

Academic Program Specification Form For The Academic

University name: Central Technical University

College/Institute: Kut Technical Institute

Scientific Department: Department of Medical Laboratory Technologies

Name of the academic or professional program: Diploma


Name of final certificate: Technical diploma

Academic system: semester

Description preparation date: 2/20/2024

Date of filling the file: 2/20/2024

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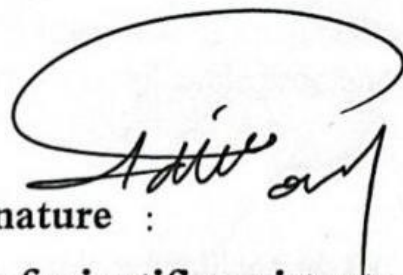


Name of department head: Dr. Tariq M.

the date : 22/2/2024

اتدكتور طارق محمد
طارق محمد
رئيس قسم المختبرات الطبية

the signature :



Name of scientific assistant:

the date :

Said Al-Ogaili
27/2/2024

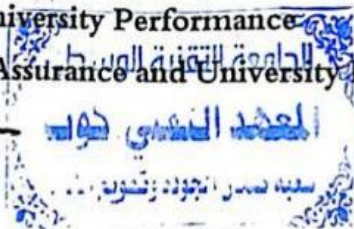
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Division of Quality Assurance and University Performance

Name of the Director of the Quality Assurance and University Performance Division:

the date 2024/2/27

the signature



Authentication of the Dean

28/2/2024
الأستاذ الدكتور
مهدي فرحان بليتر
عميد المعهد التقني - كوت

Description of the academic program:

The academic program of the Department of Medical Laboratory Technology consists of two years of study, each year of two studies divided into two semesters, which provides the student with sufficient information to be a successful laboratory technician in hospitals, dispensaries, and government and private laboratories.

Course description:

The course contains the information required to expand students' awareness and understanding of the vocabulary of the Medical Laboratory Technology Department and consists of two parts:

Theoretical part: The teaching section provides theoretical lectures supported by modern methods, pictures, and some scientific evidence on the topic of the lesson in detail.

Practical part: The student performs some tests and laboratory examinations included in the academic subjects.

Program Vision: The program is an ambitious vision for the future of the academic program, to be an advanced, inspiring, motivating, realistic, and applicable program in society.

Program message:

The mission is to provide the community with laboratories who are familiar with the health reality and are successful and able to keep pace with reality and meet the requirements of the labor market by supplying hospitals and laboratories with successful medical personnel.

Program Goals:

Expanding students' awareness through understanding and practical application so that they are aware of everything that is required of them.

Curriculum structure:

The prescribed curriculum is a 4-course system divided into two study stages:

First year: First semester: 32 units

First year: second semester: 31 units

Second year: first semester: 35

Second year: Second semester: 35 units

Teaching and learning strategies: Multiple methods are used, such as presentations containing pictures and explanatory videos, as well as directing oral and written questions (homework), preparing reports, and quick and semester exams.

1- .Program vision

Leadership and excellence in the field of technical education and scientific research and attention to its quality to build a knowledge society

2- Program message

Providing an educational and technical research environment that stimulates education and creativity that contributes to preparing highly qualified graduates, achieving effective local and international scientific twinning, and strengthening partnerships with sectors of society and international institutions in relevant fields.

3- Program objectives

The department aims to graduate technical personnel capable of working in medical laboratories, conducting routine laboratory analyses, general chemical examinations, examining liquids, and operating and maintaining laboratory equipment. Graduate job description

4- Programmatic accreditation

There is no program accreditation

5- Other external influences

nothing

6- Program structure

Program structure	Number of courses	Study unit	percentage	comments *
Enterprise requirements				
College requirements				
Department requirements				
summer training				
Other				

7- Program description

- The department aims to graduate technical personnel capable of working in medical laboratories, conducting routine laboratory analyses, general chemical examinations , examining liquids, and maintaining laboratory equipment. Graduate job description.

First academic year: first semester

	Subject	The number of hours			number of units	Material type	Notes
		Theo.	Lab.	Tot.			
1	Laboratory Techniques	2	4	6	6	Specialized	English
2	Microbial preparation	2	3	5	5	Specialized	English
3	Laboratory Instrument	2	2	4	4	Specialized	English
4	Histology	2	3	5	5	Specialized	English
5	Analytical Chemistry	2	4	6	6	Specialized	English
6	Fundamentals of Nursing	1	2	3	3	help	English
7	Computer application	1	2	3	3	help	Arabic
Total	First course	12	20	32	32		

First academic year: second semester

	Subject	The number of hours			number of units	Material type	Notes
		Theo.	Lab.	Tot.			
1	Quality control	2	4	6	6	Specialized	English
2	Histological techniques	2	3	5	5	Specialized	English
3	Molecular biology	2	2	4	4	Specialized	English
4	Lab. Safety	١	٢	٣	3	Specialized	English
5	Blood transfusion	١	٢	٣	3	Specialized	English
6	Biochemistry	٢	٤	٦	6	help	English
7	Human right and Democratic	٢	-	٢	2	help	Arabic
8	English language	2	-	2	2	help	English
Total	Second course	14	17	31	31		

Second academic year: First semester:

Note	Material type	number of units	The number of hours			Subject	
			Tot.	Lab.	Theo.		
English	Specialized	6	6	4	2	Microbiology	1
English	Specialized	6	6	4	2	Haematology\1	2
English	Specialized	6	6	4	2	Clinical chemistry\1	3
English	Specialized	6	6	4	2	Immunology	4
English	Specialized	6	6	4	2	Protozoa	5
English	Specialized	3	3	2	1	Virology	6
Arabic	Help	2	2	-	2	Medical Ethics	7
Arabic	Help	2	2	-	2	جرائم البعث	8
		37	35	22	13	First course	Total

Second academic year: Second semester:

Note	Material type	Number of unit	Number of hours			subject	
			Tot.	Lab.	Theo.		
English	Specialized	6	6	4	2	Bacterial Pathogenicity	1
English	Specialized	6	6	4	2	Hematology\2	2
English	Specialized	6	6	4	2	Clinical chemistry\2	3
English	Specialized	6	6	4	2	Immunology	4
English	Specialized	6	6	4	2	Helminthes	5
English	Specialized	3	3	2	1	Medical Mycology	6
English	Help	2	2	2	-	Graduation project	7
		35	35	24	11	Second course	Total

8- The expected learning outcomes of the program

Knowledge

1- The student gets to know the basic concepts and tests to keep pace with the developments taking place in society

بيان نتائج التعلم

7- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples

Skills

1- Familiarity with the correct methods for some blood tests.

بيان نتائج التعلم ٢

2- Learn the skills of performing tests such as blood groups, matching between donor and recipient, urine examination, and others

بيان نتائج التعلم ٣

3- Learn blood drawing skills

4-Learn methods of preventing pathological samples

Value

بيان نتائج التعلم ٤

مخرجات التعلم ٤

بيان نتائج التعلم ٥

مخرجات التعلم ٥

9-Teaching and learning strategies

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students
- 6- Summer training.

10–Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

11–The teaching staff

Faculty members

Preparing the teaching staff		Special requirements/skills (if any)		Specialization		Scientific rank
محاضر	Staff			Special	General	
	Staff			Community health	Food health	Lec. Dr. tareq mahdi
	Staff				Physiology	Assist. Prof. Haider Hafid Humaish
	Staff				Microbiology	Prof. Dr. Khalid Yasin Zeghair
	Staff				history	Assist. Prof. Abdullah Lefta
	Staff				Veterinary medicine	Assist. Prof. Dr. Adil Sabir Akkar
	Staff				chemistry	Lec. Readh Husain Waly
	Staff				Laboratory technique	Assist. Prof. Adnan Kamel
	Staff				Applied embryology	Lec. Noor Nori
	Staff				physiology	Assist. Lec. Rusul Abdualhameed
	Staff				statistics Science	Assist. Lec. Ali Fadhul

	Staff				Biology science	Assist. Lec. Rabab Hazim
	Staff				Biology science	Assist. Lec. Suhool Abdulkareem
	Staff				Biology science	Assist. Lec. Raheq Faris
	Staff				Biology science	Assist. Lec. Ragheb Abbas
	Staff				Applied embryology	Assist. Lec. Muhaned Sachit
	Staff				Applied embryology	Assist. Lec. Haider Abdullah
	Staff				chemistry	Assist. Prof. Dr. Amerah Mrebi
	Staff				Biology science	Assist. Lec. Esraa Jabbar
	Staff				Laboratory analysis	Raja Sahib
	Staff				Biology science	Lames Jabar
	Staff				Biology science	Amal Jabar
	Staff				Laboratory technique	Genan Ali
	Staff				Community health	Zahraa Jaafer
	Staff				Agriculture	Zena Rasheed
	Staff				Laboratory analysis	Ahmed Abdualhusien

	Staff				Biology science	Zahraa Asad
	Staff				Veterinary medicine	Ammar Kamel
	Staff				Chemistry	Gufnan Dawood
	Staff				Veterinary medicine	Zahraa Adnan
	Staff				Biology science	Nesrin Abdulkadhum
	Staff				Veterinary medicine	Karar Thamer
	Staff				Laboratory technique	Asmaa Aboud
lecturer					Microbiology	Jalal Abdul Razzaq
lecturer					histology	Prof. Dr. Ali Fiadh
lecturer					Laboratory technique	Haider Raheem
lecturer					Chemistry	Oun Heal
lecturer					Biology science	Sajad Etihad
lecturer					Laboratory technique	Ali Jasam
lecturer					biology	Ali Mowafaq
lecturer					chemistry	Mustafa Mutasher
lecturer						Azzat Abdul Sattar
lecturer						Raghad Hassan

lecturer					Veterinary medicine	Qasim Zeghair
lecturer						Fatima Emmad
lecturer					Chemistry	Sara Mohammed
lecturer					Biology	Huda Hadi
lecturer					Biology	Dhamiaa Kareem
lecturer					Veterinary medicine	Zahraa Readh
lecturer					Physiology	Mohammed Talal
lecturer					Laboratory technique	Murtadah Abdulhameed
lecturer					biology	Majed Ibrahim
lecturer					Laboratory technique	Mohammed Nasser

Professional development

Orienting new faculty members

Guiding new faculty members through specialized workshops and placing them between permanent and temporary committees under the supervision of old members in order to develop their teaching and administrative skills.

Professional development for faculty members

Providing proposals to develop curricula and introducing new learning methods to deliver information to students clearly and smoothly.

8- Acceptance criterion

- 1-graduate of the scientific branch
- 2- rate higher than 80%

9- The most important sources of information about the program

- 1- Employing students in the Ministry of Health after graduation.
- 2- Follow-up and practice by students and work to raise the level of students in educational institutions.

10- Program development plan

- Developing the curriculum vocabulary so that it keeps pace with developments
- Adopting new teaching methods.
- Learn about the experiences of the most developed countries in this field and benefit from their accumulated experience
- Working to establish specialized laboratories in the field of various sciences

Curriculum Skills Map

please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

				Programme Learning Outcomes																
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	
First First First		Medical Laboratory				-				-			-					-		
		Histological & Cytological																		
		Medical . Lab. Instrument				-				-					-			-		
First First		Blood Transfusion																		
		Histology & Anatomy																		
		Fundamentals of Nursing																		
First First First Second		Chemistry																		
		Computer Applications			-		-				-			-				-		-
		Human Rights & Democratic																		
		Clinical Chemistry																		
Second Second		Hematology																		
		Bacteriology			-		-					-						-		
Second		Parasitology																		

Second		Virology																	
Second		Medical		-				-										-	
Second		Mycology																	
second		Immunology & Serology																	
second		Proposal									-								-
		Professional Ethics																	-

Course description (laboratory instruments)

Course description

The student will be able to understand the principle of all instruments used in the medical laboratories

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	laboratory instruments
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 2 hours practical * 2 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1-Knowing the basics of laboratory equipment	
1-Identify all the equipment used in medical laboratories	
3- Correct use of laboratory equipment	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about laboratory instruments concepts to keep pace with developments in society	
2- Expanding students' understanding correct of using natural laboratory instruments	
A- The skills objectives of the course	
1- Familiarity with the correct use of laboratory analyses	
2- Learn the skills of refurbishing laboratory equipment and verifying their outstanding results	
3- The student learned how to operate the device, preserve it, and maintain it.	
B- Teaching and learning methods	
1- The teacher delivers detailed theoretical lectures	
2- The teacher requests the implementation of some skills	

- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to laboratory instruments
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

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

- 1- Enabling students to write special reports on medical devices
- 2- Enabling students to perform matching the practical reality
- 1. 3- Enabling students for continuous self-development after graduation

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 2 prac.	The student understands the lesson	MICROSCOPES Uses, main parts ,principle of work ,kinds, types of condensers, operation, cleaning, service and maintenance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 2 prac.	The student understands the lesson	BALANCES Uses ,types of balances ,main part ,principle of operation ,operation ,service and maintenance .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

३	2 the. + 2 prac.	The student understands the lesson	PHOTOMETRY Introduction, Light and wave length, Beer lamberts Law types of photometers, main parts, filters, prisms	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
४	2 the. + 2 prac.	The student understands the lesson	FLAME PHOTOMETRY Introduction , Uses ,main parts , types , atomizers ,principle of operation ,operation and maintenance..	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
०	2 the. + 2 prac.	The student understands the lesson	ATOMIC ABSORPTION SPECTROPHOTOMETRY Introduction ,uses , types, main parts , principle of operation ,operation and maintenance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१	2 the. + 2 prac.	The student understands the lesson	CENTRIFUGES Uses , types, main parts , principle of operation ,operation and maintenance. 6	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
५	2 the. + 2 prac.	The student understands the lesson	AUTOCLAVES Introduction ,uses , types, main parts , principle of operation , sterilization, operation and maintenance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१	2 the. + 2 prac.	The student understands the lesson	PH METERS Uses , types, main parts ,electrodes, principle of operation, operation and maintenance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१	2the. + 2 prac.	The student understands the lesson	MICROTOMES Uses, types, main parts ,sharpeners , principle of .operation ,operation and maintenance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१०	५ the. + 2 prac.	The student understands the lesson	ELECTROPHORESIS Uses , types, main parts , principle of operation ,operation and maintenance.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१२+११	2 the. + 2 prac.	The student understands the lesson	HEATING INSTRUMENTS (WATER BATHS ,OVEN & INCUBATION) Uses , types, main parts thermostats, principle of operation ,operation and maintenance.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
१४+१३	2 the. + 2 prac.	The student understands the lesson	WATER PURIFICATION (DISTILLATORS & DEAIONIZERS) Distillator ,deionizers, uses, main parts , operation and maintenance.	Theoretical and practical lecture	Discussion, asking some questions and a quick

١٥	2 the. + 2 prac.	The student understands the lesson	AUTOANALYZERS Introduction ,uses , types, main parts , principle of operation ,operation and maintenance nance.	Theoretical and practical lecture	exam Discussion, asking some questions and a quick exam
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12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	laboratory instruments books
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in Science

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. م. رسل عبد الحميد كاظم

مدرس المادة

Course description

(Laboratory safety)

Course description

Students will be able to deal with safety avoid lab injury and understand biological and chemical hazards	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	laboratory safety
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 1 hours practical * 2 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1-Knowing the basics of laboratory safety	
2-Identify hazards and all safety equipment used in medical laboratories	
3- Correct use of laboratory safety equipment	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about laboratory safety concepts to keep pace with developments in the laboratory	
2- Expanding students' understanding of some protection concepts to avoid direct infection by using safety equipment.	
A- The skills objectives of the course	
1- Familiarity with the correct use of laboratory analyses	
2- Learn the skills of refurbishing laboratory equipment and verifying their outstanding results	
3- The student learned how to operate the device, preserve it, and maintain it.	
B- Teaching and learning methods	
1- The teacher delivers detailed theoretical lectures	
2- The teacher requests the implementation of some skills	

<p>3- Asking some intellectual questions</p> <p>4- Requesting the submission of some reports from the library and the Internet</p> <p>5- Using the method of brainstorming and feedback by activating the accumulated experiences of students</p>
<p>C- Evaluation methods</p> <p>1- Individual evaluation by giving the student the opportunity to answer some questions</p> <p>2- Group evaluation through a short and quick exam</p> <p>3- Evaluation through daily assignments</p> <p>4- Monthly, end-of-semester and final exams</p>
<p>D- Emotional and value-based goals</p> <p>1- Urging the student to think in different ways</p> <p>2- Urging the student to think about the importance of the subject and the danger of neglecting it</p> <p>3- Urging the student to acquire some skills that he can apply in practical life</p>
<p>E- Evaluation methods</p> <p>1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities</p> <p>2- End of semester exam (25% practical + 35% theoretical)</p>
<p>F- General and qualifying transferable skills (other skills related to employability and personal development)</p> <p>1- Enabling students to write reports related to laboratory instruments</p> <p>2- Enabling students to perform matching the practical reality</p> <p>3- Enabling students for continuous self-development after graduation</p>
<p>G- General and qualifying transferable skills (other skills related to employability and personal development)</p> <p>1- Enabling students to write special reports on medical devices</p> <p>2- Enabling students to perform matching the practical reality</p> <p>3- Enabling students for continuous self-development after graduation</p>

11- Course structure					
weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1the. + 2 prac.	The student understands the lesson	Introduction to laboratory safety.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	1 the. + 2 prac.	The student understands the lesson	General lab. role	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

٣	1 the. + 2 prac.	The student understands the lesson	Safety roles	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤+5	1 the. + 2 prac.	The student understands the lesson	Personal protective equipments	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6+7+8	1 the. + 2 prac.	The student understands the lesson	Biological hazards	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9+10	1 the. + 2 prac.	The student understands the lesson	Types of biological hazards	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢+١١	1 the. + 2 prac.	The student understands the lesson	Chemical hazards	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣	1 the. + 2 prac.	The student understands the lesson	Types chemical hazards	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	1the. + 2 prac.	The student understands the lesson	Review	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15			Final exam		

12- Infrastructure

1- The required prescribed books	The institute's library for additional curriculum resources
2- Main references (sources)	laboratory safety books
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

م. م. رسل عبد الحميد كاظم

رئيس قسم تقنيات المختبرات الطبية

مدرس المادة

Course description

(HISTOLOGY)

Course description

The student will be able to understand the histological structure and morphology of human tissue	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	histology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 2 hours practical * 2 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives 1- Know the basics of histology 2- Identify and understand the types and components of tissues of a living organism. 3- Study tissue bonding later 4- Knowing the precise parts of the body's cells and organs	
10- Course outcomes and teaching, learning and evaluation methods A- Cognitive objectives 1- Identify the structure of the human body's organs 2- The ability to distinguish the types of tissues that make up organs 3- To understand how the body's organs perform their functions	
A- The skills objectives of the course 1- Do a blood smear. 2- Distinguishing normal tissues. 3- Learn how to use a microscope	

B- Teaching and learning methods

- 1- Theoretical lectures
- 2- Practical laboratories
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Accumulated by students

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to histology
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

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

- 1- Enabling students to write special reports on medical devices
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 2 prac.	The student understands the lesson	Shape of the cell	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۲	2 the. + 2 prac.	The student understands the lesson	Epithelial tissue – simple epith. T.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۳	2 the. + 2 prac.	The student understands the lesson	Epithelial tissue- Stratified epith. T.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۴	2 the. + 2 prac.	The student understands the lesson	Connective tissue – Loose co. t.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۵	2 the. + 2 prac.	The student understands the lesson	Connective tissue – dense co. t.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۶	2 the. + 2 prac.	The student understands the lesson	Connective tissue – the blood	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۷	2 the. + 2 prac.	The student understands the lesson	Connective tissue – compact bone	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۸	2 the. + 2 prac.	The student understands the lesson	External feature of digestive system	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۹	2the. + 2 prac.	The student understands the lesson	Urogenital system of male &female	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۰	۲ the. + 2 prac.	The student understands the lesson	Liver	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۱	2 the. + 2 prac.	The student understands the lesson	Spleen	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	2 the. + 2	The student	Lymph node	Theoretical	Discussion,

	prac.	understands the lesson		and practical lecture	asking some questions and a quick exam
13	2 the. + 2 prac.	The student understands the lesson	Circulatory system (Artery)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	2 the. + 2 prac.	The student understands the lesson	Circulatory system (Artery)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	2 the. + 2 prac.	The student understands the lesson	Final exam	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Basic histology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in Science

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. نور نوري عبد

مدرس المادة

Course description

(Molecular biology)

Course description

Introducing the student to biology - biological activities (DNA replication - DNA cloning - DNA translation) - genetic mutations and their repair: regulating gene expression

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	Molecular biology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 2 hours practical * 2 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	1.Introducing the molecules that contribute fundamentally to the inheritance .process 2.Identifying the physical and chemical characteristics of the genetic material 3.The flow of genetic information from one generation to another and the .representation of the trait in the organism 4.The different forms of DNA . 5.Translation and protein construction . 6Genetic mutations and repair systems . 7. Regulation of genes and their products
10- Course outcomes and teaching, learning and evaluation methods	A- Cognitive objectives 1- Course outcomes and teaching, learning and evaluation methods 2. The student gets to know the structure and function of genetic material 3. The student gets to know the principles and foundations of genetic expression 4. The student gets to know the basic principles of growth and reproduction of every living organism

A- The skills objectives of the course

- 1- Isolating genetic material (DNA) from prokaryotic and eukaryotic organisms.
2. Writing process reports in a research format.

B- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to molecular biology
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

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

- 1- Enabling students to write special reports on medical devices
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2the. + 2 prac.	The student understands the lesson	Introduction to molecular biology	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۲	2 the. + 2 prac.	The student understands the lesson	Cell cycle	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۳	2 the. + 2 prac.	The student understands the lesson	DNA and RNA structure	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۴	2 the. + 2 prac.	The student understands the lesson	DNA replication	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	2 the. + 2 prac.	The student understands the lesson	DNA transcription	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6+7	2 the. + 2 prac.	The student understands the lesson	Translation and protein synthesis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
8	2 the. + 2 prac.	The student understands the lesson	Gene expression and regulation	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9+10	2 the. + 2 prac.	The student understands the lesson	Inhibitors of translation and transcription Laboratory of molecular biology	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11	2the. + 2 prac.	The student understands the lesson	DNA repair system	Theoretical and practical	Discussion, asking some questions and a quick exam

				lecture	
12	2 the. + 2 prac.	The student understands the lesson	Mutation and chromosomal aberrations	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13	2 the. + 2 prac.	The student understands the lesson	Chemical and physical agents that cause mutation	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	2the. + 2 prac.	The student understands the lesson	Recombinant DNA technology (cDNA technique)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	2 the. + 2 prac.	The student understands the lesson	Cloning and application (briefly)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curriculum resources
2- Main references (sources)	Molecular biology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Developing the curriculum's vocabulary so that it keeps pace with developments in the field of applied uses in the field of biology.

Molecular

- Adopting new teaching methods.
- Learn about the experiences of the most developed countries in this field and benefit from their accumulated experience

م. د. طارق مهدي مسلم

م. نور نوري عبد

رئيس قسم تقنيات المختبرات الطبية

مدرس المادة

Course description

(Fundamental of Histological techniques)

Course description

It aims to identify the basics of microscopic preparations and the methods used in them, and to learn about their steps and the types of materials and methods used in them.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Basics of Science of microscopic preparations
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	∩ theoretical * 15 weeks = ∩ • total hours and 2 practical * 15 weeks = ξ ∘ hours
8- The date this description was prepared is	2/18/2024
9- Course objectives 1- Knowing the basics of microscopic preparations 2- Knowing the goals of studying preparation methods 3- Methods of dealing with tissue slides	
10- Course outcomes and teaching, learning and evaluation methods A- Cognitive objectives 1- The student is introduced to the concepts of preparations to keep pace with developments in society 2- Expanding students' awareness of some protection concepts to avoid direct infection by the samples used	
A- The skills objectives of the course 1- Familiarity with the methods used in work methods 2- 2- Learn the skills used to measure risks	

3- 3- Learn the skills of preparing samples for examination under a microscope

4- 4- Learn the methods of cutting samples

B- Teaching and learning methods

1- The teacher delivers detailed theoretical lectures

2- The teacher requests the implementation of some skills

3- Asking some intellectual questions

4- Requesting the submission of some reports from the library and the Internet

5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

C- Evaluation methods

1- Individual evaluation by giving the student the opportunity to answer some questions

2- Group evaluation through a short and quick exam

3- Evaluation through daily assignments

4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

1- Urging the student to think in different ways

2- Urging the student to think about the importance of the subject and the danger of neglecting it

3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities

2- End of semester exam (25% practical + 35% theoretical)

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

1- Enabling students to write reports related to nursing science

2- Enabling students to perform matching the practical reality

3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.

2- Developing an update to the vocabulary of the Fundamentals of Histological techniques subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure					
weeks	Hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 3 prac.	The student understands the lesson	Mounting , Adhesives	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢-٣	2 the. + 3 prac.	The student understands the lesson	Staining , classification of stains	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤-٥	2 the. + 3 prac.	The student understands the lesson	Staining section	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 3prac.	The student understands the lesson	Methods of staining	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧-٨	1 the. + 2 prac.	The student understands the lesson	Types of stains , preparation of stain and oxidation of some stains	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٩	2 the. + 3 prac.	The student understands the lesson	Stains solvents ,factors affecting staining , storage of stains , how to choose stain	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	2 the. + 3 prac.	The student understands the lesson	Decalcification , bone tissue	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١١-١٢	2 the. + 3 prac.	The student understands the lesson	Examination for second term.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣-١٤	2 the. + 3 prac.	The student understands the lesson	Tissue slide , Freezing microtome .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥			Final examination		

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Fundamental of Histological techniques
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. م. حيدر عبد الله كاظم

م. م. رعد عباس جبار

مدرس المادة

Course description

(Fundamental of Microbial preparation)

Course description

It aims to identify the basics of microscopic preparations and the methods used in them, and to learn about their steps and the types of materials and methods used in them.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Basics of Science of microscopic preparations
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	∓ theoretical * 15 weeks = ∓ • total hours and 2 practical * 15 weeks = ξ° hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowing the basics of microscopic preparations	
2- Knowing the goals of studying preparation methods	
3- Methods of dealing with tissue slides	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student is introduced to the concepts of preparations to keep pace with developments in society	
2- Expanding students' awareness of some protection concepts to avoid direct infection by the samples used	
B- The skills objectives of the course	
1- Familiarity with the methods used in work methods	
2- 2- Learn the skills used to measure risks	

3- 3- Learn the skills of preparing samples for examination under a microscope

4- 4- Learn the methods of cutting samples

C- Teaching and learning methods

1- The teacher delivers detailed theoretical lectures

2- The teacher requests the implementation of some skills

3- Asking some intellectual questions

4- Requesting the submission of some reports from the library and the Internet

5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

1- Individual evaluation by giving the student the opportunity to answer some questions

2- Group evaluation through a short and quick exam

3- Evaluation through daily assignments

4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

1- Urging the student to think in different ways

2- Urging the student to think about the importance of the subject and the danger of neglecting it

3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities

2- End of semester exam (25% practical + 35% theoretical)

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

1- Enabling students to write reports related to nursing science

2- Enabling students to perform matching the practical reality

3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.

2- Developing an update to the vocabulary of the Fundamentals of microtechnique subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure					
weeks	Hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 3 prac.	The student understands the lesson	Definition of some terminology that deals with histology , cytology,... etc.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 3 prac.	The student understands the lesson	Sample collection, biopsy, and autopsy	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣-٤	2 the. + 3 prac.	The student understands the lesson	Steps of preparing tissue for study, fixation, fixatives	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥-٦	2 the. + 3prac.	The student understands the lesson	Routine fixatives and special fixatives.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	1 the. + 2 prac.	The student understands the lesson	Washing, solution , time	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	2 the. + 3 prac.	The student understands the lesson	Dehydration , dehydrants	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٩	2 the. + 3 prac.	The student understands the lesson	Clearing ,clearing agents	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	2 the. + 3 prac.	The student understands the lesson	Infiltration ,types of waxes .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

١١	2 the. + 3 prac.	The student understands the lesson	blocking and trimming .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢	2 the. + 3prac.	The student understands the lesson	Microtomes, Sectioning.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣-١٤	2 the. + 3 prac.	The student understands the lesson	Review	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥			Final exam		

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Fundamental of Nursing
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. م. حيدر عبد الله كاظم

م. م. رعد عباس جبار

مدرس المادة

Course description (microbiology)

Course description

Identifying all types of microorganisms, such as viruses, fungi, bacteria and parasites, as well as identifying pathogenic and non-pathogenic bacteria, their growth and structure, the toxins they secrete and the diseases they cause, and studying antibiotics that treat infections.	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory second Phase
3- Course name/code	Microbiology
4- The programs in which he participates	Department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total 2 hours theoretical 4 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/21/2024
9- Objectives of the course	
1- Identifying all types of microorganisms, such as viruses, fungi, bacteria, and parasites	
2- -Identify pathogenic and non-pathogenic bacteria, their growth and structure, and the toxins they secrete	
3- Studying antibiotics that treat infections	
4- Knowledge of diagnostic tests	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student is introduced to the concepts of microbiology in order to keep pace with the development taking place in	
B- Teaching and learning methods	
1- The student learns how to take medical samples for the purpose of isolating	

and diagnosing microorganisms.

2- Preparing the culture media.

3- Methods of culturing bacteria.

C- Evaluation methods

1- Individual evaluation by giving the student the opportunity to answer some questions

2- Group evaluation through a short and quick exam

3- Evaluation through daily assignments

4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

1- Urging the student to think in different ways

2- Urging the student to think about the importance of the subject and the danger of neglecting it

3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities

2- End of semester exam (25% practical + 35% theoretical)

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

1- Enabling students to write reports related to microbiology

2- Enabling students to perform matching the practical reality

3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.

2- Developing an update to the vocabulary of the Fundamentals of Biochemistry subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Introduction to medical microbiology, Microorganism, instruction with the host, microbial virulence, historical significance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	classes of pathogenic microorganisms Viruses, bacteria, fungi, parasites	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	2 the. + 4 prac.	The student understands the lesson	Classification and Scientific nomenclature of the bacteria. Normal Flora	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	2 the. + 4 prac.	The student understands the lesson	Bacterial Structure	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	2 the. + 4 prac.	The student understands the lesson	Bacterial division and growth	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 4 prac.	The student understands the lesson	Bacterial Genetics, DNA transfer between bacteria	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	2 the. + 4 prac.	The student understands the lesson	Pathogenicity of bacteria	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	2 the. + 4 prac.	The student understands the lesson	TOXIGENESIS (bacterial toxin).	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٩	2 the. + 4 prac.	The student understands the lesson	Classes of antibacterial agents	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

١٠	2 the. + 4 prac.	The student understands the lesson	General characteristic and classification of virus	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١١	2 the. + 4 prac.	The student understands the lesson	Viral genetics, a mutation, instruction between viruses, the role of genetic variation in evolution of viruses.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢	2 the. + 4 prac.	The student understands the lesson	Pathogenicity of viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣	2 the. + 4 prac.	The student understands the lesson	Classes of antiviral agents	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤	2 the. + 4 prac.	The student understands the lesson	Characteristic and classification of medical fungi.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	2 the. + 4 prac.	The student understands the lesson	Morphology and structure of fungi, Classes of antifungal agents	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Microbiology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

أ.م. عدنان كامل شبيب

م. د. طارق مهدي مسلم

مدرس المادة

رئيس قسم تقنيات المختبرات الطبية

Course description (Pathogenic bacteria)

Course description

Identifying the different genera of bacteria, knowing each of its pathogenic and non-pathogenic types, the general characteristics of each type, biochemical tests, the enzymes they secrete, pathogenicity, virulence factors, and diagnostic tests.	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory second Phase
3- Course name/code	Pathogenic bacteria
4- The programs in which he participates	Department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total 2 hours theoretical 4 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/21/2024
9- Objectives of the course	
1- Identify the different genera of bacteria.	
2- Knowledge of biochemical tests	
3- Knowledge of virulence factors and diagnostic tests	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
The student learns about the concepts of pathogenic bacteria, their species and types, and the diseases they cause in order to keep pace with the development taking place in society.	
B- Teaching and learning methods	
1- Methods of diagnosis and distinction between types of the same sex	
2- Preparing the planting media.	
3- Methods of culturing bacteria.	
C- Evaluation methods	
1- Individual evaluation by giving the student the opportunity to answer some	

questions

2- Group evaluation through a short and quick exam

3- Evaluation through daily assignments

4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

1- Urging the student to think in different ways

2- Urging the student to think about the importance of the subject and the danger of neglecting it

3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities

2- End of semester exam (25% practical + 35% theoretical)

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

1- Enabling students to write reports related to Pathological bacteriology

2- Enabling students to perform matching the practical reality

3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.

2- Developing an update to the vocabulary of the Fundamentals of Biochemistry subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Systemic bacteriology, Genus Staphylococcus, General characters , toxin production , enzyme , immunity, Sensitivity test.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	Genus Streptococcus General characters. Bio chemical test, Antigenic characters , M protein Streptococcus group A, diseases, toxin, and immunity.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	2 the. + 4 prac.	The student understands the lesson	Streptococcus group B, C, D. Biochemical reaction, immunity, diseases. Streptococcus pneumonia and Streptococcus variance disease, antigenic structure.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	2 the. + 4 prac.	The student understands the lesson	Gram positive bacilli – Corynebacterium diphtheria. Shape of bacteria, virulence, toxin, immunity, shick test. Antitoxin, skin test.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	2 the. + 4 prac.	The student understands the lesson	Genus Mycobacterium , general characters, Classification of bacteria , growth , antigenic structure , Disease, immunity.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 4 prac.	The student understands the lesson	Genus Bacillus, Bacillus anthraces. General characters, biochemical reaction, antigenic structure, toxin, immunity.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	2 the. + 4 prac.	The student understands the lesson	Anaerobic bacteria – Clostridium, general characters. Clostridium perfringens , general characters .	Theoretical and practical lecture	Discussion, asking some questions and a quick

			Antigen structure, biochemical reaction, virulence, toxin. Clostridium tetani , disease , immunity, antigenic structure		exam
۸	2 the. + 4 prac.	The student understands the lesson	Genus Neisseria, general characters, biochemical reaction. Neisseria gonorrhoea, antigenic structure, virulence. Neisseria meningitidis, immunity, sensitivity test. Antigenic structure , virulence , immunity	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۹	2 the. + 4 prac.	The student understands the lesson	Genus Haemophilus , general characters , growth factors , Virulence, immunity. Genus Bordetella, general characters, disease.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۰ ۱۱	2 the. + 4 prac.	The student understands the lesson	Family Enterobacteriaceae, General characters, classification, biochemical reaction, Antigenic characters, sugar fermentation, sensitivity test. Genus Escherichia coli, Klebsiella, diseases, virulence, Immunity.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	2 the. + 4 prac.	The student understands the lesson	Genus Vibrio, history of disease, general characters, Antigenic structure, virulence, immunity, treatment. Classical Vibrio EL-TOR biotype. Vibrio parahaemolyticus. Campylobacter jejuni.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۳	2 the. + 4 prac.	The student understands the lesson	Genus Brucella , general characters , diseases , species , Zoonosis. Yersinia pestis , general characters , virulence , diseases	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۴	2 the. + 4 prac.	The student understands the lesson	Francisella , general characters , transmission diseases , Virulence, syphilis, VDRL. Nocardia , general characters , stain-direct smear . Mycoplasma, shape, virulence, Lab.dignosis .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

١٥	2 the. + 4 prac.	The student understands the lesson	Chlamydia , general characters , shape , biochemical test , Virulence, immunity.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
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12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Microbiology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

أ.م. عدنان كامل شبيب

مدرس المادة

Course description (medical mycology)

Course description

It aims to learn about mycology and fungal infections, distinguish between pathogenic fungi and methods of treating them.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Medical mycology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	Theoretical 1* 15 weeks = 15total hours and 2 practical * 15 weeks = 30 hours
8- The date this description was prepared is	19/2/2024
9- Course objectives	
<ol style="list-style-type: none"> 1. Identifying medicinal fungi 2. Distinguishing between types of fungal infections 3. Treating fungal infections 	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
<ol style="list-style-type: none"> 1- The student becomes familiar with general concepts on the subject of medicinal mushrooms 2- Learn about methods of reproduction and differentiation between medicinal fungi 3- The most important antifungals used in treating fungal infections 	
B- The skills objectives of the course	
<ol style="list-style-type: none"> 1. Learn fungi cultivation skills 2. 2- Learn how to diagnose fungi 3. 3- Distinguishing between yeasts and molds 	
C- Teaching and learning methods	

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to medical mycology
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of medical mycology subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1 the. + 2 prac.	The student understands the lesson	Intoduction to medical mycology	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
2	1 the. + 2 prac.	The student understands the lesson	Structure, reproduction and classification.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
3-4	1 the. + 2 prac.	The student understands the lesson	Cultural characteristics, type of mycosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	1 the. + 2 prac.	The student understands the lesson	General principle in treatment	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6-7	1 the. + 2 prac.	The student understands the lesson	Actinomyces, Nocardia, Mycetoma	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
8	1 the. + 2 prac.	The student understands the lesson	Dermatophytes	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	1 the. + 2 prac.	The student understands the lesson	Candidiasis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	1 the. + 2prac.	The student understands the lesson	Cytococccsis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11	1 the. + 2 prac.	The student understands the lesson	Cryptococcus	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	the. + \ 2 prac.	The student understands the lesson	Histoplasmosis, sporotrichosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13	the. + \ 2 prac.	The student understands the lesson	Micellanaus fungi such as Aspergillosis and Pencillium	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	the. + \ 2 prac.	The student understands the lesson	Anti-fungal agent	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	\		Final exam	\	\

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	book systematic

A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course
13- Course development plan	
Keeping pace with developments in society	

م. د. طارق مهدي مسلم

رئيس القسم تقنيات المختبرات الطبية

م. م. اسراء جبار شمخي خليفة

مدرس المادة

Course description

(Fundamental of analytical chemistry)

Course description

It give a general idea about biochemistry and to able to identify the biochemical reactions taken place in human tissues.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory a_First Phase
3- Course name/code	Biochemistry
4- The programs in which he participates	Department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total 2 hours theoretical 4 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/21/2024

At the end of the term the student could do :-

Use and clean laboratory equipments .

1- Can able to act with different chemical reagents .

2- Can able to prepare different concentration solution .

3- Can be identify the biochemistry compound of human being by using
laboratory and chemically methods .

4- Can able to use the laboratory instrument .

B- Teaching and learning methods

1- The teacher delivers detailed theoretical lectures

2- The teacher requests the implementation of some skills

3- Asking some intellectual questions

4- Requesting the submission of some reports from the library and the Internet

5- Using the method of brainstorming and feedback by activating the

accumulated experiences of students

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to analytical chemistry science
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of Biochemistry subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Biochemistry	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	Biochemistry compounds, cell	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	2 the. + 4 prac.	The student understands the lesson	Carbohydrates, classification ,its presence ,its importance,	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	2 the. + 4 prac.	The student understands the lesson	General properties of monosaccharide's.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	2 the. + 4 prac.	The student understands the lesson	Important monosaccharide's. Derivatives of monosaccharide's, reducing sugars. Its presence in human body , its reactions	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 4 prac.	The student understands the lesson	Disaccharides and polysaccharides properties, reactions occurrence.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	2 the. + 4 prac.	The student understands the lesson	Lipids ,classification ,properties.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	2 the. + 4 prac.	The student understands the lesson	Fatty acids ,properties , reactions .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٩	2 the. + 4 prac.	The student understands the lesson	Essential fatty acids and unessential fatty acids . properties, reactions.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	2 the. + 4 prac.	The student understands the lesson	Unsaturated fatty acids , properties its importance,	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

١٢+١١	2 the. + 4 prac.	The student understands the lesson	Compound lipids ,derived lipids cholesterol, its existence.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤+١٣	2 the. + 4 prac.	The student understands the lesson	Proteins ,general properties ,peptide bond.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	2 the. + 4 prac.	The student understands the lesson	Amino acids , properties , occurrence.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Fundamental of Biochemistry
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. رياض حسين والي

مدرس المادة

Course description

(Fundamental of analytical chemistry)

Course description

It give an general idea about organic compound and biochemistry and to able to student to make different experiment and chemical reaction.	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory a_First Phase
3- Course name/code	analytical chemistry
4- The programs in which he participates	Department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total 2 hours theoretical 4 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/21/2024
At the end of the term the student could do :- Use and clean laboratory equipments . 1- Can able to act with different chemical reagents . 2- Can able to prepare different concentration solution . 3- Can be identify the biochemistry compound of human being by using laboratory and chemically methods . 4- Can able to use the laboratory instrument .	
B- Teaching and learning methods 1- The teacher delivers detailed theoretical lectures 2- The teacher requests the implementation of some skills 3- Asking some intellectual questions 4- Requesting the submission of some reports from the library and the Internet 5- Using the method of brainstorming and feedback by activating the	

accumulated experiences of students

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to analytical chemistry science
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of analytical chemistry subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure					
weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Atom , elements, radio isomers pollution with radio isomers , pollution with elements .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	Relation between atoms, molecules ,energy, according to the new theory of atom.(Debroley equation). Matter , classification.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	2 the. + 4 prac.	The student understands the lesson	Chemical bonds, covalent ,Ionic , coordination , hydrogen.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	2 the. + 4 prac.	The student understands the lesson	Methods of analysis . qualitative and quantitative ,statistical methods of quantitative analysis, errors in quantitative analysis .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	2 the. + 4 prac.	The student understands the lesson	Methods of expressing concentration of solution , Molar solution ,normal solution .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 4 prac.	The student understands the lesson	Preparation of molar solution , dilution ,questions.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	2 the. + 4 prac.	The student understands the lesson	Percentage composition, part per million.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	2 the. + 4 prac.	The student understands the lesson	Chemical equilibrium, ionization, constant of water (PH and POH).	Theoretical and practical	Discussion, asking some questions and

				lecture	a quick exam
٩	2 the. + 4 prac.	The student understands the lesson	Ionization of weak electrolyte . calculation of PH of weak acids and weak bases.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	2 the. + 4 prac.	The student understands the lesson	Buffer solutions , classification .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢+١١	2 the. + 4 prac.	The student understands the lesson	Calculation of buffer solutions .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤+١٣	2 the. + 4 prac.	The student understands the lesson	Uses of buffer solutions.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	2 the. + 4 prac.	The student understands the lesson	Volumetric analysis , classification , standard solution , examples .	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Fundamental of analytical chemistry
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

م. رياض حسين والي

رئيس قسم تقنيات المختبرات الطبية

مدرس المادة

Course description (Techniques laboratory)

Course description

It aims to learn the general concepts of the medical laboratory and know the most important techniques that are used in laboratories, including methods of sterilization and disinfection, learn about cultural media for microorganisms, and learn about how to collect, transport, and examine samples of urine, feces, semen, and other tests.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	Techniques laboratory
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical2 * 15 weeks = 30total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	19/2/2024
9- Course objectives	
1. Study the general concepts of the medical laboratory	
2. Study the most important techniques used in medical laboratories	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1. The student gets to know general concepts in the laboratory, such as the purpose of using the most important laboratory tools and equipment, and the importance of laboratory methods.	
2. The student determines the appropriate methods for conducting sterilization and disinfection operations	
3. The student discusses and concludes health problems by conducting important tests on laboratory samples	

B- The skills objectives of the course

- 1- Learn the skills of using the most important laboratory equipment
- 2- Learn the skills of preparing the culture medium for microorganisms
- 3- Chooses the methods of collecting samples and methods of dealing with them according to the type of sample
- 4- Learn the skills of conducting visual, chemical and microscopic examinations of samples

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to laboratory techniques
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of Nursing

subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Name of the unit or topic	Required educational outcomes	Teaching method	Evaluation method
1-3	2 the. + 4 prac.	Introduction to Medical lab. Techniques includes - Identify the various laboratory glasses and how to deal with laboratory methods. - Sterilization. Identify ways of cleaning, sterilization and disinfectant by physical, chemical and mechanical means. Identify different sterilization equipment and materials used in chemical sterilization. Laboratory safety and how to avoid accidents	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
4	2 the. + 4 prac.	Samples collection and handling.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	2 the. + 4 prac.	Culturing of microorganism :- types of Culture media, different samples used for culture, bacterial growth curve, MO characterization (chemical tests for MO identification)	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6	2 the. + 4 prac.	Urine samples: Urine formation, Properties of urine, chemical and physical investigations, microscopic examination.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
7	2 the. + 4	Stool sample: formation,	The student	Theoretical	Discussion,

	prac.	properties, culture, general examination	understands the lesson	and practical lecture	asking some questions and a quick exam
8	2 the. + 4 prac.	Seminal Fluid: Formation, organs of reproductive tract, characterization of semen fluid, investigations that used on seminal fluid, seminal fluid examination, fructose test, antisperm antibody (serum and semen). Total sperm count in Neubauer chamber. Types of normal and abnormal of Sperms character with study the way of writing the final report.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	Agglutination techniques	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	Enzyme-linked immunosorbent assay (ELISA) principle, applications	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11	2 the. + 4 prac.	Radioimmunoassay (RIA) principle, applications	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	2the. + 4 prac.	Immunofluorescence technique	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13	2 the. + 4prac.	Polymerase chain reaction (PCR), types principle, applications	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	2 the. + 4 prac.	Real-time PCR	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

15	2 the. + 4 prac.	Review	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
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12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	book systematic
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم
رئيس قسم تقنيات المختبرات الطبية

م. د. طارق مهدي مسلم
م. م. سهول كريم عبد الحسن
مدرس المادة

Course description (quality control)

Course description

It aims to identify the most important standards in medical laboratories, evaluate the level of laboratory performance, discover common errors, and determine ways to avoid them in order to maintain organizational reputation.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Quality control
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical ² * 15 weeks = 30total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	19/2/2024
9- Course objectives	<ol style="list-style-type: none"> 1. Evaluating the level of laboratory performance 2. Discover common mistakes and determine ways to avoid them 3. Quality control in medical laboratories
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	<ol style="list-style-type: none"> 1- The student gets to know general concepts regarding the subject of quality control 2- Learn about the most important international standards for laboratory quality. 3- Encouraging the continued implementation of quality control activities
B- The skills objectives of the course	<ol style="list-style-type: none"> 1. Learn the skills of detecting mistakes, how to avoid them, and taking the correct measures

2. Determine the use of good reagents and materials
3. Learn skills and methods that give accurate and uniform results

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to quality control
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of quality control subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests

5- Direct observations

11- Course structure					
weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Intoduction to quality control	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
2	2 the. + 4 prac.	The student understands the lesson	Medical relevent of QA, Standarded units of the international system	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
3-5	2 the. + 4 prac.	The student understands the lesson	Balancing error detection and false rejection	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6-7	2 the. + 4 prac.	The student understands the lesson	Quality control materials	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
8	2 the. + 4 prac.	The student understands the lesson	QA techniques for quantitative results	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	The student understands the lesson	QA techniques for qualitative results	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	The student understands the lesson	QA techniques for semi-quantitative results	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11	2 the. + 4 prac.	The student understands the lesson	Troubleshoot based on QA results	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12-14	2 the. + 4 prac.	The student understands the lesson	Review	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	\	The student understands the lesson	Final exam	\	\
12- Infrastructure					
1- The required prescribed books				The institute's library for additional curricula resources	
2- Main references (sources)				book systematic	
A- Recommended books and references (scientific journals, reports, etc.)				All sober magazines that have anything to do with the moon	

B- Electronic references and Internet sites		Websites on the Internet related to the course
13- Course development plan		
Keeping pace with developments in society		

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. د. طارق مهدي مسلم

م. م. سهول كريم عبد الحسن

مدرس المادة

Course description (parasitology)

Course description

It aims to know the pathogenic parasites in humans and the diseases that cause them, diagnosis, and knowledge of diagnostic techniques for pathogenic parasites

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies _second Phase
3- Course name/code	Parasitology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical 2 * 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowledge of pathogenic parasites in humans	
2- Knowledge of parasite diagnosis	
3- Diagnostic methods and techniques	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about the concepts of parasitology and diagnostic methods to keep pace with developments in society	
2- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples.	
B- The skills objectives of the course	
1- Familiarity with diagnostic methods for parasites.	
2- Learn blood drawing skills	
3- Learn methods of preventing pathological samples 4- Learn methods of preventing pathological samples	

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports on parasitology
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the blood transfusion subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1 the. + 2 prac.	The student understands the lesson	Defines the parasites ,parasitology types of parasites Types of host, Classification of parasites, Protozoa + metazoan Metazoa [helminthes and arthropoda]	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۲	1 the. + 2 prac.	The student understands the lesson	Introduction generally in characteristic feature of protozoa and classification:- Rhizopoda ,Mastigophora ,Cilophora (ciliate) ,Telospora	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۳	1 the. + 2 prac.	The student understands the lesson	Class Rhizopoda Pathogenic amoeba, <u>Entamoeba histolytica</u>, Morphology ,life cycle ,Pathogenicity ,Lab.diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۴	1 the. + 2 prac.	The student understands the lesson	Few of morphology ,pathogenicity ,diagnosis of :- <u>Entamoeba gingivalis</u>, A canthomoeba ,Naegleria	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۵	1 the. + 2 prac.	The student understands the lesson	Nonpathogenic amoeba Different between <u>Entamoeba coli</u> and <u>E. histolytica</u>. morphology , Lab, diagnosis of <u>Iodamoeba butschlii</u> , Endolimax nana ,E. dispar ,Dientamoeba fragilis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۶	1 the. + 2 prac.	The student understands the lesson	Class Mastigophor or Flagellates	Theoretical and	Discussion, asking some

			<p>generally introduction in characteristic feature and classification in (intestinal flagellate, blood and tissue flagellates, genital flagellates).</p> <p>Intestinal Flagellate:</p> <p>- <u>Giardia lamblia</u>, <u>Chilomastix mesnili</u>, <u>Trichomonas hominis</u></p> <p>,Morphology ,life cycle ,pathogenicity ,and lab. Diagnosis.</p>	practical lecture	questions and a quick exam
Y	1 the. + 2 prac.	The student understands the lesson	<p>Genital flagellate <u>Trichomonas vaginales</u>, Oral flagellates, <u>Trichomonas tenax</u>. Morphology, pathogenicity and lab. diagnosis</p>	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
^	1 the. + 2 prac.	The student understands the lesson	<p>Tissue and blood flagellate</p> <p>Haemoflagellates forms.</p> <p>Lishmania donovani</p> <p>Lishmania tropica</p> <p>Lishmania brazeliencis</p> <p>Morphology ,life cycle ,pathogenicity, Lab. Diagnosis</p>	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	1 the. + 2 prac.	The student understands the lesson	<p>Trypanosoma cruzi</p> <p>Trypanosoma brucei</p> <p>Morphology ,life cycle ,pathogenicity, Lab. Diagnosis</p> <p>Sample of Tse-tse fly and Reduviid bug.</p>	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	1 the. + 2 prac.	The student understands the lesson	<p>Class Ciliophra (cilata)</p> <p>Blantidium coli</p> <p>Morphology ,life cycle ,pathogenicity, Lab. diagnosis</p>	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

11	1 the. + 2 prac.	The student understands the lesson	Review	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12		The student understands the lesson	Class Sporozoa Generally introduction of characteristic features of sporozoa. Life cycle in generally of <u>Plasmodium</u> spp. In man and insects.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13		The student understands the lesson	Plasmodium vivax Plasmodium ovale pathogenicity, Lab. Diagnosis Plasmodium malariae Plasmodium falciparum Pathogenicity, Lab. diagnosis and short notes of parasites Babesia spp. The differences in lab. diagnosis with Plasmodium spp.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	1 the. + 2 prac.	The student understands the lesson	<u>Isosporia belli</u> , <u>Toxoplasma gondii</u> Morphology ,life cycle ,pathogenicity, Lab. diagnosis <u>Cryptosporidium</u> spp. Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	1 the. + 2 prac.	The student understands the lesson	Review and examination	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Medical parasitology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon

B- Electronic references and Internet sites

Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

م. م. رحيق فارس كاظم

مدرس المادة

Course description (Parasitic worms)

Course description

It aims to identify the components of blood, methods for drawing samples, and some of the procedures used to deal with blood samples, conduct tests on them, and perform correct and diagnostic tests on the blood.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies _second Phase
3- Course name/code	Parasitic worms
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical 2* 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowledge of pathogenic worms	
2- Knowledge of diagnostic tests for worms	
3- Methods of dealing with the patient and collecting samples	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about the concepts of Helminthology and tests, and tests in order to keep pace with the developments taking place in society	
2- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples.	
B- The skills objectives of the course	
1- Familiarity with diagnostic methods for parasitic worms.	
2- Learn the skills of performing diagnostic tests for pathogenic worms, such as using dyes and others	
3- Learn blood drawing skills	

4- Learn methods of preventing disease and pathological samples

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports on **Parasitic worms**
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the blood transfusion subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	In generally introduction of characteristic features of metazoa Helminthes (cestoda ,trematoda and nematoda)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	Class Cestoda Taenia saginata Taenia solium Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	2 the. + 4 prac.	The student understands the lesson	Hymenolepis nana Hymenolepis diminuta Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	2 the. + 4 prac.	The student understands the lesson	Echinococcus granulosus Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	2 the. + 4 prac.	The student understands the lesson	Class Trematoda In general life cycle of Schistosoma spp. Schistosoma haematobium Schistosoma mansoni Schistosoma japonicum Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	2 the. + 4 prac.	The student understands the lesson	Short notes of (liver flukes) Fasciola hepatica (Lung flukes) Fasciola buski (intestinal flukes) Heterophyes heterophes Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	2 the. + 4 prac.	The student understands the lesson	Class Nematode Ascaris lumbricoides Trichuris trichura Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	2 the. + 4 prac.	The student understands the lesson	Enterobius vermicularis Ancylostoma duodenale	Theoretical and	Discussion, asking some

			Necator americanus Morphology ,life cycle ,pathogenicity, Lab. diagnosis	practical lecture	questions and a quick exam
٩	2 the. + 4 prac.	The student understands the lesson	Larva migrans in human -cutenous larva migrans Ancylostoma caninum Schistosoma sp.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	2 the. + 4 prac.	The student understands the lesson	subcutenous larva migrans (scrow worm)(Myiasis) -visceral larva migrans Toxocara spp. pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
1١	2 the. + 4 prac.	The student understands the lesson	Filaria Wuchereria bancrofti Loa loa Morphology ,life cycle ,pathogenicity, Lab. diagnosis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢	2 the. + 4 prac.	The student understands the lesson	Short notes of class Annelida Hirudo medicinalis in human And from metazoan Class Arthropodamorphology and lab. Diagnosis.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣	2 the. + 4 prac.	The student understands the lesson	Short notes of morphology and lab. diagnosis , some pathogenicity of 1-insect (Anopheline ,Sand fly ,Tse – tse fly ,Reduviid bug ,Culex , lice ,Fleas , Cimex) 2-Arachnids Mites , tick	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤	2 the. + 4 prac.	The student understands the lesson	Review	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	.		Examination (Final)		

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Medical parasitology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and	Websites on the Internet related to the course

Internet sites	
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رئيس قسم تقنيات المختبرات الطبية

م. م. رحيق فارس كاظم

مدرس المادة

Course description (blood transfusion)

Course description

It aims to identify the components of blood, methods for drawing samples, and some of the procedures used to deal with blood samples, conduct tests on them, and perform correct and diagnostic tests on the blood.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Blood transfusion
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total hours and 2 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowing the components of blood	
2- Knowledge of the different tests on blood samples	
3- Methods of dealing with the patient and collecting samples	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about the concepts of hematology, its components, and tests in order to keep pace with the developments taking place in society	
2- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples.	
B- The skills objectives of the course	
1- Familiarity with the correct methods for some blood tests.	
2- Learn the skills of performing tests such as blood groups and matching between donor and recipient	
3- Learn blood drawing skills	

4- Learn methods of preventing pathological samples

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports on blood and its components
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the blood transfusion subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1 the. + 2 prac.	The student understands the lesson	Information of blood transfusion	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	1 the. + 2 prac.	The student understands the lesson	Blood components, blood collection, choosing the donor, physiological examination, time of collection	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	1 the. + 2 prac.	The student understands the lesson	Complete the second week principles.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	1 the. + 2 prac.	The student understands the lesson	Blood group: ABO system, Rh factor, Lewis system.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	1 the. + 2 prac.	The student understands the lesson	Classification of blood typing (long & short)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	1 the. + 2 prac.	The student understands the lesson	Direct and indirect coomb's test of blood	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	1 the. + 2 prac.	The student understands the lesson	Process of cross matching test, reporting and record the results.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	1 the. + 2 prac.	The student understands the lesson	Roles of blood transfusion , blood disease	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٩	1 the. + 2 prac.	The student understands the lesson	Pregnant care , leukemia of infants	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	1 the. + 2 prac.	The student understands the lesson	Complete the principles above	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
1١	1 the. + 2 prac.	The student understands the lesson	Separation of blood contents, methods of separation.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

١٢		The student understands the lesson	Complete the principle above.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٣		The student understands the lesson	Component of blood after storage, anticoagulants.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤	1 the. + 2 prac.	The student understands the lesson	Blood transfusion disadvantage.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	1 the. + 2 prac.	The student understands the lesson	Quality control , Tools ,Persons , Method	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Clinical haematology in medical practice
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

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رئيس قسم تقنيات المختبرات الطبية

م. م. مهند ساجت عويد

مدرس المادة

Course description

(Fundamental of Nursing)

Course description

It aims to learn about the basics of nursing science, first aid, laboratory and professional safety in the field of nursing, and methods of dealing with the patient while he is in medical laboratories.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ First Phase
3- Course name/code	Basics of nursing science
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 15 weeks = 15 total hours and 2 practical * 15 weeks = 30 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives 1- Knowing the basics of nursing science 2- Knowledge of first aid and laboratory and occupational safety 3- Methods of dealing with the patient	
10- Course outcomes and teaching, learning and evaluation methods A- Cognitive objectives 1- The student learns about nursing concepts to keep pace with developments in society 2- Expanding students' understanding of some protection concepts to avoid direct infection by the patient	
A- The skills objectives of the course 1- Familiarity with nursing methods 2- Learn the skills of measuring vital signs such as pulse, breathing, blood pressure and temperature	

3- Learn the skills of drawing blood and inserting needles

4- Learn first aid methods

B- Teaching and learning methods

1- The teacher delivers detailed theoretical lectures

2- The teacher requests the implementation of some skills

3- Asking some intellectual questions

4- Requesting the submission of some reports from the library and the Internet

5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

C- Evaluation methods

1- Individual evaluation by giving the student the opportunity to answer some questions

2- Group evaluation through a short and quick exam

3- Evaluation through daily assignments

4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

1- Urging the student to think in different ways

2- Urging the student to think about the importance of the subject and the danger of neglecting it

3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities

2- End of semester exam (25% practical + 35% theoretical)

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

1- Enabling students to write reports related to nursing science

2- Enabling students to perform matching the practical reality

3- Enabling students for continuous self-development after graduation

G- Other learning and teaching methods

1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.

2- Developing an update to the vocabulary of the Fundamentals of Nursing subject to keep pace with development in order to achieve personal development for the level of students

3- Discussion of research and projects by scientific committees in the department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1 the. + 2 prac.	The student understands the lesson	Introduction to nursing	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	1 the. + 2 prac.	The student understands the lesson	Medical examination	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	1 the. + 2 prac.	The student understands the lesson	Vital signs, temperature measurement	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤	1 the. + 2 prac.	The student understands the lesson	Pulse, definition, factors that effecting pulse, measurement of pulse	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٥	1 the. + 2 prac.	The student understands the lesson	Respiration, definition, factors that effecting respiration, measurement of respiration	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٦	1 the. + 2 prac.	The student understands the lesson	Blood pressure, definition, factor the effecting blood pressure, hyper and hypotension, measurement of blood pressure	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٧	1 the. + 2 prac.	The student understands the lesson	Health care, definition, factors effecting health care	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٨	1 the. + 2 prac.	The student understands the lesson	Factors that effects the health of worker in laboratories, natural factors,	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

			infectious diseases		
٩	1 the. + 2 prac.	The student understands the lesson	Chemical factors-disease	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٠	1 the. + 2 prac.	The student understands the lesson	Physiological factors-diseases	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢+١١	1 the. + 2 prac.	The student understands the lesson	Biological factors- types- their effects on workers in Lab.- diseases	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٤+١٣	1 the. + 2 prac.	The student understands the lesson	First aid definition, paramedic, fundamental of first aid, wound, .bleeding	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٥	1 the. + 2 prac.	The student understands the lesson	Burns- types of fracture aid- artificial respiration	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Fundamental of Nursing
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

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رئيس قسم تقنيات المختبرات الطبية

م. م. مهند ساجت عويد

مدرس المادة

Course description (Hematology)

Course description

Knowing medical system and tests that occur in laboratory and diagnosis the disease case	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ Second stage
3- Course name/code	Hematology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	2 theoretical * 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowing medical system and tests that occur in laboratory	
2- Diagnosis the disease case	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about hematology concepts to keep pace with developments in society	
2- Expanding students ' knowledge about some genetic diseases and how to avoid them after knowing the severity and development of diseases	
B- The skills objectives of the course	
1. Familiarity with the forms and number of normal cells	
2. Learn the skills of different blood collection methods in the laboratory	
3. Learn the types of test tubes according to the anticoagulant substance contained in them	

4-Learn how to deal with chemicals, dyes and devices

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to nursing science
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of Nursing subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

weeks	hours	Name of the unit or topic	Required educational outcomes	Teaching method	Evaluation method
1	2 the. + 4 prac.	Introduction importance of hematology. Study the blood contains.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
2	2 the. + 4 prac.	The haemotopoiesis in fetus, children and adult.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
3	2 the. + 4 prac.	The normal red blood cells, importance, Structure· erythropoiesis and Function.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
4	2 the. + 4 prac.	Polycythemia, causes, Clinical Signs and Laboratory diagnosis.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	2 the. + 4 prac.	Study the red cell morphology in health and disease. Abnormality of R.B.C in size.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6	2 the. + 4 prac.	Abnormality of R.B.C in shape.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
7	2 the. + 4 prac.	Abnormality of R.B.C in colour.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
8	2 the. + 4 prac.	The normal Hb. Of the blood, contain and importance.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	Study the types of normal Hb. .Types	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	Common Hb. Variant.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12+11	2 the. + 4 prac.	Anemia. Definition, classification and types.	The student understands the lesson	Theoretical and	Discussion, asking some

		Causes of anemia .clinical signs and laboratory Finding.		practical lecture	questions and a quick exam
13+14	2 the. + 4 prac.	Megaloblastic anemia and Pernicious anemia. Aplastic anemia and hemolytic anemia	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	2 the. + 4 prac.	Sickle Cell anemia And acquired and autoimmune hemolytic anemia.	The student understands the lesson	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Basic Hematology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

Head of Department

Dr. Tareq Mahdi

Assist Pro. Dr. Haider H. AL- Dafaee

Lec. Rabab Hazim Ismael

Course description (Hematology)

Course description

Knowing medical system and tests that occur in laboratory and diagnosis the disease case	
1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ Second stage
3- Course name/code	Hematology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	2 theoretical * 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowing medical system and tests that occur in laboratory	
2- Diagnosis the disease case	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about hematology concepts to keep pace with developments in society	
2- Expanding students ' knowledge about some genetic diseases and how to avoid them after knowing the severity and development of diseases	
B- The skills objectives of the course	
1. Familiarity with the forms and number of normal cells	
2. Learn the skills of different blood collection methods in the laboratory	
3. Learn the types of test tubes according to the anticoagulant substance contained in them	

4-Learn how to deal with chemicals, dyes and devices

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to nursing science
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the Fundamentals of Nursing subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the department
- 4- Written tests
- 5- Direct observations

11- Course structure

we eks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Haemostasis , definition and types . The role of blood Vessels and Platelet in Haemostasis.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
2	2 the. + 4 prac.	The student understands the lesson	Coagulation factors, name and figures.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
3	2 the. + 4 prac.	The student understands the lesson	Coagulative Processes.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
4	2 the. + 4 prac.	The student understands the lesson	Haemostasis disorder types. Haemostasis due to blood vessels disorder.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	2 the. + 4 prac.	The student understands the lesson	Haemostasis due to blood platelet disorder.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6	2 the. + 4 prac.	The student understands the lesson	Haemostasis due to Coagulative disorder.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
7	2 the. + 4 prac.	The student understands the lesson	The White blood Cells, types.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
8	2 the. + 4 prac.	The student understands the lesson	The maturation of W.B.C.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	The student understands the lesson	The function of W.B.C.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	The student understands the lesson	Leukocytosis.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11 + 12	2 the. + 4 prac.	The student understands the lesson	Leukopenia. Leukemia, definition and	Theoretical and	Discussion, asking some

			classification.	practical lecture	questions and a quick exam
13 +1 4	2 the. + 4 prac.	The student understands the lesson	Chronic and acute myeloid Leukemia . Chronic and acute myeloid L.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	2 the. + 4 prac.	The student understands the lesson	Chronic and acute Monocytic L.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Basic Hematology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

Head of Department

Dr. Tareq Mahdi

Assist Pro. Dr. Haider H. AL- Dafaee

Lec. Rabab Hazim Ismael

Course description

(Clinical chemistry)

Course description

It aims to introduce the student to the basic principles related to pathological analyzes in clinical chemistry and to develop his skills in the field of clinical chemistry. The curriculum includes topics on the theoretical and practical foundations of laboratory tests in clinical chemistry for various diseases, examining some biochemical components, and introducing important experiments with modern techniques in laboratory diagnosis, so that The student has an opportunity to learn about qualitative tests.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ second Phase
3- Course name/code	Clinical chemistry
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical 2 * 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowledge of the basic principles of clinical chemistry	
2- Knowledge of laboratory tests in clinical chemistry for various diseases	
3- Methods of examining some biochemical components	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about the concepts of clinical chemistry and diagnostic methods to keep pace with developments in society	
2- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples.	
B- The skills objectives of the course	

- 1- Familiarity with laboratory work methods for clinical chemistry.
- 2- Learn the skills of measuring concentrations of biochemical variables in patients, such as measuring blood sugar levels.
- 3- Learn the skills of using modern qualitative methods for laboratory analyzes (clinical chemistry)

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports on clinical chemistry
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the clinical chemistry subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the

department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Introduction to clinical chemistry Disciplinary of clinical chemistry Introduction of metabolism, types of metabolism (anabolism and catabolism) collection and handing of blood samples , anticoagulant , urine compassion ,urine collection methods urine preservative	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	Acid-base balance	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٤+٣	2 the. + 4 prac.	The student understands the lesson	Electrolytes (Na⁺, K⁺, Cl⁻, Ca²⁺, Mg, ect....) Diseases related to increase and decrease of electrolytes	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
5	2 the. + 4 prac.	The student understands the lesson	Trace element [Cu ⁺² , Ceruloplasmin, Zn, Mn], disease appeared in abnormal metabolism of these metals.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
6+7	2 the. + 4 prac.	The student understands the lesson	Glucose digestion and absorption (glucose metabolism) Glucose uptake by cells	Theoretical and practical	Discussion, asking some

			Glycolysis and hormones that regulate glycolysis	lecture	questions and a quick exam
^	2 the. + 4 prac.	The student understands the lesson	Exam	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	The student understands the lesson	Tricyclic acid (TCA, Krebs' cycle) 1- Reactions of TCA 2- Energy production of TCA 3- Function and regulation of TCA 4- dysfunction of TCA	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	The student understands the lesson	Glycogen metabolism 1- Regulation of synthesis disorders of glycogen metabolism	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
11	2 the. + 4 prac.	The student understands the lesson	Gluconeogenesis Precursors (such as Pyruvate, lactate, alanine, ect...)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12-14	2 the. + 4 prac.	The student understands the lesson	Diabetes Mellitus 1- blood glucose and regulation of blood glucose (role of insulin and glucagon hormones in glucose regulation) 2- Hyperglycemia (types of DM) 3- Hypoglycemia	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
10	2 the. + 4 prac.	The student understands the lesson	Review and examination	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Martin ckrook , Lippincott
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

أ. م. د. اميرة مريبي زرزور

مدرس المادة

Course description

(Clinical chemistry)

Course description

It aims to introduce the student to the basic principles related to pathological analyzes in clinical chemistry and to develop his skills in the field of clinical chemistry. The curriculum includes topics on the theoretical and practical foundations of laboratory tests in clinical chemistry for various diseases, examining some biochemical components, and introducing important experiments with modern techniques in laboratory diagnosis, so that The student has an opportunity to learn about qualitative tests.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_ second Phase
3- Course name/code	Clinical chemistry
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, second semester
7- Number of study hours (total)	theoretical 2 * 15 weeks = 30 total hours and 4 practical * 15 weeks = 60 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowledge of the basic principles of clinical chemistry	
2- Knowledge of laboratory tests in clinical chemistry for various diseases	
3- Methods of examining some biochemical components	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- The student learns about the concepts of clinical chemistry and diagnostic methods to keep pace with developments in society	
2- Expanding students' understanding of some protection concepts to avoid direct infection by patient samples.	
B- The skills objectives of the course	

- 1- Familiarity with laboratory work methods for clinical chemistry.
- 2- Learn the skills of measuring concentrations of biochemical variables in patients, such as measuring blood sugar levels.
- 3- Learn the skills of using modern qualitative methods for laboratory analyzes (clinical chemistry)

C- Teaching and learning methods

- 1- The teacher delivers detailed theoretical lectures
- 2- The teacher requests the implementation of some skills
- 3- Asking some intellectual questions
- 4- Requesting the submission of some reports from the library and the Internet
- 5- Using the method of brainstorming and feedback by activating the accumulated experiences of students

D- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

E- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

F- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports on clinical chemistry
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

H- Other learning and teaching methods

- 1- Preparing and implementing research and projects by students within the vocabulary of the Medical Laboratory Technology Department's subjects and presenting them at student conferences.
- 2- Developing an update to the vocabulary of the clinical chemistry subject to keep pace with development in order to achieve personal development for the level of students
- 3- Discussion of research and projects by scientific committees in the

department

4- Written tests

5- Direct observations

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1-3	2 the. + 4 prac.	The student understands the lesson	Protein metabolism and renal function 1- Serum Protein (components), 2- Amino acid metabolism, 3- fate of ammonia, 4- Urea cycle, urea metabolism and renal function tests	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
4-6	2 the. + 4 prac.	The student understands the lesson	Lipid metabolism 1- fatty acids oxidation 2- ketone bodies Lipid profile and disorder in lipid profile (cholesterol, triglycerides, lipoproteins)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
γ	2 the. + 4 prac.	The student understands the lesson	Disorders of purine and pyrimidine Uric acid metabolism (synthesis and hyperuricemia)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
λ	2 the. + 4 prac.	The student understands the lesson	Exam	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
9	2 the. + 4 prac.	The student understands the lesson	Introduction to enzyme (definition of enzymology) Creatin kinase CK (isoenzymes)	Theoretical and practical lecture	Discussion, asking some questions and a quick

			Lactate dehydrogenase LDH (isoenzymes)		exam
10-11	2 the. + 4 prac.	The student understands the lesson	Liver function tests Bilirubin metabolism Jaundice (adult and neonatal jaundice) Hepatitis and liver function tests	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
١٢	2 the. + 4 prac.	The student understands the lesson	Tumor markers	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13-15	2 the. + 4 prac.	The student understands the lesson	Hormones 1- Thyroid hormones (Thyroid function tests, parathyroid hormones) Fertility hormones (testosterone, luteinizing hormone, prolactin, follicular stimulating hormone)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Martin ckrook , Lippincott
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in society

م. د. طارق مهدي مسلم

أ. م. د. اميرة مريبي زرزور

رئيس قسم تقنيات المختبرات الطبية

مدرس المادة

Course description

(Virology)

Course description

The student should be able to identify pathogenic viruses, classify them, methods of diagnosing them, identify their diseases, and methods of preventing them.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_Second Phase
3- Course name/code	Virology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical * 2 hours practical * 2 hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Identifying and classifying pathogenic viruses	
2- Knowing the methods of diagnosing the virus.	
3- Identify the diseases and ways to prevent the virus	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- Identifying and classifying pathogenic viruses	
2- Knowing the methods of diagnosing the virus.	
3- That the student understands the diseases and ways to prevent the virus	
A- The skills objectives of the course	
Knowledge of methods of diagnosing and preventing viruses.	
B- Teaching and learning methods	
1- Theoretical lectures	
2- Practical laboratories	
3- Asking some intellectual questions	
4- Requesting the submission of some reports from the library and the Internet	
5- Accumulated by students	

C- Evaluation methods

- 1- Individual evaluation by giving the student the opportunity to answer some questions
- 2- Group evaluation through a short and quick exam
- 3- Evaluation through daily assignments
- 4- Monthly, end-of-semester and final exams

D- Emotional and value-based goals

- 1- Urging the student to think in different ways
- 2- Urging the student to think about the importance of the subject and the danger of neglecting it
- 3- Urging the student to acquire some skills that he can apply in practical life

E- Evaluation methods

- 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities
- 2- End of semester exam (25% practical + 35% theoretical)

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

- 1- Enabling students to write reports related to virology
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

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

- 1- Enabling students to write special reports on medical devices
- 2- Enabling students to perform matching the practical reality
- 3- Enabling students for continuous self-development after graduation

11- Course structure

weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	1 the. + 2 prac.	The student understands the lesson	Introduction, General properties of virus, structure, classification of DNA & RNA viruses.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	1 the. + 2 prac.	The student understands the lesson	Replication of DNA and RNA virus	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٣	1 the. + 2 prac.	The student understands the lesson	Virus isolation & cultivation.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

ε	1 the. + 2 prac.	The student understands the lesson	Chemotherapy, antiviral agent & vaccines.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
ο	1 the. + 2 prac.	The student understands the lesson	Influenza viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
Ϛ	1 the. + 2 prac.	The student understands the lesson	Paramyxo & Robella viruses.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
ν	1 the. + 2 prac.	The student understands the lesson	Enteric viruses, Rhinovirus group.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
∧	1 the. + 2 prac.	The student understands the lesson	Pathogenesis of viruses and Genetic of viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
ρ	1 the. + 2 prac.	The student understands the lesson	Herpes viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
∪•	1 the. + 2 prac.	The student understands the lesson	Oncogenic viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
∪∪	1 the. + 2 prac.	The student understands the lesson	Hepatitis viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	1 the. + 2 prac.	The student understands the lesson	Rabies & other neurotropic viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
13	1 the. + 2 prac.	The student understands the lesson	Bravo viruses & viral haemorrhagic viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	1 the. + 2 prac.	The student understands the lesson	Adeno, pox & parvo viruses	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	1 the. + 2 prac.	The student understands the lesson	Retro & Adis	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	Medical virology
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in Science

م. د. طارق مهدي مسلم

رئيس قسم تقنيات المختبرات الطبية

أ.م.د. ناظم طراد

مدرس المادة

Course description

(immunology)

Course description

The student should be able to understand the immune structure within the body, the immune bodies and how they work inside, and the cells that contribute to the defenses within the body against invasions and disease-causing organisms, and to study some diseases resulting from certain immune conditions.

1- Educational institution	Middle Technical University- Technical Institute / Kut
2- Scientific Department/Center	Department of Medical Laboratory Technologies_First Phase
3- Course name/code	histology
4- The programs in which he participates	department
5- Available forms of attendance	Built-in
6- Semester/year	Academic year 2023-2024, first semester
7- Number of study hours (total)	theoretical 2 hours * 15 wks 30 hours total practical 4 hours * 15 wks 60 total hours
8- The date this description was prepared is	2/18/2024
9- Course objectives	
1- Knowing the basics of immunology	
2- Identify and understand the types and components of immune bodies	
3- Study the formation of immune bodies within the body	
4- Knowing how immune bodies work	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives	
1- Identify the structure of immune organs	
2- The ability to distinguish types of immune cells	
3- To understand how immune bodies perform their function	
A- The skills objectives of the course	
1- How to obtain blood serum.	
2- Knowing how immunological tests work.	
3- Distinguish between positive results and negative results for some tests.	
B- Teaching and learning methods	
1- Theoretical lectures	
2- Practical laboratories	
3- Asking some intellectual questions	

4- Requesting the submission of some reports from the library and the Internet
C- Evaluation methods 1- Individual evaluation by giving the student the opportunity to answer some questions 2- Group evaluation through a short and quick exam 3- Evaluation through daily assignments 4- Monthly, end-of-semester and final exams
D- Emotional and value-based goals 1- Urging the student to think in different ways 2- Urging the student to think about the importance of the subject and the danger of neglecting it 3- Urging the student to acquire some skills that he can apply in practical life
E- Evaluation methods 1- A monthly exam (15% practical + 25% theoretical) that takes into account daily activities 2- End of semester exam (25% practical + 35% theoretical)
F- General and qualifying transferable skills (other skills related to employability and personal development) 1- Enabling students to write reports related to immunology 2- Enabling students to perform matching the practical reality 3- Enabling students for continuous self-development after graduation
G- General and qualifying transferable skills (other skills related to employability and personal development) 1- Enabling students to write special reports on medical devices 2- Enabling students to perform matching the practical reality 3- Enabling students for continuous self-development after graduation

11- Course structure					
weeks	hours	Required educational outcomes	Name of the unit or topic	Teaching method	Evaluation method
1	2 the. + 4 prac.	The student understands the lesson	Definition and classification of the sections of immunity, natural and acquired immunity, natural immune factors and defenses.	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
٢	2 the. + 4 prac.	The student understands the lesson	The immune system, lymphoid tissues and cells, their origin and maturation, primary and	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

			secondary lymphoid organs.		
۳	2 the. + 4 prac.	The student understands the lesson	Phagocytosis:	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۴	2 the. + 4 prac.	The student understands the lesson	Antigen and antigenic determination	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۵	2 the. + 4 prac.	The student understands the lesson	Antibodies	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۶	2 the. + 4 prac.	The student understands the lesson	Primary and secondary immune response, their characteristics, differences between them, and regulation of the immune response	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۷	2 the. + 4 prac.	The student understands the lesson	Major histocompatibility complex (MHC)	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۸	2 the. + 4 prac.	The student understands the lesson	Complements	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۹	2 the. + 4 prac.	The student understands the lesson	Cytokines	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۰	2 the. + 4 prac.	The student understands the lesson	Immunity against germs and toxins, the mechanism of immunity in defending against germs	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
۱۱	2 the. + 4 prac.	The student understands the lesson	Immunity against viruses, immunity against parasites, immunity against fungi	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
12	2 the. + 4 prac.	The student understands the lesson	Definition of tumor, antigens related to the tumor, their types, and means of	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

			evading the body's immunity		
13	2 the. + 4 prac.	The student understands the lesson	Hypersensitivity , Wheat allergy as an autoimmune disease	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
14	2 the. + 4 prac.	The student understands the lesson	Natural and acquired immune deficiency, types and theories	Theoretical and practical lecture	Discussion, asking some questions and a quick exam
15	2 the. + 4 prac.	The student understands the lesson	Vaccination and type of vaccine	Theoretical and practical lecture	Discussion, asking some questions and a quick exam

12- Infrastructure

1- The required prescribed books	The institute's library for additional curricula resources
2- Main references (sources)	
A- Recommended books and references (scientific journals, reports, etc.)	All sober magazines that have anything to do with the moon
B- Electronic references and Internet sites	Websites on the Internet related to the course

13- Course development plan

Keeping pace with developments in Science