Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Authority

Quality Assurance and Academic Accreditation

Department Accreditation Division

Guide to Academic Program and Course Description

2025

Introduction:

The academic program is considered a coordinated and structured package of courses that includes procedures and experiences organized into curricular components. Its main purpose is to build and refine graduates' skills, making them qualified to meet labor market demands. The program is reviewed and evaluated annually through internal or external auditing procedures and programs, such as the External Examiner Program.

The academic program description provides a concise summary of the key features of the program and its courses, highlighting the skills intended to be developed in students based on the academic program's objectives. The importance of this description lies in its role as the foundation for obtaining program accreditation. It is collaboratively written by the teaching staff under the supervision of scientific committees within academic departments.

This guide, in its second edition, presents an updated description of the academic program after revising and updating the content and sections of the previous guide in light of recent developments in the Iraqi educational system. It includes traditional program descriptions (annual and semester-based systems) as well as the standardized academic program description adopted under the directive of the Department of Studies (Ref. T.M.3/2906, dated 3/5/2023) for programs that follow the Bologna Process.

In this context, we emphasize the importance of writing academic program and course descriptions to ensure the proper functioning of the educational process.

Concepts and Terminology:

- **Academic Program Description:**
  A brief summary that outlines the program's vision, mission, and objectives, including a precise description of the intended learning outcomes based on defined learning strategies.
- **Course Description:**
  A concise summary of the key characteristics of a course and the expected learning outcomes that students should achieve. It demonstrates whether students have made optimal use of available learning opportunities. The course description is derived from the academic program description.
- **Program Vision:**
  An aspirational image of the future of the academic program, aiming for it to be advanced, inspiring, motivating, realistic, and implementable.
- **Program Mission:**
  A brief explanation of the goals and the necessary activities to achieve them. It also outlines the pathways and directions for the program's development.
- **Program Objectives:**
  Statements that describe what the academic program aims to achieve within a specific timeframe. These objectives should be measurable and observable.
- **Curriculum Structure:**
  All the courses included in the academic program according to the adopted learning system (semester-based, annual, or Bologna Process). This includes required courses (mandated by the Ministry, University, College, or Department), along with the number of credit units.
- **Learning Outcomes:**
  A coherent set of knowledge, skills, and values acquired by a student upon successful completion of the academic program. Each course should have clearly defined learning outcomes that align with the program's objectives.
- **Teaching and Learning Strategies:**
  These are the methods used by faculty members to enhance student learning and development. They are planned approaches aimed at achieving learning objectives and include all curricular and extracurricular activities intended to meet the program's learning outcomes.

Academic Program Description Form

University Name: Northern Technical University
College /Institute: Hawija Polytechnic College
Scientific Department: Medical Laboratory Techniques
Academic or Professional Program Name: Diploma in Medical Laboratory Techniques
Final Certificate Name: Diploma in Medical Laboratory Techniques
Academic System: Courses
Description Preparation Date: 2025/9/4
File Completion Date: 2025/9/4

Signature:

Head of Department Name: **Falah H. Yousif**

Date: **2025/9/4**

Signature:

Scientific Associate Name:

Muhammad Ali Fares

Date: **2025/9/4**

The file is checked by: Ahmed Abd Khalaf
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date: 2025/9/4
Signature:

Approval of the Dean
Prof. Dr. Omer Khalil Ahmed

1. Program Vision

To be a leading Department of Medical Laboratories in education, research, and innovation in the fields of laboratory diagnostics and applied medical sciences, making a significant contribution to the advancement of healthcare services and the promotion of sustainable development within the health sector at the local and regional levels.

2. Program Mission

The Department of Medical Laboratories is committed to delivering high-quality education and practical training, while conducting advanced applied scientific research that contributes to the development of laboratory diagnostics and enhances their accuracy and efficiency. The Department emphasizes the adoption of modern technologies and sustainable scientific solutions to support the healthcare sector and serve the community.

3. Program Objectives

- Developing academic curricula to meet the requirements of the labor market in the field of laboratory diagnostics and the application of modern technologies.
- Providing qualified human resources to fulfill the requirements of health and social development plans.
- Equipping students with scientific skills and practical expertise to enable them to contribute effectively to the improvement of healthcare services.
- Promoting health awareness regarding the importance of laboratory investigations and their role in early diagnosis through training programs and workshops.
- Fostering teamwork among students and preparing them for a collaborative professional environment within the healthcare sector.

- Strengthening collaboration between the Department and healthcare and research institutions whose activities align with the Department's objectives.
- Implementing sustainable practices that protect the environment and ensure the optimal utilization of medical and technological resources.
- Contributing to continuous professional development through training courses, seminars, and workshops conducted at the college.

4. Program Accreditation

An application for program accreditation has been submitted.

5. Other External Influences

The Presence of a Supporting Partner Contributing to:

- Establishing a strong linkage between the academic program and the labor market or healthcare community through collaboration with hospitals and diagnostic centers.
- Facilitating student employment opportunities and practical training through field-based training programs and direct career opportunities.
- Providing continuous guidance and feedback to ensure that the program remains aligned with scientific advancements and the evolving healthcare needs of the community.

6-Program structure:

Program Structure	Number of Courses	Study Unit	Percentage	Notes *
University requirements	10	18	18.75%	
Institute requirements	5	14	14.58%	
Department requirements	23	64	66.66%	
summer training				
Other				

* The material may include whether the course is a core or elective.

7. Program Description

Level	Course Code	Course Title (English)	Number of hours	
			Theoretical	Practical
First / University Requirements	NTU 100	Democracy and Human Rights	1	1
	NTU 200	English Language 1	1	1
	NTU 102	Computer 1	1	1
	NTU 103	Arabic Language 1	1	1
	NTU 104	Sports (Elective)	1	1
First / Institute Requirements	TIH 106	Physiology	2	2
	TIH 107	Anatomy	2	2

	TIH 108	Laboratory and Workshop Safety	2	
	TIH 109	Medical Terminology	2	
First / Department Requirements	MLT 115	Analytical Chemistry	1	2
	MLT 113	Histology Slides	1	2
	MLT 114	Medical Devices	1	2
	MLT 118	Tissues	1	2
	MLT 117	Principles of Nursing	1	2
	MLT 119	Organic Chemistry	1	2
	MLT 112	Laboratory Techniques	1	2
	MLT 116	Blood Transfusion	1	2
	NUT 120	First Aid (Elective)	2	
Second / University Requirements	NTU 201	Computer 2	1	1
	NTU 202	Arabic Language 2	2	
	NTU 203	Crimes of the Ba'ath Regime in Iraq	2	
	NTU 204	Professional Ethics	2	
Second / Institute Requirements	TIH 202	Biostatistics	2	
Second / Department Requirements	MLT 208	Biochemistry	1	2
	MLT 214	Fundamentals of Immunology	1	2
	MLT 206	Protozoa	1	2
	MLT 210	Fundamentals of Bacteriology	1	2

	MLT 209	Viruses	1	2
	MLT 205	Introduction to Hematology	1	2
	MLT 211	Clinical Chemistry	1	2
	MLT 216	Immunology and Pathology	1	2
	MLT 213	Worms	1	2
	MLT 210	Pathogenic Bacteria	1	2
	MLT 212	Medical Mycology	1	2
	MLT 217	Cellular Hematology	1	2
	MLT 215	Research Project		2

8. Expected Learning Outcomes of the Program

A. Knowledge

1. Interpret statistical data and apply appropriate statistical methods for analyzing laboratory test results.
2. Identify methods for improving sample quality and ensuring the reliability and safety of laboratory procedures.
3. Differentiate microorganisms, understand their environmental requirements, and recognize their impact on human health.
4. Enhance diagnostic accuracy through the implementation of appropriate laboratory practices.
5. Apply infection control strategies using environmentally friendly approaches that support public health.
6. Establish and manage training laboratories to prepare students for performing basic and advanced laboratory investigations.
7. Evaluate various environmental factors and their effects on laboratory test results.

8. Apply analytical techniques, including clinical chemistry, hematology, and microbiology, according to the requirements of different laboratory examinations.
9. Explain biological processes such as cellular respiration, membrane transport, and osmotic pressure in cells.
10. Select appropriate laboratory equipment for conducting various diagnostic tests.
11. Collect, classify, and preserve medical samples according to scientific standards and guidelines.
12. Design educational laboratories using modern teaching and learning technologies.
13. Diagnose nutritional deficiencies through appropriate laboratory investigations.
14. Manage laboratory units, including clinical chemistry, hematology, and microbiology sections.
15. Extract biological compounds from medical samples for research and diagnostic purposes.

B. Skills

1. **Practical Skills:**
   The ability to apply modern laboratory diagnostic techniques and perform medical investigations with high efficiency while adhering to safety and quality assurance standards.
2. **Intellectual Skills:**
   The ability to analyze health-related problems associated with laboratory investigations and propose innovative and effective solutions.
3. **Scientific Research Skills:**
   The ability to design and conduct applied scientific research aimed at improving the accuracy and efficiency of laboratory tests, as well as analyzing data and deriving scientifically valid conclusions.
4. **Technology Utilization Skills:**
   The ability to use modern tools and technologies for monitoring and improving the quality of medical investigations, including molecular diagnostic techniques, immunological assays, and digital laboratory systems.
5. **Communication Skills:**
   The ability to communicate effectively in scientific contexts, prepare technical reports, and work collaboratively within multidisciplinary teams in healthcare and medical laboratory environments.

6. **Professional and Ethical Awareness:**
   The commitment to professional and ethical standards in the field of medical laboratories while respecting relevant laws, regulations, and professional guidelines.
7. **Contribution to Graduate Employability:**
   Practical and technical competencies enhance graduates' ability to perform required tasks effectively within healthcare work environments.
8. **Enhancement of Efficiency and Productivity:**
   These competencies enable graduates to perform laboratory procedures accurately, minimize errors, and improve the overall quality of diagnostic services.
9. **Innovation and Problem-Solving Empowerment:**
   Development of critical thinking and innovative approaches to address challenges in laboratory diagnosis.
10. **Adaptation to Technological Advancements:**
    The ability to keep pace with emerging medical technologies, advanced laboratory instruments, and evolving diagnostic methods.
11. **Promotion of Lifelong Learning:**
    Supporting students' ability to pursue continuous professional development and self-directed learning after graduation.
12. **Achievement of Sustainable Development Goals:**
    Contributing to the advancement of sustainable healthcare practices that protect the environment and promote public health.

C. Values

Innovation and Creativity:
Encouraging students to develop novel solutions in laboratory diagnostics and scientific research.

Collaboration and Partnership:
Promoting the exchange of knowledge and expertise among individuals and healthcare institutions.

Practical Application:
Encouraging students to participate in applied practical projects within medical laboratory settings.

Sustainability:
Implementing sustainable healthcare practices that protect the environment and ensure the optimal utilization of medical resources.

Expected Learning Outcomes (ELOs)

- **Knowledge:** Students will be able to understand the classification of microorganisms using appropriate taxonomic keys, explain biological processes such as membrane transport and osmotic pressure, and design laboratory experiments according to principles of medical experimental design and analysis.
- **Skills:** Students will be able to perform laboratory investigations (such as hematological and clinical chemistry tests), analyze biological samples, and effectively communicate and collaborate with healthcare institutions.
- **Attitudes:** Students will be able to represent the university, college, and department positively, demonstrate professional commitment, and adhere to ethical standards within the profession.

Importance of Expected Learning Outcomes

- Preparing graduates capable of improving the quality of healthcare services through the application of modern laboratory practices.
- Quality Assurance: Enhancing the quality of medical investigations by adhering to quality assurance standards and healthcare safety requirements, thereby increasing patient and community satisfaction.
- Curriculum Planning: Developing curricula aligned with healthcare labor market requirements through the adoption of modern teaching and learning approaches.

Professional Values Outcomes

- Perform laboratory investigations on medical samples with accuracy and reliability.
- Analyze blood and urine samples according to established scientific standards.
- Extract biological compounds from samples for research and diagnostic applications.

9. Teaching and Learning Strategies

Theoretical Learning:
Utilizing lectures, textbooks, and scientific references in the fields of laboratory diagnostics and medical sciences.

Practical Learning:
Providing direct laboratory training, practical workshops, and field-based training in hospitals and healthcare centers.

Project-Based Learning:
Implementing applied projects in laboratory diagnostics and scientific research, while encouraging students to conduct applied scientific investigations.

Collaborative Learning:
Encouraging students to engage in teamwork through graduation projects and collaborative scientific discussions.

Technology-Enhanced Learning:
Adopting e-learning platforms, digital simulation tools, and healthcare information management systems to support the learning process.

Professional Training:
Providing professional training opportunities utilizing modern technologies and advanced practices in medical laboratories.

Continuous Assessment:
Conducting periodic student evaluations to monitor progress and providing constructive feedback to improve academic and practical performance.

Experiential Learning:
Engaging students in scientific experiments, learning from practical experiences, identifying areas for improvement, and enhancing laboratory performance.

10. Assessment Methods

Weekly Examinations: Assessing students' understanding and retention of theoretical concepts and practical skills on a regular basis.

Homework Assignments: Enhancing self-directed learning and encouraging students to review and engage with scientific materials.

Daily and Monthly Technical Reports: Documenting the results of laboratory investigations and practical experiments while developing students' skills in scientific reporting.

Scientific Discussions: Developing students' critical thinking abilities, scientific communication skills, and active participation in academic discussions.

Field Training Assessment: Evaluating students' performance in real work environments within hospitals and healthcare centers.

Final Course Examination: Comprehensively assessing the level of knowledge and skills acquired by students throughout the academic semester.

11. Academic Staff

Faculty Members						
Academic Rank	Specialization		Requirements / Special Skills (if any)		Number of Faculty Members	
	Field of Study	Specialization			staff	Lecturer
Assistant Professor	Life Sciences	Microbiology			staff	
Lecturer	Chemistry Sciences	Biochemistry			staff	
Lecturer	Life Sciences	Parasitology			staff	

Lecturer	Chemistry	Organic Chemistry			staff	
Lecturer	Water Resources Engineering	Water Resources			staff	
Lecturer	Chemistry	Analytical Chemistry			staff	
Assistant Lecturer	Life Sciences	Immunology			staff	
Assistant Lecturer	Life Sciences	Genetics			staff	
Assistant Lecturer	Chemistry	Biochemistry			staff	
Assistant Professor	Quranic Sciences	Quranic Sciences			staff	
Technical Staff						
Bachelor 3	Life Sciences				staff	
Bachelor	Veterinary medicine				Placement	

Professional development

Orientation of new faculty members

- **Orientation of New Faculty Members:** Introducing new faculty members to academic policies, teaching methodologies, and professional ethics in medical laboratory practice.
- **Training Courses, Workshops, and Seminars in Laboratory Diagnostics and Applied Medical Sciences:** Enhancing faculty members' knowledge and professional competencies in their specialized fields.
- **Teaching and Learning Development Courses and Workshops:** Developing teaching skills through the adoption of modern educational strategies and digital learning platforms.

- **Laboratory Equipment Training Courses and Workshops:** Training faculty members in the operation, maintenance, and effective utilization of modern medical laboratory equipment.
- **Scientific Research Publication Courses and Workshops:** Strengthening faculty members' capabilities in scientific research writing, publication, and dissemination in peer-reviewed academic journals.

Professional development for faculty members

- **Training Courses, Workshops, and Seminars in Laboratory Diagnostics and Applied Medical Sciences:** Enhancing practical competencies and technical skills among faculty members.
- **Development of Scientific Publishing Skills:** Improving faculty members' capabilities in preparing and publishing research articles in specialized peer-reviewed journals within the fields of medical and laboratory sciences.

12. Acceptance criteria

Central Admission Criteria Approved by the Ministry of Higher Education and Scientific Research

13. The most important sources of information about the program

- **National Qualifications Framework (NQF):** Ensuring that the program learning outcomes are aligned with national and international qualification levels.
- **Academic Accreditation Standards:** Ensuring the quality of education and laboratory training practices.
- **The Vision and Mission of the Educational Institution:** Serving as a foundation for guiding the program objectives and learning outcomes.
- **Previous Academic Plans and Curricula:** Utilizing previous experiences and expertise to enhance and develop current curricula.
- **Feedback and Opinions of Faculty Members:** Supporting curriculum development to ensure alignment with practical and professional requirements.

- **Feedback from Students and Graduates:** Evaluating the effectiveness of the program in preparing graduates for the labor market.
- **Employers' Feedback:** Ensuring that acquired competencies and skills meet the requirements of healthcare institutions.
- **Comparable Programs in Local and International Universities:** Facilitating benchmarking and the adoption of best educational practices.
- **Local and International Labor Market Needs:** Guiding curriculum development toward the skills and competencies required by the healthcare sector.

14. Program Development Plan

First: Vision and Mission

Vision:

To advance the Medical Laboratory Technologies Program into a leading academic program in preparing qualified technical professionals capable of developing modern and sustainable laboratory diagnostic practices.

Mission:

To prepare graduates who possess comprehensive theoretical knowledge and practical competencies in laboratory investigations, laboratory management, and the application of modern medical technologies to support and enhance the healthcare sector.

Second: Development Objectives

- Updating the curriculum in accordance with recent advancements in laboratory diagnostics, including molecular diagnostics, immunological assays, and health informatics.
- Enhancing practical training within medical laboratories and healthcare institutions.
- Strengthening the connection between the program and the local and regional healthcare labor market.
- Developing students' scientific research skills and innovation capabilities.
- Integrating digital technologies into medical data management and analysis.

Third: Curriculum Development

- Introducing modern courses, including:
  - Molecular Diagnostics.
  - Health Informatics.
  - Immunological Analysis Techniques and Molecular Biology.
  - Quality Management in Medical Laboratories.
- Updating traditional courses such as Hematology, Clinical Chemistry, and Microbiology to enhance their practical and applied aspects.
- Incorporating applied graduation projects addressing real healthcare challenges.

Fourth: Practical Training and Laboratory Education

- Developing educational laboratories within the college by establishing well-equipped model laboratories.
- Establishing modern training units equipped with advanced laboratory instruments.
- Activating summer training programs in:
  - Public and private hospitals.
  - Healthcare centers.
  - Diagnostic laboratories.
- Increasing the number of practical laboratory training hours compared with theoretical instruction.

Fifth: Academic Teaching Staff Development

Encouraging faculty members to:

- Participate in advanced training courses in laboratory diagnostics.
- Conduct applied scientific research in medical fields.
- Establish collaborations with healthcare institutions.
- Recruiting healthcare professionals and industry experts as visiting lecturers.

Sixth: Scientific Research and Innovation

- Establishing a specialized research unit in medical laboratory sciences.
- Supporting student projects with applied research orientations.
- Developing collaborations with medical research centers.
- Publishing research findings in peer-reviewed scientific journals.

Seventh: Linkage with the Labor Market

- Establishing memoranda of understanding with:
  - Hospitals and healthcare centers.
  - Medical investment projects.
  - The Ministry of Health and healthcare directorates.
- Establishing an advisory committee representing labor market stakeholders to evaluate and enhance the program.
- Conducting graduate follow-up studies (**Tracer Studies**) to improve program outcomes.

Eighth: Teaching and Learning Resources and Equipment Development

- Modernizing medical laboratories, including:
  - Clinical Chemistry Laboratories.
  - Hematology Laboratories.
  - Microbiology Laboratories.
- Providing advanced equipment, including:
  - PCR systems.
  - Immunoassay analyzers.
  - Laboratory Information Systems (LIS).
- Developing both physical and electronic library resources.

Ninth: Quality Assurance and Program Evaluation

- Implementing academic accreditation standards and quality assurance requirements.
- Conducting periodic program evaluations every one to two years.
- Implementing surveys to measure student and employer satisfaction.
- Reviewing and updating program learning outcomes.

Program Skills Outline

Program Skills Map															
Year/Level	Course code	Course name	Essential or optional?	Required learning outcomes of the program											
				knowledge				Skills				values			
				A1	A2	A3	A 4	B1	B2	B 3	B4	Part 1	Par t 2	Par t 3	A4
Level 1	**NTU 100**	**Democracy and human rights**	essential	◉	◉			◉					◉		
	NTU 200	**English 1**	essential	◉				◉				◉			
	NTU 102	**Computer 1**	essential	◉	◉			◉	◉						
	NTU 103	**Arabic1**	essential	◉	◉	◉	◉	◉			◉		◉	◉	
	NTU 104	**Sports**	optional	◉				◉				◉			
	NTU105	**French**	optional												
	TIMM 106	**Physiology**	essential	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉	
	TIMM 107	**Anatomy**	essential	◉	◉	◉			◉			◉			
	TIMM 108	**Laboratory and**	essential	◉	◉			◉			◉				

		workshop safety														
	TIMM 109	**Medical terms**	essential	◉	◉											
	MLT 110	**Analytical Chemistry**	essential	◉	◉			◉	◉		◉		◉			
	MLT 111	**tissue slices**	essential	◉	◉	◉				◉	◉	◉	◉			
	MLT 112	**medical devices**	essential	◉	◉	◉			◉	◉		◉	◉			
	MLT 113	**tissues**	essential	◉	◉	◉					◉	◉				
	MLT 114	**Nursing Foundations**	essential	◉	◉	◉				◉	◉	◉				
	MLT 115	**Organic Chemistry**	essential	◉	◉	◉	◉		◉							
	MLT 116	**Laboratory**	essential	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉		

		techniques														
	MLT 117	**blood transfusion**	essential	◉	◉	◉	◉		◉							
	NUT 118	**First aid**	optional	◉	◉											
	MLT 119	**psychology**	optional													
Level 2	**NTU201**	**Computer 2**	essential	◉	◉											
	NTU202	**Arabic 2**	essential	◉	◉											
	NTU 203	**Baath regime crimes in Iraq**	essential	◉								◉	◉			
	NTU 204	**Professional ethics**	essential	◉	◉	◉						◉	◉			
	TIMM 202	**vital statistics**	essential	◉	◉							◉	◉			

	MLT210	**Biochemistry**	essential	◉	◉	◉	◉		◉			◉	◉	◉	
	MLT211	**Fundamentals of Immunology**	essential	◉	◉			◉	◉			◉	◉	◉	
	MLT212	**Elementary**	essential	◉	◉	◉	◉				◉	◉			
	MLT213	**Fundamentals of Bacteriology**	essential	◉	◉	◉			◉	◉		◉	◉	◉	
	MLT214	**Viruses**	essential	◉	◉				◉	◉		◉	◉		
	MLT215	**Introduction to Hematology**	essential	◉	◉	◉			◉			◉	◉		
	MLT216	**Clinical Chemistry**	essential		◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
	MLT216	**Immunity and**	essential	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉	

		pathogenesis														
	MLT217	**worms**	essential	◉	◉	◉		◉	◉	◉	◉	◉		◉	◉	
	MLT218	**pathogenic bacteria**	essential	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉	◉	
	MLT219	**medicinal mushrooms**	essential	◉	◉	◉		◉		◉	◉	◉	◉	◉	◉	
	MLT220	**Cellular blood diseases**	essential	◉		◉	◉	◉	◉		◉	◉	◉	◉	◉	
	MLT221	**Research project**	essential	◉		◉		◉	◉			◉	◉	◉		

Course Description Democracy and human rights

1. nameThe decision
Democracy and human rights
2. Course code
NTU100
3. Available attendance forms
Traditional Presence (Face-to-face) and Blended Learning
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours / 2 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Faisal Najm Abdullah **e-mail:** faisal_hwj@ntu.edu.iq
8. Course objectives
1- Introduce students to the fundamental concepts of human rights and democracy. 2- Enhance students' awareness of human values, justice, and freedom. 3- Develop students' understanding of the legal foundations and international frameworks of human rights.

4- Establish connections between democratic principles and practices in public life and institutional environments.
5- Develop students' legal and constitutional knowledge and awareness.

9. Course outcomes, teaching, learning and assessment methods

A. Cognitive Objectives

1. Enable students to understand the concept of democracy and the rights and responsibilities associated with the field of human rights.
2. Develop students' cognitive understanding of constitutional principles, the rule of law, and mechanisms for safeguarding human rights.

B. Course-Specific Skills Objectives

- Enable students to understand the concepts of democracy and human rights, recognize methods for protecting and defending these rights, and identify the related legal safeguards and guarantees.

C. Affective and Value-Based Objectives

1. Encourage students to perform their professional duties in the workplace with a strong sense of responsibility and commitment.
2. Promote human values, tolerance, respect, and acceptance of others.
3. Develop students' sense of responsibility toward respecting human rights and engaging positively in community participation.

Teaching and learning methods

((Theoretical lectures / Interactive lectures /)).

Evaluation methods

((Oral exams / Written exams / Weekly reports / Daily attendance / Participation and interaction in lectures / Midterm and final exams))

Teaching and learning methods

((Theoretical lectures / discussion groups / debates between students))

Evaluation methods

(Oral tests/ written tests/ observation/ student's cumulative record)

10.Course structure					
week	watches	Required learning outcomes	Unit name/topic	Teaching method	Evaluation method
1	2	Knowledge and application	**Human rights, definition, objectives** **Human Rights in Ancient Civilizations / Human Rights in Divine Laws**	theoretical	Tests and reports
2	2	Knowledge and application	Human Rights in Contemporary and Modern History (International Recognition of Human Rights since World War I and the League of Nations) / Regional Recognition of Human Rights: European Convention on Human Rights 1950, American Convention on Human Rights 1969, African Charter on Human Rights 1981, Arab Charter on Human Rights 1994	theoretical	Tests and reports
3	2	Knowledge and application	NGOs and human rights (ICRC, Amnesty International, Human Rights Watch, national human rights organizations)	theoretical	Tests and reports
4	2	Knowledge and application	Human Rights in Iraqi Constitutions: Between Theory and Reality The relationship between human rights and public freedoms: 1- In the Universal Declaration of Human RightsHuman	theoretical	Tests and reports

			2- In regional charters and national constitutions.		
5	2	Knowledge and application	Economic, social and cultural human rights, civil and political human rights Modern human rights: the facts in development, the right to a clean environment, the right to solidarity, the right to religion	theoretical	Tests and reports
6	2	Knowledge and application	Guarantees of respect for and protection of human rights at the national level, guarantees in the constitution and laws, guarantees in the principle of the rule of law, guarantees in constitutional oversight, guarantees in freedom of the press and public opinion, the role of non-governmental organizations in respecting and protecting human rights/guarantees and respect for and protection of human rights at the international level: 1 - The role of the United Nations and its specialized agencies in providing guarantees 2- The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, and the ASEAN). 3- The role of international, regional, and non-governmental organizations and public opinion in respecting and protecting human rights.	theoretical	Tests and reports
7	2	Knowledge and application	The General Theory of Liberties: The Origin of Rights and Liberties, The Legislator's	theoretical	Tests and reports

			Position on Public Rights and Liberties, The Use of the Term Public Liberties		
8	2	Knowledge and application	Regulating public freedoms by Equality: The historical development of the concept of equality Modern development of the idea of equality -Gender equality Equality between individuals according to their beliefs and race before public authorities	theoretical	Tests and reports
9	2	Knowledge and application	Freedom of education, freedom of the press, freedom of assembly Freedom of association, freedom of work Right of ownership	theoretical	Tests and reports
10	2	Knowledge and application	freedom of trade and industry Freedom, security and a sense of reassurance freedom of movement freedom of trade and industry Women's freedom	theoretical	Tests and reports
11	2	Knowledge and application	Scientific and technological progress and public freedoms The future of public freedoms	theoretical	Tests and reports

12	2	Knowledge and application	genocide	theoretical	Tests and reports
13	2	Knowledge and application	Democracy, its characteristics and types	theoretical	Tests and reports
14	2	Knowledge and application	Elections definition and types	theoretical	Tests and reports
15	2	Knowledge and application	Contemporary political organization	theoretical	Tests and reports

11.Course Development Plan
1. Developing appropriate curricula that align with contemporary developments in the field of human rights. 2. Dividing the course content into two main sections: the first focusing on human rights and the second focusing on democracy. 3. Establishing a comprehensive plan for the development and improvement of the course. 4. Updating the course content to reflect recent developments and emerging issues in the field of human rights. 5. Enhancing students' awareness of human rights principles and social responsibility. 6. Strengthening students' critical thinking, legal analysis, and dialogue skills. 7. Improving the integration and utilization of modern technologies in teaching and assessment methods.

12.Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	Degree	Relative weight %
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13.Curriculum Development Plan	
1. Required Textbooks	• *Human Rights and Democracy* – Ministry of Higher Education and Scientific Research, Iraq (the approved official textbook). • *Human Rights* – A group of authors, Dar Al-Kutub Al-Ilmiyah. • *Democracy and Human Rights* – An approved academic textbook according to the requirements of the department or college.
2. Main References (Sources)	• *Universal Declaration of Human Rights (1948).*

	• *The Arab Encyclopedia of Human Rights* or any recent academic reference in the fields of human rights and democracy.
A. Recommended Books and References	• *Human Rights* – Dr. Mohammed Nour Farahat. • *Introduction to Human Rights* – Dr. Mahmoud Sharif Bassiouni. • *Democracy and Human Rights* – Dr. Abdelilah Belkeziz.
B. Electronic References and Websites	• Office of the United Nations High Commissioner for Human Rights (OHCHR). • United Nations Human Rights website.

Course Description English

1. **Course name**
English
2. Course code
NTU101
3. Available attendance forms
Weekly lesson schedule (theoretical). Discussions, scientific seminars, and other extracurricular activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total)
30 hours / 2 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Omar Sajer Naser e-mail: omarsajer-haw@ntu.edu.iq
8. Course objectives
1- Introducing the student to the basics of the English language with regard to developing the four language skills (speaking, listening, reading and writing). 2- To familiarize the student with the vocabulary of communication and academic writing in the English language.

3- Develop students' skills to use and practice communication in the English language.
9. Course outcomes, teaching, learning and assessment methods
أ. **Cognitive objectives** **A1- Introducing the student to the basics of the English language with regard to developing the four language skills (speaking, listening, reading and writing).**
B - Course specific skill objectives. **B1- To familiarize the student with the vocabulary of communication and academic writing in the English language.**
C- Emotional and value-based goals **A1- Developing students' skills to use and practice communication in the English language.**
Teaching and learning methods
((Theoretical lectures / listening lectures / conversation lectures / interactive lectures / searching in libraries and the Internet for specific topics)).
Evaluation methods
((Oral exams / Written exams / Weekly reports / Daily attendance / Participation and interaction in lectures / Midterm and final exams))
Teaching and learning methods
((Theoretical lectures / discussion groups / debates between students / preparing reports in English))
Evaluation methods
(Oral tests/ written tests/ observation/ student's cumulative record)

10. Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watch es	week
Tests and discussion	theoretica l	Unit 1 / Hello	Grammar/Vocabulary/ Skills Work/ Everyday English	2	1
Tests and reports	theoretica l	Unit 2 / Your world	Grammar/Vocabulary/ Skills Work/ Everyday English	2	2
Tests and discussion	theoretica l	Unit 3 / All about you	Grammar/Vocabulary/ Skills Work/ Everyday English	2	3
Tests and reports	theoretica l	Unit 4 / Family and Friends	Grammar/Vocabulary/ Skills Work/ Everyday English	2	4
Tests and discussion	theoretica l	Unit 5 / The way I live	Grammar/Vocabulary/ Skills Work/ Everyday English	2	5
Tests and reports	theoretica l	Unit 6 / Every day	Grammar/Vocabulary/ Skills Work/ Everyday English	2	6
Tests and discussion	theoretica l	Unit 7 / My favourite	Grammar/Vocabulary/ Skills Work/ Everyday English	2	7

Tests and reports	theoretical	Unit 8 / Where I live	Grammar/Vocabulary/ Skills Work/ Everyday English	2	8
Tests and discussion	theoretical	Unit 9 / Times Past	Grammar/Vocabulary/ Skills Work/ Everyday English	2	9
Tests and reports	theoretical	Unit 10 / We had a great time!	Grammar/Vocabulary/ Skills Work/ Everyday English	2	10
Tests and discussion	theoretical	Unit 11 / I can do that	Grammar/Vocabulary/ Skills Work/ Everyday English	2	11
Tests and reports	theoretical	Unit 12 / Please and Thank you	Grammar/Vocabulary/ Skills Work/ Everyday English	2	12
Tests and discussion	theoretical	Unit 13 / Here and now	Grammar/Vocabulary/ Skills Work/ Everyday English	2	13
Tests and reports	theoretical	Unit 14 / It's time to go	Grammar/Vocabulary/ Skills Work/ Everyday English	2	14
Discussion	theoretical	Review	Review	2	15

12. Curriculum Development Plan

1- Developing appropriate curricula that meet the needs and requirements of university graduates.
2- Organizing seminars and conferences aimed at updating and improving academic curricula.
3- Enhancing students' listening, speaking, reading, and writing skills.
4- Developing students' vocabulary and strengthening their fundamental grammatical knowledge.
5- Improving students' ability to communicate effectively in English across different contexts and situations.
6- Integrating technology into English language teaching and learning.
7- Developing students' critical thinking skills and promoting self-directed learning.

11. Course Evaluation

T	Evaluation methods	Calendar appointment (week)	Degree	Relative % weight
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13.Teaching and Learning Resources	
New Headway Plus / Beginner/ John and Liz Soars / Oxford University Press / 2014	**Required textbooks**
1. An A-Z of English Grammar & Usage / Geoffrey Leech / Longman / 1990 2. Common Mistakes in English / TJ Fitikides / Longman 2002 3. English Grammar in Use / Raymond Murphy / Cambridge University Press 2004	**Main References (Sources)**
1. Express English / Omer Al-Hourani / Jordan	**Electronic references, websites**

Course Description Computer 1

1. **Course name**
Computer 1
2. Course code
NTU102
3. Available attendance forms
Weekly lesson schedule (theoretical). Discussions, scientific seminars, and other extracurricular activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total)
30 hours / 2 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
Name: **Mohammed Abdullah Mohammed** e-mail: moh.phy90_hwj@ntu.edu.iq

8. Course objectives

1− Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization. 2− Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization. 3− Performing his duties at the workplace for professional reasons.
9. Course outcomes, teaching, learning and assessment methods
a. Cognitive objectives **A1- Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization.**
B - Course specific skill objectives. **B1- Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization.**
C- Emotional and value-based goals **A1- Performing his duties at the workplace for professional reasons.**
Teaching and learning methods
((Theoretical lectures / practical lectures / field visits / solving examples / discussion groups / summer training))
Evaluation methods
(Oral exams/ written exams/ weekly reports/ daily attendance/ semester and final exams)
Teaching and learning methods
((Theoretical lectures / practical lectures / field visits / solving examples / discussion groups / summer training))
Evaluation methods

(Oral tests/ written tests/ observation/ student's cumulative record)

10.Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Tests and discussion	**Practical + Theoretical**	**Introduction to computers / Computer systems / Information technology / Types of computers / Input units / Central processing unit / Output units / Main memory and its types / Data storage in memory / Factors affecting computer performance** **Definition of software and its types / Systems software: operating systems / Programming languages and programming systems / Application software.**	**Knowledge and practical application**	2	**1&2**
Tests and reports	**Practical + Theoretical**	**Introduction toWindows / Features / Turning on the device / Shutting down the device / Using the mouse / Components of the Windows screen: Taskbar: Icons: and their types (standard and general).**	**Knowledge and practical application**	2	**3**
Tests and discussion	**Practical + Theoretical**	**Control Panel / Desktop Control / Screen Saver / Window Colors and Fonts / Display Settings / Adjust Screen Colors / Modify Time and Date / Volume / Change Mouse**	**Knowledge and practical application**	2	**4**

		Buttons / Control Double-Click Speed / Change Mouse Pointer / Control Mouse Speed / Install and Uninstall Programs			
Tests and reports	**Practical + Theoretical**	**Minimize and maximize the window / close it permanently / close it temporarily / move the window / control the window size / methods for running applications and programs**	**Knowledge and practical application**	2	**5**
Tests and discussion	**Practical + Theoretical**	**Sort list itemsstart / delete start menu items / add submenu to start menus / add new button to start menu**	**Knowledge and practical application**	2	**6**
Tests and reports	**Practical + Theoretical**	**Basic System Information / Turn off unwanted applications** **Windows ExplorerWindows Explorer / My Computer Icon / My Computer Window Parts**	**Knowledge and practical application**	2	**7**
Tests and discussion	**Practical + Theoretical**	**Recycle Bin (delete, restore and empty the Recycle Bin) / Iconmy document**	**Knowledge and practical application**	2	**8&9**
Tests and reports	**Practical + Theoretical**	**Define files and folders / Select files and folders / Properties of files and folders / Create files and folders / Change the name of files and folders / Move a file or folder / Copy a file or folder / Search for a**	**Knowledge and practical application**	2	**10&11**

		file or folder / Create a shortcut icon for an application or file			
Tests and discussion	**Practical + Theoretical**	**Calculator / Notebook / Notebook / Use the notebook to edit and create the file** **Painter / Screen components / Creating graphics / Determining foreground and background colors / Choosing the brush stroke size / Determining and selecting the drawing tool / Saving the drawing / Making the drawing a desktop background / Finishing the painter Entertainment programsMedia player**	**Knowledge and practical application**	2	**12&13**
Tests and reports	**Practical + Theoretical**	**Viruses / Reason for the name / Definition / Methods of virus spread / Symptoms of virus infection / Methods of protection / Types of viruses** **Computer crimes / Theft / Hackers**	**Knowledge and practical application**	2	**14&15**

11.Curriculum Development Plan
1- Develop curricula that are compatible with the labor market 2- Holding scientific seminars and conferences aimed at updating curricula 3- Follow up on scientific developments in the field of specialization

12-**Course Evaluation**				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

12. Teaching and Learning Resources	
Available free of charge in the department and the institute library	Required textbooks
Available free of charge in the department and the institute library	Main References (Sources)
Internet	Electronic references, websites

Description Course of the Arabic Language I

1. Course name
Arabic language 1
2. Course Name/Code
NTU103
3. Available attendance forms
My presence
4. semester/year
Chapter 1 / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours / 2 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Faisal Najm Abdullah e-mail: faisal_hwj@ ntu.edu.iq
8. Course objectives
- Enabling the student to read correctly. - Enabling the student to write correctly and use punctuation marks well. - The student acquires the ability to use the Arabic language correctly. - Introducing the student to the correct Arabic words, structures, and styles in an interesting way.

- Accustoming the student to expressing his ideas clearly and correctly.
- Helping students understand complex structures and obscure styles.

9. Course outcomes, teaching, learning and assessment methods

A. Cognitive objectives

A1. The student should be able to identify common mistakes in writing the Arabic language in order to avoid them, and to be able to identify punctuation marks and use them correctly.

A2. The student should be able to distinguish between the solar and lunar lam, which helps in pronouncing them correctly.

A3. The student should be able to differentiate between the letters Dad and Tha, which will help him avoid making spelling mistakes.

A4. The student should be able to differentiate between the verb, the noun, and the letter, as this is what his Arabic speech is based on, and he should be able to write the hamza in its correct position correctly.

B. Course specific skill objectives.

B1. Providing the student with a linguistic wealth that makes him more able to express what he wants correctly.

B2. Correcting the student's tongue and protecting him from mistakes

C. Emotional and value-based goals

C1. Developing, activating and organizing thinking

C2. Working to make the student's imagination fertile by highlighting the beauty of the language, thus enabling him to express the inner feelings of the soul in a sound manner.

Teaching and learning methods

((Theoretical lectures / listening lectures / conversation lectures / interactive lectures / searching in libraries and the Internet for specific topics)).
Evaluation methods
((Oral exams / Written exams / Weekly reports / Daily attendance / Participation and interaction in lectures / Midterm and final exams))

10. Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Oral test	Discussion method, lecture method	Introduction to linguistic errors - the closed taa and the open taa	1. Identify the types of linguistic errors. 2. Differentiating between the open taa and the closed taa	2	1
Oral test	Discussion method, lecture method	Rules for writing the extended and shortened alif - solar and lunar letters	1. Differentiating between writing the extended alif and the short alif and the places where the two alifs are written 2. Differentiating between solar and lunar letters	2	2
Oral test	Discussion method, lecture method	Dad and Tha	The difference between the letters Dhad and Tha	2	3

Oral test	Discussion method, lecture method	Writing the hamza	Enabling the student to write the hamza correctly	2	4
Oral test	Discussion method, lecture method	punctuation marks	Get to know Punctuation marks and writing them in their correct place	2	5
Oral test	Discussion method, lecture method	Noun, verb, and the difference between them	1. Identify the noun and the verb and state the sign of each. 2. Differentiating between nouns and verbs 3. Explaining the types of verbs 4. Differentiating between types of verbs	2	6
Oral test	Discussion method, lecture method	Effects	Recognizing the types of objects and differentiating between them	2	7
Oral test	Discussion method, lecture method	number	Enabling the student to write numbers correctly	2	8
Oral test	Discussion method,	Common language errors applications	Get to know Common language mistakes	2	9

	lecture method		and how to avoid them		
Oral test	Discussion method, lecture method	Common language errors applications	Get to know Common language mistakes and how to avoid them	2	10
Oral test	Discussion method, lecture method	Noon and Tanween - Meanings of Prepositions	1. Differentiating between the letter noon and the letter tanween 2. Recognizing the meanings of prepositions	2	11
Oral test	Discussion method, lecture method	Formal aspects of administrative discourse	Get to know Formal aspects of administrative discourse	2	12
Oral test	Discussion method, lecture method	Language of administrative discourse	Getting to know the language of administrative discourse	2	13
Oral test	Discussion method, lecture method	Language of administrative discourse	Getting to know the language of administrative discourse	2	14
Oral test	Discussion method, lecture method	Examples of administrative correspondence	Get to know Examples of administrative correspondence	2	15

11. Curriculum Development Plan

- Updating the course content and terminology in accordance with recent linguistic and academic developments.
- Incorporating practical applications in writing, expression, and spelling skills.
- Integrating contemporary texts alongside classical heritage texts to enhance students' linguistic analysis skills.

12. Course Evaluation

T	Evaluation methods	Calendar appointment (week)	Degree	Relative % weight
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13. Teaching and Learning Resources	
Required books: General Arabic Language Book for Technical Universities(Dr. Safaa Kazim Makki and Dr. Lama Mohammed Younis	1- Required textbooks
1- Clear Dictation: Abdul Majeed Al-Naimi, Daham Al-Kayyal, Dar Al-Mutanabbi Library, Baghdad, 6th edition, 1987 AD. 2- Lessons in language, grammar and spelling for state employees: Ismail Hamoud Atwan and others, Ministry of Education Press No. (3), Baghdad, 2nd ed., 1984 AD. 3- Arabic Language for the Third Intermediate Grade: Fatima Nazim Al-Attabi, and others, 1st ed., 2018 AD. 4- General Arabic for Non-Specialization Departments: Abdul Qader Hassan Amin and others, Ministry of Higher Education and Scientific Research, 2nd ed., 2000. 5- Inspired by Arabic Literature: Hafal Muhammad Amin, Al-Saadoun Press, Baghdad.	2- Main references (sources)
the World Wide Web	3- Electronic references, websites...

Description Course of the Sports curriculum

1. Course name
Sports
2. Course code
NTU104
3. Available attendance forms
1- Weekly lesson schedule (theoretical)+ practical). 2- Discussions and sports activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours / 2 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: **Marwan Mahmood Abd** e-mail: marwanmahmood1990-hwj@ntu.edu.iq
8. Course objectives
1 -The student should be able to identify the most important types of sports and the rules and skills specific to some sports. 2 - Learn about the human body's motor mechanism and the common injuries that occur in the human body.

Performing his duties at the workplace for professional reasons.
9. Course outcomes, teaching, learning and assessment methods
أ- **Cognitive objectives** A1- **The student should be able to identify the most important types of sports and the rules and skills specific to some sports.**
B - Course specific skill objectives **B1-. Learn about the human body's kinetic mechanism and the common injuries that occur in the human body.**
C- Emotional and value-based goals A1-**Performing his duties at the workplace for professional reasons.**
Teaching and learning methods
((Theoretical lectures / practical lectures / field visits / solving examples / discussion groups))
Evaluation methods
(Oral tests/ written tests/ observation/ student's cumulative record)

10.Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Tests and reports	**Practical + Theoretical**	**Sports: definition, importance and types**	**Knowledge and practical application**	2	1

Tests and reports	**Practical + Theoretical**	**Mechanism of human body movement**	**Knowledge and practical application**	2	2
Tests and reports	**Practical + Theoretical**	**Common sports injuries**	**Knowledge and practical application**	2	3
Tests and reports	**Practical + Theoretical**	**Basic basketball skills**	**Knowledge and practical application**	2	4
Tests and reports	**Practical + Theoretical**	**International Basketball Laws**	**Knowledge and practical application**	2	5
Tests and reports	**Practical + Theoretical**	**Basic table tennis skills and international rules**	**Knowledge and practical application**	2	6
Tests and reports	**Practical + Theoretical**	**Basic skills of volleyball and its international laws**	**Knowledge and practical application**	2	7
Tests and reports	**Practical + Theoretical**	**Swimming**	**Knowledge and practical application**	2	8

Tests and reports	**Practical + Theoretical**	**Basic skills of tennis and its international rules**	**Knowledge and practical application**	2	9
Tests and reports	**Practical + Theoretical**	**Basic handball skills**	**Knowledge and practical application**	2	10
Tests and reports	**Practical + Theoretical**	**International Handball Laws**	**Knowledge and practical application**	2	11
Tests and reports	**Practical + Theoretical**	**Track and field games (types, international game law)**	**Knowledge and practical application**	2	12
Tests and reports	**Practical + Theoretical**	**Basic football skills**	**Knowledge and practical application**	2	13
Tests and reports	**Practical + Theoretical**	**Management of sports competitions and competitions**	**Knowledge and practical application**	2	14
Tests and reports	**Practical + Theoretical**	**Sports laws and regulations**	**Knowledge and practical application**	2	15

11.Curriculum Development Plan
1- Develop curricula that are compatible with the labor market 2- Holding scientific seminars and conferences aimed at updating curricula 3- Follow up on scientific developments in the field of specialization

11-**Course Evaluation**				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

12.Teaching and Learning Resources	
Available free of charge in the department and the institute library	Required textbooks
Available free of charge in the department and the institute library	Main References (Sources)
Internet	Electronic references, websites

Course Description of Physiology

1. Course name
Physiology
2. Course code
TIH 106
3. Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2 - Scientific discussions, seminars and other activities Extra curricular
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
60 hours / 4 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Omar Sajer Naser e-mail: omarsajer-haw@ntu.edu.iq
8. Course objectives
Students should know the importance of human physiology and the functions of all body systems.
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives

A1- Identify human body terms. A2- Students learn the functions of each system. A3- Estimation of lung volume, body temperature and ECG for patients and health.
B - Course specific skill objectives. B1 - Training students to measure blood pressure and pulse B2- Training students to know how to measure bleeding time and clotting time. B3 - The student will be able to conduct some tests in emergency situations. B4- Training students to measure hemoglobin levels and blood types.
C- Emotional and value-based goals A1- The student should be able to distinguish the physiological changes of the body. A2- Knowing the types of anemia and its causes A3- Knowing how to perform an electrocardiogram, And measuring the erythrocyte sedimentation rate
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10.Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Body systems. Its functions, Blood smear. Blood, Plasma: their functions.	Body systems, their functions, blood smear, functions of blood and plasma	4	1
a test	Lecture and lab	Anemia deficiency of iron, Vit., B12, blood cells, types and functions.	Iron and vitamin deficiency anemiaB12, blood cells, their types and functions	4	2
a test	Lecture, lab	Blood clotting. its factors and sites. Plasma proteins. its functions.	Blood clotting. Factors and sites. Plasma proteins and their functions.	4	3
a test	Lecture, lab	Cardiovascular system, blood grouping. Erythroblastosis. Heart muscles, physiology of the heart.	Vascular system, blood types, erythrocyte progenitor cells, cardiac muscles, cardiac physiology	4	4
a test	Lecture, lab	Blood circulation, blood to body tissues. Blood pressure, pulse	Blood circulation, blood to tissues,	4	5

			blood pressure, pulse		
a test	Lecture, lab	Factors affecting heart rate. Respiratory system, structural and function.	Factors affecting heart rate. Respiratory system, structure and function.	4	6
a test	Lecture, lab	Lung volume, estimation. Spirometer. Hypoxia. Anoxia. its types	Lung volume, Estimation. Respiratory scale. Hypoxia. Types.	4	7
a test	Lecture, lab	Effects of hypoxia respiratory centers. Central and peripheral nervous system	Effects of hypoxia on the respiratory centers, central and peripheral nervous systems	4	8
a test	Lecture, lab	Nerve. its function & physiology. Autonomic nervous system.	The nerve. Its function and physiology. The autonomic nervous system.	4	9
a test	Lecture, lab	Central nervous system. Cerebellum function and body balance.	Central nervous system. Cerebellum function and body balance.	4	10
a test	Lecture, lab	Physiology of digestion. steps of digestion. Accessory organs of digestive system. pancreas function.	Physiology of digestion. Steps of digestion. Accessory organs of the digestive	4	11

			system. Function of the pancreas.		
a test	a lecture,	Digestive system. function of each part. Non digestive function of the pancreas, diabetes mellitus.	Digestive system. Function of each part. Nondigestive function of the pancreas, diabetes.	4	12
a test	Lecture, lab	Urinary tract system function of each part. Urination.	The function of each part of the urinary tract system. Urination.	4	13
a test	Lecture, lab	Endocrine system, glands, function. Function of endocrine hormones	Endocrine system, glands, their functions. Function of endocrine hormones.	4	14
a test	Lecture, Lab	Temperature regulation. Hypothermia. Frostbite Hyperthermia, heat stroke.	Temperature regulation. Hypothermia. frostbite, sunstroke.	4	15

11.Curriculum Development Plan
- Review of modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12-Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40

13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
1- G. Pocock, CD Richards and DA Richards, Human Physiology. United Kingdom: Oxford university press, 2013	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description of Anatomy

1. Course name
Anatomy
2. Course Name/Code
TIH 107
3. Available attendance forms
1.Weekly lesson schedule (theoretical). 2. Scientific discussions, seminars and other extracurricular activities.
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
60 hours / 4 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Falah Hassan Youssef e-mail:falah86-haw@ntu.edu.iq
8. Course objectives
General objective: 1- Identify the human body systems 2- Identify the relationship between devices.
9. Course outcomes, teaching, learning and assessment methods.

A- Cognitive objectives A1-Identify the organs of each system in the human body. A2- Identify the location of each organ in the human body.
B - Course specific skill objectives. B1- Training students on the general anatomical positions of the human body.
C - Affective and value-based goals A1- Respecting the patient's privacy, customs and traditions.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (linking the current topic to the previous one), self-assessment, reports on scientific developments in the field of specialization, and asking analytical and inferential questions.

10.Course structure

Evaluation method	**Teaching method**	**Unit name/topic**	**watches**	**week**
a test	Lecture, discussion, video presentation, dummy training,	Anatomical positions: Give a description of all the positions of the human body.	4	1

	live application	Surface anatomy of the heart: description of the position of the heart according to the chest wall and the number of ribs.		
a test	Lecture, discussion, video presentation	Surface anatomy of the lungs: description of the position of the lungs according to the chest wall and number of ribs. Abdominal surface anatomy: Draw the abdominal surface areas according to horizontal and vertical lines.	4	2
a test	Lecture, discussion, video presentation	Anatomy of the stomach: explaining the relationship of the stomach to other organs in the abdomen. Anatomy of the liver and spleen: Show the regions of the liver and spleen according to the superficial abdominal anatomy.	4	3
a test	Lecture, discussion, video presentation, model presentation	Anatomy of the intestine: explaining the relationship of the intestine to other organs in the abdomen. Anatomy of the appendix: Identify the area of the appendix in the right iliac region.	4	4
a test	Lecture, discussion, video presentation, model presentation	Gallbladder Anatomy: Locate the gallbladder in the right subcostal area. Determine the area of the uterus in the suprapubic region.	4	5

practical control	Lecture, discussion, video presentation Display models	Skeletal Anatomy: Description of the central skeleton: skull, vertebral column, and peripheral bones. Shoulder bones: Show the shoulder bones on the skeleton which are the scapula and clavicle.	4	6
practical control	Lecture, discussion, video presentation, model presentation	Arm bones: Display of the arm bones (humerus). Bones of the forearm: width of the ulna and radius.	4	7
practical control	Lecture, discussion, video presentation, model presentation	Bones of the hand: View of the bones of the hand; the carpal, metacarpal, and phalanges. Pelvic bones: Show the pelvic bones, which are: the ilium, the sacrum, and the coccyx.	4	8
practical control	Lecture, discussion, video presentation, model presentation	Femur: Skeletal view of the femur with the lower and upper limbs. Leg bones: Show the bones, which are: the tibia and fibula. Dislocation of the femur and foot.	4	9
a test	Lecture, discussion, video presentatio	Bones of the foot: Description of the bones: (tarsal bone, metatarsus, phalanges).	4	10

	n, model presentation	Skull bones: Name the number of bones on all surfaces of the skull.		
a test	Lecture, discussion, video presentation, model presentation	Bones of the spine: explaining the types and numbers of vertebrae. Shoulder Muscle: Display models of all shoulder muscles.	4	11
a test	Lecture, discussion, video presentation, model presentation	Anatomy of the chest wall: showing the types and numbers of ribs and illustrating the sternum. Chest and abdominal muscles: Identify the names of the muscles of the chest wall and abdominal wall.	4	12
a test	Lecture, discussion, video presentation, model presentation	Back and gluteal muscles: View of the back and gluteal muscles. Anatomy of the digestive system: Display of a model of the digestive system organs.	4	13
a test	Lecture, discussion, video presentation, model presentation	Anatomy of the Cardio-Muscular System: Display of the organ model, which is the heart and blood vessels. Respiratory system: illustration of the lungs, trachea, and bronchi.	4	14

a test	Lecture, discussion, video presentation, model presentation	Genitourinary system: showing the kidneys and urinary bladder, highlighting the uterus and prostate. Central nervous system: description of the brain - cerebellum - medulla oblongata and spinal cord.	4	15

11.Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

12. Curriculum Development Plan
- Reviewing recent scientific literature and academic publications. - Participating in relevant scientific conferences. - Hosting specialized experts and academic professionals.

13. Teaching and Learning Resources	
Principles of Anatomy for Health Professions Students	1- Required textbooks
1. Atlas of anatomy (Grants) / 1998. 2. Kingham anatomy – Oxford – London / 1987.	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, Internet sites

Laboratory Safety Course Description

1. Course name
Laboratory Safety
2. Course Name/Code
MLT 118
3. Available attendance forms
1- Weekly lesson schedule (theoretical). 2 - Scientific discussions, seminars and other extracurricular activities.
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours / 2 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Mohammed Ali Faris e-mail:mohammedchemist@ntu.edu.iq
8. Course objectives
General objective: Knowledge of public safety and security procedures
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives

A1-General laboratory safety precautions. A2- KnowledgeChemical safety sheets and signs to be respected in laboratories. A3- - IdentifyTypes of fires and means of extinguishing them A4. first aid
B - Course specific skill objectives. B1 - KnowledgePrecautions when handling chemicals, tools and laboratory equipment. B2- KnowledgeSafety precautions when storing and preserving chemicals. B3 - Dealing withfire fighting equipment. B4 -Safety precautions after completing laboratory work.
C- Emotional and value-based goals A1- KnowledgeTypes of laboratories. A2-Meaning of signs that must be respected in laboratories and workshops. A3-The meaning of occupational health and its requirements. A4- Able to perform first aid.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's

answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Feedback Through guidance Questions	**Method Discussion**	**Basic equipment required in the laboratory (laboratory arrangement)**	**The student should be familiar with the basic equipment. Must be available in laboratory**	**2**	**1**
Feedback Through guidance Questions	**Method Discussion**	**Safety precautions when handling laboratory equipment and chemicals**	**Student understanding of safety precautions When dealing with Laboratory tools Chemicals**	**2**	**2**
Feedback Through guidance Questions	**Method Discussion**	**Safety precautions when completing laboratory work and storing and preserving materials**	**Teaching students the working mechanism and safety precautions When you finish work Laboratory and**	**2**	**3**

			storage Materials and their preservation(		
Feedback Through guidance Questions	Method Discussion	Fires, their types, and means of extinguishing them	The student should be able to distinguish between fires and their types. And means of extinguishing it	2	4&5
Feedback Through guidance Questions	Method Discussion	Personal protective equipment	Students learn about protective equipment. Personality	2	6
Feedback Through guidance Questions	Method Discussion	Chemical hazards and how to deal with them	Students learn about the types of chemical hazards. How to deal with it	2	7
Feedback Through guidance Questions	Method Discussion	Radiation hazards	Students should be aware of the types of radiation hazards.	2	8
Feedback Through guidance Questions	Method Discussion	biological hazards	Students will learn about the types of biological hazards.	2	9

Feedback Through guidance Questions	**Method Discussion**	**Disposal of laboratory (medical) waste Use of warning signs in the laboratory**	**Students will learn about the types of laboratory waste. Medical**	**2**	**10& 11**
Feedback Through guidance Questions	**Method Discussion**	**First aid in laboratories**	**Students learn about types of accidents and first aid.**	**2**	**12& 13**
Feedback Through guidance Questions	**Method Discussion**	**Other environmental factors and their impact on safety and health (light, noise, heat and humidity)**	**The student should be aware of the physical factors that are harmful to the work environment.**	**2**	**14**
Feedback Through guidance Questions	**Method Discussion**	**Safety in field studies**	**To familiarize students with the types of field studies.**	**2**	**15**

11.Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1

6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

12.Curriculum Development Plan
- To view modern scientific literature - Adding a practical aspect to the course to consolidate ideas among students - The subject of field studies was removed from the curriculum due to the lack of connection between it and laboratory and workshop safety..

13. Teaching and Learning Resources	
There are no prescribed books for this course.	1- Required textbooks

• Korkis Abdul Adam - Youssef Zora Youssef, Chemical Hazards and Safety, University of Basra, College of Science, 1980. • Abdulrahman Nayef Al-Abri - Hussein Ahmed Al-Sharif, Security and Safety Conditions in Chemical Warehouses, Civil Defense Directorate, Kingdom of Saudi Arabia. 2013 • Prof. Dr. Ahmed Lotfy, Guide to Security and Safety Precautions in Chemical Laboratories, Damietta University, 2015. • World Health Organization, Ionizing radiation, its health effects and protective measures,.2005 • World Health Organization, Biological Hazards, .	2- Main references (sources)
Occupational Health and Safety Books	A- Recommended books and references (scientific journals, reports)
	B - Electronic references, websites...

Medical Terminology Course Description

1) Course name
Medical terms
2) Course code
MLT 109
3) Available attendance forms
1.Weekly lesson schedule (theoretical) 2.Discussions, scientific seminars, and other extracurricular activities
4) semester/year
First semester / 2025 - 2026
5) Number of study hours (total) / Number of units
30 hours / 2 units
6) Date this description was prepared
4/9/2025.
7) Course supervisor name
the name: Marwan Mahmood Abd e-mail: marwanmahmood1990-hwj@ntu.edu.iq
8) Course objectives

- Teaching and training the student on how to pronounce medical terms correctly.
- Teaching and training students on how to communicate with medical staff using medical terminology.
- Teaching and training the student to know the body's systems, their nature, and the parts that make up each system.
- Teaching and training the student to know how each device works.
- Teaching and training the student on how to form the medical term and its origin.
- Teaching and training the student to know the most common diseases of each body system.

9) Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Identify the musculoskeletal system, how it works, and the most important medical terms related to it.

A2- Identify the cardiovascular system, how it works, and the most important medical terms related to it.

A3- Learn about the urinary system, how it works, and the most important medical terms related to it.

- A4-Learn about the digestive and respiratory systems How they work and the most important medical terms related to them.

B - Course specific skill objectives.

B1 - Training on identifying prefixes and suffixes of medical terms.

B2- Training students on how to give meaning to medical terms.

B3 - Training students to give examples of each medical term and define them.

B4 - Training students to enumerate the parts of each body system.

C- Emotional and value-based goals

A1- Training on how to deal with medical terms.

A2- Training on how toImprove student skills through mastery of medical terminology. A3- Training on how toMoving forward in work and communicating with cadres working in government institutions through his use of medical terminology.
Teaching and learning methods
Traditional lecture, report writing, seminars, systematic classroom training, use of technology in modern education, self-learning, feedback, deductive and analytical thinking questions, systematic laboratory training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), asking analytical and inferential questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a testverbal	Lecture, discussion of representation by drawing on the blackboard, PowerPoint	Lecture 1: Introduction to Medical Terminology	Introducing students to the importance and nature of the medical terminology course	2	1

Oral test	Lecture, discussion, video presentation, and PowerPoint	Lecture 2The basic structure of words	Learn the structure of medical terminology and its basic parts	2	2
Oral test	Lecture, discussion, PowerPoint presentation, role play	Lecture 3 "The Root"	Identify the root word of the medical term.	2	3
Oral and practical test	Lecture, discussion, video presentation, and photo presentation	Lecture Fourprefix	Identify the syllables added to the beginning of a medical term.	2	4
Practical and oral test	Lecture, discussion, video and photo presentation	Lecture 5 "The Subsequent"	Identify the syllables added to the ends of medical terms.	2	5
practical control	Lecture, discussion, lecture video presentation	Lecture 6: "Rules of Mobile Linking"	Learn how to connect medical terms	2	6

Practical and oral test	Lecture, discussion, slide show	LectureSeventh Forms of connection	Learn about the types of ligatures for medical terms.	2	7
practical control	Lecture, discussion, video and photo presentatio n	Lecture EightMedical Terminology and Pathology	Learn the most important medical termsand concepts of pathology	2	8
practical control	Lecture, discussion, video and photo presentatio n	Lecture 9Cardiovascula r System Terminology Nervous system terminology	Learn the most important medical terms related to the cardiovascular system, the nervous system, its components, and the most common diseases.	2	9
practical control	Lecture, discussion, video and photo presentatio n	Lecture 10Terms digestive system Terms urinary system	Learn the most important medical terms related to the digestive and urinary systems, their component parts, and the most common diseases.	2	10
practical control	Lecture, discussion, video and photo presentatio n	Lecture ElevenBlood and Lymphatic System Terms	Learn the most important medical terms related to the blood and lymphatic system, its components, and the	2	11

			most common diseases.		
practical control	Lecture, discussion, video and photo presentation	Lecture Twelve: "Respiratory System Terminology"	Learn the most important medical terms related to the respiratory system, its components, and the most common diseases.	2	12
practical control	Lecture, discussion, video and photo presentation	Lecture Thirteen: "Teeth, Face and Jaws"	Learn the most important medical terms related to teeth, face and jaws.	2	13
practical control	Lecture, discussion, video presentation, photos	Lecture Fourteen: "Terminology of Situations and Trends"	Learn the most important medical termsWith situations and trends	2	14
Practical and oral test	Lecture, discussion, video and photo presentation	Lecture 15: "Terminology of the Musculoskeletal System"	Learn the most important medical terms related to the musculoskeletal system, its components, and the most common diseases.	2	15

11) Curriculum Development Plan
- Review of modern scientific literature. - Participation in relevant scientific conferences. - The teaching and training staff are free to apply and work in places to apply what they have learned. - Hosting specialized professors. - Academic affiliation with other universities and similar colleges.

12) Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40

13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
New Headway Plus	1- Required textbooks
Beginner Student's Book New Headway Plus John and Lis Soars	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports
	B - Electronic references, websites...

Course Description Analytical Chemistry

1. Course name
Analytical Chemistry
2. Course Name/Code
MLT115
3. Available attendance forms
My presence
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared .
4/9/2025
7. Course supervisor name
Name: **Rahma Abdullah Hassan** e-mail: ahma@ntu.edu.iq
8. Course objectives
The aim of the topic **General objectives:** **They give a general idea about the compound and are able to perform various chemical experiments and reactions.**
9. Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives A1- Identify the atom, element and isotopes. A2- Identify matter and chemical bonds. A3- Identify the expression of concentration.
B - Course specific skill objectives. B1 - How to use and clean laboratory equipment. B2- How to handle different chemical reagents. B3- How to prepare solutions of different concentrations. B4 - How to use the laboratory tool.
C- Emotional and value-based goals A1- Use and cleaning of laboratory equipment. A2- Able to work with various chemical reagents. A3- Able to prepare a solution with different concentrations. A4- Able to use laboratory tools.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Atom, Element, Isotopes, Radioisotopes in medicine. Safety instructions.	Atom, element, isotopes, radioisotopes in medicine. Safety instructions.	3	1
a test	Lecture and lab	Radioactivity, Radio isomers pollution, Debroglie equation. laboratory equipments	Radioactivity, radioisomer contamination, De Broglie equation. Laboratory equipment.	3	2
a test	Lecture, lab	Matter, Chemical bonds. Reaction of cation.	Matter, chemical bonds. Cation detection	3	3
a test	Lecture, lab	Errors and statistics, Classification of errors. Reaction of anion.	Errors and statistics, error classification. Anion detection.	3	4
a test	Lecture, lab	Express of concentration, formality, molarity, normality.	Expression of concentration, formalism,	3	5

		Weighting	molarity, normality. Weighing process		
a test	Lecture, lab	P – functions, Density and specific Gravity, Solution – Diluent Volume Ratios. percentage composition .	P - functions, density and specific gravity, solution - volume ratios of dilute. Percentage experiments.	3	6
a test	Lecture, lab	Chemical Equilibrium. Molarity	Chemical equilibrium. Molarity.	3	7
a test	Lecture, lab	Examples of Common Types of Equilibrium – Constant Expressions. Normality	Examples of common types of balance – constant expressions. Normality	3	8
a test	Lecture, lab	Buffer Solutions. low dilution	Buffer solutions. Mitigation law.	3	9
a test	Lecture, lab	Capacity, Analytical chemistry. Buffer Solutions.	Ability, analytical chemistry. Buffer solution experiments.	3	10
a test	Lecture, lab	Volumetric Analysis. Volumetric Analysis.	Volumetric analysis.	3	11

			Volumetric analysis experiments		
a test	a lecture,	Standard solution. Neutralization.	Standard solutions. Equalization experiments.	3	12
a test	Lecture, lab	Theory of indicator. oxidation reaction	evidence theory oxidation-reduction reactions	3	13
a test	Lecture, lab	Spectrophotometric Method. Precipitation.	Spectral method. Precipitation reactions.	3	14
a test	Lecture, Lab	A comprehensive set of questions. Spectrophotometric.	A comprehensive set of questions. Spectrophotometry	3	15

11. Curriculum Development Plan
- Review of modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
Fundamentals of Analytical Chemistry - Douglas A.Skoog - Donald M.West - 3rd Edition,1976 Foundations of Analytical Chemistry- Prof. Dr. Mohamed Magdy Abdullah Wasil - Arab Republic of Egypt A Brief Guide to Solving Quantitative Analytical Chemistry Problems- Prof. Dr. Munther Salim Abdul Latif - 2016	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
https://books-library.net/c-analytical-chemistry-best-download#google_vignette	B - Electronic references, websites...

Course Description Slides Textile

1. Course name
Slides Textile
2. Course Name/Code
MLT 113
3. Available attendance forms
Weekly lesson schedule (theoretical and practical). Discussions, scientific seminars, and other extracurricular activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours /3 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
the name : Marwan Mahmood Abd e-mail: marwanmahmood1990-hwj@ntu.edu.iq
8. Course objectives
Students can prepare permanent slides of different body parts.
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Recognition of permanent stained tissue slides and body fluid smears.

A2- Students learn to prepare all the required chemical solutions. A3- Learn to fix and preserve tissue samples.
B - Course specific skill objectives. B1 - Training students on the methods used to prepare tissue slides of different body organs. B2 - Training students to stain the tissue slide with the appropriate stain. B3 - Training students on how to diagnose pathological changes that occur in tissues as a result of various diseases. B4- Training students to memorize and fix clinical models
C- Emotional and value-based goals A1- The student should be able to distinguish pathological changes that occur in tissues. A2- Explain and understand the reason for taking one sample and not another. A3- Knowing the types of dyes used in preparing the tissue slide
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10.Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Definition of some terminology that deals with histology, cytology....etc. Sample collection, biopsy, autopsy	Definition of some terms related to histology, cytology, etc. Sample collection, biopsy, autopsy	3	1
a test	Lecture and lab	Steps of preparing tissue for study, fixation fixatives.	Steps for preparing tissues for study, fixatives	3	2
a test	Lecture, lab	Routine fixatives and special fixatives	Routine and special stabilizers	3	3
a test	Lecture, lab	Washing routine solution, time	Routine washing solution, time	3	4
a test	Lecture, lab	Dehydration, dehydrants. Clearing agents	drying, drying materials, filter agents	3	5
a test	Lecture, lab	Infiltration, types of waxes blocking and trimming	Filtration, types of insulating waxes and shearing	3	6
a test	Lecture, lab	Microtomes, Sectioning.	Slicing tool	3	7
a test	Lecture, lab	Mounting, Adhesives.	Fix and stick the sample	3	8

a test	Lecture, lab	Staining, classification of stains.	Dyeing, classification of dyes	3	9
a test	Lecture, lab	Staining section and theories	Dyeing section, hypotheses	3	10
a test	Lecture, lab	Methods of staining	Dyeing methods	3	11
a test	a lecture,	Types of stains, preparation of stain and oxidation of some stains	Types of dyes, dye preparation and oxidation of some dyes	3	12
a test	Lecture, lab	stains solvents, factors affecting staining, storage of stains, how to choose stain	Dye solvents, factors affecting dye, how to choose dye	3	13
a test	Lecture, lab	Decalcification, bone tissue.	Removal of calcifications, bone tissue	3	14
a test	Lecture, Lab	Tissue slide, Freezing microtome.	tissue slice, frozen tissue section	3	15

11.Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12.Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
Theory and practice of histological technique by Bancroft	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description Devices Medical

1. Course name
Devices Medical
2. Course Name/Code
MLT114
3. Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
the name : Mohsin Hasan Ali e-mail: Mohsinhasan-haw@ntu.edu.iq
8. Course objectives
- Introducing the student to the types of devices. - Teaching and training students on laboratory equipment. - Teaching and training students on how to use medical devices and distinguish between them

9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identify laboratory equipment. A2- Knowing how to distinguish between types of laboratory equipment. A3- Identify laboratory equipment and how to handle it.
B - Course specific skill objectives. B1 - Training on operating the equipment. B2 - Training students on how to distinguish between them. B3- Training students on how to use it correctly. B4 - Training on the skill of dealing with it and maintaining it.
C- Emotional and value-based goals A1- The student should be able to know how to deal with laboratory equipment.. A2-Understanding the similarities, differences and comparison between different devices. A3- Explanation of job performance mechanisms A4- Accurate knowledge of the devices and their locations, and an explanation and understanding of the reason for dealing with them correctly and maintaining them only.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods

Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10.Course structure

Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	PHOTOMETRIC Introduction, Light and wavelength, Beer lamberts Law, of photometers, types of main parts, filters, prisms and diffraction gratings, principles of operation, operation and maintenance.	Photometer Introduction, Light, Wavelength and Beer-Lambert Law, Types of Photometers, Main Parts and Filters, Prisms, Diffraction Gratings, Working Principle, Operation and Maintenance.	3	1
a test	Lecture, lab	FLAME PHOTOMETRY Introduction, Uses, main parts, types, atomizers, principle of operation, operation and maintenance.	Flame retardant, introduction, uses, main parts, nozzles, working principle, operation and maintenance.	3	2

a test	Lecture , lab	MICROSCOPES Uses, main parts, principle of work, types, and types of condensers, operation, cleaning, service and maintenance.	Microscopes, uses, main parts, working principle, types and types of condensers, working, cleaning, service and maintenance.	3	3
a test	Lecture , lab	Balances Uses, types of balances, main part, principle of operation, service and maintenance.	Scales, their uses, types of scales and main parts, working principle, service and maintenance	3	4
a test	Lecture , lab	EXAMINATION	Exam	3	5
a test	Lecture , lab	ATOMIC ABSORPTION SPECTROPHOTOMETERY Introduction, uses, types, main parts, principle of operation, and maintenance.	Atomic absorption spectrometer uses, types, main parts, working principle, and maintenance.	3	6
a test	Lecture , lab	CENTRIFUGES Uses, types, main parts, principle of operation, and maintenance.	Centrifuges, uses, types, main parts, working principle, and maintenance.	3	7
a test	Lecture , lab	AUTOCLAVES Introduction, uses, types, main parts, principle of operation, sterilization, operation and maintenance	pressure furnaceUses, types, main parts, working principle, sterilization, operation and maintenance	3	8

a test	Lecture , lab	PH METERS Uses, types, main parts, electrodes, principle of operation, and maintenance.	Hydrometers, uses, types, main parts, electrodes, working principle, and maintenance.	3	9
a test	Lecture , lab	MICROTOMES Uses, types, main parts, sharpeners, principle of operation, and maintenance.	Tissue slicerUses, types, main parts, blades, working principle, and maintenance.	3	10
a test	Lecture , lab	Electrophoresis Uses, types, main parts, principle of operation, and maintenance.	Electrical relay, uses, types, main parts, working principle, and maintenance.	3	11
a test	a lecture,	HEATING INSTRUMENTS (WATER BATHS, OVEN & INCUBATION) Uses, types, main parts thermostats, principle of operation, and maintenance.	Heating devices (water baths (oven and incubator))Uses, types, main parts, thermostats, working principle, and maintenance.	3	12
a test	Lecture , lab	WATER PURIFICATION (DISTILLATORS & DEAIONIZERS) Distillators, deionizers, uses, main parts, operation and maintenance.	Water technology (distiller, deionizer)Uses, distillation and deionization devices, main parts, operation and maintenance.	3	13
a test	Lecture , lab	AUTOANALYZERS	Autoanalyzers, introduction, uses, types, main parts,	3	14

		Introduction, uses, types, main parts, principle of operation, and maintenance.	working principle, and maintenance.		
a test	Lecture , Lab	EXAMINATION	Exam	3	15

11.Curriculum Development Plan
- ATo view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12.Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2

5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13.Teaching and Learning Resources	
	1- Required textbooks
Principles of Medical Devices book, Assistant Professor / Ahmed Mohamed Wahid	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports
1- Microscopy and Microtechnique R. Maimuth 2019. 2- Biological Centrifugation Dr. John Graham 2020	B - Electronic references, websites...

Course Description Histology

1) Course name
Histology
2) Course code
MLT 118
3) Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4) semester/year
First semester / 2025 - 2026
5) Number of study hours (total) / Number of units
45 hours / 3 units
6) Date this description was prepared
4/9/2025
7) Course supervisor name
the name: Omar Sajer Naser e-mail: omarsajer-haw@ntu.edu.iq
8) Course objectives
- Teaching and training the student on how to use a microscope. - Teaching and training students to examine slides of various types of tissues. - Teaching and training the student to recognize and differentiate between tissue types.

9) Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives 1- Identify the structure of organs. 2- Knowing how to distinguish between the types of tissues that make up organs. 3- Knowing how to obtain samples from the patient and how to handle them.
B - Course specific skill objectives. 1-Training on examining histological sections. 2- Training students on how to distinguish normal tissues. 3-Training students on how to use a microscope to examine samples. 4-Sample handling skills training.
C- Emotional and value-based goals 1- The student should be able to link between structure and function. 2-Understanding the similarities and differences between living organisms 3- Explaining the mechanisms of job performance 4- Accurate knowledge of the organs and their locations.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's

answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Microscope Shape of cell	Identifying the shape of cells under a microscope	3	1
a test	Lecture and lab	Epithelial tissue – simple epithelium. T.classification of tissue type.	Identify and classify epithelial tissues	3	2
a test	Lecture, lab	General function of epith. T.	Public jobs	3	3
a test	Lecture, lab	Classification of epi. Tissue	Epithelial tissue classification	3	4
a test	Lecture, lab	Shape of cell, special features of epi	Cell shapes and characteristics	3	5
a test	Lecture, lab	Connective tissue, classification of conn.t.	Connective tissue and its classification	3	6
a test	Lecture, lab	Cell of connective tissue	connective tissue cells	3	7
a test	Lecture, lab	Structural elements of connective	Structural elements of connective tissue	3	8
a test	Lecture, lab	Connective tissue proper	authentic connective tissue	3	9

a test	Lecture, lab	Dense connective tissue.regular,irregular	Dense regular and irregular connective tissue	3	10
a test	Lecture, lab	Cartilage, types of cartilage.	Cartilage and its types	3	11
a test	a lecture,	Bone tissue, compact bone-spongy bone	bone tissue Silent and spongy bone	3	12
a test	Lecture, lab	Blood, lymph	blood and lymph	3	13
a test	Lecture, lab	Muscular tissue (cardiac muscle, skeletal muscle, smooth muscle).	Muscle tissue, cardiac structural, smooth	3	14
a test	Lecture, Lab	Nervous tissue, classification of neurons.	nervous tissue Classification of neurons	3	15

11) Curriculum Development Plan
- To view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12) Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
	1- Required textbooks
1- Histology Dr. Kawakib Abdul Qadir University of Baghdad 2- Diforis text and atlas of hisology	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
Histology1 Author: Gordana Sendić, MD • Reviewer: Nicola McLaren, MSc Last reviewed: October 30, 2023 2 Microsc Res Tech. Author manuscript; Available in PMC 2021 May 7. Published in final edited form.	B - Electronic references, websites...

Course Description Nursing Foundations

1- Course name
Nursing Foundations
2- Course Name/Code
MLT 117
3- Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
First semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 3 units
6- Date this description was prepared
4/9/2025.
7- Course supervisor name
the name : **Rahma Abdullah Hassan** e-mail: rahma@ntu.edu.iq
8- Course objectives
- Teaching and training the student on how to take samples. - Teaching and training students to measure blood pressure. - Teaching and training students to deal with patients of different age groups.
9- Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives 1- Learn the basics of nursing. 2- Knowing how to examine patients and deal with emergencies. 3- Learn how to draw blood, measure blood pressure, respiratory rate and pulse.
B - Course specific skill objectives. 1-Blood draw training. 2- Training students on how to measure blood pressure. 3-Training students on how to measure pulse and respiration rate. 4-Training in patient handling skills.
C- Emotional and value-based goals 1- The student should be able to provide basic nursing and personal care to patients who need such care. 2- Work under the supervision and guidance of a registered nurse or other healthcare professional. 3- The student should be able to provide basic personal care to patients.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's

answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10- Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Introduction to nursing	introduction	3	1
a test	Lecture and lab	Medical examination	Definition of laboratory tests.	3	2
a test	Lecture, lab	Vital signs, temperature measurement,	Teaching some tests such as measuring temperature	3	3
a test	Lecture, lab	. Pulse, definition, factors that affect pulse, measurement of pulse	Pulse oximetry training	3	4
a test	Lecture, lab	Respiration, definition, factors that influencing respiration, measurement of respiration	Breath measurement training	3	5
a test	Lecture, lab	Blood pressure, definition, factor the affecting blood pressure, hyper and	blood pressure measurement	3	6

		hypotension, measurement of blood pressure			
a test	Lecture, lab	Health care, definition, factors influencing health care	Patient health care	3	7
a test	Lecture, lab	Factors that affect the health of workers in laboratories, natural factors, infectious diseases	Diseases that affect humans	3	8
a test	Lecture, lab	Chemical factors- disease	Factors affecting human health - chemical	3	9
a test	Lecture, lab	Psychological factors-diseases	Factors affecting human health - physical	3	10
a test	Lecture, lab	Biological factors- types- their effects on workers in Lab.- diseases	Factors affecting human health - biological	3	11
a test	Lecture, lab	Review for bio-vital markers measurement	review	3	12
a test	a lecture,	Disinfection and sterilization methods	Sterilization and disinfection	3	13

a test	Lecture, lab	Methods of drug intake and needle glaucoma	How to use the needle	3	14
a test	Lecture, lab	Samples collection from patients	Blood withdrawal methods	3	15

11- Curriculum Development Plan
- ATo view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
	1- Required textbooks
	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
Concepts for Nursing Practice E-Book Jean Foret Giddens	B - Electronic references, websites...

Course Description Organic Chemistry

1. Course name
Organic Chemistry
2. Course code
MLT119
3. Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4. semester/year
First semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: **Rahma Abdullah Hassan** e-mail: rahma@ntu.edu.iq
8. Course objectives
- Teaching and training students on how to prepare chemical compounds. - Educating and training students on the safe use of chemicals, participating in product development, and protecting the environment and health from harmful chemicals.

- Teaching and training students on the types of chemicals and how to handle them.
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identify the composition of organic chemicals. A2- Knowing how to distinguish between types of organic chemicals. A3- Learning how to manufacture, create and introduce new products to society, as they are used in food, cosmetics, pharmaceuticals, fuel, petroleum and plastics industries.
B - Course specific skill objectives. B1 - Training on preparing organic chemicals. B2 - Training students on how to distinguish between types of chemicals. B3 - Training students on occupational safety procedures in the laboratory. B4 - First aid training in case of any accidents inside the laboratory.
C- Emotional and value-based goals A1- The student should be able to prepare some solutions. A2-Distinguishing between different chemicals A3- Use scientific tools and equipment and handle them properly. A4- Detection of important chemical substances and compounds
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.

Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Introduction to organic chemistry, naturally occurring organic compounds, and organic compound pollution	Introduction to organic chemistry, organic compounds present in nature, pollution with organic compounds	3	1
a test	Lecture and lab	Methods of hybridization of hydrocarbon compounds	Hybridization methane, Ethylene, Acetylene,	3	2
a test	Lecture, lab	Classification, reactions, nomenclature, and properties of hydrocarbons	Hydrocarbons Classification alkane, alkenes, benzene example, reaction, nomenclature, properties	3	3

a test	Lecture, lab	Examples of alkanes, their nomenclature, reactions, and properties	Alkynes, Example, Nomenclature, Properties, Reaction	3	4
a test	Lecture, lab	Aromatic compounds, their nomenclature, polycyclic compounds, and electrophile substitution for cyclic compounds	Aromatic compound, Names, Polycyclic aromatic compound, Electrophilic aromatic substitutions	3	5
a test	Lecture, lab	Preparation of phenolic compounds, their reactions and properties	Phenols, Synthesis, Reaction, Properties	3	6
a test	Lecture, lab	Alcohols: Classification, Reactions, and Properties	Alcohols, Classification and properties, Reactions	3	7
a test	Lecture, lab	Aldehydes, their classification, properties, and reactions	Aldehyde's, Classification and properties, Reactions	3	8
a test	Lecture, lab	Ketones, their properties and reactions	Ketones, Classification and properties, Reactions	3	9
a test	Lecture, lab	Carboxylic acid compounds, their classification, reactions and preparations	Carboxylic acid, Classification and properties, Reactions	3	10

a test	Lecture, lab	Esters, their reactions and properties	Ester, Reaction and Properties	3	11
a test	a lecture,	Ether compounds: their nomenclature, preparation, reactions, and properties	Ether, Nomenclature and properties	3	12
a test	Lecture, lab	NMR and IR spectra	IR and UV spectroscopy.	3	13
a test	Lecture, lab		Heterocyclic	3	14
a test	Lecture, Lab	Stereochemistry	Stereochemistry.	3	15

11. Curriculum Development Plan
- ATo view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
1 - Organic chemistry, 6thEd, Morrison & Boyd, Prentice Hall of India, 2/19/2016	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
2-Advanced Organic Chemistry. Reactions and Synthesis, Ed4(Part B), Carey F., Sundberg R., Kluwer 2000. 3-Organic chemistry, Ed5, Carey FA, MGH 2004.	B - Electronic references, websites...

Course Description Laboratory techniques

1- Course name
Laboratory techniques
2- Course Name/Code
MLT 112
3- Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
First semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 3 units
6- Date this description was prepared
4/9/2025.
7- Course supervisor name
the name : Omar Sajer Naser e-mail: omarsajer-haw@ntu.edu.iq

8- Course objectives
- Learn basic principles of laboratory tools, equipment, and materials. - Learn the principles of microbiology - Learn the principles of bacteriology - Learn the principles of hematology - Learn the principles of urine testing - Learn the principles of quality control
9- Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identifying methods for sterilizing laboratory equipment and tools. A2- Identify the types and forms of bacteria and methods of diagnosing them. A3- Knowing how to obtain samples from the patient and how to handle them.
B - Course specific skill objectives. B1 - Training on laboratory sample examination. B2- Training students on how to distinguish bacterial species. B3 - Training students on how to examine urine, stool, and sputum samples. B4 - Training on blood withdrawal methods.
C- Emotional and value-based goals A1- The student should be able to link the theoretical and practical parts. A2- Understanding the physiology of bacteria and methods of diagnosis. A3- Interpretation of microscopic examination results of urine and stool samples and method of writing reports.

A4- Knowing the components of blood and anticoagulant substances, explaining and understanding the reason for taking a sample rather than another
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.
Teaching and learning methods
Traditional lecture, self-study, feedback, deductive and analytical reasoning questions, systematic training in laboratories, practical training in hospitals, and summer training.
Evaluation methods
Written, oral and practical tests, midterm and final exams, daily tests, assignments such as preparing reports in the field of specialization and then discussing the reports, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), inferential and deductive questions.
D - General and transferable skills (other skills related to employability and personal development). D1- Field visits to gain experience from others.

D2- Viewing scientific developments in the field of specialization (educational videos).

D3- Practical training in hospitals.

10- Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Introduction to laboratory techniques & Laboratory safety rules	Introduction to laboratory techniques and laboratory safety procedures	3	1
a test	Lecture and lab	Basic microbiological equipment's in laboratory	Learn about laboratory equipment and tools	3	2
a test	Lecture, lab	Sterilization & disinfection	Sterilization and disinfection	3	3
a test	Lecture, lab	Culture Media	Growing media	3	4
a test	Lecture, lab	Methods of bacterial isolation	Bacterial culture methods	3	5
a test	Lecture, lab	Studying and describing the characteristics of developing colonies	Study and description of the characteristics of	3	6

			developing colonies		
a test	Lecture , lab	The microscope	microscope	3	7
a test	Lecture , lab	Bacterial staining	Bacterial staining methods	3	8
a test	Lecture , lab	Methods of collecting and handling laboratory samples	Methods of collecting and handling laboratory samples	3	9
a test	Lecture , lab	General Stool Examination	General Exit Check	3	10
a test	Lecture , lab	General Urine Examination	General urine examination	3	11
a test	a lecture,	Introduction to Hematology	Introduction to Hematology	3	12
a test	Lecture , lab	Blood Drawing Methods	Blood withdrawal methods	3	13
a test	Lecture , lab	Hemoglobin and methods of its examination	Hemoglobin and methods of testing it	3	14
a test	Lecture , Lab	General review and exam	General review and exam	3	15

11- Curriculum Development Plan
- ATo view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12- Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40

13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
	1- Required textbooks
3- Jawetz, Melnick & Adelberg's medical microbiology 4- Practical Medical Technology By MDA 1986	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
1- Science daily – Microbiology news. 2- SGM: Newsdesk, Microbiology news and podcasts	B - Electronic references, websites...

Course Description of Blood Transfusion

1- Course name
Blood Transfusion
2- Course Name/Code
MLT116
3- Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
First semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 3 units
6- Date this description was prepared
4/9/2025.
7- Course supervisor name
Name: Muhsin Hasan Ali e-mail: Mohsinhasan-haw@ntu.edu.iq
8- Course objectives
Learn about the work of the blood bank
9- Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- The work of different blood types.

A2- Conducting blood compatibility tests A3- Conducting other blood bank tests.
B - Course specific skill objectives. B1 - Training students on how to draw blood B2- Training students to determine blood type. B3 - Learn how to store blood, its components, anticoagulants, blood bags, and the effect of storage. B4- The student learns the laws and rules of blood transfusion and donation and identifies the diseases transmitted through blood transfusion.
C- Emotional and value-based goals A1- The student should be able to choose a donor, how to draw blood, and care for the donor during and after donation. A2- Knowing how to conduct compatibility testing and write reports A3- Knowing the types of blood tubes
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.
Teaching and learning methods

Traditional lecture, self-study, feedback, deductive and analytical reasoning questions, systematic training in laboratories, practical training in hospitals, and summer training.
Evaluation methods
Written, oral and practical tests, midterm and final exams, daily tests, assignments such as preparing reports in the field of specialization and then discussing the reports, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), inferential and deductive questions.

10- Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Information of blood transfusion	Information about blood transfusion	3	1
a test	Lecture and lab	Blood components, blood collection, choosing the donor, physiological examination, time of collection.	Blood components, blood collection, donor selection, physiological examination, time of collection.	3	2
a test	Lecture, lab	Complete the second week principles.	Completing the vocabulary of the second week.	3	3

a test	Lecture, lab	Blood typing: ABO system, Rh factor, Lewis system.	Blood classification: systemABO, Rh factor, and Lewis system	3	4
a test	Lecture, lab	Classification of blood typing (long & short)	Methods for determining blood type (long and short).	3	5
a test	Lecture, lab	Direct and indirect coomb,s test of blood	Blood storage and transport + Cup examination (direct and indirect method)	3	6
a test	Lecture, lab	Process of cross matching test, reporting and recording the results.	Conformity tests, their purpose, types, recording results and writing reports.	3	7
a test	Lecture, lab	Roles of blood transfusion, disease of blood	Laws and regulations for blood transfusion and donation, and identifying diseases transmitted through blood transfusion.	3	8
a test	Lecture, lab	Pregnant care, leukemia of infants	Neonatal hematology and maternal care.	3	9
a test	Lecture, lab	Complete the principles above	Completing the vocabulary of the ninth week.	3	10

a test	Lecture, lab	Blood splitting, methods of using and dividing.	Blood fractionation, purpose, methods of fractionation and its uses.	3	11
a test	a lecture,	Complete the principle above.	Completing the vocabulary of the eleventh week.	3	12
a test	Lecture, lab	Component of blood after storage, anti co-agulants.	Blood and blood components storage, anticoagulants, blood bags, effect of storage	3	13
a test	Lecture, lab	Blood transfusion disadvantage.	Disadvantages of blood transfusion.	3	14
a test	Lecture, Lab	Quality control, Tools, Persons, Method	Quality control, solutions, method, equipment, people.	3	15

11- Curriculum Development Plan

- To view modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
	1- Required textbooks
Clinical hematology in medical practice By. GC d Grughy	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description First Aid

1- Course name
First Aid
2- Course code
MLT 120
3- Available attendance forms
1.Weekly lesson schedule (theoretical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
First semester / 2025 - 2026
5- Number of study hours (total) / Number of units
30 hours / 2 units
6- Date this description was prepared
4/9/2025.
7- Course supervisor name
the name : **Rahma Abdullah Hassan** e-mail: rahma@ntu.edu.iq
8- Course objectives
- Teaching and training students on how to provide first aid in the event of an accident. - Teaching and training the student on the correct and immediate procedure for the injured.

- Giving the student the correct instructions on first aid in the event of an accident in the laboratory.

9- Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Preserving the life of the injured person.

A2- Knowing how to stop harm or damage to the injured person, such as removing him from the area of harm or accident.

A3- Learn how to apply pressure to wounds to stop bleeding.

And how to deal with it.

B - Course specific skill objectives.

B1 - Introducing the student to the basics of first aid...

B2 - Training students on the ability to act in emergency situations that can occur anywhere and at any time.

B3 - Training students and increasing their skills in providing vital assistance before the arrival of paramedics.

B4 - Training on the skills of dealing with accident cases, their symptoms and first aid methods.

C- Emotional and value-based goals

A1- The student must be able to provide first aid services.

A2- Providing students with the necessary skills to provide first aid to people facing cases such as cardiac arrest, choking, bleeding, fractures, and fainting.

A3- The student must be able to deal with the patient or injured person until the ambulance arrives.

A4- The student should learn how to stop harm or damage, such as moving the patient away from the source of harm or the scene of the accident and applying pressure to wounds to stop bleeding.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.
Teaching and learning methods
Traditional lecture, self-study, feedback, deductive and analytical reasoning questions, systematic training in laboratories, practical training in hospitals, and summer training.
Evaluation methods
Written, oral and practical tests, midterm and final exams, daily tests, assignments such as preparing reports in the field of specialization and then discussing the reports, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), inferential and deductive questions.

10- Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	theoretical lecture	First aid	definition, paramedic, fundamental of first aid, wound, .bleeding	2	1
a test	theoretical lecture	Burns	- types of fracture aid- artificial respiration	2	2
a test	theoretical lecture	Biological factors	- types-their effects on workers in Lab.- diseases	2	3
a test	theoretical lecture	Physical factors	- types-their effects on workers in Lab.- diseases	2	4
a test	theoretical lecture	Chemical factors	- types-their effects on workers in Lab.- diseases	2	5
a test	theoretical lecture	Wounds	Type, aid and treatment	2	6
a test	theoretical lecture	Bleeding	Type, aid and treatment	2	7
a test	theoretical lecture	Trauma	Type, aid and treatment	2	8
a test	theoretical lecture	Fractures	Type, aid and treatment	2	9
a test	theoretical lecture	Fracture first aid	Type, aid and treatment	2	10

a test	theoretic al lecture	Spinal fractures	Type, aid and treatment	2	11
a test	theoretic al lecture	Accident ambulance	Type, aid and treatment	2	12
a test	theoretic al lecture	Insect bites	Type, aid and treatment	2	13
a test	theoretic al lecture	Insect bites aid	Type, aid and treatment	2	14
a test	theoretic al lecture	Review	-	2	15

11- Curriculum Development Plan
- ATo view modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	Degree	Relative weight %
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13- Teaching and Learning Resources	
	1- Required textbooks
	2- Main references (sources)
THE COMPLETE FIRST AID1 2-FIRST AID CUIDE	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description Computer 2

1- Course name
Computer 2
2- Course Name/Code
NTU201
3- Available attendance forms
1.Weekly lesson schedule (theoretical + practical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
Second semester / 2025 - 2026
5- Number of study hours (total) / Number of units
30 hours / 2 units
6- Date this description was prepared 4/9/2025.
7- Course supervisor name
Name: **Mohammed Abdullah Mohammed** e-mail: moh.phy90_hwj@ntu.edu.iq
8- Course objectives
1− Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization. 2− Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization. 3− Performing his duties at the workplace for professional reasons.

9- Course outcomes, teaching, learning and assessment methods
A.Cognitive objectives A1- Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization.
B.Course skill objectives. B1- Teaching the student computer skills, using its ready-made applications, and Internet principles in the field of specialization.
C. Emotional and value-based goals C1- Performing his duties at the workplace for professional reasons.
Teaching and learning methods
((Theoretical lectures / practical lectures / field visits / solving examples / discussion groups / summer training))
Evaluation methods
(Oral exams/ written exams/ weekly reports/ daily attendance/ semester and final exams)
Teaching and learning methods
((Theoretical lectures / practical lectures / field visits / solving examples / discussion groups / summer training))
Evaluation methods
(Oral tests/ written tests/ observation/ student's cumulative record)

10- Course structure					
Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Tests and discussion	Practical + Theoretical	Word Processor Features / Running the Word / Basic elements of the Word window / Language core / Paragraph definition / Paragraph merging and splitting / Text highlighting.	Knowledge and practical application	2	1&2
Tests and reports	Practical + Theoretical	New / Open Stock File / Close Document / Save New Document / Save Existing Document / Print Preview / Close Document / Finish word	Knowledge and practical application	2	3
Tests and discussion	Practical + Theoretical	Clipboard: Cut/Copy/Paste/Format Painter Font: Change font / Font size / Increase or decrease font size / Clear formatting / Change font color / Text highlight color / Subscript / Superscript / Change case / Underline style / Effects / Letter spacing Paragraph: Numbering / Bulleting / Creating a bulleted list to existing text / Cancel bullets / Indentation / Paragraph spacing / Line spacing / Text direction / Alignment / Borders and shading	Knowledge and practical application	2	4

		Styles: Normal / No Spacing / Heading 1 / Heading 2 / Subheading / Change Styles / Show Preview / Disable Linked Styles / Options Edit: Find / Move to / Replace / Select			
Tests and reports	Practical + Theoretical	Pages: Blank Page / Cover Page / Page Break Table: Insert a table / Draw a table / Convert text to a table / Spread sheet Excel / Quick Tables / Table Styles / Drawing Table Borders Illustrations: Image / Clip Art / Prepared Shapes / Smart Art Drawing / Chart	Knowledge and practical application	2	5
Tests and discussion	Practical + Theoretical	Header and Footer: Header / Footer / Page Number Text: Text Box / Decorative Text word art / signature line / date and time / object / equation / symbol .	Knowledge and practical application	2	6
Tests and reports	Practical + Theoretical	Features: Themes / Colors / Fonts / Effects.	Knowledge and practical application	2	7
Tests and discussion	Practical + Theoretical	Features: Themes / Colors / Fonts / Effects Page Setup: Margins / Page Size / Orientation Page background: watermark / page color / page border	Knowledge and practical application	2	8&9

		Arrange: Position / Bring to Front / Send to Background / Text Wrap / Align / Group / Rotate.			
Tests and reports	Practical + Theoretical	Table of Contents / Add Text / Update Table Footnotes: Insert footnote / Insert endnote / Next footnote / Show notes References and citations: Insert citation / Manage sources / Style Captions: Insert a caption Index: Insert index / Mark entry / Update index	Knowledge and practical application	2	10&11
Tests and discussion	Practical + Theoretical	Create: Envelopes / Labels Proofreading: Spelling & Grammar / Research / Thesaurus / Translation / Translation ScreenTip / Set Language / Word Count Comments: New Comment / Delete / Previous / Next Track: Track Changes / Balloons / Final Look Marker / Show Marks / Review Pane Changes: Accept / Reject / Previous / Next Protect: Protect the document	Knowledge and practical application	2	12&13

		Document Views: Print Layout / Full Screen Reading / Web Layout / Outline / Draft Show and hide: Ruler / Gridlines / Document Map / Thumbnail Zoom in and out: 100% / One page / Two pages / Page width Frame: New Frame / Arrange All / Split / Swap Tires Directions Microsoft Office Word			
Tests and reports	Practical + Theoretical	Networks and their types / Network types / Network protocols / Internet and its development / Internet and intranet / Firewalls / Some basic Internet concepts / Connecting to the Internet / Opening the Internet browser / Components of the Internet browsing window / Browser icons / Web addresses / Using the browser / Changing the start page / Toolbars / Closing the browser and disconnecting from the Internet / History / Storing favorite pages / Search engines / How to search for information on the Internet / Copying texts and images to any application / Downloading files from the Internet / Preparing for printing / Printing	Knowledge and practical application	2	14&15

11- Curriculum Development Plan
1- Develop curricula that are compatible with the labor market 2- Holding scientific seminars and conferences aimed at updating curricula **3-** Follow up on scientific developments in the field of specialization

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
Available free of charge in the department and the institute library	Required textbooks
Available free of charge in the department and the institute library	Main References (Sources)
Internet	Electronic references, websites

Course Description Baath regime crimes in Iraq

1) Course name
Baath regime crimes in Iraq
2) Course Name/Code
NTU202
3) Available attendance forms
My presence
4) semester/year
First semester / 2025 - 2026
5) Number of study hours (total) / Number of units
30 hours / 2 units
6) Date this description was prepared
4/9/2025.
7) Course supervisor name
Name: Dr. Muhammad Yassin Hussein e-mail:**mohammedyaseen_hwj@ntu.edu.iq**
8) Course objectives
1- Providing students with basic concepts related to the definition of crimes, their types and divisions.
2- Defining the crimes and violations of the former regime and the types of international crimes
3- Defining mass grave crimes and violations of Iraqi laws

4- Addressing environmental crimes, the destruction of cities, demographic change policies, and extrajudicial detention.
5- Statement on the role of the Supreme Criminal Court in dealing with the crimes of the Ba'ath regime
9) Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Enabling students to understand the concept of crime and types of national and international crimes. A2- Developing cognitive aspects related to the protection and guarantees of human rights. A3- Developing students' ability to distinguish between crimes and human rights violations and how to confront them.
B - Course specific skill objectives. B1- Enabling students to understand the concept of national and international crime. B2- Enabling students to understand human rights, how to defend these rights, and the guarantees related to them.
C- Emotional and value-based goals A1- Developing legal culture A2- Performing his duties at work sites for professional reasons. A3- Instilling the values of tolerance and cooperation in society.
Teaching and learning methods
Theoretical lectures Periodic reports / periodic tests / practical case studies**)).**
Evaluation methods
((Periodic exams / direct questions / preparing special reports**))**

Teaching and learning methods
((Student groups / case studies / preparing special reports))
Evaluation methods
((Periodic exams / direct questions / preparing special reports))
D - General and transferable skills (other skills related to employability and personal development). D1- Developing the skills of students in the field of public service or the private sector. D2- Developing personal skills to enhance students' legal culture.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Tests and discussion	theoretical	- Crimes of the Ba'ath regime according to the Iraqi High Criminal Court Law of 2005 - The concept of crimes and their types - Definition of crime in language and terminology	Knowledge and practical application	2	1
Tests and discussion	theoretical	- Crime sections - Crimes of the Ba'ath regime as documented by the Iraqi Supreme Criminal Court Law of 2005	Knowledge and practical application	2	2

Tests and discussion	theoretical	– Types of international crimes – Decisions issued by the Supreme Criminal Court	Knowledge and practical application	2	3
Tests and discussion	theoretical	– Psychological and social crimes and their effects. – Psychological crimes – Mechanisms of psychological crimes – Psychological effects of crimes	Knowledge and practical application	2	4
Tests and discussion	theoretical	- Social crimes - Militarization of society The Baath regime's position on religion	Knowledge and practical application	2	5
Tests and discussion	theoretical	– Violations of Iraqi laws – Images of human rights violations and crimes of power	Knowledge and practical application	2	6
Tests and discussion	theoretical	– Some decisions on the political and military violations of the Baath regime	Knowledge and practical application	2	7
Tests and discussion	theoretical	– Baath regime prisons and detention centers	Knowledge and practical application	2	8

Tests and discussion	theoretical	– Environmental crimes of the Baath regime in Iraq	Knowledge and practical application	2	9
Tests and discussion	theoretical	– War pollution, radioactivity, and mine explosions	Knowledge and practical application	2	10
Tests and discussion	theoretical	– Destruction of cities and villages – scorched earth policy	Knowledge and practical application	2	11
Tests and discussion	theoretical	– draining the marshes – Bulldozing palm groves, trees and crops	Knowledge and practical application	2	12
Tests and discussion	theoretical	– Mass grave crimes – Definition of mass graves	Knowledge and practical application	2	13
Tests and discussion	theoretical	– Mass graves and genocide committed by the Baath regime	Knowledge and practical application	2	14
Tests and discussion	theoretical	– Chronological classification of genocide graves in Iraq	Knowledge and practical application	2	15

11) Curriculum Development Plan
- Reviewing recent scientific and academic literature. - Conducting periodic reviews and updates of the course content. - Recruiting legal experts as visiting lecturers.

12) Course Evaluation

T	Evaluation methods	Calendar appointment (week)	Degree	Relative % weight
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13) Teaching and Learning Resources	
General books	1- Required textbooks
Publications on crimes, penal law and human rights available in the college library and the university's central library	2- Main references (sources)
Human rights websites.	3- Electronic references, Internet sites

Course Description Professional ethics

1) Course name
Professional ethics
2) Course Name/Code
NTU204
3) Available attendance forms
1.Weekly lesson schedule (theoretical). 2.Discussions
4) semester/year
First semester / 2025 - 2026
5) Number of study hours (total) / Number of units
30 hours /
6) Date this description was prepared 4/9/2025.
7) Course supervisor name
Name: Faisal Najm Abdullah e-mail:**Faisal_hwj@ntu.edu.iq**
8) Course objectives
- Teaching students that their commitment to the ethics of their profession is an integral part of the correct practice of it, and this commitment is their duty towards - Teaching a course on professional ethics is the cornerstone of preparing future generations professionally and ethically.

– Teaching a course on professional ethics to institute students represents the right start for any society that seeks to raise the level of ethical practice among professionals.
9) Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identifying the principles of ethical analysis and thinking In various professional situations. A2- Identify the difference betweenWork and profession A3- Recognition Patient rights
B - Course specific skill objectives. B1-Brainstorming skill inside the hall. B2- Giving examples and modern applications to enhance understanding.
C- Emotional and value-based goals C1-The student understands the meaning of the basic terms of the curriculum. C2- The student should understandCharacteristics and duties of a medical technician. C3- ThatThe student distinguishes the importance of ethics to the individual and society. C4- ThatThe student compares the concepts of work, profession and craft.
Teaching and learning methods
Traditional lecture, report writing, discussion, feedback, deductive and analytical reasoning questions.
Evaluation methods

Daily written and oral tests, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), analytical and deductive questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
Duties Short tests Reports	Theoretical lectures Group discussions	Ethics.	Introducing the student to the concept of ethics	2	1
Duties Short tests Reports	Theoretical lectures Group discussions	Work and profession.	Introducing the student to the difference between work and profession	2	2
Duties Short tests Reports	Theoretical lectures Group discussions	Professional ethics.	Student understanding of professional ethics	2	3

Duties Short tests Reports	Theoretical lectures Group discussions	Values and professional ethics.	Introducing the student to the values and ethics of the profession	2	45&
Duties Short tests Reports	Theoretical lectures Group discussions	Patternsunethical behaviorIn the profession.	Introducing the student to patterns of unethical behavior Administrative corruption + bribery + fraud in work	2	6&7
Duties Short tests Reports	Theoretical lectures Group discussions	Means and methods of establishing professional ethics.	Understanding the means of establishing values	2	8
Duties Short tests Reports	Theoretical lectures Group discussions	Ethics of medical practiceCharacteristics and duties of a medical technician.	Introducing the student to the duties of medical staff	2	9
Duties Short tests Reports	Theoretical lectures Group discussions	1. Patient rights.	Introducing the student to patient rights	2	10
Duties	Theoretical lectures	2. The medical technician's relationship with the community and his	Introducing the student to the role of	2	11&12

Short tests Reports	Group discussions	responsibility towards the environment and public safety.	medical technicians in society		
Duties Short tests Reports	Theoretical lectures Group discussions	3. Professional relations (the relationship of the medical technician with his colleagues in the health institution.	Clarifying the relationship of the medical technician with his colleagues and subordinates	2	13&14
Duties	Theoretical lectures Group discussions	4. Ethics of teaching and learning about patients.	Understanding and clarifying the ethics of teaching and learning about patients	2	15

11) Curriculum Development Plan
− Review of modern scientific literature − Periodic review of the course

12) Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	Degree	Relative weight %
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	The total	100	%100	%100

13) Teaching and Learning Resources	
Unified Curriculum for Technical Universities in Iraq	1- Required textbooks
• Abu Al-Khair, Muhammad Saeed (n.d.): Professional Ethics Guide, Faculty of Arts, Zagazig University. • Hassan, Abdul-Mahdi Abdul-Ridha (b.t.): Code of Professional Ethics for Nurses and Midwives in Iraq, Internet site.www.uobabylon.edu.iq/eprints/pubdoc_10_6984_150.doc • Al-Hawrani, Ghaleb Saleh and Tanash, Salama Youssef (2007): Ethics**The academic career of the university**	2- Main references (sources)

professor from the perspective of faculty members at the University of Jordan Journal of Studies, Educational Sciences, Volume (34), Issue (2), Jordan.

Rabhi, Israa (2018): The concept of bribery,Website.https://mawdoo3.com

- Muhammad, Ahmad (2018): What is the difference between a gift and a bribe?https://mawdoo3.com/
- National Center for Faculty and Leadership Development (2011): Scientific Research Ethics, Program Series, Egypt.
- Mashal, Talal (2018): What is the importance of ethics, website. https://mawdoo3.com/

Al-Mashharawi, Ahmed Hussein (2014):role**Professional Ethics in Promoting Social Responsibility in Palestinian Government Hospitals (Al-Shifa Medical Complex as a Model)**Master's thesis***In the program***

- Saudi Commission for Health Specialties (2012): Ethics of Healthcare Practitioners, 3rd Edition, p. 44.
- Quality Assurance Unit (2017): Professional Ethics Guide, Faculty of Arabic Language, Al-Azhar University, Cairo.

• Iraqi Ministry of Health (2018): Code of Ethics for Medical Research, National Center for Training and Human Development. Iraqi Ministry of Health (2017): Principles of Medical Ethics in Iraqi Health Institutions.	
	A- Recommended books and references (scientific journals, reports, etc.)
Modern sources via the Internet	B - Electronic references, websites...

Course Description vital statistics

1. Course name
vital statistics
2. Course code
TIMM 202
3. Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours/2 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
Name: **Muqdad Daham Jasim** e-mail: muqdad.da@ntu.edu.iq
8. Course objectives
The student will be able to: Processing and analyzing statistical data, reaching correct conclusions, and preparing statistical forms
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives: The student will be able to:

A1. Dealing with statistical data. A2. Dealing with and knowing vital and health statistical measures. A3. Organizing the statistical form and the health form related to daily incidents such as births, deaths, and diseases.
B - Skill and behavioral objectives: The student will be able to: B1- Statistical data analysis.
C- Emotional and value-based goals: C1- Guiding the community to the need to learn statistics and its applications in work.
Teaching and learning methods
Traditional lecture, report writing, conducting seminars, group learning training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (linking the current topic to the previous one), self-assessment, reports on scientific developments in the field of specialization, and asking analytical and inferential questions.

10.Course structure

Evaluation method	Teaching method	Unit name/topic	watches	week
a test	Traditional lecture, seminars, group discussion	Definition of statistics. Data collection methods, presentation and description of statistical data, preparation of a form (ungrouped data) and questionnaire.	2	1

a test	Traditional lecture, seminars, group discussion	Representation of frequency distributions (classified data) Tabular presentation "Frequency distribution tables"	2	2
a test	Traditional lecture, seminars, group discussion	Graphical display - histogram, histogram, histogram.	2	3
a test	Traditional lecture, seminars, group discussion	Measures of central tendency, arithmetic mean.	2	4
a test	Traditional lecture, seminars, group discussion	The mediator, the mode.	2	5
a test	Traditional lecture, seminars, group discussion	Introduction to sampling theory: its meaning and reasons for choosing it	2	6
a test	Traditional lecture, seminars, group discussion	Vital statistics, ratio and rate, mortality statistics.	2	7

a test	Traditional lecture, seminars, group discussion	Fertility statistics.	2	8
a test	Traditional lecture, seminars, group discussion	Disease statistics, life tables	2	9
a test	Traditional lecture, seminars, group discussion	Definition of health statistics and its sources.	2	10
a test	Traditional lecture, seminars, group discussion	Fields covered by health statistics.	2	11
a test	Traditional lecture, seminars, group discussion	Statistics of causes of death (medical certificate, cause of death, death certificate)	2	12
a test	Traditional lecture, seminars, group discussion	Health institutions statistics	2	13

a test	Traditional lecture, seminars, group discussion	Rates and specifications for hospitals and patients, treatment days, length of stay (average days of stay)	2	14
a test	Traditional lecture, seminars, group discussion	Household occupancy rate, income rate	2	15

11.Curriculum Development Plan

- Updating the course content and terminology to reflect recent advancements in medical statistics and laboratory data analysis.
- Enhancing the practical aspects of designing and analyzing laboratory and clinical experiments.
- Aligning the course with the requirements of the healthcare labor market and medical scientific research.
- Developing students' abilities in laboratory data analysis and in making evidence-based scientific decisions.

11-**Course Evaluation**				
T	Evaluation methods	Calendar appointment (week)	degree	Relative weight %
1	Report 1	First, second and third week	2.5	2.5
2	Discussion	The fourth, Fifth and sixth weeks	2.5	2.5
3	Short Test Quiz	The seventh, eighth and ninth weeks	2	2
4	Report 1	The tenth and Eleventh week	3	3
5	Midterm Exam	The fourteenth week	20	20
6	striving	striving	30	30
7	Final theoretical exam	Final semester exams	70	70
	he totalT	100	%100	%100

12.Teaching and Learning Resources	
W. Dixon and F. Massey – Introduction to statistical analysis.	1- Required textbooks
- Banderfort Hill, Fundament in Biosciences	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description of Biochemistry

1- Course name
Biochemistry
2- Course Name/Code
MLT208
3- Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4- semester/year
First semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 3 units
6- Date this description was prepared 4/9/2025.
7- Course supervisor name
Name: Dr. Mohamed Ali Faris e-mail:mohammedchemist@ntu.edu.iq
8- Course objectives

- Teaching and training the student on how to use the spectrophotometer and centrifuge.
- Teaching and training students to conduct chemical analyses used in the laboratory to diagnose diseases.
- Teaching and training students to recognize and distinguish between types of laboratory tests to develop their observation and monitoring skills, in addition to their skills in recording and interpreting results.
- Teaching and training students to conduct tests to determine the effectiveness of the body's organs in performing their various functions and the chemical substances present in body fluids, especially blood. All of these substances are in fixed proportions, and any difference in these proportions has a pathological significance.

9- Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Learn how to conduct studies on blood, urine and other body fluids.

A2- Knowing how to distinguish between types of tests to detect the percentage of elements present in the body.

A3- Knowing how to obtain a sample from the patient and how to handle it.

B - Course specific skill objectives.

B1 - Training on methods of conducting chemical tests such as carbohydrate tests, enzyme activity tests, urine tests, and mineral tests.

B2 - Training students on how to distinguish between each examination and the method of diagnosing the examination results.

B3 - Training students on how to use a spectrophotometer and a centrifuge to examine samples.

B4 - Training on sample handling skills.

C- Emotional and value-based goals

C1- The student should be able to diagnose diseases. C2- Signature in understanding the prognosis and future complications of the disease after diagnosis. C3- Therapeutic in monitoring the patient's response to treatment C4- Preventive measures in conducting health screening of people to detect the disease.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10- Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Introduction to biochemistry, its role in	Introduction to Biochemistry and its	3	1

		medicine, and methods of using devices	role in medicine and using the device		
a test	Lecture and lab	Acidity identifier in the body, types of fluids in the body, and devices used for diagnosis	pH, water, buffers and devices used for diagenesis	3	2
a test	Lecture, lab	Continuation of the previous lecture: Study of acid-base balance in diseases and disorders of the body and types of buffer systems in the body	Continuation of the lecture acid base balance and its disorders.	3	3
a test	Lecture, lab	Introduction to Carbohydrates and Metabolism	Carbohydrates structure and metabolism	3	4
a test	Lecture, lab	Carbohydrate classification, structure, functions, and metabolism	Classification of carbohydrate, Structure, Function, Metabolism of carbohydrate	3	5
a test	Lecture, lab	Introduction to fats, their composition and classifications	Introduction of Lipids, classified and structure	3	6
a test	Lecture, lab	Functions of fats and fat metabolism	Function,Metabolism of Lipids.	3	7
a test	Lecture, lab	Study of the structure and functions of proteins in the body	Structure and function of proteins	3	8

a test	Lecture, lab	Explanation of the structure, functions and catabolism of amino acids	Structure, function and metabolism of amino acids	3	9
a test	Lecture, lab	DNA and protein synthesis	nucleic acid and protein synthesis	3	10
a test	Lecture, lab	installationDNA, RNA and protein synthesis	DNA structure and replication, RNA structure and replication, Translation and protein synthesis	3	11
a test	Lecture, lab	Enzymes and enzyme kinetics	Enzymes and enzymes kinetics	3	12
a test	Lecture, lab	Mechanism of action, structure, functions and regulation of enzymes	Mechanism of enzyme action, structure and functions,Enzyme kinetic and regulation	3	13
a test	Lecture, lab	Hormones, their types, properties and functions	Hormones and Types, properties, function	3	14
a test	Lecture, Lab	Vitamins, their types, properties and functions	vitamins Types, properties, function	3	15

11- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5

2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

12- Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

13- Teaching and Learning Resources	
	1- Required textbooks
1-Modern experimental Biochemistry [3 ed], Rodney F. Boyer, Prentice Hall 2000. 2-Medical Biochemistry Baynes [2 ed], John W. Baynes & Marek H. Dominiczak, Mosby 2004.	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports
3- Marks Basic Medical Biochemistry: A Clinical Approach, Michael Liederman and Alisa Peet, MD/ 2017. 4- Fundamentals of Clinical Biochemistry: Fundamentals & Ouick Review, Ms. Sushma uttam kanukale, 2019..	B - Electronic references, websites...

Course Description Fundamentals of Science Immunity

1) Course name
Fundamentals of Immunology
2) Course Name/Code
MLT 214
3) Available attendance forms
1. Weekly lesson schedule (theoretical and practical).

2. Discussions, scientific seminars, and other extracurricular activities
4) semester/year
First semester / 2025 - 2026
5) Number of study hours (total) / Number of units
45 hours / 3 units
6) Date this description was prepared
21/6/2025
7) Course supervisor name
Name: Hoda Mounir Ahmed e-mail:Huda.muneer@ntu.edu.iq
8) Course objectives
1- Teaching and training students on how to work in various medical laboratories 2- Teach and train the student on how to collect information from the patient such as name, age, and gender.
3- Teaching and training the student on how to take a sample from the patient, whether it is blood, urine, or stool. 4- Teaching and training the student on how to record and document information in special records kept in laboratories. 5- Teaching and training the student on how to conduct examinations for the patient
9) Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1-Learn how to collect information from the patient.. A2-Identifying pathogens and their relationship to each other

A3-Identify side effects based on laboratory results.
B - Course specific skill objectives. B1-Training on how to collect laboratory samples B2-Training on how to prepare the patient for each examination according to the medical condition. B3-Training on how to save samples, whether blood or urine. B4-Training on how to conduct examinations.
C- Emotional and value-based goals C1-Training the student to perform certain examinations C2-Training on conducting and analyzing group examinations C3-Group learning training.
Teaching and learning methods
Traditional lecture, report writing, seminars, practical training in the laboratory, systematic training in the hospital, and summer training.Showing scientific filmsAnd videos related to methods of collecting samples from patients and then conducting examinations,Scientific visits for information.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
practical control	Lecture, lab	Definition of immunity and history of immunity.	Definition of Immunology and History of Immunology	3	1
a testpractical	Lecture, discussion, feedback, presentation of explanatory posters, presentation of videos and films	Natural immunity types and mechanical of it	Types of natural, specific, and non-specific immunity and factors affecting individual immunity	6	2.3
a test practical	Lecture, lab	Acquired immunity and types of it	Types of acquired immunity and examples of them	3	4
a testpractical	Lecture, lab	Vaccine and types	Types of vaccines	3	5
a testpractical	Lecture, lab	Structure of immunity system	Immune system organs and types of lymphatic system	3	6

a testpractical	Lecture, lab	Complement and its pathways	Identify the complement and its pathways	3	7
a testpractical	Lecture, lab	Antigen definition &characteristic of it	Antigen definition and specifications	9	8,9,10
a testpractical	Lecture, lab	Ab define & types of it	Definition of opposites, their types and the differences between them	6	11, 12
a testpractical	Lecture, lab	Ab-Ag reaction and types of it	Types of antigen reactions (agglutination, precipitation, neutralization, complement fixation, types depending on each technique)	9	13, 14, 15

11) Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12) **Course Evaluation**				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
Immunology Immunology translated into Arabic	1- Required textbooks
- Required books - Medical microbiology & immunity	2- Main references (sources)
1. WHO issues Specialized scientific journals.	A- Recommended books and references (scientific journals, reports, etc.)
Wikipedia.	B - Electronic references, websites...

Course Description of Protozoa

1. Course name
Protozoa
2. Course code
MLT206
3. Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
Name: Hoda Mounir Ahmed e-mail: Huda.muneer@ntu.edu.iq
8. Course objectives

- Teaching students about the forms and life cycles and diagnosis of parasites in general and basics Protozoa especially theoretically.
- Teaching and training students to examine prepared slides of various types of parasites under a microscope to learn their shapes and distinguish between them.
- Teaching and training the student to diagnose parasites in clinical samples (stool, urine, and blood) under a light microscope as well as using other diagnostic techniques.

9. Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Identify the different types and genera of parasites.

A2- Knowing how to distinguish between types of parasites diagnosed under the microscope.

A3- Knowing how to obtain clinical samples from the patient and how to handle them.

B - Course specific skill objectives.

B1 - Training on examining ready slides using a microscope.

B2 - Training students on how to distinguish between protozoa and worm eggs.

B3 - Training students on how to use a microscope to examine samples.

B4 - Training on sample handling skills.

C- Emotional and value-based goals

C1- The student should be able to make the connection between the parasite and the disease it causes.

C2- Understanding the similarities and differences between protospores and worm eggs on the one hand, and between protospores and worm eggs on the other hand.

C3- Explain the different infection mechanisms of each parasite. C4- Accurate knowledge of the types of parasites and their methods of transmission to humans, and an explanation and understanding of the reason for taking a sample rather than another for each parasite.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Defines the parasites, parasitology. Types of parasites, types of host Classification of parasites (protozoa and metazoan). Metazoa (helminthes and arthropoda).	Identify parasites, types of parasites, and types of hosts. Learn to collect, process, and	3	1

		Collection of sample. Preservation and fixatives solution	preserve samples.		
a test	Lecture and lab	Introduction generally in: • characteristic feature of protozoa • classification (Rhizopoda, Mastigophora, Ciliophora, Telospora) • General stool examination. • preparation of: • Iodine • Eosin • saline solutions	knowledge • Distinctive characteristics of primitives • General classification of primary schools. Ability to perform a general stool examination and prepare iodine and eosin stains and normal saline solution	3	2
a test	Lecture , lab	Class: Rhizopoda (Pathogenic amoeba). Morphology, life cycle, pathogenicity, Lab diagnosis of: Entamoeba histolytica:	knowledge: Morphology , life cycle, pathogenesis, laboratory diagnosis	3	3

		morphology ,lab.diagnosis of pathogenic amoeba, Entamoeba histolytica. • permanent slides. • stool examination	of: Entamoeba histolytica: The ability to prepare slides and diagnose pathogenic amoebas and tissue-lytic amoebas.		
a test	Lecture , lab	Class: Rhizopoda (free living parasites amoeba). Morphology, pathogenesis, diagnosis of: • *Entamoeba gingivalis* • *Acanthomoeba* • *Naegleria* • *slides and pictures* • *stool examination*	knowledge: Morphology , life cycle, pathogenesis, laboratory diagnosis of: free-living parasitic protozoa. Ability to: Examine stool and record the forms of parasites causing encephalitis	3	4

a test	Lecture , lab	Class: Rhizopoda (nonpathogenic amoeba). Morphology, diagnosis of: • *Entamoeba coli* • *Idoamoeba butschlii* • *Endolimax nana* • *Entamoeba dispar* • *Dientamoeba fragilis* Differences between: Entamoeba coli and Entamoeba histolytica *Slides of Non pathogenic amoeba, morphology, lab.diagnosis of:* • *iodamoeba butschlii* • *endolimax nana* • *Dientamoeba fragilis* *stool examination*	Knowing and distinguishing between pathogenic and non-pathogenic amoebas. Use of ready-made slides to distinguish the types of cysts formed by non-pathogenic amoebas.	3	5
a test	Lecture , lab	Class: Mastigophora or Flagellates Generally introduction in: • characteristic feature and classification in • Intestinal flagellate. • Blood and tissue flagellate.	knowledge : • The distinguishing feature and classification of flagellates	3	6

		• Genital flagellate. Intestinal flagellates: Morphology, life cycle, pathogenicity, Lab diagnosis of • *Giardia lamblia* • *Chilomastix mesnili* • *Trichomonas hominis* Slides and pictures of: • Giardia lamblia stool examination	and their four types knowledge : Intestinal flagellates: Morphology, life cycle, pathogenesis, laboratory diagnosis of the disease • Giardia lamblia •Chilomastix mesnili • Human hair Learn what giardia looks like using slides and pictures, and be able to perform a stool test.		
a test	Lecture, lab	Genital flagellate. Morphology, life cycle, pathogenicity, Lab diagnosis of	Knowledge: Morphology, life cycle, pathogenesi	3	7

		Trichomonas vaginalis Oral flagellate Morphology, life cycle, pathogenicity, Lab diagnosis of: *Trichomonas tenax* *l*ab. diagnosis, pathogenicity of: Genital flagellate (Trichomonas vaginalis). Urine examination and slides Oral flagellates (Trichomonas tenax). stool examination, slides	s and laboratory diagnosis of reproductive flagellates. Ability to perform a general urine examination and diagnose genital and urinary parasites. Learn about the shapes of Trichomonas using pictures and slides.		
a test	Lecture, lab	Tissue and blood flagellate Hemoflagellates forms Morphology, life cycle, pathogenicity, Lab diagnosis of: • *Leishmania donovani* • *Leishmania tropica* • *Leishmania brazeliencis*	Knowledge: Morphology, life cycle, pathogenesis and laboratory diagnosis of leishmaniasis.	3	8

		Sample of sand fly and pictures	Pictures and samples of sand fly conveyor.		
a test	Lecture , lab	Morphology, life cycle, pathogenicity, Lab diagnosis of: • *Trypanosoma cruzi.* • *Trypanosoma brucei* Samples of: Tsetse fly and Reduviid bug	Knowledge: Morphology , life cycle, pathogenesis and laboratory diagnosis of haemoflagellates (trypanosoma). Pictures and samples of fly vectors and bedbugs.	3	9
a test	Lecture , lab	Class: Ciliophora (ciliata). Morphology, life cycle, pathogenicity, Lab diagnosis of: *Blantidium coli* *Samples, slides, stool examination*	Knowledge: Morphology , life cycle, pathogenesis and laboratory diagnosis of ciliates. Collect and examine stool samples.	3	10

a test	Lecture , lab	**Review**	Comprehensive review of the basics	3	11
a test	a lecture,	Class: Sporozoa Introduction generally in: • characteristic feature of sporozoa. • Classification plasmodium ssp. In man and insects. Preparation of blood film (thick and thin blood film)	Knowledge: General characteristics and classification of the speciesssporozoa Preparation of thin and thick blood smears	3	12
a test	Lecture , lab	Pathogenicity, Lab diagnosis of: • Plasmodium vivax. • Plasmodium ovale • *Plasmodium malariae* • *Plasmodium falciparum* Short notes of Babesia ssp and differences in laboratory diagnosis with plasmodium ssp	Knowledge: Morphology , life cycle, pathogenesis and laboratory diagnosisThe pathogenesis of malaria and its types, with basic information about the Babesia parasite and its	3	13

			differences in laboratory diagnosis from malaria. Examination of slides to distinguish malaria species		
a test	Lecture, lab	Morphology, life cycle, pathogenicity, Lab diagnosis of: • *Toxoplasma gondii* • *Isoporia belli* lab diagnosis of: • Toxoplasma gondii, Slides and pictures	Knowledge: Morphology, life cycle, pathogenesis and laboratory diagnosis of the parasites causing toxoplasmosis and the parasite Filipinosporidiosisisosporia belli Pictures and slides about Toxoplasma	3	14
a test	Lecture, Lab	Morphology, life cycle, pathogenicity, Lab diagnosis of:	Knowledge: Morphology	3	15

		• *Cryptosporidium sp.* • *Microsporidium* *Samples, slides, stool examination*	, life cycle, pathogenesis and laboratory diagnosis of opportunistic parasites Cryptococcus And microspores. Samples, pictures and slides of cryptococci and microsporidia.		

11. Curriculum Development Plan
− Review of modern scientific literature − Participation in relevant scientific conferences − The teaching and training staff are fully dedicated to application and partial work in hospitals. − Hosting specialized professors − Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
A. Paniker's Textbook of Medical Parasitology B. Diagnostic Medical Parasitology C. Atlas of Medical Parasitology	2- Main references (sources)

Course Description Fundamentals of Bacteriology

1. Course name
Fundamentals of Bacteriology
2. Course Name/Code
MLT210
3. Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Dr. Mona Jalal Ali e-mail:drmuna_hwj@ntu.edu.iq
8. Course objectives
− Teaching and training the student on how to use a microscope. − Teaching and training students to examine slides of various types of bacteria. − Teaching and training students to recognize and differentiate between types of bacteria. − Antibiotic efficacy test − Developing vaccines and researching the genetic makeup of microorganisms.

9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identify the structure of bacteria. A2- Knowing how to distinguish between types of pathogenic bacteria. A3- Knowing how to isolate germs and methods of diagnosing them.
B - Course specific skill objectives. B1 - Training on examining slides. B2 - Training students on how to distinguish germs microscopically and using old cultural methods. B3 - Training students on how to use a microscope to examine samples. B4 - Training on sample handling skills.
C- Emotional and value-based goals C1- The student should be able to link between the types of samples and the bacterial genera isolated from them. C2-Understanding the similarities and differences between germs C3- Explaining the mechanisms of bacterial resistance to antibiotics C4- Accurate knowledge of the types of commensal bacteria and their locations, and an explanation and understanding of the reason for taking one sample rather than another.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods

Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	**Lab safety**	Learn about laboratory safety methods	3	1
a test	Lecture and lab	**laboratory instrument**	Microscope – incubator – autoclave – oven – gasoline flame – loop – glass.	3	2
a test	Lecture, lab	**Sterilization and disinfection**	physical sterilization – moist heat – dry heat – radiation. Chemical Agent sterilization: Phenols – Alcohol – Halogens – Formalin – Gas disinfection.	3	3

			Filtration		
a test	Lecture, lab	**Culture Media**	Culture Media – Liquid – Solid – Semisolid – Natural media – enrichment media – differential media – special media. Culture media and inoculation by loop.	3	4
a test	Lecture, lab	**Laboratory stains**	Laboratory stains – wet smear – dry smear – simple smear. R	3	5
a test	Lecture, lab	**Laboratory stains**	. Different stains and method of staining – gram stain – zehil – nelson stain. Throat swab – Culture –	3	6
a test	Lecture, lab	**Zehil – Neelson stain**	Expected Bacteria	3	7
a test	Lecture, lab	**7-Sensitivity test for antibiotic..**	7-Sensitivity test for antibiotics – Gram positive Antibiotics.	3	8

			Gram negative Antibiotics		
a test	Lecture, lab	**Bacterial structure**	8-general structure of bacteria: Bacterial structure, cell wall, cytoplasmic membrane capsule, protoplasm including cytoplasm and nucleus. Comparison between prokaryotic and eukaryotic cells	3	9
a test	Lecture, lab	**bacterial spores**	9-bacterial spores: Types of spores, resistant to environmental condition	3	10
a test	Lecture, lab	Method of cultivation	Streaking	3	11
a test	Lecture, lab	Method of cultivation	Spreading Culture liquid media	3	12

a test	a lecture,	Method of cultivation	Stabbing method, pure method	3	13
a test	Lecture, lab	Growth Requirement	preparation of media eg: blood agar, add blood to media	3	14
a test	Lecture, lab	Review and examination	-	3	15

11. Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
1. Joanne willey – Prescotts Microbiology 2019 2. Jawetz Melnick and Adelbrgs Medical Microbiology 2019 3. Brock Biology of Microbiology 2019	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description of Virology

1. Course name
Virology
2. Course code
MLT 209
3. Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Falah Hassan Youssef e-mail:falah86-haw@ntu.edu.iq
8. Course objectives
− Teaching and training students on how to work in various medical laboratories − Teach and train the student on how to collect information from the patient such as name, age, and gender.

- Teaching and training the student on how to take a sample from the patient, whether it is blood, urine, or stool. - Teaching and training the student on how to record and document information in special records kept in laboratories. - Teaching and training the student on how to conduct examinations for the patient
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1-Learn how to collect information from the patient.. A2-Identifying pathogens and their relationship to each other A3-Identify side effects based on laboratory results.
B - Course specific skill objectives. B1-Training on how to collect laboratory samples B2-Training on how to prepare the patient for each examination according to the medical condition. B3-Training on how to save samples, whether blood or urine. B4-Training on how to conduct examinations.
C- Emotional and value-based goals A1-Training the student to perform certain examinations A2-Training on conducting and analyzing group examinations A3-Group learning training.
Teaching and learning methods
Traditional lecture, report writing, seminars, practical training in the laboratory, systematic training in the hospital, and summer training.Showing scientific

filmsAnd videos related to methods of collecting samples from patients and then conducting examinations,Scientific visits for information.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
practical control	Lecture, lab	Introduction, General properties of virus, structure, classification of DND & RNA virus	Introduction, general characteristics of the virus, structure, virus classificationDND & RNA	3	1
Practical test	Lecture, lab	Replication of DNA & RNA virus	Viruses multiplyDNA & RNA	3	2
Practical test	Lecture, lab	Virus isolation & cultivation	Virus isolation and culture	3	3
Practical test	Lecture, lab	Chemotherapy, antiviral agent & vaccines	Chemotherapy, antivirals, and vaccines	3	4

Practical test	Lecture, lab	Influenza viruses	influenza viruses	3	5
Practical test	Lecture, lab	Paramyxo & Robella viruses	VirusesParamyxo & Robella	3	6
Practical test	Lecture, lab	Enteric viruses, Rhinovirus group	Enteroviruses, rhinovirus group	3	7
Practical test	Lecture, lab	Pathogenesis of viruses and Genetic of viruses	Viral pathogenesis and viral genetics	3	8
Practical test	Lecture, lab	Hepatitis viruses	Hepatitis viruses	3	9
Practical test	Lecture, lab	Oncogenic viruses	cancer-causing viruses	3	10
Practical test	Lecture, lab	Hepatitis viruses	Hepatitis viruses	3	11
Practical test	Lecture, lab	Rubies & other neurotropic viruses	Rubiesand other neurotropic viruses	3	12
Practical test	Lecture, lab	Arbo viruses & viral haemorrhagic viruses	Arboviruses and hemorrhagic viral viruses	3	13
Practical test	Lecture, lab	Adeno, pox & parvoviruses	Adenoviruses, smallpox, and parvovirus	3	14
Practical test	Lecture, lab	Retro & Adis	Retrovirus and acquired immunodeficiency virus	3	15

11. Curriculum Development Plan
- Review of modern scientific literature - Participation in relevant scientific conferences - The teaching and training staff are fully dedicated to application and partial work in hospitals. - Hosting specialized professors - Academic affiliation with other universities and similar colleges

12. Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
i. Virology 2. Virology translated into Arabic	1- Required textbooks
1-Virology Principles and Applications by Carter, John Saunders, Venetia. **2-**Virology: Essays for the Living, the Dead, and the Small Things in Between..	2- Main references (sources)
1. WHO issues Specialized scientific journals.	A- Recommended books and references (scientific journals, reports, etc.)
1. Wikipedia. 2. https://virologyj.biomedcentral.com/	B - Electronic references, websites...

Course Description of Introduction To Blood diseases

1) Course name
Introduction To Blood diseases
2) Course Name/Code
MLT205
3) Available attendance forms
1. Weekly lesson schedule (theoretical). 2. Discussions, scientific seminars, and other extracurricular activities
4) semester/year
Second semester / 2025 - 2026
5) Number of study hours (total) / Number of units
45 hours / 3 unite
6) Date this description was prepared 2/9/2025.
7) Course supervisor name
Name: Muhsin Hasan Ali e-mail: Mohsinhasan-haw@ntu.edu.iq
8) Course objectives
− Educating and training the student on the basic concepts of hematology and blood examination principles. − Teaching and training students on how to take a blood sample and identify blood components using special methods. − Teaching and training the student on how to prepare blood sample smears and how to distinguish between abnormal and normal blood cells. − Teaching and training students on pathological analysis methods used to reach a pathological diagnosis.

- Teaching and training students on how to handle and use different chemical dyes to diagnose blood diseases.

9) Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Identify the various devices and analyses available and learn about the different components of blood.

A2- Knowing how to perform special tests and knowing the clinical conditions accompanying these tests.

A3- Identifying and detecting routine blood diseases and their causes using special tests.

B - Course specific skill objectives.

B1 - Gaining knowledge of handling pathological samples, materials and laboratory equipment, and understanding their importance and danger, how to handle them and conduct the necessary medical tests.

B2 - Building and developing students' talents and capabilities in the field of medical analysis and how to use the microscope to examine samples.

B3 - Ensure laboratory safety measures are taken to maintain the safety of workers and the safety of public and private property in the laboratory.

C- Emotional and value-based goals

C1- Training on pathological variables and their relationship to clinical diseases.

C2- Training on how to analyze laboratory results in light of clinical examinations and provide accurate and rapid results.

C3- Training on how to deal with unconscious and elderly patients when drawing blood.

C4- Explaining and understanding the reason for taking a blood sample and not others when conducting medical tests and the ability to archive the patient's information for reference when needed.
Teaching and learning methods
Traditional lecture, report writing, conducting seminars, practical training in the laboratory, and summer training in hospitals.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.
Teaching and learning methods
Presentation of clinical cases and their connection to the laboratory aspect, traditional lecture, self-learning, feedback, deductive and analytical reasoning questions, systematic training in laboratories, summer training in hospitals.
Evaluation methods
Simulation of the medical condition, written, oral and practical tests, midterm and final exams, daily tests, commitments to assignments such as preparing reports in the field of specialization and then discussing the reports, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), deductive and inferential questions.

10) Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, discussion.	Haemostasis, definition and types.The role of blood Vessels and Platelet in Haemostasis.	Introduction to the definition and types of blood clotting, the role of blood vessels in blood clotting.	1	1
a test	Lecture, discussion.	Coagulation factors, names and figures.	Study the names and numbers of clotting factors	1	2
a test	Lecture, discussion.	Coagulative Processes.	aggregate operations	1	3
a test	Lecture, discussion.	Haemostasis disorder types. Haemostasis due to blood vessel disorder.	Study of types of blood clotting disorders, as well as blood clotting due to vascular disorders.	1	4
a test	Lecture, discussion.	Haemostasis due to blood platelet disorder.	Study of blood clotting due to platelet disorders.	1	5
a test	Lecture,	Haemostasis due to coagulative disorder.	Study of blood clotting due to a coagulation disorder.	1	6

	discussion.				
a test	Lecture, discussion.	The White blood cells, types.	Study of the types and cells of white blood cells.	1	7
a test	Lecture, discussion.	The maturation of WBC	white blood cell maturation study	1	8
a test	Lecture, discussion.	The function of WBC	Study of the functions of white blood cells.	1	9
a test	Lecture, discussion.	Leukocytosis.	Leukocytosis study.	1	10
a test	Lecture, discussion.	Leukopenia.	Leukemia study.	1	11
a test	Lecture, discussion.	Leukemia, definition and classification.	Study of leukemia, its definition and classification.	1	12
a test	Lecture, discussion.	Chronic and acute myeloid. L.	Study of chronic and acute myeloid leukemia	1	13

practical control	Lecture, discussion.	Chronic and acute myeloid. L.	Study of chronic and acute myeloid leukemia.	1	14
a test	Lecture, discussion.	Chronic and acute Monocytic .L.	Study of chronic and acute monocytic leukemia.	1	15

11) Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12) Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2

9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
Hematology	1- Required textbooks
5- Keohane, Elaine M., Catherine N. Otto, and Jeanine M. Walenga. Rodak's hematology-e-book: clinical principles and applications. Elsevier Health Sciences, 2019 6- Ciesla, Betty. Hematology in practice. Fa Davis, 2018 7- Hoffbrand, Victor, et al. Color Atlas of Clinical Hematology: Molecular and Cellular Basis of Disease. John Wiley & Sons, 2019	2- Main references (sources)
▪ Sternberq surgical pathology ▪ Williams Hematology ▪ British Journal of Pathology ▪ Human pathology journal	A- Recommended books and references (scientific journals, reports, etc.)
Webpath.com	B - Electronic references, websites...

Course Description of Clinical Chemistry

1. Course name
Clinical Chemistry
2. Course code
MLT211
3. Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025.
7. Course supervisor name
Name: Dr. Muhammad Ali Faris e-mail:mohammedchemist@ntu.edu.iq
8. Course objectives
− Teaching and training students on how to use and maintain the necessary equipment and tools. − To teach and train the student to estimate the components of blood and other body fluids, both descriptively and quantitatively.

- Educating and training the student to have the ability to collect and handle biological samples.
- Educating and training the student on To be able to work safely in laboratories.

9. Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Learn how to conduct studies on blood, urine and other body fluids.

A2- Knowing how to distinguish between Types of tests to detect and treat the disease.

A3- Knowing how to obtain a sample from the patient and how to handle it.

B - Course specific skill objectives.

B1 - Training in conducting chemical tests such as kidney and liver tests and measuring protein, fat and sugar levels.

B2 - Training students on how to distinguish Between each examination and the method of diagnosing the examination results.

B3 - Training students on how to use a spectrophotometer and a centrifuge to examine samples.

B4 - Training on sample handling skills.

C- Emotional and value-based goals

A1- The student should be able to diagnose diseases.

A2- Signature in understanding the prognosis and future complications of the disease after diagnosis.

A3- Therapeutic in monitoring the patient's response to treatment

A4- Preventive in conducting health screening of individuals to detect disease and research in participating in research and clinical trials.

Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, lab	Introduction to Clinical Chemistry and Definition of Clinical Chemistry	Introduction to clinical chemistry, definition and scope of clinical chemistry	3	1
a test	Lecture and lab	Clinical laboratory techniques and equipment	Clinical laboratory techniques and instrumentation	3	2
a test	Lecture, lab	Blood chemistry, blood	Blood chemistry, blood composition and functions	3	3

		components and functions			
a test	Lecture, lab	Serum components, plasma, and complete blood count	Serum and plasma components, Complete Blood Count (CBC).	3	4
a test	Lecture, lab	Kidney function and structure test	Renal function test and structure	3	5
a test	Lecture, lab	Electrolyte balance, blood urea and creatinine	Electrolyte balanceBlood urea nitrogen (BUN) and creatinine,	3	6
a test	Lecture, lab	Liver function tests and liver anatomy	Liver function test, Liver anatomy and functions	3	7
a test	Lecture, lab	Introduction to Clinical Chemistry and Definition of Clinical Chemistry	Introduction to clinical chemistry, definition and scope of clinical chemistry	3	8
a test	Lecture, lab	Serum enzymes (AST, ALT, ALP (GGT), and bilirubin catabolism	Serum enzymes (AST, ALT, ALP, GGT), Bilirubin metabolism	3	9
a test	Lecture, lab	Examination of lipids, vascular markers,	Lipid profile and cardiovascular markers,	3	10

		cholesterol, and lipid proteins	Cholesterol and Lipoproteins		
a test	Lecture, lab	Triglycerides, cardiac enzymes, and markers	Triglycerides, Cardiac enzymes and markers	3	11
a test	a lecture,	Endocrine and hormone function testing	Endocrine function test, Hormones and their functions.	3	12
a test	Lecture, lab	Thyroid function tests and diabetes and glucose monitoring	Thyroid function tests, diabetes and glucose monitoring.	3	13
a test	Lecture, lab	Introduction to tumor markers	Introduction Tumor markers,	3	14
a test	Lecture, Lab	Special topics and cases	special topics and case	3	15

11. Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
1- Clinical Chemistry [5th ed] , William J. Marshall MA PhD MSc MBS FRCP ath FRCPEdin FRSB FRSC, 2020. 2-Advances in Clinical Chemistry, Vol. 37 [1st ed.], Herbert E. Spiegel, Gerard Nowacki, Kwang-Jen Hsiao (Eds.), Academic Press, 2003.	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
-Clinical Chemistry: Techniques, Principles, Correlations, 6th Edition, Michael L. Bishop, Edward P. Fody and Larry E. Schoeff, Lippincott Williams & Wilkins 2009.	B - Electronic references, websites...

Course Description of Immunity and pathogenies

1) Course name
Immunity and pathogenies
2) Course code
MLT 216
3) Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4) semester/year
Second semester / 2025 - 2026
5) Number of study hours (total) / Number of units
45 hours / 3 units
6) Date this description was prepared
4/9/2025
7) Course supervisor name
Name: Hoda Mounir Ahmed e-mail: Huda.muneer@ntu.edu.iq
8) Course objectives
− Teaching and training students on how to work in various medical laboratories − Teach and train the student on how to collect information from the patient such as name, age, and gender. − Teaching and training the student on how to take a sample from the patient, whether it is blood, urine, or stool.

- Teaching and training the student on how to record and document information in special records kept in laboratories.
- Teaching and training the student on how to conduct examinations for the patient

9) Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1-Learn how to collect information from the patient..

A2-Identifying pathogens and their relationship to each other

A3-Identify side effects based on laboratory results.

B - Course specific skill objectives.

B1-Training on how to collect laboratory samples

B2-Training on how to prepare the patient for each examination according to the medical condition.

B3-Training on how to save samples, whether blood or urine.

B4-Training on how to conduct examinations.

C- Emotional and value-based goals

C1-Training the student to perform certain examinations

C2-Training on conducting and analyzing group examinations

C3-Group learning training.

Teaching and learning methods

Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.

Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
practical control	Lecture, lab	Ab-Ag reaction and types of it	Types of antigen reactions (agglutination, precipitation, neutralization, complement fixation, types depending on each technique)	9	1,2,3
a testpractical	Lecture, lab	Immunoresponse and types of it	Immune response, humoral and cellular response, and types of lymphokines	6	4.5
a test practical	Lecture, lab	Microorganism immunity, types of cellular and humoral immunity	Immunity against microorganisms + types of cellular and humoral immunity	6	6.7
a testpractical	Lecture, lab	Immunity to viruses	Specific and non-specific immunity	3	8

a testpractical	Lecture, lab	Immunity to parasites	Cellular and humoral immunity against parasites	3	9
a testpractical	Lecture, lab	Immunity to fungi	Immunity against fungi illustrated with a diagram	3	10
a testpractical	Lecture, lab	Microorganism immunity	How microorganisms overcome immunity	3	11
a testpractical	Lecture, lab	Autoimmunity	Definition of autoimmunity and its types	3	12
a testpractical	Lecture, lab	Hypersensitivity	Types of hypersensitivity and their definition with drawing	6	13,14,
a testpractical	Lecture, lab	AIDS & immunity	AIDS and immunity	3	15

11) Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12) Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
Immunology Immunology translated into Arabic	1- Required textbooks
1-Basic Immunology: Functions and Disorders of the Immune System 2- Medical microbiology & immunity	2- Main references (sources)
1. WHO issues Specialized scientific journals.	A- Recommended books and references (scientific journals, reports, etc.)
https://www.immunology.org/public-information/what-immunology	B - Electronic references, websites...

Course Description of worms

1- Course name
worms
2- Course code
MLT213
3- Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4- semester/year
Second semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 3 units
6- Date this description was prepared
4/9/2025.
7- Course supervisor name
Name: Hoda Mounir Ahmed e-mail:Huda.muneer@ntu.edu.iq
8- Course objectives
− Teaching students about the forms, life cycles, and diagnosis of worms.worms − Teaching and training the student to examine slides of adult worms and their eggs under a microscope. − Teaching and training the student to diagnose parasites in clinical samples (stool and urine) under the microscope.

9- Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identify the forms of adult worms and their eggs, according to their different genera and types. A2- Knowing how to distinguish between types of worms, their eggs, and the excrement examined under the microscope. A3- Knowing how to obtain clinical samples from the patient and how to handle them.
B - Course specific skill objectives. B1 - Training on examining slides using a microscope. B2 - Training students on how to distinguish between protozoa and worm eggs. B3 - Training students on how to use a microscope to examine samples. B4 - Training on sample handling skills.
C- Emotional and value-based goals A1- The student should be able to make the connection between the type of parasitic worm, the disease it causes, and the clinical signs. A2- Understanding the similarities and differences between protospores and worm eggs on the one hand, and between protospores and worm eggs on the other hand. A3- Explain the different infection mechanisms of each parasite. A4- Accurate knowledge of the types of worms and the ways they are transmitted to humans.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods

Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10- Course structure

Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Introduction generally in: characteristic feature of Metazoa. Helminthes classification: Cestoda Trematoda Nematoda	Learn about the characteristics of parasitic worms and the types of parasitic worms.	3	1
a test	Lecture and lab	Class Cestoda Morphology, life cycle, pathogenicity, laboratory diagnosis of: *Taenia saginata* *Taenia solium* Slides, morphology, lab.diagnosis. stool examination, picture of: taenia saginata taenia solium	knowledge • Distinctive characteristics, life cycle, pathogenesis and laboratory diagnosis of tapeworms. Ability to perform a general stool examination and view images and slides of tapeworms	3	2

a test	Lecture , lab	Morphology, life cycle, pathogenicity, laboratory diagnosis of: • *Hymenolepis nana* • *Hymenolepis diminuta* *Slides of Hymenolepis nana, Hymenolepis diminuta, lab. Diagnosis.*	knowledge: Morphology, life cycle, pathogenesis, and laboratory diagnosis of other tapeworm species. View pictures and slides of tapeworms.	3	3
a test	Lecture , lab	Morphology, life cycle, pathogenicity, laboratory diagnosis of: • *Echinococcus granulosis* *Slides of Echinococcus granulosis.* .	knowledge: Morphology, life cycle, pathogenesis, laboratory diagnosis of the hydatid worm. View water bags images and slides	3	4
a test	Lecture , lab	Class: Trematoda • Ingeneral life cycle of Schistosoma spp. Morphology, life cycle, pathogenicity, laboratory diagnosis of: • *Schistosoma haematobium* • *Schistosoma mansoni* • *Schistosoma japonicum* Slides of stages and kind Schistosoma ssp.	Knowledge: General characteristics of trematodes: Morphology, life cycle, pathogenesis, laboratory diagnosis. (Schistosomes) View pictures and slides of schistosomes	3	5

		Schistosoma haematobium, Schistosoma mansoni, Schistosoma japonicum, , lab diagnosis, sample of its snail			
a test	Lecture , lab	Short notes and lab. Diagnosis of: • Liver flukes: Fasciola hepatica • Lung flukes: Fasciola buski • Intestinal flukes: heterophyes Slides and pictures: of liver flukes) fasciola hepatica (lung flukes) fasciola buski (intestinal flukes) heterophyes heterophes Lab.diagnosis,morphology . Pathogenicity	knowledge : • Characteristics and classification of liver, lung and intestinal flukes View pictures and slides of liver, lung and intestinal flukes.	3	6
a test	Lecture , lab	Class Nematode Morphology, life cycle, pathogenicity, laboratory diagnosis of: • *Ascaris lumbricoides* • *Trichuris trichura* Slides stages and lab, diagnosis. *Ascaris lumbricoides, trichuris trichura*,	Knowledge: Morphology, life cycle, pathogenesis and laboratory diagnosis of roundworms. View pictures and slides of annelids (snake-belly)	3	7

a test	Lecture , lab	Morphology, life cycle, pathogenicity, laboratory diagnosis of: *Enterobius vermicularis. Necator americanus. Ancylostoma dudenale* lab.diagnosis, slides (stages) Enterobius vermicularis ancylostoma dudenale,	Knowledge: Morphology, life cycle, pathogenesis and laboratory diagnosis of roundworms. View pictures and slides of roundworms (pinworms).	3	8
a test	Lecture , lab	Larva migrants in human: Pathogenicity, laboratory diagnosis of: 1. Cutaneous Larva migrants • *Ancylostoma caninum* • *Schistoma sp.* slides (stages), lab. diagnosis • Necator americanus,	Knowledge: Types of larvae in humans and laboratory diagnosis (cutaneous). View photosNecator americanus,.	3	9
a test	Lecture , lab	Larva migrants in human: 2. Subcutaneous Larva migrants. • Scrow worm. • Myiasis. 3. Cutaneous Larva migrants. • Toxocara spp. Slides and pictures of Larva migrans in human lab. Diagnosis.	Knowledge: The larvae migrate under the skin. View photos and slides of the migratory caterpillar.	3	10

a test	Lecture , lab	Short notes of class: Annelida. Morphology, life cycle, pathogenicity, laboratory diagnosis of Hirudo. slides and pictures of: • Trichinella spiralis	Comprehensive review of the basics	3	11
a test	a lecture,	Short notes of class:Arthropoda. Morphology, life cycle, pathogenicity, laboratory diagnosis of : 1. Insect • Anopheline • Sand fly • Tsetse fly • Reeduviid bug • Culex • Lice • Fleas • Cimex. Filarial slides and pictures of: • wuchereia bancrofti • Loa- loa	Knowledge: General characteristics, life cycle and diagnosis of some arthropods, such as insects: View pictures and slides of filarial worms	3	12
a test	Lecture , lab	2. Arachnids. • Mites. • Tick Slides or pictures of some Arthropoda: • lice • fleas	Knowing some types of parasitic arachnids: (ticks and lice) View pictures of some arthropods.	3	13

		• scrow worm • tick • mites			
a test	Lecture , lab	Review Concentration methods: • Flotation • Sedimentation • special concentration (formal ether)	review Ability to perform concentration in the laboratory (flotation and sedimentation)	3	14
a test	Lecture , Lab	Examination (second one) And final examination	Final exam	3	15

11- Curriculum Development Plan
− Review of modern scientific literature − Participation in relevant scientific conferences − The teaching and training staff are fully dedicated to application and partial work in hospitals. − Hosting specialized professors

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
	1- Required textbooks
-Paniker's Textbook of Medical Parasitology -Diagnostic Medical Parasitology -Atlas of Medical Parasitology	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
Clinical parasitology a practical approach (book).	B - Electronic references, websites...

Course Description of Pathogenic Bacteria

1- Course name
Pathogenic Bacteria
2- Course code
MLT210
3- Available attendance forms
1. Weekly lesson schedule (theoretical and practical). 2. Discussions, scientific seminars, and other extracurricular activities
4- semester/year
Second semester / 2025 - 2026
5- Number of study hours (total) / Number of units
45 hours / 2 units
6- Date this description was prepared 4/9/2025.
7- Course supervisor name
Name: Dr. Mona Jalal Ali e-mail:drmuna_hwj@ntu.edu.iq
8- Course objectives
− Teaching and training the student on how to use a microscope. − Teaching and training students to examine slides of various types of bacteria. − Teaching and training students to recognize and differentiate between types of bacteria. − Antibiotic efficacy test − Developing vaccines and researching the genetic makeup of microorganisms.
9- Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives A1- Identify the structure of bacteria. A2- Knowing how to distinguish between types of pathogenic bacteria. A3- Knowing how to isolate germs and methods of diagnosing them.
B - Course specific skill objectives. B1 - Training on examining slides. B2 - Training students on how to distinguish germs microscopically and using old cultural methods. B3 - Training students on how to use a microscope to examine samples. B4 - Training on sample handling skills.
C- Emotional and value-based goals C1- The student should be able to link between the types of samples and the bacterial genera isolated from them. C2-Understanding the similarities and differences between germs C3- Explaining the mechanisms of bacterial resistance to antibiotics C4- Accurate knowledge of the types of commensal bacteria and their locations, and an explanation and understanding of the reason for taking one sample rather than another.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by

the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10- Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Staphylococcus	Systemic bacteriology , Genus Staphylococcus , General characters , toxin production , enzyme , immunity , sensitivity test	3	1
a test	Lecture and lab	Streptococcus	Genes Streptococcus, general characters, Bio chemical test, Antigenic characters, M protein, Streptococcus group A, diseases, toxin immunity.	3	2
a test	Lecture, lab	Streptococcus group B, C, D	Streptococcus group B,C,D. biochemical reaction, immunity, diseases, Strp. Pneumonia and Strp. Variance disease, antigenic structure	3	3
a test	Lecture, lab	Gram positive bacilli – Corynebacterium	Gram positive bacilli – Corynebacterium diphtheria, shape of bacteria, virulence, toxin, immunity check	3	4
a test	Lecture, lab	Mycobacterium Genes	Genes Mycobacterium general characters, Classification of bacteria, growth, antigenic structure, disease immunity	3	5

a test	Lectu re, lab	Bacillus	. Genes Bacillus , B. anthracis General characters, biochemical reaction, antigenic, structure, toxin, immunity	3	6
a test	Lectu re, lab	Anaerobic bacteria, Clostridiu m	Anaerobic bacteria, Clostridium, general characters, C. perifringens, general character, antigenic structure, biochemical reaction, virulence, toxin, C. tetani, disease immunity, antigenic structure	3	7
a test	Lectu re, lab	Neisseria	Genes Neisseria, general characters, biochemical reaction, N. gonorrhoeae, antigenic structure, virulence, N. meningitides, immunity, sensitivity test.	3	8
a test	Lectu re, lab	Genus Haemophi lus	Genus Haemophilus, general characters, growth factors, virulence, immunity Genus Bordetella, general characters, disease, antigenic structure, virulence, immunity.	3	9
a test	Lectu re, lab	Family Enterobact eriaceae	Family Enterobacteriaceae, General characters, classification, biochemical test, antigenic characters, sugar fermentation, sensitivity test, Genes Escherichia coli, Klebsiella, diseases, virulence, immunity	3	10
a test	Lectu re, lab	Genus Proteus Shigella, Salmonell a	Genus Proteus, general characters, biochemical reaction, virulence, immunity, sensitivity test, Sallmonella, food posing, general characters, Shigella, bacillary dysentery	3	11

a test	Lectu re, lab	Genus Pseudomo nas	Genus Pseudomonas, characters general, pigment production, antigenic stricter, virulence, resistant to antibiotic, distribution in hospitals	3	12
a test	a lectur e,	Genus Vibirio	Genus Vibirio , disease , characters general , antigenic structure , virulence , immunity , treatment , classical Vibirio EL-TOR biotype Vibirio parahaemical , Campylobacter jejuni	3	13
a test	Lectu re, lab	Genus Brucella, *Yersinia pestis*, Francisell a	Genus Brucella, general characters, disease, species Zoonosis. *Yersinia pestis*, General characters , Virulence , disease. Francisella, general characters, transmit ion disease, Virulence, syphilis, VDRL	3	14
a test	Lectu re, lab	Nocardia	Nocardia general characters, stin – direct smear, Mycoplasma, shape, virulence, Lab. Diagnosis. Chlamydia, general characters, shape, biochemical test, Virulence, immunity	3	15

11- Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12- Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13- Teaching and Learning Resources	
	1- Required textbooks
4. Joanne willey – Prescotts Microbiology 2019 5. Jawetz Melnick and Adelbrgs Medical Microbiology 2019 6. Brock Biology of Microbiology 2019	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports, etc.)
	B - Electronic references, websites...

Course Description of Medical Mycology

1. Course name
Medical Mycology
2. Course code
MLT 212
3. Available attendance forms
Weekly lesson schedule (theoretical and practical). Discussions, scientific seminars, and other extracurricular activities
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
45 hours / 3 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
Name: Falah Hassan Youssef e-mail: falah86-haw@ntu.edu.iq
8. Course objectives
Introducing students to medicinal fungi, the diseases they cause, and how to diagnose and treat them.
9. Course outcomes, teaching, learning and assessment methods
A- Cognitive objectives A1- Identify medicinal fungi and their importance.

A2- The student learns about the types of fungi that cause diseases. A3- Identify all methods used to diagnose fungi.
B - Course specific skill objectives. B1 - Training students on the methods used for isolation and the skill of dealing with fungal samples. B2 - Training students to cultivate fungi on fungal media. B3 - Training students on how to use a microscope to examine fungal samples.
C- Emotional and value-based goals C1- The student should be able to distinguish fungal infections in humans. AC2-Understanding the similarities and differences between fungi and other microscopic organisms C3- Knowledge of antibacterial agents produced by fungi C4- Explain and understand the reason for taking one sample and not another.
Teaching and learning methods
Traditional lecture, report writing, seminars, laboratory practical training, hospital-based systematic training, and summer training.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10. Course structure					
Evaluation method	**Teaching method**	**Unit name/topic**	**Required learning outcomes**	**watches**	**week**
a test	Lecture, lab	Fungus isolation in general and Introduction to medical Mycology	Isolation of fungi in general and an introduction to medicinal fungi	3	1
a test	Lecture and lab	Equipment, chemicals needed for fungal media	Tools and chemicals needed for fungal media	3	2
a test	Lecture, lab	Pathogenic fungi	pathogenic fungi	3	3
a test	Lecture, lab	Dermatophyte identification	Identifying skin fungi	3	4
a test	Lecture, lab	Candida identification	Identifying candida	3	5
a test	Lecture, lab	Penicillium identification	Penicillium identification	3	6
a test	Lecture, lab	Aspergillus identification	Identifying aspergillosis	3	7
a test	Lecture, lab	Actinomyces identification	Identifying actinomycetes	3	8
a test	Lecture, lab	Antibacterial Fungi	antibacterial fungi	3	9

a test	Lecture, lab	Fungi in cancer treatment	Fungi in cancer treatment	3	10
a test	Lecture, lab	Fungi in treating other diseases	Fungi in the treatment of diseasesOther	3	11
a test	a lecture,	Fungi in the food industries	Fungi in food industries	3	12
a test	Lecture, lab	Fungi in microbiology	Fungi in microbiology	3	13
a test	Lecture, lab	Fungi in evolutionary biology	Fungi in evolutionary biology	3	14
a test	Lecture, Lab	The future of medical mycology	The future of medicinal fungi	3	15

11. Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12. Course Evaluation				
T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13. Teaching and Learning Resources	
	1- Required textbooks
8- The Practical Basis of Fungi Dr. Abdullah Saleh Hassan 9- The most important medicinal fungi and their diseases, Dr. Karima Amin Al-Khafaji - Dr. Zidane Khalif Al-Maamouri	2- Main references (sources)
	A- Recommended books and references (scientific journals, reports
1- Joanne willey- Prescotts Microbiology 2019 2- Jawetz, Melnick & Adelberg's Medical Microbiology 2019	B - Electronic references, websites...

Course Description of Hematopathology

1) Course name
Hematopathology
2) Course Name/Code
MLT217
3) Available attendance forms
1.Weekly lesson schedule (theoretical and practical). 2.Discussions, scientific seminars, and other extracurricular activities
4) semester/year
Second semester / 2025 - 2026
5) Number of study hours (total) / Number of units
45 hours / 3 units
6) Date this description was prepared
4/9/2025
7) Course supervisor name
Name: Mohsin Hasan Ali e-mail: Mohsinhasan-haw@ntu.edu.iq
8) Course objectives
− Educating and training the student on the basic concepts of hematology and blood examination principles. − Teaching and training students on how to take a blood sample and identify blood components using special methods.

- Teaching and training the student on how to prepare blood sample smears and how to distinguish between abnormal and normal blood cells.
- Teaching and training students on pathological analysis methods used to reach a pathological diagnosis.
- Teaching and training students on how to handle and use different chemical dyes to diagnose blood diseases.

9) Course outcomes, teaching, learning and assessment methods

A- Cognitive objectives

A1- Identify the various devices and analyses available and learn about the different components of blood.

A2- Knowing how to perform special tests and knowing the clinical conditions accompanying these tests.

A3- Identifying and detecting routine blood diseases and their causes using special tests.

B - Course specific skill objectives.

B1 - Gaining knowledge of handling pathological samples, materials and laboratory equipment, and understanding their importance and danger, how to handle them and conduct the necessary medical tests.

B2 - Building and developing students' talents and capabilities in the field of medical analysis and how to use the microscope to examine samples.

B3 - Ensure laboratory safety measures are taken to maintain the safety of workers and the safety of public and private property in the laboratory.

C- Emotional and value-based goals

C1- Training on pathological variables and their relationship to clinical diseases.

C2- Training on how to analyze laboratory results in light of clinical examinations and provide accurate and rapid results.

C3- Training on how to deal with unconscious and elderly patients when drawing blood. C4- Explain and understand the reason for taking a blood sample and not others when conducting medical tests and Ability to archive patient information for future reference.
Teaching and learning methods
Traditional lecture, report writing, conducting seminars, practical training in the laboratory, presenting clinical cases and linking them to the laboratory aspect, traditional lecture, self-learning, feedback, and summer training in hospitals.
Evaluation methods
Daily written and oral tests, practical tests, seminars, midterm and final exams, commitment to assignments, attendance and commitment, feedback (testing the student on the previous topic), self-assessment (questions are posed to the student by the teacher and the student answers the questions, and the teacher answers the same questions and the student is asked to evaluate himself in light of the teacher's answers), reports on scientific developments in the field of specialization, asking analytical and inferential questions.

10) Course structure

Evaluation method	Teaching method	Unit name/topic	Required learning outcomes	watches	week
a test	Lecture, discussion.	Introduction importance of hematology study the blood contains	Introduction to blood diseases with a study of the importance and components of blood.	1	1

a test	Lecture, discussion.	The haematopoiesis in featus, children and adults.	The process of manufacturing (production/formation) of blood cells at different age groups is illustrated.	1	2
a test	Lecture, discussion.	The normal red blood cells, importance. Structure erythropoiesis and function.	The importance of normal red blood cells, their structure and function	1	3
a test	Lecture, discussion.	Polycythemia, causes Clinical Signs and Laboratory diagnosis.	Study of polycythemia vera, its causes, clinical signs, and laboratory diagnosis.	1	4
a test	Lecture, discussion.	Study the red cell morphology in health and disease. Abnormality of RBC in size.	Study of the shape of red blood cells in healthy and diseased individuals, with knowledge of abnormal red blood cell size abnormalities.	1	5
a test	Lecture, discussion.	Abnormality of RBC in shape.	Study of abnormal red blood cell shape.	1	6
a test	Lecture, discussion.	Abnormality of RBC in color.	Study of abnormal red blood cell color defects.	1	7
a test	Lecture, discussion.	The normal Hb. Of the blood, contain and importance	Study the contents and importance of the normal hemoglobin percentage in the blood.	1	8

a test	Lecture, discussion.	Study the types of normal Hb. Types	Study of normal hemoglobin types	1	9
a test	Lecture, discussion.	Common Hb. Variant	Study of the combined hemoglobin substitute.	1	10
a test	Lecture, discussion.	Anemia, definition, classification and types	Study of anemia, its definition, classification and types.	1	11
a test	Lecture, discussion.	Anemia. Causes.clinical signs and laboratory Finding.	Anemia study: causes, clinical signs and laboratory findings.	1	12
a test	Lecture, discussion.	Megaloblastic anemia and pernicious anemia	Study of megaloblastic anemia and pernicious anemia.	1	13
practical control	Lecture, discussion.	Aphastic anemia and hemolytic anemia,	Study of both types of hemolytic anemia.	1	14
a test	Lecture, discussion.	Sickle Cell an. And acquired and autoimmune hemolytic anemia.	Study of sickle cell anemia, acquired and autoimmune hemolytic anemia.	1	15

11) Curriculum Development Plan

- Review of modern scientific literature
- Participation in relevant scientific conferences
- The teaching and training staff are fully dedicated to application and partial work in hospitals.
- Hosting specialized professors
- Academic affiliation with other universities and similar colleges

12) Course Evaluation

T	Evaluation methods	Calendar appointment (week)	degree	Relative % weight
1	Report 1	Fourth week	2.5	2.5
2	Report 2	sixth weeks	2.5	2.5
3	Short Test (1) Quiz	The seventh weeks	2	2
4	Short Test (2) Quiz	The thirteenth week	2	2
5	Short Test (3) Quiz	The fifteenth week	1	1
6	Midterm Exam (1)	Week 6	7.5	7.5
7	Midterm Exam (2)	The eleventh week	7.5	7.5
8	Practical Short Quiz Test (1)	Fourth week	2	2
9	Practical Short Quiz Test (2)	Eighth week	2	2
10	Direct questions and homework	Weeks 9, 10, 11, 12 and 13	4	4
11	Practical midterm exam	The fourteenth week	7	7
12	striving		40	40
13	Final practical exam	Final semester exams	25	25
14	Final theoretical exam	Final semester exams	35	35
	The total	100	100%	100%

13) Teaching and Learning Resources	
Hematology	1- Required textbooks
10- Keohane, Elaine M., Catherine N. Otto, and Jeanine M. Walenga. Rodak's hematology-e-book: clinical principles and applications. Elsevier Health Sciences, 2019 **11- Ciesla, Betty. Hematology in practice. Fa Davis, 2018** **12- Hoffbrand, Victor, et al. Color Atlas of Clinical Hematology: Molecular and Cellular Basis of Disease. John Wiley & Sons, 2019**	2- Main references (sources)
Sternberq surgical pathology Williams Hematology British Journal of Pathology Human pathology journal	A- Recommended books and references (scientific journals, reports, etc.)
Webpath.com	B - Electronic references, websites...

Course Description of Graduation project

1. Course name
Graduation project
2. Course Name/Code
MLT215
3. Available attendance forms
Attendance and Practical Participation in the Laboratory
4. semester/year
Second semester / 2025 - 2026
5. Number of study hours (total) / Number of units
30 hours / 2 units
6. Date this description was prepared
4/9/2025
7. Course supervisor name
Name: Muna Jalal Ali drmuna_hwj@ntu.edu.iq Mohammad Ali Faris mohammedchemist@ntu.edu.iq Hoda Mounir Ahmed Huda.muneer@ntu.edu.iq Falah Hassan Youssef falah86-haw@ntu.edu.iq Omar Sajer Naser omarsajer-haw@ntu.edu.iq Marwan Mahmood Abed marwanmahmood1990-hwj@ntu.edu.iq Mohsin Hasan Ali Mohsinhasan-haw@ntu.edu.iq Rahma Abdullah Hassan Rahma@ntu.edu.iq
8. Course objectives
− Applying the scientific method to investigate problems related to laboratory diagnostics and the quality of medical laboratory testing.

- Developing students' scientific research skills, including the collection and statistical analysis of medical data.
- Enhancing students' ability to use scientific references and prepare technical reports and research papers in the healthcare field.
- Developing students' skills in scientific presentation and discussion of medical and laboratory-related issues.
- Integrating theoretical knowledge with practical applications in laboratory investigations and medical diagnostics.

9. Teaching and Learning Strategies

- Perform laboratory diagnosis of bacterial, viral, and fungal diseases using appropriate diagnostic techniques.
- Extract biological compounds from blood or tissue samples for research and diagnostic purposes.
- Apply appropriate preservation and storage techniques for medical specimens to ensure their integrity and quality.
- Evaluate biological activities, including antibacterial and antioxidant effects, using established laboratory methods.
- Apply both conventional and advanced medical technologies in laboratory diagnosis.
- Develop laboratory products, including diagnostic tools, reagents, and diagnostic test kits.
- Apply appropriate principles for the packaging and marketing of medical products, including diagnostic reagents and laboratory diagnostic tools.
- Manage laboratory units effectively within a sustainable healthcare environment.

Expected Learning Outcomes

- Demonstrate the ability to design and implement an applied project or research study related to medical laboratory investigations or laboratory diagnostics.
- Apply scientific research methods in the collection, analysis, and interpretation of medical and statistical data.

- Demonstrate effective teamwork, organizational, and scientific communication skills while working within multidisciplinary teams.
- Develop practical solutions or innovative products based on laboratory technologies that can be effectively applied in the healthcare sector.

Course Requirements

- Select a project topic with the approval of the academic supervisor.
- Adhere to the approved project timeline and scheduled milestones.
- Submit a written project report and deliver an oral presentation of the project findings.