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 For Medical laboratory Technologies Department

2024

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: Karbala Technical Institute

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: 17/2/2024

File Completion Date: 17/2/2024

Signature:
Head of Department Name:
Assist. Lec. Aqeel Salman Abd AlSalam
Date: / 2 / 2024

Signature:
Scientific Associate Name:
Assist.Prof.Dr. Layth Hassan Jawad
Date: 27/ 2 / 2024

* **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: 28/ 2 / 2024

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			√	
Assistant Professor	Medical Laboratory Science	Medical Viruses			√	
Lecturer	Chemistry	Clinical Biochemistry			√	
Assistant Lecturer	Microbiology	Immunology			√	
Assistant Lecturer	Animal Physiology	Clinical, Chemical And			√	

		Biological Physiology				
Assistant Lecturer	**Medical Laboratory Science**	**Medical Laboratory Science**			√	
Assistant Lecturer	**Microbiology**	**Mycotoxicology**			√	
Assistant Lecturer	**Parasitology**	**Zoology**			√	
Assistant Lecturer	**Biology**	**Medical Physiology**			√	

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

				Required program Learning outcomes												
Year/Level	Course Code	Course Name	Basic or optional	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	√	√	√	√	√	√	√	√	√	√	√	√	√
First Stage/ Second Semester	Q.C.	Quality control	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	H.T.	Histological techniques	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	M.B.	Molecular biology	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	L.S.	Lab. Safety	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	B.T.	Blood transfusion	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	B.C.	Biochemistry	Specialized	√	√	√	√	√	√	√	√	√	√	√	√	√
	H.R.D.	Human right &Democratic	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√
	E.L.	English language	Assistant	√	√	√	√	√	√	√	√	√	√	√	√	√

- **Please 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:	
10/2/2024	
5. **Available Attendance Forms**:	
Present	
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 Email: inkr.blk2@atu.edu.iq	Assist. Lec. Jaafar Ali jaafar.ali@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 to Third	2	Developing the student's knowledge by using advanced teaching methods for each lecture according to the title and content of the lecture and consolidating the concepts of the scientific subject in the student.	Introduction to Medical lab. Techniques includes - Identify the various laboratory glasses and how to deal with laboratory methods. - Sterilization. Identify ways of cleaning, sterilization and disinfectant by physical, chemical and mechanical means. Identify different sterilization equipment and materials used in chemical sterilization. A full review of the ba techniques that use in diagnosis of bacteria, blo and clinical chemis - Laboratory safety and h to avoid accidents and err that are inadverter laboratory in a laborat (first aid, biochemi hazards, and biologi hazards), and biological chemical safety.	1. The lectur 2. Scientific laboratories. 3. Systematic training. 4. Summer training Use a PowerPoint presentation t present videos	Daily, oral and written examinations, reports, discussions
Fourth	2	=	Samples collection handling. - Samples collection different lab. Investigatic samples transport, samp preparation.	=	=
Fifth	2	=	Culturing of microorgani	=	=

			:- types of Culture me different samples used culture, bacterial gro curve, MO characterizat (chemical tests for M identification)		
Sixth	2	=	Urine samples: Ur formation, Properties urine, chemical and physi investigations, microsco examination.	=	=
Seventh	2	=	Stool sample: formation, properties, culture, general examination.	=	=
Eighth	2	=	Seminal Fluid: Formati organs of reproductive tr characterization of sen fluid, investigations that u on seminal fluid, semi fluid examination, fruct test, antisperm antibo (serum and semen). To sperm count in Neu chamber. Types of nor and abnormal of Sper character with study the v of writing the final report.	=	=
Ninth	2	=	Agglutination techniques	=	=
Tenth	2	=	Advance techniques -Enzyme-linked immunosorbent as (ELISA) princi applications	=	=
Eleventh	2	=	Radioimmunoassay (R principle, applications	=	=
Twetveth	2	=	Immunofluoresence techni	=	=
Thirteent	2	=	Polymerase chain react (PCR), types princi applications	=	=
Fourteent	2	=	Real-time PCR	=	=
Fifteenth	2	=	Review	=	=
The practical structure of the course					
First to	4	Developing the	Introduction on the subject	1. The lectur	Daily, oral and

Third		student's knowled by using advanced teaching methods for each lecture according to the ti and content of the lecture and consolidating the concepts of the scientific subject the student..	medical laborat techniques. - Glassware and mater used in some tests. Disinfection and sterilizat (Chemical and physi - biological and chemi hazards and safety	2. Scientific laboratories. 3. Systematic training. 4. Summer training	written examinations, reports, discussi
Fourth	4	=	Samples collection and handling. - Samples collection for different lab. Investigations samples transport, samples preparation.	=	=
Fifth	4	=	Culturing of microorganism types of Culture media, preparation of culture medi	=	=
Sixth	4	=	Urine samples: Chemical a physical investigations, microscopic examination. Culture and sensitivity	=	=
Seventh	4	=	Stool sample: General examination. Culture and sensitivity	=	=
Eighth	4	=	Seminal Fluid: Seminal flu examination Liquification time, physical examination, microscopic examination. Fructose test.	=	=
Ninth	4	=	Heamagglutination test	=	=
Tenth	4	=	Advance techniques -Enzyme-linked immunosorbent assay (ELISA) procedure, troubleshoot. Cutoff value, standa curve	=	=
Eleventh	4	=	Radioimmunoassay (RIA) procedure, troubleshoot.	=	=
Twetveth	4	=	Immunofluoresence techni	=	=

Thirteent	4	=	Polymerase chain reaction (PCR), types procedure, ge electrophoresis	=	=
Fourteent	4	=	Real-time PCR, procedure application in medical lab.	=	=
Fifteenth	4	=	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, any)	• **Basic Clinical Laboratory Techniques.** • **Essentials Of Medical Laboratorypractice**
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

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:	
14/2/2024	
5. Available Attendance Forms:	
Present	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5^{th} 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. Balkeas Abd Ali Abd Aun Jwad Email: inker.balk@atu.edu.iq Name: Aqeel Salman Abd AlSalam aqeel.alsalam.ikr@atu.edu.iq	
8. Course Objectives	
Course Objectives	
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	2	Developing the student's knowledge by using advanced teaching methods for each lecture	Definition of some terminology that deals with histolog cytology,… etc.	1. Lecturer 2. Scientific Lab 3. Systematic training.	1. Daily Quick Qui 2. Oral exams 3. Theoretical exar 4. Reports 5. dissuasion

		according to the title and content of the lecture and consolidating the concepts of the scientific subject in the student.		4. Summer traini	
Second	2	=	Sample collection, biopsy, and autops	=	=
Third & fourth	2	=	Steps of preparing tissue for study, fixation, fixatives.	=	=
Fifth & Six	2	=	Routine fixatives a special fixatives.	=	=
Seventh	2	=	Washing, solution time	=	=
Eighth	2	=	Dehydration , dehydrants .	=	=
Ninth	2	=	Clearing ,clearing agents	=	=
Tenth	2	=	Infiltration ,types waxes	=	=
Eleventh	2	=	blocking and trimming .	=	=
Twelfth	2	=	Microtomes, Sectioning.	=	=
Thirteenth Fourteenth	2	=	Review	=	=
Fifteenth	2	=	Final exam	=	=
The practical structure of the course					
First	3	Developing the student knowledge by using advanced teaching methods for each lectur according to the title an content of the lecture a consolidating the conce of the scientific subject the student.	Introduction to histological and cytological techniques		
Second	3	=	Instruments , tools glass wares	=	=
Third	3	=	Preparation of solution used .	=	=
Four & Fif	3	=	Steps of preparing	=	=

			the tissues with the solutions .		
Sixth	3	=	Doing steps of preparation .	=	=
Seventh & Eighth	3	=	Blocking and embedding	=	=
Ninth	3	=	Trimming .	=	=
Tenth	3	=	Test for blocking a trimming .	=	=
Eleventh	3	=	Sectioning .	=	=
Twelfth	3	=	Sectioning and err in sectioning	=	=
Thirteenth Fourteenth	3	=	Review	=	=
Fifteenth	3	=	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)**

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:
14/2/2024
5.Available Attendance Forms:
Present
6.Number of Credit Hours (Total) / Number of Units (Total)
2 Theory + 2 Practical = 4 total 4 hours
7.**Course administrator's name (mention all, if more than one name)**
Name: Nawras Abdel Abbas Esmaeel Email: nawras. Madi@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 and practical structure of the course**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st.	2	- **The student understands the topic**	**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
2nd.	2		**Balances** Uses , types, main parts, principle of operation service and maintence	=	=

3th.	2		**Photometry** **Introduction, light and wave length** ,beer lamberts law ,type of photometers, main parts, filters, prisr and diffraction gratings, principle of operation and maintenance	=	=
4th.	2		**Flame photometry** introduction, uses, main parts, types atomizers, principle of operation ,operation and maintenace	=	=
5th.	2		**Atomic Absorbition Spectrophotometry** introduction, uses, main parts, types atomizers, principle of operation ,operation and maintenace	=	
6th.	2		**CENTRIFUGE** Uses,types,main parts,principle of operation, operation and maintenanc		=
7th.	2		**AUTOCLAVES** Uses , types, main parts,principle of operation, operation and maintenanc	=	=
8th.	2		**PH METERS** introduction, uses, main parts, types atomizers, principle of operation ,operation and maintenance	=	=
9th.	2		**MICROTOMES** Uses,types,main parts,principle of operation, operation and maintenanc	=	=
10th.	2		**ELECTROPHORESIS** uses, main parts, types , atomizers, principle of operation ,operation and maintenance	=	=
11th.	**2**		**HEATING INSTRUMENTS(WARER BATH OVEN &NINCUBATION)** Uses, types, main parts, principle of operation, operation and maintenanc	=	=

12th. **13th.**	2 **2**		**WATER PURIFICATION (DISTILLATORS&DEAIONIZEI** Distillatory , deionizer , uses, main parts, operation and maintenance. **AUTOANANLYZERS** introduction, uses, main parts, types atomizers, principle of operation ,operation and maintenance .	= =	= =
12. 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					
13. Learning and Teaching Resources					
Required textbooks (curricular boc if 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:	
H.	
3.Semester / Year:	
The first course / fist stage	
4. Description Preparation Date:	
10/2/2024	
5. Available Attendance Forms:	
Present	
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. Hussain Ali Rzoqy** **hussain.rezoqy@atu.edu.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 and practical structure of the course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	- Raising the level of motivation for learning in its various types: internal motivation, social motivation, and achievement motivation. - Creating opportunities to implement a collective planning approach to the curriculum, and for cooperation among faculty members to identify gaps and repetitions. - Helping the student to ensure that decisions related to the curricula and educational environment are rational. - Promoting the philosophy of follow-up and continuous improvement. - Helping the student to ensure accountability and ensure the quality of academic programs.	**Shape of cell**	1. The lecture 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions.
second	5	=	**Epithelial tissu simple epith. T**	=	=
third	5	=	**Epithelial tissu Stratified epith T.**	=	=
4th	5	=	**Connective tiss – Loose co. t.**	=	=
5th	5	=	**Connective tiss –dense co. t.**	=	=
6th	5	=	**Connective tiss –the blood**	=	=
7th	5	=	**Connective tiss**	=	=

			–compact bone		
8th	5	=	**External featur of digestive system**	=	=
9th	5	=	**Urogenital syst of male &femal**	=	=
10th	5	=	**Liver**	=	=
11th	5	=	**Spleen**	=	=
12th	5	=	**Lymph node**	=	=
13th	5	=	**Circulatory system (Artery)**	=	=
14th	5	=	**Circulatory system (vein)**	=	=
15th	5	=	**Review**	=	=

11.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.	
12.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

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:	
14/2/2024	
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)	
Name: Dr. Hanan Abbas Majeed Al-Zubaidi Email: inkr.han2020@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	2	Developing the student's knowledge by using advanced teaching methods for each lecture according to the title and content of the lecture and consolidating the concepts of the scientific subject in the student.	Introduction to analytical chemistry Atom elements, radio isomers pollutio with radio isome , pollution with elements . Relation betwee atoms, molecule ,energy, accordi to the new theor of atom.(Debrol equation). Matte classification. Chemical bonds covalent ,Ionic , coordination , hydrogen. Methods of analysis.qualitat and quantitative ,statistical metho of quantitative analysis, errors i quantitative analysis .	1. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions
Fourth	2	=	Methods of expressing concentration of solution , Molar solution ,normal solution .	=	=
Fifth	2	=	Preparation of molar solution , dilution ,questio	=	=
Sixth	2	=	Percentage composition, pa per million.	=	=

Seventh	2	=	Chemical equilibrium, ionization, constant of wate (PH and POH).	=	=
Eighth	2	=	Ionization of we electrolyte . calculation of PI of weak acids ar weak bases.	=	=
Ninth	2	=	Buffer solutions classification .	=	=
Tenth	2	=	Calculation of buffer solutions	=	=
Eleventh	2	=	Uses of buffer solutions.	=	=
Twetveth	2	=	Volumetric analysis , classification , standard solutio examples .	=	=
Thirteenth	2	=	Neutralization reactions .	=	=
Fourteenth	2	=	Oxidation ,reduction reactions . examples.	=	=
Fifteenth	2	=	Precipitation reactions.	=	=
The practical structure of the course					
First to Third	4	Developing the student's knowledge by using advanced teaching method for each lecture according the title and content of the lecture and consolidating t concepts of the scientific subject in the student.	Type of glasswa used nown of cations Cleaning solutio safety. Cation analysis Unk uiz. Anion analysis . Unknown of amnions. Quiz	1. The lecture. 2. Scientific laboratories. 3. Systematic training. 4. Summer training	Daily, oral and written examinations, reports, discussions
Fourth	4	=	Balance, preparation of percentage solutions.	=	=
Fifth	4	=	Completion of	=	=

			preparation of percentage solutions.		
Sixth	4	=	Quiz, in balace a percentage solutions.	=	=
Seventh	4	=	Preparation of normal solution and molar soluti	=	=
Eighth	4	=	Dilution of concentrated solution.	=	=
Ninth	4	=	Quiz, examinati in dilution.	=	=
Tenth	4	=	Buffer solutions preparation PH.	=	=
Eleventh	4	=	PH. Meter.	=	=
Twetveth	4	=	Preparation of solution of knov PH.	=	=
Thirteenth	4	=	Quiz , unknown	=	=
Fourteenth	4	=	Volumetric analysis, acid-ba 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 Har Technical Education Authority 2)Fundamental of clinical chemistry / Norbert Tiet
Main references (sources)	3) General Chemistry / Saeba Abdullah - Hanaa Salman - Maysoon Suleiman / Technical Educatio Authority 4) Quality control of pharmacy students / Sa Muhammad Abu Zaid / Technical Educat

	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 Technical Insti (https://ikr.atu.edu.iq)

Description Form to Fundamentals of Nursing

1.Course Name:	
Fundamentals of Nursing	
2.Course Code:	
F.N	
3.Semester / Year:	
First semester - academic year 2023-2024	
4.Description Preparation Date:	
2024/2/13	
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 MAJID HAMEED Email: mohammed.hameed@atu.edu.iq	
8.Course Objectives	
Course Objective	**• The student will be able to become familiar with the basic principles of the Technical Nursing Basics course. • Graduating technical personnel who work in medical laboratories and are able to do the following:- • Help measure vital signs (temperature, pulse, breathing, blood pressure). • Assisting the doctor in diagnostic and therapeutic nursing procedures. • Operating medical equipment to evaluate vital signs • Dressing wounds • Knowing the degrees of burns, the percentage of burns, and what are the necessary tests that are performed on a person who has been burned • Giving treatment and inserting needles • Identifying communicable diseases, their methods of transmission, and how to prever them while taking a sample from a sick person.**
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	**Topics**
1	Introduction to nursing

2	Medical examination
3	Vital signs, temperature measurement,
4	Pulse, definition, factors that effecting pulse, measurement of pulse .
5	Respiration, definition, factors that effecting respiration, measurement of respiration
6	Blood pressure, definition, factor the effecting blood pressure, hyper and hypotension, measurement of blood pressure
7	Health care, definition, factors effecting health care
8	Factors that effects the health of worker in laboratories, natural factors, infectious disease
9	Chemical factors- disease
10	Psychological factors-diseases
11 and 12	Biological factors- types-their effects on workers in Lab.- diseases.
13 and 14	First aid- definition, paramedic, fundamental of first aid, wound, bleeding .
15	Burns- types of fracture aid- artificial respiration
The practical structure of the course	
Week	**Topics**
1	Physical and medical examination
2	Methods of bio-vital markers measurement-temperature measurement
3	Pulse measurement, atrial, vein pulsation
4	Respiration measurement
5	Method of blood pressure measurement
6	Review for bio-vital markers measurement
7	Disinfection and sterilization methods
8	Methods of drugs intake and needle glaucoma
9	Samples collection from patients
10	Blood collection
11	Review
12	First aid- wound and bleeding first aid. .
13	First aid- fractures first aid- poisoning
14	Choking first aid- Heart massage
15	Application of artificial respiration
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 an	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	• 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
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 2023-2024
4.Description Preparation Date:
2024/2/13
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)
:Yamil - Name: Hussain Ali Muhammad Alhussain.muhammed@atu.edu.iq
8.Course Objectives

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

9. Teaching and Learning Strategies

exposed to continuous awareness of human rights and the fundamental freedo .associated with them sanctity, and And to fight everything that aims to ignore it, harm it, or undermine 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 in meaning Human rights / 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 And what it is Human rights in civilizations And her relationship With others from Threads human rights As A field Independently throw lecture And a question on the topic Students Subtract questions on Students and give the time For students To subtract questions And inquiries on 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 Students on the topic Subtract questions on Students and give the time For students To subtract questions And inquiries on the topic equest with to r Preparation from	6	3

			Students		
A written test	discussion	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 questions And inquiries on the topic with to request Preparation from Students	6	5
oral test	a lecture	Human Rights Arab -Watch Human Rights .Organizations	knowledge Human rights organizations 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	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	6	7

			with to request Preparation from Students		
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 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	8
oral test	a lecture	Universal Declaration of Human Rights	Universal knowledge Declaration of Human 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 tudentsS	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 For students To	6	10

			subtract questions And inquiries on the topic with to request Preparation from Students		
oral test	a lecture	Modern human rights: economic, 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 political human (rights throw lecture And a question Students on the topic Subtract questions on Students and give the time For students To subtract questions And opic inquiries on the t with to request Preparation from Students	6	11
oral test	discussion	Guarantees of respect and protection of human rights at l and the nationa international .levels	Identify on Guarantees for the protection of human rights throw question lecture And a 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	12
oral test	a lecture	The general theory of freedoms: the origin of rights -and freedoms the project's position on	Identify on Theories of human achievement throw lecture And a question Students on the topic Subtract questions on Students and give the	6	13

		declared rights .and freedoms	time For students To subtract questions And inquiries on the topic with to request Preparation from Students		
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 Students and give the time For students To subtract questions And inquiries on the topic with to request Preparation from Students	6	14
oral test	a lecture	Democracy definition and types	knowledge And meaning And what it is Democracy 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

10. Course evaluation

to the tasks assigned to the student, such as daily according ١٠٠Distribution of the grade out of .preparation, daily, oral, monthly, written exams, reports, etc

marks monthly exam ٤٠
marks for daily and oral preparation and report writing ١٠
final exam score ٥٠

11. 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
periodicals and research ،Scientific journals And specialty	Recommended supporting books and (....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
2. Course Code: C.A.
3. Semester / Year: First semester / First year
4. Description Preparation Date: February 2024
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 Huda Jalil dikhil Email: hudajh@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
15	1	Enabling the student to understand the computer as an electronic device and learn about all	Introduction to computers, computer generations, hardware and software components Operating systems and their types MS-DOS operating system operating system commands	Explanation using smart screen display, presentation usir the PowerPoint application, and	Direct questions and pop quiz

		its components and the software used in it	WINDOWS operating system operating system commands	using the whiteboard to clarify important information	
The practical structure of the course					
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 componen and understanding its internal components Learn about the DOS operating system and apply inter and external operating system commands Learn about the Windows operating system, its advantages, requirements, operation, and applying operating system commands	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 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 Higher Educat and Scientific Research