2024
5. Available Attendance Forms:
Theoretical and practical
6. Number of Credit Hours (Total) / Number of Units (Total)
7. Course administrator's name (mention all, if more than one name)
Name: Ekhlas Atiyah Khalaf Email: ekhlasimmuno2019@yahoo.com
8. Course Objectives
Outline the specific objectives of the course. These objectives should describe the intended learning outcomes for students in terms of knowledge, skills, and competencies they are expected to acquire. **So regarding clinical immunology** the objectives Understanding the immune system: The course aims to 1- provide students with a comprehensive understanding of the immune system, its functions and structure This includes the study of immune systems, cells, and chemical compounds involved in the immune response. 2 -Identifying immune disorders: The course aims to introduce students to immune diseases and imbalances Various immunoglobulins. This includes the study of autoimmune diseases, tumor immunology, and other immunological diseases that affect the immune system.

3-Clinical diagnostic techniques: The course aims to teach students the various diagnostic techniques used in the field of clinical immunology. This includes analyzing biological samples and using various immunological tests to diagnose Immunological diseases and immune response evaluation

4-Treatment and management: The course aims to introduce students to the treatment and management methods used in cases Immune diseases. This includes studying drug therapies, immunotherapies, and other treatment techniques Used to deal with immune imbalances.

5-Recent developments in the field: The course aims to introduce students to the latest developments and innovations in the field Clinical immunology. This includes advanced diagnostic techniques, new treatments, and cutting-edge research in the field Clinical immunology.

So regarding diagnostic microbiology:

Understanding bacteria and their classification: The course aims to

1-introduce students to the world of bacteria and understand their classification and diversity. This includes studying the microanatomy of bacteria and their morphological and physiological characteristics

2-Different diagnostic techniques: The course aims to teach students the different techniques used in diagnosing bacteria. This includes the study of isolation, purification and preparation methods for bacterial samples, the use of microscopy techniques, DNA analysis, culture techniques, and immunological and chemical diagnosis.

3-Diagnosis of bacterial diseases: The course aims to teach students how to diagnose diseases caused by bacteria. This includes studying the different testing methods used to diagnose bacterial infections antibiotic Identification of pathogenic strains and evaluation of sensitivity to

4-Prevention and control: The course aims to introduce students to methods of prevention and control of infection Bacterial. This includes studying hygiene strategies, sterilization, Appropriately vaccination, and the use of antibiotics.

5-Research and development: The course aims to introduce students to the latest developments and research in the field Diagnostic bacteria. This includes studying modern techniques in bacteria diagnosis and analysis Genomics and the use of advanced biotechnology in bacterial studies

9. Teaching and Learning Strategies

This can include lectures, discussions, laboratory work, case studies, group projects, or any other instructional methods, as using interactive lessons and practical activities to enhance students' understanding of bacterial and immunological concepts and their practical application. And use various educational resources such as videos, virtual simulations, and materials Written to provide a comprehensive learning environment.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		Required learning outcome Determine the expected learning outcomes that I want students to achieve at the end of the week. The outcomes include knowledge, skills and values related to diagnostic bacteriology and clinical immunolo		Use learning methods such as traditional lectures, group discussions, interactive lessons, practical activities, case studies, research, and work application projects.	Evaluate students' understanding and application of materials. It can include mostly with written tests, i addition to practical tests, active participation classes, and the presentation of research or project

11. Course Evaluation

Allocate 20% marks for the daily preparation task, which includes the standards required for good preparation of the material and active participation in the lecture. Use 30% to perform simple daily tests during the lecture and 50% to evaluate the final exam for the semester.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Connie R. Mahon; Donald C. Lehman; George Manuselis.**Textbook of Diagnostic Microbiology. Fifth edition. Saunders, an imprint of Elsevier, Inc. 2015 **Cornelissen C. N.; Fisher B. D.; Harvey R. A**. Lippincott's illustratedreviews: Microbiology. 3rd Ed. Lippincott Williams & Wilkins, 2013 **Jawetz, Melnick, & Adelberg's.(2019)**:Medical Microbiology.Twenty-Eighth Edition **Connie R. Mahon, Donald C. Lehman (2019):** Textbook of Diagnostic Microbiology, Sixth Edition **Jeffrey C. Pommerville. (2018):** Fundamentals of microbiology, Eleventh edition**...** **Prof.Dr.Mohammed Shammkhi Jeber.(2019):** Notes of Diagnosis Microbiolog **Orekan J. et al. (2021):** Clinical Microbiology and Infection 27 .1400-1408 **Cynthia Nau Cornelissen (2015)**: Lippincott Illustrated Reviews Flash Cards MICROBIOLOGY .Third Edition **. Jeffrey C. Pommerville. (2018):** Fundamentals of microbiology, Eleventh edition . **Apurba S. S; Sandhya Bhat K.** Review of Microbiology and Immunology. 4 the Edition. The Health Sciences Publisher. 2015 **Helen Chapel; Mansel Haeney; Siraj Misbah ; Neil Snowden.** Essentials of Clinical Immunology.Sixth Edition. This edition first published 2014 © 2014 by John Wiley& Sons, Ltd
Main reference (sources)	
Recommended books and references (scientif	

ic journals , reports. ..)	
Electroni Referenc Websites	https://www.midlandsdivingchamber.co.uk/index.php

Course Description

Advanced Histopathology

1. Teaching Institution	Department of Private Education / Al-Manara College of Medical Sciences
2. University Department/Centre	Advanced Histopathology
3. Programme Title	Medical laboratory techniques
4. Title of Final Award	Bachelor's degree in Medical Laboratory Technology
5. Modes of Attendance offered	annual
6. Accreditation	An annual study consisting of two semesters
7. Other external influences	Training within specialized scientific laboratories
8. Date of production/revision of this specification	

9. Aims of the Programme
Enable students to be able to identify the pathology and pathological branches especially histopathology branch, in advanced stage.
Learn how prepare histopathological samples, diagnosis the tissue samples in laboratory, identify the systemic diseases
Diagnosis the tumers in the tissue samples
Learn the students hoe prepare the reports about the the pathological tissue samples

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A 1- Identify the pathology and pathological branches. A2- Identify the diseases of respiratory system . A3- Identify the diseases of digestive system. A4- Identify the diseases of urinary system . A5- Identify the tumors and how the tumors progress.

B. Subject-specific skills

B1 - Study the properties of pathology

B2 – learn the diagnosis of systemic disease .

B3 – Using the different laboratory instruments

Teaching and Learning Methods

Theoretical study: theoretical lectures supported by modern means of presentation and reinforced with the latest scientific sources and holding seminars in which students participate.

Practical study: teaching students to take tissue samples and providing pathological samples, how diagnosis the diseases in tissues samples

Assessment methods

Through: Students' participation during the lecture, presentation of seminars, short-time quick exams.

Quarterly examinations for the theoretical and practical.

C. Thinking Skills

C1- Learn the students how prepare the reports about the histopthological samples .

C2- Conducting intellectual competitions related to the scientific subject.

C3- Putting students in a scientific and practical environment related to histopathology to deduce diagnoses from data.

C4 - Urging students to compete among themselves to achieve advanced positions within the scientific subject to obtain grades and moral prizes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. access to a greater number of scientific sources

D2. Presenting the newly raised topics globally through a presentation and the participation of everyone through it.

D3. Have the students conduct discussion panels, as well as make presentations related to the subjects of the scientific subject to develop and enhance their personalities.

11. Program Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Third Stage	L46	Advanced Histopathology	Two hours	Bachelor Degree Requires (x) credits Grant a bachelor's degree. Sixty hours.
			Mid-year exam 20 practical: 20 final: 60	

13. Personal Development Planning
By reviewing books and international sources specialized in histopathology in advanced stage.
14. Admission criteria .
The student must have a high school diploma. A graduate of the scientific or biological branch. Holds an average that qualifies him to join the Department of Medical Laboratory Technologies. He must have an interest and passion in the field of pathological analysis

15. Key sources of information about the programme

References: Robbins ,Stanley (2010) Robbins and Cotran pathologic basis diseases(8 th ed)

Course Description

Advanced Clinical biochemistry

Course Description Form

36. Course Name:	
Advanced Clinical biochemistry	
37. Course Code:	
38. Semester / Year:	
Fourth	
39. Description Preparation Date:	
24/2/2024	
40. Available Attendance Forms:	
Weekly	
41. Number of Credit Hours (Total) / Number of Units (Total)	
30 hrs theoretical / 30 hrs practical	
42. Course administrator's name (mention all, if more than one name)	
Name: Dr. Haitham Sachet Hamadi Email: haithemhma@gmail.com	
43. Course Objectives	
Course Objectives	• **To show the student's knowledge of clinical chemistry in terms of:** • **– The vocabulary of the curriculum includes topics in the theoretical and practical foundations of laboratory tests in clinical chemistry for various diseases with** • **Special emphasis on urinary system examinations and examination of some other organs that make up biochemical components and the introduction of Important experiments with modern technologies in laboratory diagnosis so that they give the student a new opportunity to learn about qualitative tests**

44. Teaching and Learning Strategies	
Strategy	• Theoretical lectures in the classroom • On-campus e-learning (use of the Internet) • Trip to Clinical Biochemistry Laboratories at Al Sadr Teaching Hospital • Laboratory activities

45. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Definition and use	**Lab Safety**	Lectures	Examination
2	2	Definition and use	**1- Safety awareness of persons and safety equipments.** **2- Chemical safety.** **3- Biological safety .** **4- fire safety and control of other hazards.** 5- Disposal of hazardous materials.**metabolism**	Lectures	Examination
3	2	Definition and use	**Requesting lab .results Classification of request card in laboratory interpretation of selective test &screening test**	Lectures	Examination
4	2	Definition and use	**1- Specimen collection (urine, blood, faeces, cerebrospinal fluid and other body fluids).** 2- Specimen Handling (maintenance of identification, preservation, separation, storage and transport specimens	Lectures	Examination

57-6-	2	Definition and use	Quality Management: **1- Fundamentals of total quality management.** **2- The total testing process.** **3- Control of preanalytical variables.** **4- Control of analytical variables.** 5- External quality assessment	Lectures	Examination
-10-9-8 12-11	2	Definition and use	Advanced technique in clinical chemistry lab	Lectures	Examination
13-14	2	Definition and use	Computers in clinical chemistry	Lectures	Examination
15-16-17-18	2	Definition and use	Pediatric clinical chemistry	Lectures	Examination
19-20-21	2	Definition and use	Functional tests in clinical chemistry and profile tests investigations	Lectures	Examination
22	2	Definition and use	Problems in biochemistry calculation	Lectures	Examination
23	2	Definition and use	Case studies in clinical chemistry	Lectures	Examination

46. 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

47. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• **Clinical Chemistry TECHNIQUES, PRINCIPLES, CORRELATIONS SIXTH EDITION Michael L. Bishop, MS, CLS, MT(ASCP) Director of Educational Services Global Med Technologies El Dorado Hills, California 2- Lippincott's Illustrated Reviews: Biochemistry Fifth Edition 3-Lannger**

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

Course Description

Advanced Clinical biochemistry

Course Description Form

1. Course Name: **Parasitology**

2. Course Code:

MLT 404

3. Semester / Year:

4th **2024**

4. Description Preparation Date:

18/02/2024

5. Available Attendance Forms:

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

Theory =2 hrs –
Practical = 4 hrs
Total = 6 hrs weekly
No. of units = 8

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

Name: prof. Dr.Hussein Al-Nasrawi
Email: h.alnasrawi@stu.edu.iq

8. Course Objectives

1-Review the historical development of parasitology.
2-Recognize types of parasitesthat cause infectious diseases.
3-Interpret diagnostic methods and laboratory findings to make the ultimate diagnosis.
4-Describe types of parasites, their structures, figures, hosts, lifecycle, pathogenic effects, methods of diagnostic and treatment.
5-Use the microscope efficiently
6-Demonstrate slide preparation processes.
7-Diagnostic techniques and identification of parasites

9. Teaching and Learning Strategies

Identification , description and contrast unicellular parasites and parasitic worn Describe specific human and non-human parasitic diseases. Prepare and observe l parasitic specimens and test students' own seropositivity for a particular parasi infection

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1					
2					
3					
4					
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12					
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30					

11. Course Evaluation

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical Microbiology : Jawetz Melnick and Adebergrgs , 2019
Main references (sources)	Medical parasitology : e book , Arora Dr.B.B.Books, 2018

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