جمهورية العراق
وزارة التعليم العالي والبحث العلمي جهاز الاشراف والتقويم العلمي
قسم الاعتماد/دائرة ضمان الجودة والاعتماد الاكاديمي
المجلس الوطني لاعتماد برامج كليات ومعاهد التقنيات الصحية والطبية

ACADEMIC PROGRAM DESCRIPTION FORM

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Polytechnic Collage -Karbala

Scientific Department: : Medical laboratory Technologies Department.

Academic or Professional Program Name: : Medical laboratory Technologies.

Final Certificate Name: Technical diploma

Academic System: Semester study system

Description Preparation Date: 2/12/2025

File Completion Date: 2 /12/2025

Signature:

Head of Department Name:
Prof. Dr. Salim Hussein Hassan
Date: 4 / 12/ 2025

Signature:

Scientific Associate Name:
Assist.Prof.Dr. Mohammed Fadhil Neamah
Date: 9/ 12 / 2025

*** The file is checked by:**

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Signature:

Assist.Prof.Ali Neamah Hasan AL-Aaragi

Date: / 12/ 2025

9-12-2025

Approval of the Dean

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

Academic Program and Course Description Guide

First Semester
2025-2026

Introduction:

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

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

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

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

Concepts and terminology:

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

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

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

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

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

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

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

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

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Date: / 12 / 2025

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Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Signature:

Assist.Prof.Ali Neamah Hasan AL-Aaragi

Date: / 12/ 2025

Approval of the Dean

Program Vision

Providing graduates with the necessary knowledge and experience in the fields of work in medical laboratories, which include isolating and diagnosing bacteria present in various clinical samples, preparing tissue slides for various organs of the body and preparing them for examination. Thus, the graduate is qualified and acquires scientific and practical skills and has a positive impact on the development of the governmental and private health sector and spreading awareness in Areas of public health in society.

Program Mission

Achieving excellence in teaching and education, acquiring scientific skills, and implementing educational and training programs and research activities, which leads to enhancing the high capacity in diagnosing various diseases and developing preventive and curative health services so that they are accessible to all members of society.

Program Objectives

The department aims to…

1. Highly skilled technical personnel graduate capable of working in medical laboratories, conducting routine laboratory analyses, general chemical examinations, and examining various body fluids such as cerebrospinal fluid, sputum, and semen.
2. Graduate students conduct various researches and contribute to raising the level of health education and cooperate with various organizations in meeting the therapeutic and preventive needs of individuals and society.
3. Graduating technical staff with a high level of knowledge in operating and maintaining laboratory equipment, as well as being able to keep pace with ongoing scientific and technological developments through the possibility and ease of updating information and topics on websites.

Program Accreditation

The established programs are accredited by the Ministry of Higher Education and Scientific Research/Al-Furat Al-Awsat Technical University.
In addition to the World Health Organization WHO.

Other external influences

- Scientific research related to the department's specialty.
- The World Wide Web (the Internet).
- Regular and digital libraries.
- Summer training in government hospitals.

Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	1	2	7%	Nothing
College Requirements	3	8	20%	Nothing
Department Requirements	14	55	73%	Nothing
Summer Training	Two months	/	/	Nothing
Other	Nothing	Nothing	Nothing	Nothing

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

Program Description

Year/Level		Course Code	Course Name	Credit Hours	
				Theoretical	Practical
First Stage	First semester	M.L.T	Medical laboratory Technologies	12	20
	Second Semester	M.L.T	Medical laboratory Technologies	14	17
Second Stage	First semester	M.L.T	Medical laboratory Technologies	13	22
	Second Semester	M.L.T	Medical laboratory Technologies	11	24

Expected learning outcomes of the program

Knowledge

A- Cognitive objectives

A-1: Complete knowledge of laboratory methods for diagnosing microorganisms such as bacteria, fungi, parasites, and viruses.

A-2: Full knowledge of modern laboratory techniques, quality management and quality control in medical laboratories.

A-3: Complete knowledge of conducting immunological and serological tests.

A-4: Complete knowledge of conducting general blood tests, the tests required to perform blood transfusions, and tissue tests.

A-5: Full knowledge of clinical chemistry tests and how to conduct them.

Skills

B- The program's skill objectives

B-1: Acquires advanced experience in microbial diagnosis.

B-2: Acquires advanced experience in diagnosing blood diseases.

B-3: Acquires extensive experience in diagnosing the defect occurring in the most important organs of the

human body through conducting tests on the chemical and immunological functions of the organs. B-4: Gain experience in working with the latest laboratory technologies and the ability to manage quality and quality control in medical laboratories.	
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

Teaching and Learning Strategies

- Cooperative education strategy.
- Brainstorming education strategy.
- Educational strategy, collaborative concept planning.
- Strategy education real-time feedback.
- Education strategy notes series.
- Education strategy by exchanging opinions and discussion.
- Educational strategy by presenting information.

9. Evaluation methods

1- Evaluation is carried out through theoretical, practical and applied tests on materials, devices and laboratory equipment available in the department, and Laboratory reports.
2- Daily exams.
3- Quarterly exams
4- Final exams.
5- Practical projects.

Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Veterinary Medicine And Surgery	Parasitology			√	
Assistant Professor	Microbiology	Industrial Microbiology			√	
	Medical Laboratory Science	Medical Viruses			√	
	Microbiology	Medical Microbiology			√	
Lecturer	Chemistry	Clinical Biochemistry			√	

Assistant Lecturer	Microbiology	Immunology			√	
	Animal Physiology	Clinical, Chemical And Biological Physiology			√	
	Medical Laboratory Science	Medical Laboratory Science			√	
	Microbiology	Mycotoxicology			√	
	Parasitology	Zoology			√	
	Biology	Medical Physiology			√	
	Medical Laboratory Science	Medical Laboratory Science			√	
	Biology	Biology			√	
	Chemistry	Biochemistry			√	
	Biology	Medical Microbiology			√	
	Law	Law			√	

Professional Development

Mentoring new faculty members

• Encourage them to participate in specialized courses within their specialty.
• Participation in holding seminars, workshops, and training programs.
• Participation in teaching methods courses to acquire different skills and methods in teaching.

Professional development of faculty members

• Continuous development of teaching capabilities in a manner consistent with cognitive development in the field of specialization.
• Developing the educational system so that it rises to high quality and solid specifications and supports innovation and creativity to serve society.
• Encouraging the participation of teachers in scientific programs and specialized courses and giving lectures in corresponding institutes and colleges to enhance academic and professional partnerships with reputable universities and institutions.

Acceptance Criterion

According to the controls specified by the Ministry of Higher Education and Scientific Research through the central admission portal and the special controls for admission to colleges and institutes approved by the Ministry, provided that the student holds a preparatory certificate in the scientific/biological stream exclusively."

The most important sources of information about the program

• Methodical and Text books, educational portfolios for professors, scientific research and theses

within the specialty, the Internet.
• The official website of the Technical Institute (https://ikr.atu.edu.iq)

Program Development Plan

• Applied education in health institutions.
• Using modern means of communication such as the Internet and others.
• Using modern means of illustration and advanced laboratory equipment.
• Conducting scientific conferences for the institute or student conferences within the institute or with the participation of corresponding institutes.
• Scientific seminars and quarterly seminars for the department.
• Establishing specialized workshops for graduate and continuing students by professors.

Program Skills Outline

Year/Level	Course Code	Course Name	Basic or optional	Required program Learning outcomes												
				Knowledge					Skills				Ethics			
				A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4
First Stage/ First semester	L.T.	Laboratory Techniques	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	M.P.	Microbial preparation	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	L.I.	Laboratory Instrument	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	H	Histology	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	A.C.	Analytical Chemistry	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	F.N.	Fundamentals of Nursing	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√
	C.A.	Computer application	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√
	E.L.	English language	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√
Second Stage/ First semester	M.	Microbiology	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	H.1	Haematology\1	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	C.C.1	Clinical chemistry\1	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	I.	Immunology	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	P.	Protozoa	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	V.	Virology	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	M.E.	Medical Ethics	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√

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

COURSE DESCRIPTION FORMS FOR THE FIRST YEAR/ FIREST SEMESTER

Description Form to Laboratory Techniques

1. Course Name:	
Laboratory Techniques	
2. Course Code:	
L.T.	
3. Semester / Year:	
First Semester / First Year	
4. Description Preparation Date:	
2/10/2025	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total number of hours: 6 hours (2 theoretical + 4 practical) / total number of units: 6 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist.Prof.Dr. Balqees Sadoon Jasim Assist. Lec.Israa Jawad Abdul_Rasul **Email: inkr.blk2@atu.edu.iq israaalasa@gamil.com**	
8. Course Objectives	
Course Objectiv	**General Goals:** The student will be able to learn about the basic principles of medical laboratories, how to work within laboratories, and perform basic examinations within medical laboratories. **Special:** The student will be able to: 1. Learn about the importance of medical laboratories and how to work within them. 2. To learn about sterilization methods and the types of risks inside laboratories, and to learn about safety procedures inside medical laboratories. 3. Learns how to perform the most important medical examinations, which are general urine tests, vaginal discharge, and semen examination, in addition to how to perform bacterial culture in the laboratory. 4. To learn about the latest and most important laboratory techniques used in laboratory diagnosis of diseases.
9. Teaching and Learning Strategies	

Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information. - Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First to Third	2	**Introduction to Medical Laboratory Techniques:** Students will be able to recognize the role and scope of medical laboratory techniques in disease diagnosis. • The student will learn the concept of sterilization and distinguish cleaning, disinfection, and sterilization methods. • The student will be able to identify chemical sterilization equipment and materials. • The student will be able to recognize laboratory safety levels and hazards.	**Introduction to Medical lab. Techniques includes** **- Identify the all types of laboratory glasses , plastic ware and modern instrument that used in medical laboratory.** **- Sterilization. Identify ways of cleaning, sterilization and disinfectant by physical, chemical and mechanical means. Identify different sterilization equipment and materials used in chemical sterilization.** **A full review of the basic techniques that use in the diagnosis of bacteria, blood, and clinical chemistry.** **- Laboratory safety levels and types of hazards, with safety in medical laboratory.**	1. The lectur 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions
Fourth	2	Students will be able to collect, transport, prepare, and handle different types of	**Samples collection and handling.** **- Samples collection for different lab.**	=	=

		samples for laboratory investigations	**Investigations, samples transport, samples preparation.**		
Fifth	2	Students will be able to explain types of culture media, sample sources, bacterial growth curve, and methods for microorganism identification using chemical tests.	**Culturing of microorganism :- types of Culture media, different samples used for culture, bacterial growth curve, MO characterization (chemical tests for MO identification)**	=	=
Sixth	2	The student will be able to understand urine formation and perform physical, chemical, and microscopic examination of urine	**Urine samples: Urine formation, Properties of urine, chemical and physical investigations, microscopic examination.**	=	=
Seventh	2	The student will be able to understand stool formation and properties and perform general examination and culture of stool samples	**Stool sample: formation, properties, culture, general examination.**	=	=
Eighth	2	The student will be able to understand semen formation and reproductive organs and perform complete semen analysis including sperm count, morphology, fructose test, antisperm antibody testing, and report writing	**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 Neubar chamber. Types of normal and abnormal of Sperms character with study the way of**	=	=

			writing the final report.		
Ninth	2	The student will be able to understand and apply agglutination techniques in laboratory diagnosis	**Agglutination techniques**	=	=
Tenth	2	The student will be able to understand the principles and applications of ELISA.	**Advance techniques -Enzyme-linked immunosorbent assay (ELISA) principle, applications**	=	=
Eleventh	2	The student will be able to understand the principles and applications of Radioimmunoassay.	**Radioimmunoassay (RIA) principle, applications**	=	=
Twetveth	2	The student will be able to understand the principles and applications of immunofluorescence.	**Immunofluoresence technique**	=	=
Thirteentl	2	The student will be able to understand the principles PCR.	**Polymerase chain reaction (PCR), types principle, applications**	=	=
Fourteent	2	The student will be able to understand the principles of real-time PCR	**Real-time PCR**	=	=
Fifteenth	2	The student will be able to review and integrate all course laboratory concepts	**Review**	=	=
The practical structure of the course					
First to Third	4	□ The student will learn the basics of medical laboratory techniques. □ The student will be able to identify laboratory glassware and materials used in	**Introduction on th subject of medica laboratory techniques - Glassware an materials used in som tests. Disinfection an sterilization (Chemica and physical - biological an**	1. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussion

		tests. □ The student will be able to distinguish chemical and physical disinfection and sterilization methods. □ The student will be able to recognize biological and chemical hazards and laboratory safety measures	**chemical hazards and safety**		
Fourth	4	• The student will be able to collect, handle transport, and prepare laboratory samples correctly.	**Samples collection and handling.** **- Samples collection for different lab. Investigations, samples transport, samples preparation.**	=	=
Fifth	4	• The student will be able to identify types of culture media and prepare culture media for microorganisms.	**Culturing of microorganism :- types of Culture media, preparation of culture media**	=	=
Sixth	4	• The student will be able to perform chemical, physical, microscopic, culture, and sensitivity tests for urine samples.	**Urine samples: Chemical and physical investigations, microscopic examination. Culture and sensitivity**	=	=
Seventh	4	• The student will be able to carry out general examination, culture, and sensitivity of stool samples.	**Stool sample: General examination. Culture and sensitivity**	=	=
Eighth	4	• The student will be able to perform	**Seminal Fluid: Seminal fluid examination**	=	=

		seminal fluid examination including liquefactio time, physical and microscopic examination, and fructose test	**Liquification time, physical examination, microscopic examination. Fructose test.**		
Ninth	4	• The student will be able to explain and perform the hemagglutination test.	**Heamagglutination test**	=	=
Tenth	4	• The student will be able to apply advanced laboratory techniques.	**Advance techniques -Enzyme-linked immunosorbent assay (ELISA) procedure, troubleshoot. Cutoff value, standard curve**	=	=
Eleventh	4	• The student will be able to perform ELISA and RIA procedures, troubleshoot problems, and interpret cutoff values and standard curves.	**Radioimmunoassay (RIA) procedure, troubleshoot.**	=	=
Twetveth	4	• The student will be able to perform immunofluorescence techniques.	**Immunofluoresence technique**	=	=
Thirteentl	4	• The student will be able to carry out PCR techniques, including types, procedures, and gel electrophoresis.	**Polymerase chain reaction (PCR), types procedure, gel electrophoresis**	=	=
Fourteent	4	• The student will be able to explain real-time PCR procedures and	**Real-time PCR, procedure application in medical lab.**	=	=

		their applications in medical laboratories			
Fifteenth	4	• The student will be able to explain and perform the hemagglutination test.	**Review**	=	=

10. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.... etc	
11. Learning and Teaching Resources	
Required textbooks (curricular books, if any	• **Basic Clinical Laboratory Techniques.** • **Essentials Of Medical Laboratory practice**
Main references (sources)	• **A Manual of Laboratory And Diagnostic Tests.** • **Fundamentals Of Urine And Body Fluid Analysis**
Recommended books and references (scientific journals, reports...)	• **Medical Laboratory Science Examination Review.** • **Tietz Clinical Guide To Laboratory Tests**
Electronic References, Websites	https://ikr.atu.edu.iq , https://microbenotes.com/ https://medicallabscientist.org/ https://labpedia.net

Update report:

1. It was updated in the third week of the curriculum, as shown in the table below.

Before updating	After update
Lab Safety & Standard Operating Procedures – SOPs.	**Laboratory safety and how to avoid accidents and errors that are inadvertently laboratory in a laboratory (first aid, biochemical hazards, and biological hazards), and biological and chemical safety.**

2.It was updated in the fourth week of the curriculum, as shown in the table below.

Before updating	After update
Recent Advances in Clinical Samples Collection and Pre-Analytical Management	**Samples collection and handling. - Samples collection for different lab. Investigations, samples transport, samples preparation.**

Description Form to Microbial Preparation

1. Course Name:
Microbial Preparation
2. Course Code:
M.P.
3. Semester / Year:
First year / First semester
4. Description Preparation Date:
28/10/2025
5. Available Attendance Forms:
Present
6. Number of Credit Hours (Total) / Number of Units (Total)
5th hours (2 Theoretical + 3 Practical)/ Number of Total unit 10 unite
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof. Dr. Thuraya Aamer Habeeb Email: dw.thr@atu.edu.iq
8. Course Objectives

Course Objectives	
9. Teaching and Learning Strategies	
Strategy	- Cooperative education strategy. - Brain storming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy notes series. - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information. - Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	• **The student will be able to define basic terminology related to histology and**	**Definition of some terminology that deals with histology , cytology,… etc.**	**1. Lecturer** **2. Scientific** Lab 3. Systematic training. 4. Summer train	**1. Daily Quick Qui** **2. 2. Oral exams** **3. Theoretical exa** **4. Reports** **5. dissuasion**

		cytology.			
Second	2	• **The student will be able to explain sample collection, biopsy, and autopsy.**	**Sample collection, biopsy, and autopsy.**	=	=
Third & fourth	2	• **The student will be able to describe the main steps of tissue preparation for study.**	**Steps of preparing tissue for study, Handling of Specime fixation, fixatives, Factors Affecting or Fixation**	=	=
Fifth & Sixt	2	• **The student will be able to handle specimens and explain fixation and types of fixatives.**	**Routine fixatives and special fixatives.**	=	=
Seventh	2	• **The student will be able to identify factors affecting tissue fixation.**	**Washing, solution , time**	=	=
Eighth	2	• **The student will be able to distinguish between routine and special fixatives.**	**Dehydration , dehydrants .**	=	=
Ninth	2	• **The student will be able to explain washing solutions and required time.**	**Clearing ,clearing agents**	=	=
Tenth	2	• **The student will be able to**	**Infiltration ,types of waxes**	=	=

		describe dehydration and identify dehydrating agents.			
Eleventh	2	• **The student will be able to explain clearing and identify clearing agents.**	**blocking and trimmi .**	=	=
Twelfth	2	• **The student will be able to describe infiltration and types of waxes.**	**Microtomes, Sectioning, mounting and stainir sections**	=	=
Thirteenth& Fourteenth	2	**Review**	**Review**	=	=
Fifteenth	2	**Final exam**	**Final exam**	=	=
The practical structure of the course					
First	3	The student will be able to describe basic histological and cytological techniques.	Introduction to histological and cytological techniques		
Second	3	The student will be able to identify instruments, tools, and glassware used in histology and cytology laboratories.	Instruments , tools , glass wares	=	=
Third	3	The student will be able to prepare solutions used in tissue	Preparation of solution used .	=	=

		processing.			
Four & Fifth	3	The student will be able to perform tissue preparation steps and use appropriate solutions.	Steps of preparing the tissues with th solutions .	=	=
Sixth	3	The student will be able to carry out blocking, embedding, trimming, and sectioning procedures.	Doing steps of preparation .	=	=
Seventh & Eighth	3	The student will be able to recognize sectioning errors and perform quality checks during blocking .	Blocking and embedding	=	=
Ninth	3	The student will be able to carry out trimming procedures.	Trimming .	=	=
Tenth	3	The student will be able to carry out blocking, and trimm procedures.	Test for blocking a trimming .	=	=
Eleventh	3	The student will b able to recognize sectioning errors a perform quality che during blocking ar trimming	Sectioning .	=	=
Twelfth	3		Sectioning and errors in sectioning	=	=
Thirteenth& Fourteenth	3	Review	Review	=	=
Fifteenth	3	Final exam	Final exam	=	=

10. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.... etc	
11. Learning and Teaching Resources	
Required textbooks (curricular books, if any	**Theory and practice of histological technique Bancroft**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Internet
Electronic References, Websites	**(https://ikr.atu.edu.iq)**

Update report:
It was updated in the thirteenth & Fourteenth week of the curriculum, as shown in the table below.

Before updating	After update
Review	**Decalcification**

Description Form to Laboratory Instrument

1.Course Name:
Laboratory Instrument
2. Course Code:
L.I
3. Semester / Year:
1 st course / 1 st Year
4. Description Preparation Date:
29/10/2025
5. Available Attendance Forms:
Student presence and attendance record through attendance register
6. Number of Credit Hours (Total) / Number of Units (Total)
2 Theory + 2 Practical = 4 total
7. Course administrator's name (mention all, if more than one name)
Name: Assist lect. Zainab Abd Alhassan Alhussainie **Email: zainab.fadel.ikr29@atu.edu.iq**
8. Course Objectives

Course Objectives	**1- Enable the student to understand the main functions of laboratory instruments.** **2- Enabling the student to determine the importance of these devices to make the students able to deal with laboratory instruments.**
9. Teaching and Learning Strategies	
Strategy	1- Knowledge and Understanding. 2- Determining the importance of laboratory devices and how to maintain them . 3- Explanation of the handling and maintenance of devices.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	**2**	**Use of the Microscope:** The student learns how to use the microscope, identify its parts, understand its	**Microscope** **Uses, main parts, principle of work, kinds, type of condenser, operation, cleaning , service and maintenance**	1-**Lecture** **2- Scientific laboratories.** **3-Systematic training**	Quizze

		working principle, types, operation, and maintenance.			
Second	=	**Use of Balances:** The student becomes familiar with the use of laboratory balances, their types, parts, working principles, and maintenance.	**Balances** **Uses , types, main parts, principle of operation service and maintence**	=	=
Third	=	**Complete Blood Count Analyzer:** The student becomes familiar with the use of the complete blood count (CBC) analyzer and the analysis of blood components.	**CBC Analyzer** Blood component analysis	=	=
Fourth	=	• **Flame Photometer:** The student becomes familiar with the flame photometer, its uses, parts, types, working principle, operation, and maintenance.	**Flame photometry** introduction, uses, main parts, types , ato**mizers, principle of operation ,operation and maintenace**	=	=
Fifth	=	• **Fume Hood:** The student becomes familiar with the fume hood, its uses, parts, and types.	**Fume hood** introduction, uses, main parts and types	=	=
Sixth	=	• **Centrifuge:** The student becomes familiar with the centrifuge, its uses, types, parts, working principle,	**CENTRIFUGE** **Uses,types,main parts,principle of operation, operation and maintenance**	=	=

		operation, and maintenance.			
Seventh	=	• **Autoclave (Steam Sterilizer):** The student becomes familiar with the autoclave, its uses, types, parts, working principle, operation, and maintenance.	**AUTOCLAVES Uses , types, main parts,principle of operation, operation and maintenance**	=	=
Eighth	=	• **pH Meter:** The student becomes familiar with the pH meter, its uses, parts, types, working principle, operation, and maintenance.	**PH METERS introduction, uses, main parts, types , atomizers, principle of operation ,operation and maintenance**	=	=
Ninth	=	• **Tissue Processing Devices:** The student becomes familiar with tissue processing instruments, their types, parts, working principles, operation, and maintenance.	**MICROTOMES Uses,types,main parts,principle of operation, operation and maintenance**	=	=
Tenth	=	• **Electrophoresis Technique:** The student becomes familiar with electrophoresis, its uses, parts, types, working principle, operation, and maintenance.	**ELECTROPHORESIS uses, main parts, types , atomizers, principle of operation ,operation and maintenance**	=	=
Eleventh	=	• **Heating Devices:** The student becomes familiar with heating	**HEATING INSTRUMENTS(WARER BATHS , OVEN &NINCUBATION) Uses,types,main parts,principle of**	=	=

		devices, their uses, types, parts, working principles, and maintenance.	**operation, operation and maintenance**		
Twetvet	=	• **Water Purification Systems:** The student becomes familiar with water purification devices, their uses, parts, operation, and maintenance.	**WATER PURIFICATION (DISTILLATORS&DEAIONIZERS) Distillatory , deionizer , uses, main parts, operation and maintenance.**	=	=
Thirteer	=	• **Automated Analyzers:** The student becomes familiar with automated analysis devices, their uses, parts, types, working principles, operation, and maintenance.	**AUTOANANLYZERS introduction, uses, main parts, types , atomizers, principle of operation ,operation and maintenance**	=	=
Fourtee	=	• **Revision**	**Review**	=	=
Fifteentl	=	• **Final Examination**	**Final exam**	=	=

The practical structure of the course

Week	**Hours**	**Required Learn Outcomes**	**Unit or subject name**	**Learning method**	**Evaluatio method**
first	2	• The student becomes familiar with the use of the microscope, its parts, working principle, types, operation, and maintenance.	**Microscope Uses, main parts, principle of work, kinds, type of condenser, operation, cleaning , service and maintenance**	**1-Lecture 2- Scientific laboratories. 3-Systematic training.**	Quizze
Second	=	• The student becomes familiar with the use of laboratory balances, their	**Balances Uses , types, main parts, principle of operation service and maintence**	=	=

		types, parts, working principles, and maintenance.			
Third	=	• The student becomes familiar with the complete blood count (CBC) analyzer and the analysis of blood components.	**CBC Analyzer** Blood component analysis	=	=
Fourth	=	• The student becomes familiar with the flame photometer, its uses, parts, types, working principle, operation, and maintenance.	**Flame photometry** introduction, uses, main parts, types , ato**mizers, principle of operation ,operation and maintenace**	=	=
Fifth	=	• The student becomes familiar with the fume hood, its uses, parts, and types.	**Fume hood** introduction, uses, main parts and types	=	=
Sixth	=	• The student becomes familiar with the centrifuge, its uses, types, parts, working principle, operation, and maintenance.	**CENTRIFUGE** **Uses,types,main parts,principle of operation, operation and maintenance**	=	=
Seventh	=	• The student becomes familiar with the autoclave (steam sterilizer), its uses, types, parts, working principle, operation, and maintenance.	**AUTOCLAVES** **Uses , types, main parts,principle of operation, operation and maintenance**	=	=
Eighth	=	• The student becomes familiar	**PH METERS** **introduction, uses, main parts, types , atomizers, principle of operation**	=	=

		with the pH meter, its uses, parts, types, working principle, operation, and maintenance.	**,operation and maintenance**		
Ninth	=	• The student becomes familiar with tissue processing devices, their types, parts, working principles, operation, and maintenance.	**MICROTOMES Uses,types,main parts,principle of operation, operation and maintenance**	=	=
Tenth	=	• The student becomes familiar with electrophoresis techniques, their uses, parts, types, working principles, operation, and maintenance.	**ELECTROPHORESIS uses, main parts, types , atomizers, principle of operation ,operation and maintenance**	=	=
Eleventh	=	• The student becomes familiar with heating devices, their uses, types, parts, working principles, and maintenance.	**HEATING INSTRUMENTS(WARER BATHS , OVEN &NINCUBATION) Uses,types,main parts,principle of operation, operation and maintenance**	=	=
Twetvet	=	• The student becomes familiar with water purification systems, their uses, parts, operation, and maintenance.	**WATER PURIFICATION (DISTILLATORS&DEAIONIZERS) Distillatory , deionizer , uses, main parts, operation and maintenance.**	=	=
Thirteen	=	• The student becomes familiar with automated analyzers, their	**AUTOANANLYZERS introduction, uses, main parts, types , atomizers, principle of operation ,operation and maintenance**	=	=

		uses, parts, types, working principles, operation, and maintenance			
Fourteen	=	**Revision**	**Review**	=	=
Fifteenth	=	**Final Examination**	**Final exam**	=	=

10. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.... etc	
11. Learning and Teaching Resources	
Required textbooks (curricular books any)	
Main references (sources)	Mary C. Haven, Gregory A. Tetrault, and Jerald R. Schenken. Laboratory Instrumentation, 4th Edition
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	http://ikr.atu.edu.iq

Description Form to Histology

1. Course Name:	
Histology	
2. Course Code:	
3. Semester / Year:	
The first course / fist stage	
4. Description Preparation Date:	
1/١٠/202٥	
5. Available Attendance Forms:	
Mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total number of hours: 5 hours (2 theoretical + 3 practical) / total number of units: 5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: **Prof. Zainab Abed Mohsen** Email: **drzainababed@atu.edu** **Assist lect. Zahraa qais jasim** **zahraa.jasm.ikr22@atu.iq**	
8. Course Objectives	
Course Objectives Objectives of the study subject	**Objectives of the article: -** The student will learn about the natural tissue structure of the human body's organs, which will enable him to imagine the effect of diseases on these tissues. **Special:** The student will be able to: **1.** Use all types of microscopes to examine tissue samples. 2. Preparing various tissue samples, cutting them, dyeing them, and preparing them on microscopic slides. 3. A discriminating histological study of the types of tissues and the important organs of each system in the human body 4. Viewing and studying natural tissue samples and knowing the tissue structure of these samples using a microscope. 5. Work in the laboratories of the Department of Health as an assistant specializing in histological diagnosis.
9. Teaching and Learning Strategies	
Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy notes series. - Education strategy by exchanging opinions and discussion

	- Educational strategy by presenting information. - Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	• **The student will be able to identify different shapes of cells.**	**Shape of cell**	1. The lecture 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions.
second	5	• **The student will be able to describe the structure of simple epithelial tissue.**	**Epithelial tissue – simple epith. T.**	=	=
third	5	• **The student will be able to describe the structure of stratified epithelial tissue.**	**Epithelial tissue- Stratified epith. T.**	=	=
4th	5	• **The student will be able to explain the structure of loose connective tissue.**	**Connective tissue – Loose co. t.Structu of Dense Connecti Tissue**	=	=
5th	5	• **The student will be able to describe the structure of dense connective tissue.**	**Connective tissue – dense co. t.**	=	=
6th	5	• **The student will be able to explain the structure and**	**Connective tissue – the blood**	=	=

		function of blood as a connective tissue.			
7th	5	• **The student will be able to describe the histological structure of compact bone.**	**Connective tissue – compact bone**	=	=
8th	5	• **The student will be able to identify the external features of the digestive system.**	**External feature of digestive system**	=	=
9th	5	• **The student will be able to describe the structure of the male and female urogenital systems.**	**Urogenital system (male &female**	=	=
10th	5	• **The student will be able to describe the histological structure of the liver.**	**Liver**	=	=
11th	5	• **The student will be able to describe the histological structure of the spleen.**	**Spleen**	=	=
12th	5	• **The student will be able to describe the histological structure of lymph nodes.**	**Lymph node**	=	=
13th	5	• **The student will be able to**	**Circulatory system**	=	=

		explain the histology of arteries including layers and characteristics.	**(Artery)Histology of Arteries: Layers and Characteristics)**		
14th	5	• **The student will be able to explain the histology of veins.**	**Circulatory system (vein)**	=	=
15th	5	**Review**	**Review**	=	=

10. Course Evaluation

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

11. Learning and Teaching Resources

Required textbooks (curricular books, if any	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	• Junqueira's Basic Histology Text and Atlas 1 Edition • Junqueiras Basic Histology Text and Atlas 1 Edition Lippincotts_Illustrated_Q&A_Review Histology 1st Edition 2015
Electronic References, Websites	https://ikr.atu.edu.iq

Updating report:

بعد التحديث	الاسبوع	قبل التحديث
Pathological changes of connective tissue in some common disease conditions	**الرابع**	**Connective tissue – Loose co. t. Structure of Dense Connective Tissue**
Histological changes in the arterial wall in ssome common disease	**الثالث عشر**	**Circulatory system (Artery)Histology of Arteries: Layers and Characteristics**

Description Form to Analytical chemistry

1. Course Name:	
Analytical chemistry	
2. Course Code:	
A.C.	
3. Semester / Year:	
First Semester / First Year	
4. Description Preparation Date:	
20/10/2025	
5. Available Attendance Forms:	
Students of the Department of Medical Laboratory Technology/first level	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total number of hours: 6 hours (2 theoretical + 4 practical) / total number of units: 6 units	
7. Course administrator's name (mention all, if more than one name)	
Dr. Hanan Abbas Majeed Al-Zubaidi Email: inkr.han2020@atu.edu.iq	Assist. lec.Mohammed Jawad Kadhim mohammed.kadhim.ikr23@atu.edu.iq
8. Course Objectives	
Course Objectives	**Objectives of the article: -** **The student will be able to learn about the basic principles of chemical laboratories, how to work within laboratories, and conduct basic analytical chemical examinations within medical laboratories.** **Special: The student will be able to:** **1. Learn about the importance of chemical laboratories and how to work within them.** **2. To become familiar with the methods of preparing chemical solutions, the types of risks within laboratories, and to become familiar with safety procedures within medical laboratories.** **3. Learn how to conduct the most important chemical tests, which are acidity tests, denaturation, in addition to how to conduct scientific research experiments inside the laboratory.** **4. To become familiar with the latest and most important laboratory techniques used in diagnosing the properties of solutions.**
9. Teaching and Learning Strategies	
Strategy	Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning.

	- Strategy education real-time feedback - Education strategy notes series. - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information

10. **The theoretical structure of the course**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First to Third		• The student will be able to explain the basic concepts of atoms, elements, and radioisotopes.Describe pollution caused by elements and radioisotopes. • Explain the relationship between atoms, molecules, and energy according to modern atomic theory (Debroglie equation). • Define matter and classify its types. • Distinguish between chemical bonds: covalent, ionic, coordination, and hydrogen bonds. • Describe methods of chemical analysis, both qualitative and quantitative. • Statistical methods in quantitative analysis and recognize errors in measurements	Introduction to analytic chemistry Atom , elements, radio isomers pollution with radio isomers , pollution with elements . Relation between atom molecules ,energy, according to the new theory of atom.(Debrol equation). Matter , classification. Chemical bonds, coval ,Ionic , coordination , hydrogen. Methods of analysis.qualitative and quantitative ,statistical methods of quantitative analysis, errors in quantitative analysis .	1. The lecture. 2. Scientifi laboratorie 3. Systema training. 4. Summer training	Daily, oral a written examinations reports, discussions
Fourth		The student will be able to express solution concentration using different methods.	Methods of expressing concentration of soluti Molar solution ,normal solution .	=	=
Fifth		The student will be	Preparation of molar	=	=

		able to prepare molar and normal solutions and perform dilutions.	solution , dilution ,questions.		
Sixth		The student will be able to calculate percentage composition and parts per million (ppm).	Percentage compositio part per million.	=	=
Seventh		The student will be able to explain chemical equilibrium and ionization, including water ionization (pH and pOH).	Chemical equilibriu ionization, constan water (PH and PO	=	=
Eighth		The student will be able to calculate the pH of weak acids and weak bases. The student will be able to calculate the pH of strong acids and strong bases	Ionization of weak electrolyte . calculation PH of weak acids and weak bases Ionization of strong electrolyte . calculation PH of strong acids and strong bases. .	=	=
Ninth		he student will be able to define and classify buffer solutions.	Buffer solutions , classification .	=	=
Tenth		The student will be able to calculate the composition of buffer solutions.	Calculation of buffer solutions .	=	=
Eleventh		The student will be able to explain the uses of buffer solutions.	Uses of buffer solution	=	=
Twetveth		The student will be able to describe volumetric analysis, its classification, and the preparation of standard solutions.	Volumetric analysis , classification , standard solution , examples .	=	=
Thirteenth		The student will be able to explain	Neutralization reaction	=	=

		neutralization reactions.			
Fourteenth		The student will be able to identify and give examples of oxidation and reduction reactions.	Oxidation ,reduction reactions . examples.	=	=
Fifteenth		The student will be able to explain precipitation reactions and provide examples	Precipitation reactions.	=	=
The practical structure of the course					
First to Third	4	Developing the student' knowledge by using advanced teaching methods for each lecture according to the title and content of the lecture an consolidating the concep of the scientific subject the student.	Type of glassware used nown of cations. Q Cleaning solutions, safety. Cation analysis Unk ui Anion analysis . Unknown of amnions. Quiz	1. The lecture. 2. Scientifi laboratorie 3. Systema training. 4. Summer training	Daily, oral a written examinations reports, discussions
Fourth	4	=	Balance, preparation of percentage solutions .	=	=
Fifth	4	=	Completion of preparation of percenta solutions.	=	=
Sixth	4	=	Quiz, in balace and percentage solutions.	=	=
Seventh	4	=	Preparation of normal solution and molar solution.	=	=
Eighth	4	=	Dilution of concentrate solution.	=	=
Ninth	4	=	Quiz, examination in dilution.	=	=
Tenth	4	=	Buffer solutions, preparation PH.	=	=
Eleventh	4	=	PH. Meter.	=	=
Twetveth	4	=	Preparation of solution known PH.	=	=
Thirteenth	4	=	Quiz , unknown.	=	=
Fourteenth	4	=	Volumetric analysis, acid-base. Titration.	=	=

			Preparation of standard borax. Solution		
Fifteenth	4	=	Quiz, unknown.	=	=

11-Course Evaluation

Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation = 15
And daily exams = 15
And oral = 10
And monthly = 25
And editorial. =35

12-Learning and Teaching Resources

Required textbooks (curricular books, if any)	1) Analytical Chemistry / Dr. Sajida Abdel Ham Technical Education Authority 2)Fundamental of clinical chemistry / Norbert Ti
Main references (sources)	3) General Chemistry / Saba Abdullah - Hanaa Salman - Maysoon Suleiman / Technical Educati Authority 4) Quality control of pharmacy students / Saye Muhammad Abu Zaid / Technical Education Authority
Recommended books and references (scientific journals, reports...)	5- clinical chemical pathology / G.. H. Gary
Electronic References, Websites	6-https://ar.m.wikipedia.org The official website of the college poly techni (https://ikr.atu.edu.iq)

Update Report: First Course // Analytical Chemistry

:1-The update was made in the **first week** of the curriculum, as shown in the table below:

Before update	After update
Introduction to analytical chemistry Atom , elements, radio isomers pollution with radio isomers , pollution with elements. . Relation between atoms, molecules, energy, according to the new theory of atom.(Debroley equation). Matter, classification	Introduction to analytical chemistry Atom , **structure of atoms** . **Physical Properties of Metals**: elements, radio isomers pollution with radio isomers , pollution with elements . . Relation between atoms, molecules, energy, according to the new theory of atom.(Debroley equation). Matter, classification. **Dangerous of radiation:**

2-The update was made in the **tenth** week of the curriculum, as shown in the table below:

Before update	After update

Principles of calorimetry	**_ Working of Colorimeter:** Principles of calorimetry" **_ Uses of Colorimeter. _Advantages and disadvantages of Colorimeter Some benefits are as follows**: _

3-The update was made in the **eighth** week of the curriculum, as shown in the table below**:**

Before update	**After update**
Ionization of weak electrolyte . calculation of PH of weak acids and weak bases	Ionization of weak electrolyte . calculation of PH of weak acids and weak bases **_Ionization of strong electrolyte . calculation of PH of strong acids and strong bases.** .

Description Form to Fundamentals of Nursing

Course Title:
Fundamentals of Nursing
2. Course Code:
F.N.
3. Semester / Year:
First Semester / First Year
4. Date of Description Preparation:
1/11/2025
5. Attendance Methods:
Blended Learning (E-learning + In-person)
6. Total Study Hours / Units:
Total hours: 3 hours (1 theoretical + 2 practical) / Total units: 3 units
7. Course Instructors:
Name: Asst. Lecturer Mohammed Majid Hameed **Email :mohammed.hameed@atu.edu.iq**
Course Objectives:

The student will be able to: **- Identify the basic principles of technical nursing fundamentals.** **- Graduate technical staff capable of working in medical laboratories and performing the following:** **• Assisting in measuring vital signs (temperature, pulse, respiration, blood pressure).** **• Assisting the physician in diagnostic and therapeutic nursing procedures.** **• Operating medical devices to evaluate vital signs.**	**Course objectives**

• Wound dressing. • Identifying burn degrees, percentages, and essential laboratory tests for burn patients. • Administering medications and injections. • Recognizing communicable diseases, modes of transmission, and preventive measures during sample collection.	

8. Teaching and Learning Strategies:	
- Cooperative learning strategy. - Brainstorming strategy. - Concept mapping collaborative strategy. - Real-time feedback strategy. - Observation chain strategy. - Opinion-exchange and discussion strategy. - Presentation-based instruction.	Strategies

Course Structure (Theoretical):

first // Course Structure (Theoretical):

Evaluation Method	Learning method	Unit or topic name	Learning Outcomes:	Hours	Weeks
Daily, oral, written, and report examinations, discussions.	1. Lectures. 2. Science Laboratories. 3. Systematic Training. 4. Summer Training	Introduction to nursing	The student will be able to define nursing and explain its basic concepts.	1	Week 1:
=	=	Medical examination	The student will be able to perform basic medical examination and	1	2

			assess vital signs.		
=	=	**Vital signs, temperature measurement,**	The student will be able to define and measure vital signs including temperature, pulse, respiration, and blood pressure.	**1**	**3**
=	=	**Pulse, definition, factors that effecting pulse, measurement of pulse .**	The student will be able to identify factors affecting pulse, respiration, and blood pressure, including hyper- and hypotension.	**1**	**4**
=	=	**Respiration, definition, factors that effecting respiration, measurement of respiration**	The student will be able to identify factors affecting pulse, respiration, and blood pressure, including hyper- and hypotension.	**1**	**5**
=	=	**Blood pressure, definition, factor the effecting blood pressure, hyper and hypotension, measurement of blood pressure**	The student will be able to identify factors affecting pulse, respiration, and blood pressure, including hyper- and hypotension.	**1**	**6**
=	=	**Health care, definition, factors effecting health care**	The student will be able to define health care and explain factors affecting the health of laboratory workers.	**1**	**7**
=	=	**Factors that effects the health of worker in**	The student will be able to identify natural, chemical, psychological, and	**1**	**8**

		laboratories, natural factors, infectious diseases	biological factors that may cause diseases in laboratory workers.		
=	=	**Chemical factors- disease**	The student will be able to identify natural, chemical, that may cause diseases in laboratory workers.	**1**	**9**
=	=	**Psychological factors- diseases**	The student will be able to identify, psychological that may cause diseases in laboratory workers.	**1**	**10**
=	=	**Biological factors- types- their effects on workers in Lab.- diseases.**	The student will be able to identify biological factors that may cause diseases in laboratory workers.	**1**	**11 and 12**
=	=	**First aid- definition, paramedic, fundamental of first aid, wound, .bleeding**	The student will be able to apply fundamental first aid for wounds, bleeding, burns, fractures, and perform artificial respiration.	**1**	**13 and 14**
=	=	**Burns- types of fracture aid- artificial respiration**	The student will be able to apply fundamental first aid for wounds, bleeding, burns, fractures, and perform artificial respiration.	**1**	**15**

Practical syllabus

Evaluation Method	**Learning method**	**Unit or topic name**	**Learning Outcomes:**	**Hours**	**Weeks**
Daily, oral,	**1. Lecture.**	**Physical and**	The student will be	**2**	**1**

written, and report examinations, discussions.	**2. Scientific Laboratories.** **3. Systematic Training.** **4.Summer Training**	**medical examination**	able to perform physical and medical examination.		
=	=	**Methods of bio-vital markers measurement-temperature measurement**	The student will be able to measure bio-vital markers, including temperature	**2**	**2**
=	=	**Pulse measurement, atrial, vein pulsation**	The student will be able to measure pulse, including arterial and venous pulsation.	**2**	**3**
=	=	**Respiration measurement**	The student will be able to measure respiration accurately.	**2**	**4**
=	=	**Method of blood pressure measurement**	The student will be able to measure blood pressure using proper methods	**2**	**5**
=	=	**Review for bio-vital markers measurement**	The student will be able to review and interpret bio-vital markers measurements.	**2**	**6**
=	=	**Disinfection and sterilization methods**	The student will be able to explain disinfection and sterilization methods.	**2**	**7**
=	=	**Methods of drugs**		**2**	**8**

		intake and needle glaucoma	The student will be able to describe methods of drug intake and safe needle use (including glaucoma injections)		
=	=	**Samples collection from patients**	The student will be able to collect samples from patients safely.	**2**	**9**
=	=	**Blood collection**	The student will be able to perform blood collection procedures.	**2**	**10**
=	=	**Review**	The student will be able to review sample collection and handling procedures	**2**	**11**
=	=	**First aid- wound and bleeding first aid. .**	The student will be able to provide first aid for wounds and bleeding.	**2**	**12**
=	=	**First aid- fractures first aid- poisoning**	The student will be able to provide first aid for fractures and poisoning.	**2**	**13**
=	=	**Choking first aid- Heart massage**	The student will be able to provide first aid for choking and perform heart massage.	**2**	**14**
=	=	**Application of artificial respiration**	The student will be able to apply artificial respiration correctly	**2**	**15**
Course Assessment:					
Grades (out of 100) are distributed according to student tasks such as daily preparation, quizzes, oral and written exams, reports, etc.					
12. Learning and teaching resources					

	Required textbooks (methodology, applicable(
	(Main references (sources
• **Fundamentals_of_Nursing_Clinical_Skills_Workbook 2012** • **PROFESSIONAL NURSING: CONCEPTS CHALLENGES – 2014** • **Complete Nurse_s Guide to Diabetes Care Ameri Diabetes** **Association 2009** • **Advanced Practice Nursing Emphasizing Common Rc 2011** • **Fundamentals of Nursing 2014**	**Recommended supporting books and (...references (scientific journals, reports**
	Electronic references, websites

Description Form to Human right and Democratic

1.Course Name:
Human right and Democratic
2.Course Code:
F.N
3.Semester / Year:
First semester - academic year 2025-2026
4.Description Preparation Date:
2025/9/17
5.Available Attendance Forms:
Being present - using modern means of communication and the Internet
6.Number of Credit Hours (Total) / Number of Units (Total)
One theoretical hour - two practical hours per week - number of units = 3
7.Course administrator's name (mention all, if more than one name)
Name: Mohammed Hamid Kazem Howair **:Yamil -hussain.muhammed@atu.edu.iq**
8.Course Objectives

1- to know the principles and values g of human rights **2- Learn about democracy and huma rights** **Respect it and stick to it** **Learn about public freedoms and what these freedoms are** **Its details**	**Objectives of the study subject**

9. Teaching and Learning Strategies	
uous awareness of human rights and the fundamental freedoms exposed to con .associated with them And to fight everything that aims to ignore it, harm it, or undermine its sanctity, a to recognize .The concept of democracy and its relationship to public freedoms	**The strategy**

10. Teaching and Learning Strategies

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week

oral test	a lecture	rights Human Definition and objectives	knowledge And meaning And what it is human rights And her relationship With others from Threads hts / in meaning Human rig concept The concept of human rights throw lecture And a question Students on the topic knowledge And inquiry on to understand Students For the topic	6	1
oral test	a lecture	Human rights in ancient civilizations, especially the Mesopotamian civilization	knowledge And meaning Human And what it is rights in civilizations And her relationship With others from Threads human rights As A field Independently throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract nquiries on questions And i the topic	6	2
oral test	a lecture	Human rights in heavenly laws	knowledge Rights according to divine laws And all what Regard with it With rights throw lecture And a question topic Students on the Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	3
A written test	ndiscussio	Human rights in Islam		6	4

oral test	a lecture	-Non governmental organizations and human rights International) Committee of the -Red Cross Amnesty - International	knowledge Human rights committees And all what Regard with it And everything related to human rights throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract ions And inquiries on quest the topic with to request Preparation from Students	6	5
oral test	a lecture	Human Rights Arab -Watch Human Rights .onsOrganizati	knowledge Human rights organizations hrowt lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	6
oral test	a lecture	Human rights in Iraqi constitutions between theory The -and reality. Iraqi Constitution	knowledge Iraqi constitutions throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request m StudentsPreparation fro	6	7
oral test	a lecture	The relationship between human rights and public .freedoms	knowledge The relationship between human rights and public freedoms throw lecture And a question Students on the topic uestions on Subtract q Students and give the time For students To subtract	6	8

			questions And inquiries on the topic with to request Preparation from Students		
oral test	a lecture	rsal Unive Declaration of Human Rights	knowledge Universal aration of Human Decl Rights and Public Freedoms throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	٩
A written test	discussion	Regional charters and national .constitutions	Identify on factors Influential in National charters and constitutions throw lecture And a question Students on the topic Subtract questions on Students and give the time t For students To subtrac questions And inquiries on the topic with to request Preparation from Students	6	10
oral test	a lecture	Modern human ic, rights: econom social and cultural human rights and civil and political (human rights	Identify on factors Influential in economic, social and cultural human rights and civil and (litical human rightspo throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	11
oral test	discussion	Guarantees of respect and protection of	Identify on Guarantees for the protection of human rights	6	12

		human rights at the national and international .levels	throw lecture And a question Students on the topic Subtract questions on ime Students and give the t For students To subtract questions And inquiries on the topic with to request Preparation from Students		
oral test	a lecture	The general theory of the :freedoms origin of rights -and freedoms the project's position on declared rights .and freedoms	Identify on Theories of human achievement throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	13
oral test	a lecture	-The role of non governmental organizations in respecting and protecting human rights	-Identify Non governmental organizations throw lecture And a question Students on the topic Subtract questions on ime Students and give the t For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	14
oral test	a lecture	Democracy ion and definit types	knowledge And meaning s Democracy And what it i and its relationship With others from Threads in meaning Democracy / concept, types and characteristics Democracy throw lecture And a question Students on the topic knowledge And inquiry on to understand Students For the topic	6	15

1. Course evaluation	
according to the tasks assigned to the student, such as daily ١٠٠Distribution of the grade out of .preparation, daily, oral, monthly, written exams, reports, etc marks monthly exam ٤٠ ly and oral preparation and report writingmarks for dai ١٠ final exam score ٥٠	
2. Learning and teaching resources	
Human rights and democracy	(Required textbooks (methodology, if any
Public opinion and human rights / Dr. An Hassan Fayyad	(Main references (sources
Scientific journals, periodicals and research And specialty	ended supporting books and Recomm (....references (scientific journals, reports
Internet sites (YouTube and Google) and oth media Communication in the specialty	Electronic references, Internet sites

Description Form to Computer application

1. Course Name: Computer Application
Computer Application
2. Course Code:
C.A.
3. Semester / Year: First semester / First year
4. Description Preparation Date: 30/11/ 2025
5. Available Attendance Forms: Communication in person and electronic communication
6. Number of Credit Hours (Total) / Number of Units (Total) : 3 hours / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer.Ihab Hamzah Ali **Email: ihab.ali@atu.edu.iq**
8. Course Objectives: The student must be able to use a computer, be familiar with its use, and understand how to use its software

Course Objectives	Training the student and developing his scientific abilities to benefit from the computer. Providing the student with creative mental abilities, helping him in inductive and deductive logical thinking, and developing his abilities to solve dilemmas. Strengthening the factor of desire towards the computer and its applications and providing the student with positive tendencies aimed at information technology to employ it and benefit from it in the field of medical laboratories in the future.

9. Teaching and Learning Strategies

Strategy	Theoretical learning and practical technical application

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	1	**Introduction to Computers:** Computer generations and components: the student becomes familiar with computer generations and their	**MS-DOS Operating System:** Concept of the operating system – system prompt – disks – directories and their levels – files – internal operating system commands (Internal Commands) and	Explanation usin smart screen display, presentation usi the PowerPoint application, and using the	Direct questions and pop quiz

		hardware and software components. **Software:** System software and application software: the student becomes familiar with system software and application programs.	external operating system commands (External Commands) (most commonly used commands).	whiteboard to clarify important information	
Second-Twetveth	1	**Introduction to MS-DOS Operating System:** The student becomes familiar with the concept of the MS-DOS operating system, the command prompt, disks, directories, and file organization. **External Commands of the Operating System:** The student becomes familiar with the most commonly used external commands in MS-DOS.	**Internal Operating System Commands:** DIR – DEL – TIME – DATE – CLS – RD – CD – MD – ECHO – REN – COPY – VOL – VER – PATH	=	=
Third-		**Internal Commands of the Operating System:** The student becomes familiar with MS-DOS internal commands such as DIR, DEL, TIME, DATE, CLS, RD, CD, MD, ECHO, REN, COPY, VOL, VER, and PATH.	**Windows Operating System:** Concept of the Windows system – advantages – basic system requirements – starting the system – components of the main desktop screen – concept of icons – mouse operations and usage – importance and components of the taskbar – using the Start menu to access programs – concept of running tasks – exiting the system and shutting down the computer.	=	=
Therteen - Fifteen	1	Enabling the student to understand the computer as an electronic device and	Introduction to computer computer generations, hardware and software components	=	=

		learn about all its components and the software used in it	Operating systems and th types MS-DOS operating system operating system comma WINDOWS operating syst operating system comma		
The practical structure of the course					
1-15	2	A realistic practical application of everything the student has learned through the theoretical explanation of the subject	Dealing with the device directly, identifying its external components, and understanding its internal components Learn about DOS operating system and apply internal and externa operating system comma Learn about the Windows operating system, its advantages, requirements operation, and applying operating system comma	Application through computers	By practicing using the computer, applying exercises, and solving important questions about the topics

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

11. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Computer Applications Book issued by the Iraqi Ministry of Higher Education
Main references (sources)	Computer Applications Book issued by the Iraqi Ministry of Higher Education
Recommended books and references (scientific journals, reports...)	Everything related to Iraqi and Arabic computer applications
Electronic References, Websites	Websites of the universities of the Iraqi Ministry of Hig Education and Scientific Research

COURSE DESCRIPTION FORMS FOR THE SECOND YEAR/ FIREST SEMESTER

Description Form to Microbiology

1. Course Name:
Microbiology
2. Course Code:
M.
3. Semester / Year:
Second year / first semester
4. Description Preparation Date:
5. Available Attendance Forms:
Present
6. Number of Credit Hours (Total) / Number of Units (Total)
6th hours (2 Theoretical + 4 Practical)/ Number of Total unit 6 unite
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof. Dr. Balkeas Abd Ali Abd Aun Jwad **Email: inker.balk@atu.edu.iq**
8. Course Objectives

Course Objectives	**Subject objective**: The student will be able to know microorganisms, their importance and their relationship to humans. **Special:-** The student will be able to: 1. Identify the types of microorganisms that are cause humans diseases (bacteria, viruses, fungi, parasites) 2. Identify the types of microorganisms that cause diseases to humans 2. Identify the molecular structure of microorganisms 3. Identify the reproduction of bacteria, their toxins and their pathogenicity 5. Identify the types of antibiotics and their mechanism of action
9. Teaching and Learning Strategies	
Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback

	- Education strategy notes series. - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information. - Education strategy through training and presenting scientific developments

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• Understand the basic principles of molecular biology and the central dogma.	**Introduction to molecular biology**	1. Lecturer 2. Scientific Lab 3. Systematic training. 4 Summer training	1. Daily Quick Qu 2. 2. Oral exams 3. Theoretical exa 4. Reports dissuasion
2	2	• Identify and compare viruses, bacteria, fungi, and parasites as disease-causing microorganisms.	**classes of pathogenic microorganisms Viruses, bacteria, fungi, parasites**	=	=
3	2	• Understand bacterial classification systems and scientific nomenclature rules.	**Classification and Scientific nomenclature of the bacteria. Normal Flora**	=	=
4	2	• Explain the role of normal flora in maintaining health and causing disease.	**Bacterial Structure**	=	=
5	2	• Describe the basic structure and components of bacterial cells.	**Bacterial division and growth**	=	=
6	2	• Explain bacterial cell division and factors affecting bacterial growth.	**Bacterial Genetics, DNA transfer between bacteria**	=	=
7	2	• Describe bacterial genetics and mechanisms of DNA transfer between bacteria.	**Pathogenicity of bacteria**	=	=

8	2	• Explain the mechanisms by which bacteria cause disease and express virulence.	**Toxigenesis (bacterial toxin).**	=	=
9	2	• Differentiate between types of bacterial toxins and their effects on the host.	**Classes of antibacterial agents**	=	=
10	2	• Classify antibacterial agents according to their mechanisms of action.	**General characteristic and classification of virus**	=	=
11	2	• Describe the general characteristics and classification of viruses.	**Viral genetics, a mutation, instruction between viruses, the role of genetic variation in evolution of viruses.**	=	=
12	2	• Explain viral genetics, mutation, and the role of genetic variation in viral evolution.	**Pathogenicity of viruses**	=	=
13	2	• Describe the mechanisms by which viruses cause disease.	**Classes of antiviral ager**	=	=
14	2	• Classify antiviral agents based on their targets and modes of action.	**Characteristic a classification of medi fungi.**	=	=
15	2	• Describe the general characteristics and classification of medically important fungi.	**Morphology and structure of fungi, Classes of antifungal agents**	=	=

The practical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation meth
1	4	• Understand	**Introduction,**	1. Lecturer	1. Daily Quick 2.

		laboratory safety rules and proper behavior inside the microbiology laboratory.	**behavior inside Lab.**	2. Scientific Lab 3. Systematic training. 4.Summer training	Oral exams 3. Theoretical exa 4. Reports 5.dissuasion
2	4	• Explain the principles and methods of sterilization and disinfection.	**Sterilization and disinfection methods.**	=	=
3	4	• Describe proper techniques for specimen collection, handling, and processing.	**Specimen Collection and Processing**	=	=
4	4	• Perform microscopic examination for the detection of microorganisms in clinical samples.	**Microscopic Examination of Infected Materials**	=	=
5	4	• Use colonial morphology for presumptive identification of microorganisms.	**Use of Colonial Morphology for the Presumptive Identification of Microorganisms.**	=	=
6	4	• Apply biochemical tests for the identification of bacteria.	**Biochemical Identification of Bacteria**	=	=
7	4	• Explain immunological methods used for microorganism detection.	**Immunological methods used for microorganism detection**	=	=
8	4	• Describe applications of molecular diagnostics in clinical microbiology.	**Applications of Molecular Diagnostics, Nuclei acid Hybridization techniques**	=	=
9	4	• Explain the principles of	**Nucleic acid Amplification**	=	=

		nucleic acid hybridization techniques.	**procedures**		
10	4	• Describe nucleic acid amplification procedures used in microbial detection.	**Other Nucleic Acid Amplification Reactions, Nucleic Acid Sequence Based Amplification**	=	=
11	4	• Explain alternative nucleic acid amplification reactions, including NASBA.	**Antimicrobial Susceptibility Testing, Selecting Antimicrobial Agents For Testing, Reporting of Susceptibility Test Results.**	=	=
12	4	• Understand principles of antimicrobial susceptibility testing and reporting results.	**Traditional Antimicrobial Susceptibility Test Methods, Inoculum Preparation and Use of McFarland Standards, Dilution Susceptibility Testing Methods, Antimicrobial Stock Solutions, Broth-Macrodilution (Tube-Dilution) Tests, Agar-Dilution Tests**	=	=
13	4	• Describe traditional antimicrobial susceptibility testing methods.	**Disk Diffusion Testing, Principle, Establishing Zone-Diameter. Interpretive Breakpoints, Disk Storage, Inoculation and Incubation, Reading Plates and Test Interpretation**	=	=
14	4	• Prepare standardized inoculum using McFarland	**Modified Methods for Testing Slow-Growing or Fastidious Bacteria**	=	=

		standards for susceptibility testing.			
15	4	Explain methods used susceptibility testing anaerobic bacteria	**Susceptibility Testing of Anaerobes**	=	=

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if a	/
Main references (sources)	1- **Text book of Microbiology and Immunology** // second edition // Subhash Chandra Parija 2- **Medical Microbiology** // Fritz H. Kayser, M.D., Kurt A. Bienz, Ph.D., Johannes Eckert, D.V.M., Rolf M. Zinkernagel, M.D. **3- Microbiology (Boundless)**
Recommended books and references (scientific journals, reports…)	Internet's books
Electronic References, Websites	Internet's books

Update report:

1-First week

After update	Before updating
Bacterial Genetics: DNA and RNA structure, DNA replication and transcription	Bacterial Genetics, DNA transfer between bacteria

2-Second week

After update	Before updating
Types viruses and Pathogenicity of viruses	Pathogenicity of viruses

Description Form to Haematology\1

1. Course Name:	
Hematology	
2. Course Code:	
H.1 and H.2	
3. Semester / Year:	
1st + 2nd Semester / 2nd Year	
4. Description Preparation Date:	
10/11/2025	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total number of hours: 6 hours (2 theoretical + 4 practical) / total number of units: 6 units	
7. Course administrator's name (mention all, if more than one name)	
Lecturer aqeel salman abd alsalam **aqeel.alsalam.ikr@atu.edu.iq**	
8. Course Objectives	
Course Objectives	1- Identify the blindness of general concepts of specialization generalized blood 2- Identify the blindness of the main place resulting in free blood in the bone marrow and the difference in place according to age and the most important in-depth causes By decreasing and increasing their numbers and the deep causes of their dysfunction 3 – Identify the blindness of acute anemia and its causes and division blindness based on the size of red blood cells and the basis of diseases that Affects the bone marrow 4- Focus blindness types of anemia, which include anemia deepening bone marrow failure, iron anemia and deep anemia B Breakdown of red blood cells and deepened anemia with deficiency or poverty in folic acid or vitamin and histotic anemia12B 5_ Focus blindness of diseases deep in Mediterranean anemia Thalassaemia and sickle cell anemia 6- Introduction to leukocytes and their types and deep diseases that resemble lymphatic gland disorders and immune deficiency

	7- Identify acute and chronic leukemia blindness and lymphoma 8 _ Identify platelet blindness, clotting factors and deep diseases 9. Identify the blindness of the method of action of coagulation time, bleeding time, in-depth coagulation analyzes and platelet counting directly And indirectly and its relationship to clinical diseases and the most important hemorrhagic diseases and their relationship to world history.

9. Teaching and Learning Strategies

Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information. - Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	• The student will be able to explain the importance of hematology and identify the main components of blood.	**Introduction importance of hematology. Study the blood contains.**	1-**Lecture** **2- Scientific laboratories.** **3-Systematic training**.	Quizze
2	2	• The student will be able to describe hematopoiesis during fetal life, childhood, and adulthood.	**The haemoto poiesis in fetus, children and adult**	=	=
3	2	• The student will be able to describe the structure, production, and functions of normal red blood cells.	**The normal red blood cells, importance, Structure, erythropoiesis and Function**	=	=
4	2	• The student will be able to explain polycythemia, including its causes, clinical signs, and laboratory diagnosis.	**Polycythemia, causes, Clinical Signs and Laboratory diagnosis**	=	=
5	2	• The student will be able to recognize normal and abnormal red blood cell morphology in health and disease.	**Study the red cell morphology in health and disease Abnormality of R.B.C in size.**	=	=
6	2	• The student will be able to identify abnormalities in	**Abnormality of R.B.C in shape**	=	=

		red blood cell size.			
7	2	• The student will be able to describe abnormalities in red blood cell shape.	**Abnormality of R.B.C in colour.**	=	=
8	2	• The student will be able to describe the structure, composition, and importance of normal hemoglobin.	**The normal Hb. Of the blood, contain and importance. Study the types of normal Hb.**	=	=
9	2	The student will be able to recognize common hemoglobin variants.	**Types Common Hb. Variant.**	=	=
10	2	• The student will be able to define anemia and classify its main types	**Anemia. Definition, classification and types**	=	=
11	2	• The student will be able to define anemia and classify its main types.	**Anemia. Causes .clinical signs and laboratory Finding,**	=	=
12	2	• The student will be able to describe the causes and characteristics of megaloblastic and pernicious anemia.	**Megaloblastic anemia and Pernicious anemia.**	=	=
13	2	The student will be able to explain the causes and features of aplastic anemia	**Aplastic anemia and hemolytic anemia.**	=	=
14	2	The student will be able to explain the causes and features of aplastic anemia	**Aplastic anemia and hemolytic anemia.**	=	=
15	2	The student will be able to explain sickle cell anemia, including its causes, pathophysiology, clinical features, and laboratory findings and explain autoimmune hemolytic anemia, including its causes, types, and diagnostic features	**Sickle Cell an. And acquired and autoimmune hemolytic anemia.**	=	=

The practical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	• The student will be able to identify and	**identify hematological**	1-**Lecture** **2- Scientific laboratories.**	**Quizze**

		describe the hematological laboratory system.	**laboratory system**	**3-Systematic training**.	
2	4	• The student will be able to explain the principle and clinical significance of erythrocyte sedimentation rate (ESR).	**Erythrocyte Sedimentation rate**	=	=
3	4	• The student will be able to measure and interpret packed cell volume (PCV).	**Packed Cell Volume**	=	=
4	4	• The student will be able to perform hemoglobin estimation and interpret the results.	**Hb Estimation**	=	=
5	4	• The student will be able to calculate and interpret red cell indices including MCV, MCH, and MCHC.	**Study the absolute Values include MCV, MCH, and MCHC .**	=	=
6	4	• The student will be able to identify abnormalities of red blood cells in color, size, and inclusion bodies.	**Abnormality of R.B.C in color, size and inclusion bodies**	=	=
7	4	• The student will be able to recognize abnormalities in red	**Abnormality of R.B.C in shape Examination**	=	=

		blood cell shape.			
8	4	• The student will be able to perform and interpret reticulocyte count.	**Study the Reticulocyte Count.**	=	=
9	4	• The student will be able to identify and differentiate types of anemia based on laboratory findings.	**Anemic types**	=	=
10	4	• The student will be able to examine blood samples to detect abnormal hemoglobin patterns.	**Examination**	=	=
11	4	• The student will be able to identify abnormal hemoglobin, including hemoglobin S (HbS).	**Study the abnormal Hb. (Hb.S)**	=	=
12	4	• The student will be able to describe disorders of hemostasis.	**Study the haemostasis disorders**	=	=
13	4	• The student will be able to perform and interpret bleeding time tests.	**Study the bleeding time**	=	=
14	4	• The student will be able to perform and interpret clotting time tests	**Study the Clotting time**	=	=
15	4	• The student will be	**Study the Clotting time**	=	=

		able to perform and interpret clotting time tests			

1. Course Evaluation

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

2. Learning and Teaching Resources

Required textbooks (curricular books, any)	
Main references (sources)	1., Silberstein, L. E., Heslop, H. E., Weitz, J. I., Anastasi, J., & Abutalib, S. (2017). Hematology: basic principles and practice. Elsevier Inc.. 2-Hoffbrand, A. V., & Steensma, D. P. (2019). Hoffbrand's essential haematology. Joh Wiley & Sons. 3- arabic reference: Al-shaeer, A.,M., et al., (1991). book of blood science, AL-AHLYIA publisher
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	http://ikr.atu.edu.iq

Update report:

1. **It was updated in the first week of the curriculum, as shown in the table below.**

After update	Before updating
Introduction to clinical hematology include **- morphology of human blood and bone marrow cells .**	**Introduction importance of hematology. Study the blood contains.**

2. **It was updated in the 13 week of the curriculum, as shown in the table below.**

After update	Before updating
• **Intracorpuscular Defects Aplastic Anemia Including Pure Red Cell Aplasia,Congenital Dyserythropoietic Anernia, and Paroxysmal Noc-turnal Hemoglobinuria** • **Introduction to Hemolytic Anemias:** **Intracorpuscular Defects**	

Description Form to Clinical chemistry\1

1. Course Name:
Clinical chemistry
2. Course Code:
C. CH
3. Semester / Year:
First semester
4. Description Preparation Date:
6/10/2024
5. Available Attendance Forms:
Live attendance with students
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical – 2 hours **Practical –** 4 hours
7. Course administrator's name (mention all, if more than one name)
Name: Jaafar Khalaf Ali **Email:** jaafar.ali@atu.edu.iq
8. Course Objectives

Course Objectives	• Students will learn the basic information in clinical chemistry • Understand the role of clinical biochemistry in the health and diseas status of different body systems. • Highlight the natural pathways of biochemistry and the occurrence diseases due to biochemical disturbances associated with different diseases. • Understand and interpret the results of different clinical chemistry t

9. Teaching and Learning Strategies	
Strategy	• Lecture and delivery strategy • Discussion strategy • Brainstorming strategy • Project strategy • Group work • Problem solving strategy

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	•Understanding clinical chemistry •Routine laboratory	• Introduction to Clinical Chemistry • Introduction to Metabolism	• Lecture • Questions and answers	• Direct questions

		testing and readings •Types of samples and their collection	• Collection and delivery of blood samples.	• Presentation	• Daily exam
٢	٢	• Metabolic pathway of acid-base balance • Disorders resulting from it	Acid-base balance	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
٤-٣	٤	• The role of electrolytes in maintaining cellular and systemic balance • Diseases related to increased or decreased electrolytes	• Electrolytes (Na+, K+, Cl-, Ca2+, Mg, etc.) • Diseases related to increased or decreased electrolytes	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
٥	٢	Identify trace elements and their role in metabolism, maintaining balance, and diseases related to them.	Trace elements [Cu+2, Ceruloplasmin, Zn, Mn], and diseases related to them.	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
٧-٦	٤	Learn about the role of sugar in the body, its metabolism, and how it is regulated hormonally and physiologically.	Glucose, and the hormones that regulate the process of glucose breakdown.	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
٨	٢	Exam			
٩	٢	Identify cellular metabolic pathways, the Krebs cycle and its disorders.	Krebs cycle, pathways, energy production and related disorders.	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
١٠	٢	Learn about glycogen, how it is produced and stored in the liver, as well as diseases related to	Glycogen metabolism (regulation of the synthesis process and glycogen metabolism disorders).	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
١١	٢	Identify the metabolic pathways for glucose formation	Glucose formation: Raw materials (e.g. lactate, pyruvate, alanine, etc.)	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam
١٤-١٢	٦	Learn about diabetes, its types, and how to perform diagnostic tests.	Diabetes: blood sugar regulation, high blood sugar, low blood sugar.	• Lecture • Questions and answers • Presentation	• Direct questions • Daily exam

١٥	٢	Final Exam Review

11.Course Evaluation

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

12.Learning and Teaching Resources

Main references (sources)	• Clinical Chemistry Techniques, principles, correlations. Michael L. Bish MS, CLS, MT(ASCP) • Clinical Chemistry, David White, Nigel Lawson, Paul Masters • Clinical Chemistry, William J. Marshall, Marta Lapsley, Andrew Day

Update Report

The update was made in the first weeks as shown in the table below:

Before Update	After Update
• Introduction to Clinical Chemistry • Introduction to Metabolism Collection and delivery of blo samples.	Add a section on **modern laboratory automation** (analyzers, barcoding, LIS – Laboratory Information Systems) Include a short segment on **inborn errors of metabolism** (e.g., phenylketonuria, maple syrup urine disease), especially those detectable via lab screening Highlight clinical relevance of metabolism pathways in diagnosing **diabetes, hyperlipidemia, urea cycle disorders**)
The update was made in the second weeks as shown in the table below:	
Acid-base balance: Metabolic pathway of acid-base balance Disorders resulting from it	Add **arterial blood gas (ABG)** interpretation: pH, pC HCO_3^-, anion gap Introduce **metabolic vs. respiratory acidosis/alkalosis** with clinical case examples Discuss modern blood gas analyzers and point-of-care testing

Description Form to Immunology

1. Course Name:
Immunology
2. Course Code:
Immun.
3. Semester / Year:
Second grade/First & Second semester
4. Description Preparation Date:
6/10/2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
Total number of hours: 5 hours (2 theoretical + 4 practical) / total number of units: 6 units
7. Course administrator's name (mention all, if more than one name)
Name: **Prof. Dr. Salim Hussein Hassan _ -MSc.Israa jawad** Email: **inkr.salm@atu.edu.iq** Name: **MSc. Hadeel salahmahdi** Email : hadeel.mahdi.ikr27@atu.edu.iq Name: **MSc.Israa jawad** Email : israa.abdul rasul.ikr@atu.edu.ia
8. Course Objectives

Course Objecti	**General Goals:** - The student will be able to become familiar with the concepts of immunology and the techniques related to it. **Special: The student will be able to:** - To learn about. - To. - To know. -To

9. Teaching and Learning Strategies

Strategy	- Cooperative education strate - Brainstorming education strate - Education strategy by exchanging opinions and discussi - Educational strategy by presenting informati

10. The theoretical structure of the course

First: Course structure (theoretical - first semester)					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
First	2	• The student will be able to define immunology, classify types of immunity, and explain natural and acquired immunity including factors and defense mechanisms.	**Immunology: Definition and classification of the types of immunity, natural and acquired immunity, factors and defenses of natural immunity**	1. The lecture. 2.Laboratories. 3. Field visits. 4. Systematic training. 5. Summer training	• Daily exams. • Quarterly exams • Final exams. • Practical projects.
Second	**2**	• The student will be able to describe the immune system, lymphoid tissues and cells, their origin, receptors, maturation stages, and the difference between primary and secondary lymphoid organs.	**Immune system, lymphoid tissues and cells, their origin, receptors, and maturation stages, primary and secondary lymphoid organs**	=	=
Third	**2**	• The student will be able to describe macrophages, monocytes, and the process of phagocytosis in innate immunity.	**Macrophages, monocytes, phagocytosis**	=	=
Fourth	**2**	• The student will be able to define antigens, classify their types, and explain their role in triggering immune responses.	**Definition of antigen and its types**	=	=
Fifth	**2**	• The student will be able to explain primary and secondary immune	**Definition of antibody, structure, types, properties,**	=	=

		responses, their characteristics, differences, and regulation.	**manufacturing, and release Immune response: primary and secondary, their characteristics and differences, regulation of the immune response**		
Sixth& Sever	**2**	• The student will be able to describe the major histocompatibility complex (MHC), its types, and its role in antigen presentation.	**immune response: primary and secondary, their characteristics and differences, regulation of the immune response** **Major histocompatibility complex (MHC)** **Its types and role in antigen presentation**	=	=
Eighth & Nir	**2**	• The student will be able to define the complement system, explain activation pathways, inhibitors, and diseases associated with complement deficiency.	**Complements Definition of complement, activation, activation methods, inhibitors, diseases associated with complement deficiency Cytokines**	=	=
Tenth	**2**	• The student will be able to describe cytokines and their role in immune regulation and signaling.	**Immunity against germs and toxins How the immune system works to defend against germs**	=	=
Eleventh	**2**	• The student will be able to explain immunity against germs and toxins and how the immune system defends the	**immunity against viruses, immunity against parasites, immunity against fungi**	=	=

		body against infections.			
Twelfth	**2**	• The student will be able to define tumors, describe tumor-related antigens, their types, their relationship to different tumors, and mechanisms of immune evasion.	**Tumor definition, tumor-related antigens, their types, their relationship to different tumors, and means of escaping the body's immunity**	=	=
Thirteenth	**2**	The student will be able to define hypersensitivity, classify its types, and identify diseases caused by hypersensitivity reactions.	**Hypersensitivity Definition, different types, and diseases caused by it**	=	=
Fourteenth	**2**	• The student will be able to describe natural and acquired immune deficiencies, their types, and theoretical mechanisms.	**Natural and Acquired Immune Deficiencies Types and Theories**	=	=
Fifteenth	**2**	• The student will be able to explain vaccination, classify types of vaccines, and describe their role in disease prevention	**Vaccination, types of vaccines**	=	=
The practical structure of the course					
First & **Second**	2	The student will be able to follow general lab instructions and understand the purpose of the immunology laboratory	**- General Lab instructions orientation to the student with meaning of immunity & of the lab. -Immunologic tests specimens (serum-plasma-CSF-&urine)**	1. The lecture. 2.Laboratories. 3. Field visits. 4. Systematic training. 5. Summer training	• Daily exams. • Quarterly exams • Final exams. • Practical projects.
Third&	**2**	The student will be	**- How to collect**	=	=

Fourth		able to identify immunologic test specimens, including serum, plasma, CSF, and urine. The student will be able to prepare red blood cell suspensions (RBSS) for laboratory testing	**samples** **- Dilution and types of dilution** **- How to prepare RBSS suspension**		
Fifth	**2**	The student will be able to explain humoral factors in the body's defense mechanisms. The student will be able to define antigens and classify their main types	**Humoral factors in the body's defense** **A-Antigens and their types**	=	=
Sixth & **Seventh**	**2**	The student will be able to describe antibodies and their preparation for laboratory use The student will be able to explain the concept of immunization and describe different immunization methods. The student will be able to explain antibody-antigen interactions and their significance in diagnostics The student will be able to identify and determine human blood types with perform and interpret pregnancy tests.	**Antibodies and their preparation** **The meaning of immunization, different methods of immunization** **- Ab-Ag interaction** **- Blood types** **- Pregnancy test**	=	=

Eighth	**2**	The student will be able to perform and interpret C-reactive protein (CRP) tests	**C-Reactive protein**	=	=
Ninth	**2**	The student will be able to perform Widal tests for typhoid diagnosis. The student will be able to perform Brucella agglutination tests and the Rose-Bengal method	**Widal test** **Brucella test** **Rose -bengal method**	=	=
Tenth	**2**	The student will be able to perform Rickettsia and Weil-Felix tests for rickettsial infections	**Rickettsia and weil test**	=	=
Eleventh	**2**	The student will be able to perform and interpret VDRL tests for syphilis **and** perform TPHA tests for syphilis confirmation.	**VDRL-test** **TPHA (Syphilis)**	=	=
Twelfth	**2**	The student will be able to perform hepatitis B (HBs-Ab) tests for viral hepatitis.	**Viral-hepatitis(Hbs-Ab-tast)**	=	=
Thirteenth	**2**	The student will be able to perform and interpret mononucleosis tests.	**Mononucleosis test**	=	=
Fourteenth	**2**	The student will be able to perform general agglutination tests for immunodiagnosis.	**Agglutination test** **Echinococcus slide**	=	=
Fifteenth	**2**	The student will be able to perform Toxoplasmosis serological tests.	**Toxoplasmamosis test**	=	=
Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily					

preparation, daily oral, monthly, or written exams, reports.... etc	
10. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	There is no systematic book.
Main references (sources)	• Scientific methodological books in the field of specialization • Specialized practical books.
Recommended books and references (scientific journals, reports...)	Immunology Lippincott
Electronic References, Websites	

Update report:

1.It was updated in the first week of curriculum as show in the table below:

Before updating	After update
Immunology: Definition and classification of the types of immunity, natural and acquired immunity, factors and defenses of natural immunity	**Modern Concepts in Innate and Acquired Immunity: Including Trained Immunity and Pattern-Recognition Mechanism**

2.It was updated in the second week of curriculum as show in the table below:

Before updating	After update
Immune system, lymphoid tissues and cells, their origin, receptors, and maturation stages, primary and secondary lymphoid organs	**Updated Concepts in Immune System Organization: Lymphoid Cell Development, Immune Plasticity, and Tertiary Lymphoid Structures**

Description Form to Protozoa

1. Course Name:	
Medical Parasitology **(Protozoa)**	
2. Course Code:	
M.P	
3. Semester / Year:	
First Semester / second Year	
4. Description Preparation Date:	
10/9/2025	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total number of hours: 6 hours (2 theoretical + 4 practical) / total number of units: 6 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist lect. Hussain Ali Rzoqy **Email: hussain.rezoqy@atu.edu.iq**	
8. Course Objectives	
Course Objectives	**General Goals:** The student will be able to learn about the basic principles of medical laboratories, how to work within laboratories, and perform basic examinations within medical laboratories. **Special:** The student will be able to: 1. Learn about the importance of medical laboratories and how to work within them. 2. To learn about sterilization methods and the types of risks inside laboratories, and to learn about safety procedures inside medical laboratories. 3. Learns how to perform the most important medical examinations, which are general urine tests, vaginal discharge, and semen examination, in addition to how to perform bacterial culture in the laboratory. 4. To learn about the latest and most important laboratory techniques used in laboratory diagnosis of diseases.
9. Teaching and Learning Strategies	
Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information.

	- Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	**2**	The student will be able to define parasites and parasitology, describe types of parasites, types of hosts, and classify parasites including protozoa and metazoa (helminths and arthropods)	**Defines the parasites, parasitology types of parasites. Types of hosts, Classification of parasites, Protozoa + metazoan Metazoa [helminths and arthropods]**	. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions
sconh	**2**	student will be able to ibe the general cteristics of protozoa classify them into poda, Mastigophora, hora (ciliates), and spora	**Introduction generally in characteristic feature of protozoa and classification: - Rhizopoda ,Mastigophora ,Cilophora (ciliate) ,Telospora**	=	=
fourth	**2**	student will be able to ibe the morphology, life , pathogenicity, and atory diagnosis of the genic amoeba *noeba histolytica* (Class poda)	**Class Rhizopoda Pathogenic amoeba, Entamoeba histolytica, Morphology, life cycle, Pathogenicity ، Lab.diagnosis**	=	=
Fifth	**2**	student will be able to ibe the morphology, genicity, and laboratory osis of *Entamoeba valis*, *Acanthamoeba*, *Naegleria*	**Few of morphology, pathogenicity, diagnosis of:- Entamoeba gingivalis, A canthomoeba, Naegleria**	=	=
Sixth	**2**	student will be able to entiate *Entamoeba coli* *Entamoeba histolytica* lescribe the morphology laboratory diagnosis of *noeba butschlii*, *limax nana*, *Entamoeba r*, and *Dientamoeba lis*	**Nonpathogenic amoeba Different between Entamoeba coli and E. histolytica. morphology, Lab, diagnosis of Iodamoeba butschlii , Endolimax nana,E. dispar ,Dientamoeba fragilis**	=	=

Seventh	**2**	student will be able to ibe the general cteristics and ification of igophora (flagellates), explain the morphology, ycle, pathogenicity, and atory diagnosis of inal flagellates ding *Giardia lamblia*, *mastix mesnili*, and *omonas hominis*	**Class Mastigophor or Flagellates generally introduction in characteristic feature and classification in (intestinal flagellate, blood and tissue flagellates, genital flagellates). Intestinal Flagellate: - Giardia lamblia, Chilomastix mesnili, Trichomonas hominis, Morphology, life cycle, pathogenicity, and lab. Diagnosis.**	=	=
Eighth	**2**	student will be able to ibe the morphology, genicity, and laboratory osis of genital flagellate *omonas vaginalis* and flagellate *Trichomonas*	**Genital flagellate Trichomonas vaginales, Oral flagellates, Trichomonas tenax. Morphology, pathogenicity and lab. diagnosis**	=	=
Ninth	**2**	student will be able to ibe the morphology, life , pathogenicity, and atory diagnosis of tissue blood flagellates ding *Leishmania vani*, *Leishmania ca*, *Leishmania liensis*.	**Tissue and blood flagellate Haemoflagellates forms. Lishmania donovani Lishmania tropica Lishmania brazeliencis Morphology, life cycle, pathogenicity, Lab. Diagnosis**	=	=
Tenth	**2**	The student will be able to describe the *Trypanosoma cruzi*, and *Trypanosoma brucei*, as well as identify vectors such as the Tse-tse fly and Reduviid bug, and to describe the morphology, life cycle, pathogenicity	**Trypanosoma cruzi Trypanosoma brucei Morphology, life cycle, pathogenicity, Lab. Diagnosis Sample of Tse-tse fly and Reduviid bug.**	=	=
Eleventh	**2**	The student will be able to describe the morphology, life cycle,	**Class Ciliophra (cilata) Blantidium coli Morphology, life cycle, pathogenicity,**	=	=

		pathogenicity, and laboratory diagnosis of *Balantidium coli* (Class Ciliophora)	**Lab. Diagnosis**		
Twetveth	**2**	**Review**	**Review**	=	=
Thirteenth	**2**	The student will be able to describe the general characteristics of Sporozoa and explain the life cycle of *Plasmodium* spp. in humans and insect vectors	**Class Sporozoa Generally, introduction of characteristic features sporozoa. Life of cycle in generally of Plasmodium spp. In man, and insects.**	=	=
Fourteenth	**2**	The student will be able to describe the pathogenicity and laboratory diagnosis of *Plasmodium vivax*, *P. ovale*, *P. malariae*, and *P. falciparum*, and to summarize *Babesia* spp. including differences in laboratory diagnosis between *Babesia* and *Plasmodium*	**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.**	=	=
Fifteenth	**2**	The student will be able to describe the morphology, life cycle, pathogenicity, and laboratory diagnosis of *Isospora belli*, *Toxoplasma gondii*, and *Cryptosporidium* spp	**Isosporia belli, Toxoplasma gondii Morphology, life cycle, pathogenicity, Lab. diagnosis Cryptosporidium spp. Morphology, life cycle, pathogenicity, Lab. diagnosis**		
The practical structure of the course					
First	4	The student will be able to perform parasitological laboratory work, including proper collection of samples, use of preservation techniques, and preparation of fixative solutions	**Information of parasitic Lab. diagnosis work ,** **Collection of sam Preservation and Fixati solution.**	. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions

Second	4	The student will be able to perform general stool examination and prepare solutions for laboratory use, including iodine, eosin, and saline	**General stool examination and preparation of Iodine, Eosin and saline solutions.**	=	=
Third	4	The student will be able to examine permanent slides and stool samples to identify *Entamoeba histolytica* and interpret laboratory findings	**Entamoeba histolytica Permanent slides and st examination.**	=	=
Fourth	4	The student will be able to examine slides and stool samples to identify *Entamoeba gingivalis*, *Blastocystis hominis*, and *Entamoeba coli*, and interpret laboratory findings	**Slides of Entamoeba gingivalis, Blastocystis hominis Entamoeba coli and stool examination for E. coli and Blastocystis hominis**	=	=
Fifth	4	The student will be able to examine slides and stool samples to identify *Dientamoeba fragilis*, *Iodamoeba butschlii*, and *Endolimax nana*, and interpret laboratory findings	**Slides of Diantamoeba fragilis, Iodamoeba butschlii ,Endolimax na and stool examination**	=	=
Sixth	4	The student will be able to examine slides and stool samples to identify *Giardia lamblia*, *Chilomastix mesnili*.	**Slides of Giardia lamblia, Chilomastix mesnili stool examination**	=	=
Seventh	4	The student will be able to examine slides and stool samples to identify *Trichomonas vaginalis*, *Trichomonas hominis*, and *Trichomonas tenax*, and perform general	**Trichomonas vaginalis, Trichomonas hominis , Trichomonas tenax slides Stool examination**	=	=

		urine and stool examinations	**and general unrein examination**		
Eighth	4	The student will be able to perform laboratory diagnosis of *Leishmania tropica* and *Leishmania donovani* and identify sand fly samples as vectors	**Haemoflagellates** **Leishmania tropica (Lab. diagnosis)** **Lishmania donovani (Lab. diagnosis)** **sample of sand f**	=	=
Ninth	4	The student will be able to examine slides of *Trypanosoma cruzi* and *Trypanosoma brucei*, and identify Tse-tse fly and Reduviid bug samples as vectors	**Trypanosoma cruzi (slides)** **Trypanosoma brucei (slides)** **With sample of Tse – fly, Reduviid bug**	=	=
Tenth	4	The student will be able to examine slides and stool samples to identify *Balantidium coli* and interpret laboratory findings	**Slides of** **Blantidium coli** **Stool examination**	=	=
Eleventh	4	**Review, examination**	**Review, examination**	=	=
Twetveth	4	The student will be able to describe the life cycle of *Plasmodium* spp., identify Anopheline mosquito samples, and prepare and examine thick and thin blood films for malaria diagnosis	**Life cycle of Plasmodium spp. Sample Anopheline,** **preparation of blood f (Thick and thin bl film)**	=	=
Thirteenth	4	The student will be able to examine slides of *Plasmodium vivax*, *P. ovale*, *P. malariae*, and *P. falciparum*, and interpret laboratory findings for malaria diagnosis	**Slides of Plasmodium vivax, Plasmodium ovali .** **Slides of Plasmodium malariae, Plasmodium falciparum**	=	=
Fourteenth	4	The student will be able to examine slides and perform	**Slides of Isospora belli,**		

		laboratory diagnosis of *Isospora belli* and *Toxoplasma gondi* and perform laboratory diagnosis of *Cryptosporidium* sppi	**Toxoplasma gondii** **With lab. diagnosis** **Slides of Cryptosporidium spp. With lab. Diagnosis**		
Fifteenth	4	**Review and examination**	**Review and examination**		

10. Course Evaluation

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

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• **Basic Clinical Laboratory Techniques.** • **Essentials Of Medical Laboratory practice**
Main references (sources)	• **A Manual of Laboratory And Diagnostic Tests.** • **Fundamentals Of Urine And Body Fluid Analysis**
Recommended books and references (scientific journals, reports...)	• **Medical Laboratory Science Examination Review.** • **Tietz Clinical Guide To Laboratory Tests**
Electronic References, Websites	https://ikr.atu.edu.iq https://microbenotes.com/ https://medicallabscientist.org/ https://labpedia.net https://www.ncbi.nlm.nih.gov

Update report:

1. It was updated in the 7th week of the curriculum, as shown in the table below.

Before updating	After update
I Trichomonas vaginalis, Trichomonas hominis ,Trichomonas tenax slides Stool examination	**Trichomonas vaginalis, Trichomonas hominis , Trichomonas tenax slidesStool examination and general unrein examination**

2.It was updated in the 14th week of the curriculum, as shown on the table below.

Before updating	After update
Slides of Isospora belli, Toxoplasma gondii With lab. diagnosis Slides of Cryptosporidium spp. With lab. Diagnosis	**Slides of Isospora belli, Toxoplasma gondii With lab. diagnosis Slides of Cryptosporidium spp. With lab. Diagnosis (rapid teste examination)**

Description Form to Virology

1. Course Name:
Medical Virology
2. Course Code:
M.V.
3. Semester / Year:
First Semester / Second Year
4. Description Preparation Date:
10/2/2025
5. Available Attendance Forms:
In presence
6. Number of Credit Hours (Total) / Number of Units (Total)
Total number of hours: 3 hours (1 theoretical + 2 practical) / total number of units: 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Assist.Prof.Dr. Balqees Sadoon Jasim Email: inkr.blk2@atu.edu.iq
8. Course Objectives

Course Objective	**General Goals:** The student will be able to identify the basic principles of medical virology and understand the importance and potential dangers of viruses. **Special:** The student will be able to: 1. Understanding how to collect and handle samples. 2. Learning the routine laboratory diagnostic methods for viruses. 3. Becoming familiar with the latest and most important laboratory techniques used in virus diagnosis.
9. Teaching and Learning Strategies	
Strategy	- Cooperative education strategy. - Brainstorming education strategy. - Educational strategy, collaborative concept planning. - Strategy education real-time feedback - Education strategy by exchanging opinions and discussion. - Educational strategy by presenting information. - Education strategy through training and presenting scientific developments.

10. The theoretical structure of the course

Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
First	1	The student will be able to explain the general properties, structure, and classification of DNA and RNA viruses.	**Introduction, General properties of virus, structure, classification of DNA & RNA viruses.**	1. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions
Second	1	The student will be able to describe the replication mechanisms of DNA and RNA viruses.	**Replication of DNA and RNA virus**	=	=
Third	1	The student will be able to explain methods of virus isolation and cultivation.	**Virus isolation & cultivation.**	=	=
Fourth	1	The student will be able to describe antiviral chemotherapy, antiviral agents, and vaccines.	**Chemotherapy, antiviral agent & vaccines**	=	=
Fifth	1	The student will be able to describe the structure, transmission, and clinical significance of influenza viruses.	**Influenza viruses**	=	=
Sixth	1	The student will be able to explain the characteristics of paramyxoviruses and rubella virus.	**Paramyxo & Robella viruses.**	=	=
Seventh	1	The student will be able to describe enteric viruses and the rhinovirus group.	**Enteric viruses, Rhinovirus group.**	=	=
Eighth	1	The student will be able to explain viral pathogenesis and genetics.	**Pathogenesis of viruses and Genetic of viruse**	=	=
Ninth	1	The student will be able to describe	**Herpes viruses**	=	=

		herpesviruses and their associated diseases.			
Tenth	1	□ The student will be able to explain oncogenic viruses and their role in cancer development.	**Oncogenic viruses**	=	=
Eleventh	1	□ The student will be able to describe hepatitis viruses and their clinical importance.	**Hepatitis viruses**	=	=
Twetveth	1	□ The student will be able to describe rabies virus and other neurotropic viruses.	**Rubies & other neurotropic viruses**	=	=
Thirteenth	1	□ The student will be able to explain arboviruses and viral hemorrhagic fevers.	**Arbo viruses & viral haemorrhagic viruses**	=	=
Fourteenth	1	□ The student will be able to describe adenoviruses, poxviruses, and parvoviruses.	**Adeno, pox & parvo viruses**	=	=
Fifteenth	1	□ The student will be able to explain retroviruses, including HIV/AIDS	**Retro & Adis**	=	=
The practical structure of the course					
First	2	• The student will be able to explain general principles of virus identification.	**Virus identification in general**	1. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussio
Second	2	• The student will be able to identify and use essential equipment required in a virology	**Equipments needed for virology lab.**		

		laboratory.			
Third	2	• The student will be able to describe methods of viral culture and isolation.	**Viral culture & isolation.**		
Fourth	2	• The student will be able to perform and interpret ELISA tests for viral identification.	**Elisa tests for viral identification**	=	=
5-6	2	• The student will be able to explain the principles and applications of PCR in viral detection.	**PCR**	=	=
Seventh	2	• The student will be able to describe the role of electron microscopy in virus identification.	**Electron microscope for virus identification**	=	=
8-9	2	• The student will be able to perform viral DNA extraction for diagnostic purposes.	**Viral DNA extraction**	=	=
Tenth	2	• The student will be able to perform viral RNA extraction for diagnostic purposes.	**Viral RNA extraction**	=	=
Eleventh	2	• The student will be able to explain and interpret virus detection by neutralization tests (NT).	**Detection by Neutralization test (Nt)**	=	=

Twetveth	2	• The student will be able to explain and interpret virus detection by hemagglutination inhibition tests (HI).	**Detection by haemagglutination inhibition (HI)**	=	=
13-14	2	• The student will be able to explain serological diagnosis and immunological methods for detection of viral infections	**Serological diagnosis and Immunological detection of virus infection**	=	=
Fifteenth	2	• review	**review**	=	=

10. Course Evaluation

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

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• **Basic Clinical Laboratory Techniques.** • **Essentials Of Medical Laboratory practice**
Main references (sources)	• **A Manual of Laboratory And Diagnostic Tests.** • **Fundamentals Of Urine And Body Fluid Analysis**
Recommended books and references (scientific journals, reports...)	• **Medical Laboratory Science Examination Review.** • **Tietz Clinical Guide To Laboratory Tests**
Electronic References, Websites	https://ikr.atu.edu.iq https://microbenotes.com/ https://medicallabscientist.org/ https://labpedia.net

Update report:
It was updated in the fifteen week of the curriculum, as shown in the table below.

week	Before updating	After update
First theory	Introduction, General properties of virus, structure, classification of DNA & RNA viruses	Introduction, General properties of virus, structure, classification of DNA & RNA viruses, Atypical Virus-Like Agents.
Fifteen practical.	**review**	COVID-19: Virology and Clinical Aspects

Description Form to Medical Ethics

1. Course Name:	
Medical ethics	
2. Course Code:	
M.E	
3. Semester / Year:	
1 st course / 2 st Year	
4. Description Preparation Date:	
19/10/2025	
5. Available Attendance Forms:	
Student presence and attendance record through attendance register	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1Theory	
7. Course administrator's name (mention all, if more than one name)	
Name: **Zahraa Qais Jassim** Email: zahraa.jasm.ikr22@atu.edu.iq	
8. Course Objectives	
Course Objectives	**General: - Identifying the basic ethics of professional conduct for workers in medical specialties.** **Special: - Qualifying the graduate on professio behavior in dealing with his profession and achievi harmony with himself and his professio environment (the patient, his companions, workers the health field and medical devices).**
9. Teaching and Learning Strategies	
Strategy	1- Introducing the student to how to deal with the patient and maintain his privacy. 2- How to deal with his subordinates and colleagues at work

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st.- 2nd.	**2**	• The student will be able to explain the principles of	**Principles of professional ethics in Arab and Islamic**	1-**Lecture** **2- Scientific laboratories.** **3-**	**Quizze**

		professional ethics in Arab and Islamic civilization.	**civilization.**	**Systematic training**.	
Third	**2**	• The student will be able to describe the etiquette of dealing with patients in hospitals from ancient times to the present.	**Etiquette of dealing with patients in hospitals from ancient times until now.**	=	=
4th.- 5th.	**2**	• The student will be able to respect and adhere to institutional rules and regulations.	**Respect the institution's rules and regulations**	=	=
6th - 8th.	**2**	• The student will be able to apply the principles of professional confidentiality in medical practice.	**For professional confidentiality**	=	=
9th - 10th.	**2**	• The student will be able to explain the characteristics of ethics as a guide for professional	**Characteristics of ethics as a guide and guide to behavior.**	=	=

		behavior.			
Eleventh	**2**	• The student will be able to demonstrate proper behavior in handling medical devices and equipment.	**Behavior of deali with medical devices and equipment.**	=	=
Twetveth	**2**	• The student will be able to apply safety measures to prevent work hazards and accidents.	**To prevent work hazards and accidents**	=	=
Thirteent	**2**	• The student will be able to prevent risks related to bacterial, toxic, and radioactive contamination .	**Prevent the risks bacterial, toxic ar radioactive contamination.**	=	=
Fourteen	**2**	• The student will be able to recognize and avoid incorrect practices in the professional field	**Avoid wrong practices in the field of work.**	=	=

Fifteenth	**2**	• Review	**Review**	=	=

1. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
2. Learning and Teaching Resources	
Required textbooks (curricular books, if any	
Main references (sources)	Jashwa George "Auditor Rotation and The Quality of Audits" The CPA Journal,(Dec,2014),Vol.(74), No.(12),PP.4-22. Palmrose, Z. "An Analysis of Auditor Litigation and Audit Service Quality", The Accounting Review 63 (January): 55 - 73. (2018) 3. Palmrose, Z.. "An Analysis of Auditor litigaation
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	http://ikr.atu.edu.iq

Update report:

Before updating	**After update**
-Definition - Concept - Practical applications - The relationship between employees and their managers.	Week Four: Etiquette for Dealing with Patients in Hospitals from Ancient Times to the Present
Characteristics of professional ethics as a guide and guide to behavior.	Week 8 / Values, Customs and Traditions: Definition, Classification and Influencing Factors